Alma Mater Studiorum – Università di Bologna

in cotutela con Università di Anversa

DOTTORATO DI RICERCA IN

Scienze e Tecnologie Agrarie, Ambientali e Alimentari

Ciclo XXVIII

Settore Concorsuale di afferenza: 07/A1 Economia Agraria ed Estimo

Settore Scientifico disciplinare: AG/R01 Economia ed Estimo Rurale

ECONOMICS OF VECTOR-BORNE DISEASE PREVENTION – THE CASE OF THE TIGER MOSQUITO CONTROL AND CHIKUNGUNYA AND DENGUE PREVENTION PLAN IN EMILIA-ROMAGNA REGION (NORTHERN ITALY)

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Esame finale anno 2016

Abstract

Aedes albopictus, or Asian Tiger Mosquito, invaded in the last decades a wide area of the world, and is considered one of the most invasive mosquito species, with a very aggressive behaviour and specific aptitudes to infest urban ecosystems. It is also a known vector of important human and animal diseases, and has proved capacity for local transmission of Chikungunya and Dengue within Europe. Growth of international trade and movement of people facilitated its global expansion. This research evaluated public costs related to the implementation of the plan for *Ae. albopictus* control and Chikungunya and Dengue prevention set up in Emilia-Romagna region (Northern Italy), where a Chikungunya epidemic outbreak occurred in 2007, with 217 confirmed cases. The management plan started in 2008 by involving more than 280 municipalities and 4.3 million inhabitants within the region, and its activities mainly target the ecological conditions for the multiplication of infestation hotspots in urban areas, to reduce the probability of rapid and uncontrolled disease spreading in case of outbreaks. The activities include monitoring the infestation intensity, anti-larvae treatments in public and private areas, adulticide emergency treatments to isolate disease outbreaks, information in schools and to citizens, and compulsory good practices. The study accessed to data on the expenditures supported by all the public institutions involved in the implementation of the management plan. Main results include: evaluation of public costs related to some key indicators, analysis of differences in expenditure among municipalities, and correlation between expenditure and socio-economic and environmental factors, as well as recommendations to improve the plan's economic efficiency and management.

During the 8 year's life of the management plan, the public authorities of the region spent at least € 37.7 million for the *Ae. albopictus* control, although the yearly expenditure declined since the € 7.6 million of 2008 to the € 3.1 million of 2015. The larger part of the

economic resources dedicated to the control of *Ae. albopictus* has been used for the larvicidal treatments of the road drains situated in the public areas of the municipalities, by far the most important activity of the plan. The assessment of this expenditure revealed a high level of variability of its costs in the various municipalities included in the plan, not easily explainable only by the territorial and environmental differences among the urban areas. The cost for the treatment of a single road drain varied in a range from ≈ € 0.04 to ≈ € 6.1 among the municipalities in the years of existence of the plan, although the high level of standardization of this activity. A higher correlation has been found between the demographic size of municipalities and the cost of a single round of treatments of the road drains, that excluding the extreme values is equal to ≈ € 0.14. This values may be used to indicate some range of acceptable expenditure for one round of treatment, for the receiving of the regional contributions by municipalities.

The research also attempted a first evaluation of the expenditures incurred by the population residing in the Emilia-Romagna region to protect themselves from mosquito bites. During the pilot phase of a dedicated project called COSFA-T, 57 telephonic interviews were realized to a random sample stratified on the base of the geographic location and demographic size of municipalities, following a structured questionnaire submitted to the interviewed by previously formed personnel of the LHA of Romagna – Cesena and of the Centro Agricoltura Ambiente "Giorgio Nicoli". The mean expenditure incurred for the purchase of products used for the defence from *Ae. albopictus* bites resulted € 18.25 per respondent, with a variance of € 1687.71 and a coefficient of variation by 225%. These results allow an estimation of the sample size needed for the next phase of the research, in order to obtain statistically relevant results that, if confirming the results of the pilot phase, will indicate an expenditure up to € 30 million for the whole region. With a 95% confidence interval, and an accepted error of ± € 3.5, a sample of 529 households is needed. Thus a statistically relevant estimation of the private expenditures for the Ae. albopictus prevention is possible with a limited number of interviews and economic resources.

Acknowledgements

First and foremost I want to thank both my advisors Massimo Canali and Philippe Beutels. Massimo has followed the development of my study from the beginning, advising me every time on how to deal with the subject I chose, and on how to manage a useful relation with the Regional Framework for Surveillance and Control of Invasive Mosquito Vectors and Re-Emerging Vector-Borne Diseases, to which I collaborated during these years. His advice has been fundamental to structure my work and to understand the importance of the Asian Tiger Mosquito control plan of the Emilia Romagna. Philippe started advising me only in the last year of my Ph.D., but his help has been fundamental for the final part of the work, and the time I spent at the CHERMID, the Centre for Health Economics & Modelling Infectious Diseases of the University of Antwerp, directed by him, has broaden my view on the subject of my research and on the possibilities of the assessment.

The members CHERMID group, as well as those working in the Ph.D. on Agricultural, Environmental and Food Science and technology of the University of Bologna, has both contributed immensely to my personal and professional development. I am especially grateful for the time spent in discussing around our research themes, and I cannot explain how the conversations with Adriaan Blommaert, Willem Lander and Yimer Wasihun Kifle, as well as with Joke Bilcke and Hans Niels from the CHERMID, and Cecilia Bellettato, Claudia Giordano, Fabio De Menna, Eva Merloni and Simone Piras from the DISTAL has been important for the realization of this work. I special thanks goes also to Chiara Benassi, who helped me in a particularly hard moment during the writing if this thesis.

This work would not have been possible without the collaboration of the members of the Regional Framework for Surveillance and Control of Invasive Mosquito Vectors and

Re-Emerging Vector-Borne Diseases. A special thanks goes to Claudio Venturelli, Romeo Bellini, Paola Angelini, Marco Carrieri, Carmela Matrangolo and Federica Giovannini, that with their commitment, and the research of the continuous improvement of the strategies for the fight against the mosquitoes, have contributed enormously to the realization of this work. And I cannot forget the important role of the operators that realized the telephonic interviews for the pilot phase of the COSFA-T project, without whose work that part of my thesis would have never exist.

And, last but definitely not least, I want to thank all my family, in Italy and in Belgium, for all their love and encouragement. My parents, who raised me with the love of knowledge, and the interest in everything would improve the human well-being. My brother, who has always supported me, and showed me what willpower can do, my uncle Luis, who has never stopped believing in me, my uncle Teo, who has been an incredible help and support in the months I spent in Belgium, my uncles Pato and Tatiana, always there when I needed, and Pablo, my cousin, who do not know how much he helped me. And most of all I want to thank Livia, whose love, support and encouragement I really appreciated, and has been crucial especially for the last part of this work. Thank you.

Stefano Rivas Morales
Bologna
April 2016

Contents

List of Tables

List of Figures:

List of Formulas:

Glossary

ARPA	(Agenzia Regionale di Protezione Ambientale) Regional Agency for Environmental Protection
AW-IPM	Area Wide – Integrated Pest Management plan
Bti	Bacillus thuringiensis var. israelensis
CAA	Centro Agricoltura Ambiente "Giorgio Nicoli"
CBD	Convention for Biological Diversity
CHIKV	Chikungunya Virus
CREEM	(Centro Regionale per le Emergenze Microbiologiche) Regional Centre for the Microbiological Emergences
CTSS	(Conferenze territoriali sociali e sanitarie) Social and Healthcare Territorial Conference
DAISIE	Delivering Alien Invasive Species Inventory for Europe
DENV	Dengue Virus
DALYs	Disability Adjusted Life Years
DtD	Door-to-Door
ECDC	European Centre for Diseases Prevention and Control
EHI	Environmental Health Interventions
EMCA	European Mosquito Control Association
ERR	Emilia Romagna Region
E-R Plan	Area Wide – Integrated Pest Managemnt Plan of the Emlia-Romagna Region
GP	General Practitioners
IAS	Invasive Alien Species

IHR	International Health Regulation
ISS	(Istituto Superiore di Sanità) Italian National Health Institute
ISSG	Invasive Species Specialist Group
IUCN	International Union for Conservation of Nature
IVM	Integrated Vector Management
IZSLER	(Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna) Experimental Zooprophylactic Institute of Lombardy and Emilia-Romagna
LHA	Local Health Authority
QALYs	Quality Adjusted Life Years
RFCM	Regional Framework for Surveillance and Control of Invasive Mosquito Vectors and Re-Emerging Vector-Borne Diseases
RTCG	Regional Technical Coordination Group
RHA	Regional Health Authority
VAT	Value Added Tax
WNV	West Nile Virus
WHO	World Health Organization
PC	Province of Piacenza
PR	Province of Parma
RE	Province of Reggio Emilia
MO	Province of Modena
BO	Province of Bologna
IM	Province of Imola
FE	Province of Ferrara
RA	Province of Ravenna
FO	Province of Forlì
CE	Province of Cesena
RN	Province of Rimini
Sorbara Union	Union of municipalities: Bastiglia; Bomporto and Ravarino
SM Union	Union of municipalities: Mezzani and Sorbolo

UCMAN	Union of municipalities: Camposanto; Cavezzo; Concordia; Finale Emilia; Medolla; Mirandola; San Felice; San Possidonio and San Prospero
BR Union	Union of municipalities: Alfonsine; Bagnacavallo; Bagnara di Romagna; Conselice; Cotignola; Fusignano; Lugo; Massa Lombarda; Sant'Agata sul Santerno
TdM Union	Union of municipalities: Bagnolo in Piano, Cadelbosco di Sopra, Castelnovo di Sotto

Introduction

The work for this dissertation is basically three-fold. First, I introduce to the phenomena of the invasive Alien Species and to their various impacts in the colonized territories, in order to understand its scope and characteristics, then I analysed the expenditures incurred for the realization of the activities included in the E-R Plan, i.e. the area-wide integrated pest management plan introduced in the Emilia-Romagna region in 2008, after an epidemic outbreak of chikungunya occurred in the region in 2007, and then I described the results of the pilot phase of the COSFA-T, a project aimed at assessing the expenditures autonomously incurred by the households to protect themselves from the Asian tiger mosquito bites.

I decided to address the issue of the mosquito control, and especially of the Asian Tiger Mosquito control in the Emilia-Romagna, as a consequence of the outbreak of chikungunya fever occurred in 2007, which proved the competence of the Asian Tiger Mosquito to vector a tropical disease in the European mainland territory, and consequently highlighted the importance of the management of the mosquito populations to reduce the risk of infectious diseases in Europe.

Many pathogens can be vectored by mosquito species, including those responsible for some of the world most widespread and well-known infectious diseases. Among them we may enumerate the malaria, the yellow fever, the dengue, the West-Nile fever and, as in the Italian case, the chikungunya. The competence for the transmission of the pathogens is differentiated among the mosquito species, strengthening the importance of preventing the entrance of new species, but when a species such as the Asian Tiger mosquito is already settled and well adapted in a territory, the key for the reduction of the risk of the transmission of infectious diseases is to control the spread of the mosquito population,

reducing the number and the density of the adult females, which are responsible for the pathogen transmission through their bites.

The experience of the Emilia-Romagna plan for the control of the Asian Tiger Mosquito is of great importance for the European union, since is in that region where the first outbreak of chikungunya occurred, and because the E-R Plan is the first example in Europe of a capillary mosquito control plan of this dimensions, both in terms of geographic size and in terms of population included, up to 4 million people. The assessment of this plan may give useful information for the organization and management of other similar plans in Europe, or for the management of a continental strategy by the European institutions. The costs of the control plan described here may be used as important indications on the economic resources needed to realize the same activities in other parts of Europe, thus helping in their planning.

The first chapter of the study is dedicated to the description of the theoretical framework of the thesis, both related to the Invasive Alien Species in general (what are the invasive alien species; why there is an increasing global concern around them; and which are their biological, ecological, health and economic possible impacts), specifically to the Asian Tiger Mosquito (the history of its arrival and colonization of some parts of the European territory; the related impacts; and the public health risk due to its presence), and to the issue of the public goods related to the mosquito presence (the weakest link problem; and the Area Wide-Integrated Pest Management approach to the Asian Tiger Mosquito control).

In the second chapter there is a description of the chikungunya outbreak occurred in the Emilia-Romagna region in 2007, and of the response gave by the public health authorities, which managed the outbreak in few weeks. At the end of the chapter is dedicated to the meaning of the outbreak for the European Union, and to the new scenarios of the risk of infectious disease transmission opened by it.

The third chapter is a description of the Area Wide – Integrated Pest Management plan set up in the Emilia-Romagna region after the outbreak, which is still ongoing and is the main subject of this thesis. In the chapter there is a description of the activities realized year by year, from the epidemiological and entomological surveillance to the direct control activities such as the larvicidal treatments and the door-to-door involvement of the population, which has a great role for the effectiveness of the plan.

The fourth chapter is dedicated to the economic description of the control plan. All the activities are assessed, as well as the related expenditure trend. The cost of the activities is analysed both in general for the region and for the Local Health Authorities, in which the territory of the region is split for what concerns the health issues, included the control of mosquitoes potentially very dangerous for public health. Particular attention is dedicated to those municipalities with a developed touristic sector, both along the Adriatic coast and in the interior, for those with important thermal baths.

In the fifth chapter there is a more detailed assessment of the expenditures incurred for the larvicidal treatments of the road drains in the public areas, which is the activity for which is spent the larger part of the financial resources dedicated to the plan. The cost of the treatment of a single road drain is highlighted, as well as the per capita costs for this activity, both for the whole region and for all the Local Health Authorities. Also the demographic size of municipalities is included in the assessment, and the relation between the demographic size of municipalities and the per capita expenditures for a single round of larvicidal treatments.

The sixth chapter is dedicated to a description of the COSFA-T project, which is dedicated to the assessment of the costs incurred by private households due to the Asian Tiger Mosquito presence in the Emilia-Romagna region. The project has concluded its pilot phase, and is described both in its methodology and results, which although not statistically relevant, because of the reduced number of the interviews realized in the pilot phase, are interesting for the continue of the research in the field of the economy related to mosquito control, and specifically related to the control of the Asian Tiger Mosquito.

The seventh chapter is dedicated to the conclusions of the study, and some suggestions around additional efforts to further improve the use of the financial resources in implementation of the activities of the control plan are included. For what concerns both the expenditures incurred by private households and by the public authorities, the importance of the data presented in this study for the realization of control activities in other parts of Europe is highlighted.

At the end of the study three annexes are attached: the dataset used for the assessment of the expenditures incurred for the plan realized by the public authorities of the Emilia-Romagna region, the questionnaire used for the COSFA-T project interviews, and the related dataset built with the information gave by respondents.

1. Theoretical framework: Invasive Alien Species, *Ae. albopictus* and the rational for an Area Wide – Integrated Pest Management plan

1.1. Invasive Alien Species, and increasing global concern

1.1.1. What are the Invasive Alien Species?

Invasive Alien Species (IAS) are living organisms such as animals, plants and pathogens of any species that have been accidentally or deliberately introduced into an ecosystem to which they are non-native, causing a multitude of serious negative consequences, including damages to the environment, to the ecosystem, to the economy and to human and animal health (Blackburn et al., 2014; Convention on Biological Diversity, 2001; Elton, 1958; Pimentel et al., 2001, 2000; Vilà et al., 2010).

The spread of an IAS in a new ecosystem can be the consequence of its transport to a different country or continent, but the boundaries that matters for the IAS concept are not politically but ecologically determined. This means that the invasion, and its consequences, can occur within the same nation, region, or province.

Species of plants, animals, bacteria and viruses have always moved among territories. The majority of them are unable to survive in new and unfamiliar ecosystems, and eventually die off, but some of them resist and manage to adapt, colonizing new lands and producing deep changes in the new host ecosystems (Narščius et al., 2012; Olenin et al., 2011; Sundseth, 2014). Humans have always influenced these shifts, transporting living organism beyond their original range, often being aware of it, or as an unwitting consequence of migration, colonization, invasions and trades.

Although this “human helped” movement of biological material dates back to the origin of agriculture – a number of crops nowadays at the basis of human nutrition, such as rice, wheat and corn, as well as potatoes, tomatoes, tobacco or cotton, are examples of plant species that globally spread following human activities – the number of new IAS has enormously increased in recent years (DAISIE, 2009; Hulme, 2014, 2007; Sala et al., 2000; Simberloff et al., 2013), following the process of globalization. The great increase in mobility of people, goods and services, the rise in economic activity (De Long, 1998), and the enormous demographic growth that doubled world population between 1960 and 2000, dramatically increased the pressure on the environment and ecosystems (Millennium Ecosystem Assessment, 2003), and gave to the IAS problem a global scale generating global changes (Simberloff et al., 2013) of unintended consequences (Convention on Biological Diversity, 2001; Millennium Ecosystem Assessment, 2003; Newcome et al., 2005).

Watching at IAS from this point of view, we can see that although they are natural phenomena, their multiplication is a negative externality of economic activities, imposing real costs on society. Nonetheless this aspect received little attention, probably due to the lack of knowledge on the mechanisms regulating the IAS establishment and spread, and because account for the consequences of their establishment is very hard, and their impacts rarely reflect on market prices, that typically ignore them. This particularity influences the decision making around IAS, and make harder the identification of correct indicators for the impact assessment and the economic evaluation of the consequences of an invasion.

The European Union suffer from a number of established IAS coming from inside and outside its boundaries. Recently the Delivering Alien Invasive Species Inventory for Europe (DAISIE) Project was funded by the European Commission (2005-2008) to create an inventory of IAS that threaten European terrestrial, freshwater and marine environments, in order to develop a first pan-European assessment of the impact of these species on the ecosystem services. It was estimated that around 12,000 alien species are present in Europe, of which around 11-13% are invasive (Vilà et al., 2010). Specifically, the inventory contains 1,094 species with a clear ecological impact, and 1,347 with a documented economic impact (DAISIE, 2009). Significantly, all the EU member States host IAS in their territory, belonging to all major taxonomic groups, with terrestrial invertebrates and

terrestrial plants being the more representative. This highlight the importance of IAS for all the EU territory.

To fill the legislative gap and cope with this problem, in November 2014 EU published a new Regulation on IAS, as foreseen under target 5 of the European Union's Biodiversity Strategy to 2020, and meeting the EU international commitments under the Convention for Biological Diversity (CBD). The Regulation (EU) No 1143/2014 establishes a European framework for action to prevent, minimize and mitigate – when not able to eradicate - the negative impacts of IAS on biodiversity and ecosystem services, on human health or directly on the economy and society (European Union, 2014).

The rational under the regulation is an approach of Integrated Pest management, that includes efforts for the prevention of the entering of new IAS in the European territory, an early warning system to detect the presence of an IAS as soon as possible, a number of rapid measures to take, in order to prevent the IAS from becoming established, and the management of already established IAS – when not eradicable – in order to minimize the negative effect caused, and to prevent it further spread.

1.1.2. Biological, ecological, health and economic threat related to IAS

1.1.2.1. IAS – A broad set of impacts

IAS are considered a major threat to biodiversity, second only to the habitat loss (Convention on Biological Diversity, 2001), and can cause the local extinction of indigenous species or their reduction in number and geographical distribution. They can have major consequences on ecosystem services and the environment, as well as directly on the agricultural and industrial production (Perrings, 2001). IAS can damage native species with competition and predation, through hybridisation or by transferring pathogens and parasites in the new ecosystem. Some species, e.g. mosquitoes and ticks, can act as vectors for pathogens occasionally present or endemically established in the conquered ecosystem, allowing new ways of epidemic transmission that can have huge consequences

for human health (Slosek, 1986). Probably the most challenging aspect of an IAS impact assessment is the broad range of significant consequences of their establishment in a new ecosystem. To account for them an evaluation should comprise not only the direct impacts, but also the network of biological, environmental, health, social and economic interdependencies that characterize them.

1.1.2.2. Impact on Biological Diversity

IAS are a threat to biological diversity in multiple ways, which can encompass the gene, species and ecosystem level. The interaction between native species and IAS can be very complex, involving one, two or more IAS at the same time, making harder the process of understanding by researchers, and consequently weakening the ability of the general public and decision makers to cope with them (Scalera et al., 2012), or can be easy to understand at least on its basics characteristics. An easy understandable example involves feral cats (*Felis catus*), which have been widely introduced to at least 5% of the worlds' 179,000 small and medium size Islands (Nogales et al., 2015a, 2015b), with a known impact on at least 175 different species of vertebrates from at least 120 Islands. Reptiles, birds and mammals are preyed by these felines, which at a global scale are considered responsible for at least 14% of their extinctions, and the main threat to almost 8% of the critically endangered species of reptiles, birds and mammals (Medina et al., 2011).

Ass well as being preyed, native species can suffer from direct aggression, new diseases, interference in the mating or breeding behaviour, or for competition for habitat and food exploitation, as appear to be in the case of the European red squirrel (*Sciurus vulgaris*), that is being replaced by the Eastern grey squirrel (*Sciurus carolinensis*), introduced from North America to Europe less than a century ago (Bruemmer et al., 1999).

Another way of threaten biodiversity is through the hybridisation between alien and native species, which can be a reason for the reduction of genetic variation, the impoverishment of the gene pool, or the introduction of maladaptive genes to a wild population, resulting in weaker or more invasive hybrids (Scalera et al., 2012). In some cases, the biological impact of the IAS can be so large as to determine a deep ecosystem change. Is the case of the Zebra Mussel (*Dreissena polymorpha*), which introduced to the

great lakes of North America have fundamentally transformed their food webs and biogeochemistry (Strayer, 2009) in less than 30 years, with a significant impact on water quality. The long-term, large scale consequences of this invasion are still unknown, but it is considered by the Invasive Species Specialist Group (ISSG) of the International Union for Conservation of Nature (IUCN) to be one of the globally worst IAS, and become an iconic of the IAS (Strayer, 2009).

1.1.2.3. Impact on Ecosystem Services

Following the definition gave by the Millennium Ecosystem Assessment and by the European Environmental Agency, the ecosystem services are the direct or indirect contributions or benefits of ecosystems to human well-being, and are classified in four categories (MA, 2005, EEA, 2010, 2012):

- *Provisioning Services*: products obtained by the ecosystem, such as water, food, timber, fuel, fibre, rocks, genetic resources, drugs or medicines;
- *Regulating Services*: benefits obtained from the regulation of ecosystem processes, such as climate stability (e.g. carbon sequestration, influence of vegetation on rainfall, etc.), soil erosion and soil fertility regulation, natural hazard regulation (e.g. flood control), waste management (e.g. water purification), air quality regulation (e.g. capturing fine dust, chemicals, etc.) pollination or natural pest control;
- *Cultural Services*: non-material benefits obtained from the ecosystem, such as recreational, spiritual, religious and intellectual enrichment; and cultural heritage related to the management of land and its associated biological resources;
- *Supporting*, or *Habitat, Services*: e.g. benefits from the role of ecosystem in ensure photosynthesis and nutrient and water cycling, providing habitat for migratory species, maintaining the viability of gene-pools, and ensuring soil formation.

Ecological changes produced by IAS can influence ecological processes, impact on ecological services, and by this way affect the human well-being related to those ecological services. The impact of the IAS can be on a specific ecosystem service, as in the case of animals that feed on horticultural plants, thus reducing production and impacting on provisioning ecosystem services (e.g. the Spanish slug, *Arion vulgaris*), or at the same time on many ecosystem services. The latter may occur when, as we have seen before, an IAS have a huge impact on biological diversity, altering species composition, habitat availability, nutrient cycling, primary production or other important biological aspect. An example of an IAS which once spread outside the original boundaries produced this dramatic consequences is the already mentioned zebra mussel, which can modify supporting, regulating and provisioning services in aquatic ecosystems (EEA, 2012).

1.1.2.4. Impact on Public Health

IAS may be a direct threat to human health, as in the case of the skin lesions produced by the contact with the giant hogweed (*Heracleum mantegazzianum*) sap, and in the case of the allergic reactions produced by the pollen of the ragweed *Ambrosia artemisiifolia* – one of the mayor globally known causes of allergic rhinitis – or represent an indirect threat, as in the case of the mosquito *Ae. aegypti*, the principal mosquito vector for dengue viruses (Jansen and Beebe, 2010), and the principal urban vector for yellow fever virus (WHO, 2014). An IAS spreading in a new ecosystem can become the first vector of a pathogen previously unknown in that territory, because not transmittable, or a new vector for an already transmittable pathogen, fostering its transmission potential. In both cases there is an impact on human well-being.

1.1.2.5. Impact on Economy

IAS produce significant impacts on huge range of economic activities, e.g. directly damaging agricultural production or any kind of productive infrastructure, reducing aesthetic value of a landscape, or damaging commercial activities linked to the recreational

ecosystem service of an urban park or a forest. The socio-economic consequences of these impact may be very large, as in the case of the already mentioned zebra mussel, that is able to damage production activities by fouling of intake pipes, vents and any kind of hole or opening reached be water flows, ship hulls, navigational constructions and aquaculture sites. Another example is the Red palm weevil (*Rhynchophorus ferrugineus*), also known as Asian palm weevil and Sago palm weevil. This snout beetle is destroying a large numbers of palms, damaging date production (Hussain et al., 2013) and at the same time literary changing urban landscapes (EEA, 2012).

The economic impact of an IAS may be also considered a consequence of its impacts on biological diversity, ecosystem services or human (or animal) health. Biological changes can produce ecosystem service loss, damaging human activities and human well-being in a huge number of ways. Impact on human health are also economic impacts, because of the expenditures for the recovery, medicine, hospitalization and so on, no matter if they are sustained by the general public health system or by private people. Also the loss in productivity due to the time unable to work, or to the time spent to help someone of the family with health problems, to carry him to the doctor or to the hospital, etc., should be considered as economic impacts of IAS.

These latter considerations highlight the interconnections between the different aspects of damages produced by the IAS, and the need for assessments that consider all these aspects together, for a better understand of the real impact or risk relative to the IAS, and consequently to give better and more comprehensive information to policy makers.

1.2. History and impact of the *Ae. albopictus* invasion

1.2.1. Arrival and European geographical expansion of *Ae. albopictus*

The Asian Tiger Mosquito (*Aedes albopictus*, Skuse 1894) is an IAS originated in the forests of South-East Asia. It has become far more widespread over the last three decades and is now considered the most invasive mosquito species (Buhagiar, 2009), ranking also in the top 100 of invasive species of any kind (ISSG, 2009). It currently resides in temperate and tropical Asia, most of the Pacific Ocean Islands, South and Central Africa, South America as well as parts of North America and Southern Europe (Benedict et al., 2007; Paupy et al., 2009; Sambri et al., 2008), and adapted itself to live in urban and suburban environments, breeding mostly in man-made containers of any kind. The increasing international movement of people and goods in the last decades has been determinant for the global expansion of this mosquito species (Paupy et al., 2009; Reiter and Sprender, 1987), as it has been in general for the growth of the IAS phenomena described above.

The *Ae. albopictus* was probably introduced in Europe through the trade of used tires (Dalla Pozza et al., 1994; Reiter and Sprender, 1987), which easily hold still water, and serve as perfect mosquito breeding sites (Carrieri et al., 2011b; Lounibos, 2002). In recent years, routine inspections of the Dutch National Protection Service (NPPO) in some companies importing Lucky bamboo (*Dracaena sanderiana*) from southern China (Guangdong and Guangxi Provinces) reported the presence of *Ae. albopictus* in greenhouses of the Netherlands (Scholte et al., 2007). Further investigations revealed that the importation of Lucky bamboo has worked as a *lift*, as well as the importation of used tires carried the tiger mosquitoes' eggs to Italy some years before. It is unclear, however, if the *Ae. albopictus* will be able to settle in the outdoor climatic conditions of the Netherlands, and how long it would take.

In mainland Europe the Asian Tiger Mosquito was first detected in Albania in 1979 and subsequently in Italy in 1990 (Sabatini et al., 1990), while the first Italian local breeding site was found in 1991 (Dalla Pozza & Majori, 1992). It is highly probable that the infestation was a result of the importation of used tires from the United States of America

(Dalla Pozza et al., 1994), highlighting both the importance of global trade and the global scale of the invasion. The favourable climatic conditions in Italy allowed the eggs deposited in the used tires to complete the life cycle and become adults *in situ*, starting the progressive colonization of the Italian territory.

In Italy, guidelines for the control of the invasive mosquito species were issued by the Ministry of Health in 1994. *Ae. albopictus* was first reported in Rome in 1997, and in 1998 it was already established in 22 Italian provinces in nine different regions. The invasion of the Italian peninsula continued in the later years, and Italy is now the European state with the higher presence of the insect, with the majority of its territory that has been colonized, excluding for the areas with elevate altitude of the mountainous territories.

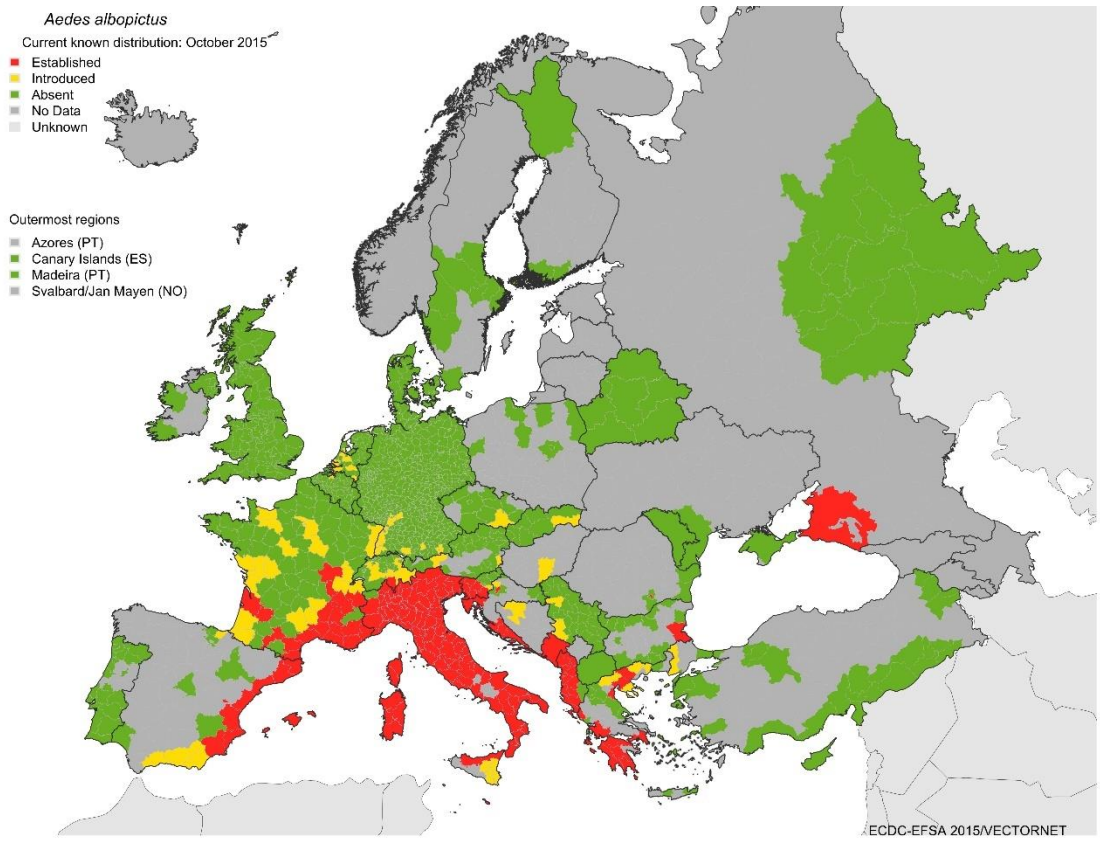
The *Ae. albopictus* is now widespread in the European continent (Figure 1), with areas of establishment in Spain, Southern France, Southern Switzerland, Italy, Slovenia, Croatia, Montenegro, Albania, Greece, Bulgaria, and Romania, and areas of new detections in Central and Northern France, Belgium, the Netherlands, Germany, Central and Northern Switzerland, the Czech Republic, Slovakia, Austria, Hungary, Bosnia and Herzegovina, Serbia, Turkey, and Caucasian Russia (European Centre for Disease Prevention and Control, 2015).

Projection on its future possible spread in Europe indicates that climate suitability will increase in a remarkable number of regions where *Ae. albopictus* it is not yet established (Fischer et al., 2014). The built models on these future possible scenarios differ each other and are hardly to compare due to differences in the modelling approach and variables considered, but with a certain margin of uncertainty some general tendencies around the European territory may be found. In particular, from three different models (Caminade et al., 2012; ECDC, 2009; Fischer et al., 2011) we can see that at least some parts of Western Europe, especially France, Belgium, Luxembourg and Hollande, will provide friendly climatic conditions for further spread of *Ae. albopictus*, and also some parts of Central Europe and Southern United Kingdom may be invaded by it (see also Medlock et al., 2006). On the other side, some part of Southern Europe, and in particular of Spain, will be less suitable, due to the increased expectancy of drier conditions during summer months.

However, there are also important differences between projections, e.g. in France, Germany, certain parts of Italy and of Spain. In general, the predictive models are more

sensitive to uncertainties relative to precipitation than to temperatures, and most of them, excluding Fischer *et al*., 2011, limit the time frame of published results to the middle of the XXI century. During these decades, we should expect a northward spread of *Ae. albopictus* in the West and North of Europe, while in the second part of the century Fischer et al. projections indicate that climate will become suitable also in Eastern Europe. Besides the North, West and East further spread, increasing temperatures will probably allow an increase in the altitude reachable by the mosquitoes, how we have already seen for the Alpine region of the Northern Italy (Roiz et al., 2011).

Figure 1: European current known distribution of Ae. albopictus – October, 2015



1.2.2. *Ae. albopictus* – Impact on Biological Diversity

In Europe, the spread of *Ae. albopictus* may had a role in the decline of *Ae. aegypti*, probably because of its superiority in larval interspecific competition in man-made breeding containers, although there is no evidence of this interaction, and is believed that eradication efforts also played a fundamental role (Juliano & Lounibos, 2005; Simberloff & Gibbons, 2004). The different behaviours relative to the hatching delays and mating interference are also supposed to play a role as well as other variables including temperatures, rainfalls, and humidity, to which the species survival rate react in different ways (Juliano and Lounibos, 2005).

Ae. albopictus invasion may also affected *Culex pipiens* spp. population, to which it is strongly superior in interspecific larval competition, and with whom it commonly shares man-made breeding containers (Carrieri et al., 2003). The fact that *C. pipiens* larvae develop also in aquatic habitats not suitable for *Ae. albopictus*, may have functioned as a limitation for the impact of this competition on its population density and distribution. The larvae of other mosquito spp., such as *Ochlerotatus triseriatus* and *Ae. japonicus*, also suffered from *Ae. albopictus* competition (Armistead et al., 2008; Bevins, 2008).

These interactions are interesting also because of the importance of these species as vectors for different human pathogens. As already seen, *Ae. aegypti* is the main vector for Dengue fever, and is also capable of transmitting Yellow fever and other diseases, while *C. pipiens* is a highly competent vector for West Nile fever, among birds – its favourite prey, and amplification host – and from birds to humans, a dead end host (Eldridge et al., 2000; Juliano & Lounibos, 2005).

It is important to highlight that little is known with a high degree of certainty, and that interactions among *Ae. albopictus* and other mosquito species vary in time and space, and depend on a huge range of local conditions and other species interactions. For example, as we have seen above, there are consequences of *Ae. albopictus* invasion on *C. pipiens* and *Ae. aegypti*, and these have been studied, but which direction each ecological process will take have not a single answer, and depend also on the evolution of locally adapted life history traits of mosquitoes populations (Juliano and Lounibos, 2005).

1.2.3. *Ae. albopictus* – Impact on Ecosystem Services

If the gain or loss from the biological impact of *Ae. albopictus* is not completely clear, e.g. because is not easy to evaluate if the displacing of *Ae. aegypti* (the dengue and yellow fever mosquito) is a net gain for public health, the impact of *Ae. albopictus* on the ecosystem services appear to be more evident, but it has been rarely investigated. The category that suffers a greater impact is that of cultural services. To understand it, the biting behaviour of *Ae. albopictus* deserves to be deepened, because it has an important influence on the nuisance produced. Differently from the *Culex pipiens* and other endemic species of Italy and Europe, *Ae. albopictus* is an aggressive diurnal biter, only partially active in the crepuscular and nocturnal hours. Because of that, protection from bites during the night, using window nets or bed nets, is clearly inefficient for *Ae. albopictus* bites. The level of nuisance suffered during a Sunday walk, or during any type of activity in a park, garden, wood or green area, can be very high (Halasa et al., 2014; Ratigan, 2000), thus making it unbearable, or forcing people to use a high quantity of personal repellents, with an economic impact and a possible health impact due to the chemical products contained. The reduction in the use of green areas has a direct impact on the quality of life and human well-being. For example, if the use of a park is reduced because of a high density of *Ae. albopictus* mosquitoes during the afternoon, its recreational and spiritual benefits are reduced. If a religious community use a park to make some kind of ceremony in open air areas, and some people do not go because of the excessive harassment perceived, the religious benefits are reduced. The same point of view may be used for any kind of cultural benefit that should be provided by the green areas ecosystems, which at high density of *Ae. albopictus* are damaged.

Attempts to evaluate the impact of *Ae. albopictus* invasion on residents' well-being and quality of life has been rarely done, and the obtained results quite astonishing. Curcó et al. used a questionnaire for a survey on 309 users of a healthcare centre in Spain, founding that 61% of respondents suffered from bites attributed to this insect, with very intense Itching in the 65% of the interviewed, sometimes causing blistering lesions or bleeding (Curcó et al., 2008). Halasa et al. found that the 59.5% of the residents in two counties in New Jersey, U.S.A., were to some extent prevented from enjoying their outdoor activities,

and the indicated rate for mosquito acceptability during the summer (the research has been carried on in 2010) was comparable to living with up to two risk factors for diabetes (e.g. abdominal obesity and history of cardiovascular disease), or women experiencing menstrual disorders (Halasa et al., 2014). In the same research the importance of enjoying outdoor activities without mosquitoes has been rated comparable to that of neighbourhood safety, and higher than that of a clean neighbourhood, while the decrease in the utility, due to mosquito presence, was rated comparable to the loss from worrisome health risk factors (Halasa et al., 2014). In another research relative to South-eastern Virginia, U.S.A., *Ae. albopictu*s resulted negatively influencing the daily activity of the 33.3% of the residents, while the nuisance produced by bites deterred from going outside, or forced in, respectively the 47.4% and the 57.1% of respondents (Ratigan, 2000). Other two researches conducted in the Upper Rhine Valley, Germany (von Hirsch & Becker, 2009), and in Wisconsin, U.S.A. (Dickinson & Paskewitz, 2012), assessed the residents' willingness to pay for control activities targeting mosquito nuisance, highlighting that its reduction was considered of higher value than reducing the risk of infectious diseases or realizing public activities to improve the local economy.

Studies that tried to define the perceived level of nuisance, namely the level of harassment produced by the *Ae. albopictus* bites – which knowledge should help in the assessment of the ecosystem loss, and consequently the well-being and economic damage – found that it depends not only on the density of adult mosquitoes in a given place or in a given time, nor on the quantitative number of human bites in a prefixed period, but is determinate also by socioeconomic and psychological factors (John et al., 1987; Morris & Clanton, 1992, 1989), and is extremely variable in time and place (John et al., 1987; Morris & Clanton, 1988; Read et al., 1994).

A tolerance threshold, or human annoyance threshold, for *Ae. albopictus*, defined as the highest biting density that most citizens in a community find tolerable (Carrieri et al., 2008), may be a useful tool both to deepen our knowledge on the consequences of *Ae. albopictus* invasion for human behaviour, and to improve the control activities for the insect. In fact, in major mosquito control programs in Italy, tolerance thresholds are used to start the adulticiding activities (Carrieri et al., 2008). A threshold should be based e.g. on the number of females captured in a given time using CO2-baited traps (Carrieri et al.,

2008), or the number of Human Landing Collections, or the number of eggs in the ovitraps, etc.

1.2.4. *Ae. albopictus* – Impact on Public Health

The introduction and spread of *Ae. albopictus* pose some serious risks to European public health, due to its ability to vector a wide range of human and animal arboviral diseases, filarial worms and protozoa (Estrada-Franco and Craig, 1995). Its feeding behaviour bring the Asian Tiger Mosquito to bite on a large variety of mammals – including humans – reptiles and birds, with the potential of entering into sylvan zoonotic cycles and bring transmissible zoonotic diseases to humans (Estrada-Franco and Craig, 1995). In fact, *Ae. albopictus* has been identified as a main vector of the Chikungunya Fever's virus (CHIKV) after the 2005-2007 outbreaks occurred in the Indian Ocean Islands (Reiter et al., 2006; Vazeille et al., 2007) and in Italy in 2007 (Bonilauri et al., 2008; Paupy et al., 2009; Sambri et al., 2008), and it is a well-known vector for the four Dengue virus (DENV) (Shroyer, 1986), ranking second for vector competence only to *Ae. aegypti*, the known DENV primary vector (Guzmán and Kourí, 2003). In laboratory conditions Ae. albopictus has been proven to be a competent vector of seven alphaviruses, including Chikungunya, Eastern Equine encephalitis and Ross River viruses, eight bunyaviruses, including La Crosse and Rift Valley Fever virus, and three other flaviviruses in addition to Dengue virus: Japanese encephalitis; West Nile and Yellow Fever virus (Benedict et al., 2007) and these, as well as dengue virus, transovarially to its offspring (Estrada-Franco and Craig, 1995).

Sequence analyses of the CHIKV genome revealed that the replication capacity of the virus in the tissues of *Ae. albopictus* has been improved by a relatively recent single adaptive mutation in the viral envelop gene – i.e. substitution of the amino acid alanine with valine "A226V" in the position E1 of the capsid glycoprotein – that increased the ability of the CHIKV mutated strain to infect *Ae. albopictus* (Bordi et al., 2008; Tsetsarkin et al., 2006, 2007; Vazeille et al., 2007). This mutation should have contributed to the increased global frequency of Chikungunya outbreaks during the last decades, and seem to have played a role, at least, in the epidemics occurred in Kenya (2004), in Comoros (2005), and La Reunión (2005-2006) (Schuffenecker et al., 2006; Tsetsarkin et al., 2007) where

approximately one third of the population was affected (Gérardin et al., 2008; Renault et al., 2007). The recent involvement of *Ae. albopictus* in localized transmission of CHIKV in Italy and France (ECDC, 2014; Gould et al., 2010), and of DENV in France (La Ruche et al., 2010) and Croatia (Gjenero-Margan et al., 2011), rises fears about future possible epidemics accompanying the progressive expansion of the Asian Tiger Mosquito in temperate and cold-temperate regions (Liumbruno et al., 2008; Tomasello and Schlagenhauf, 2013; Tsetsarkin et al., 2007), and highlight the danger to human health constitute by this IAS.

As we will see in the next subchapter, these are not the only reasons of concern for the human health. We should add a number of consequences of the invasion on the human well-being, due to the reduction in the possibility of enjoying ecosystem services, if the *Ae. albopictus* population density is too high. The association between health and human well-being is well explained in the definition of health gave by the World Health Organization (WHO): *a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity* (WHO, 2000). This definition highlights the importance of the interconnections between the ecosystem services, the human well-being and the human health, that I will further analyse in the following.

1.2.5. *Ae. albopictus* – Impact on Economy

Ae. albopictus impacts on the economy in a number of different ways, that may be linked to the health problems caused by its vector ability, or to the consequences on human behaviour of its daytime biting activity, while the economic consequences of the biological impacts are not clear. As we have seen, the balance between gains and losses from the competition with other mosquito species need further investigation.

Attempts to understand the economic impact of *Ae. albopictus* spread in a defined territory, a region, Island or country, has been done, but as far as I know any study has captured the whole range of economic damages concerned.

Some studies concentrate on the impact related to the health damages, estimating the direct and indirect medical costs of the illness. For example, Soumahoro *et al*. assessed the cost of the chikungunya epidemic on La Reunión Island in 2005-6 – which affected 38.2%

of the population (Gérardin et al., 2008) – estimating the medical costs of the epidemic as € 43.9 million, of which € 26.5 million due to direct medical costs (drugs, additional reimbursement for consultation with general practitioners, and hospitalizations) and € 17.4 million relative to indirect costs due to the productivity loss (days without working) (Soumahoro et al., 2011).

Other studies used contingent valuation methods to cope with the problem of evaluating non-material (intangible) costs, mostly related to a reduction in the well-being do to an ecosystem service loss. For example, Halasa *et al.* estimated the perceived monetary benefits for the improvement of a mosquito control program in two counties – with an overall population of 1.01 million residents – of New Jersey, U.S.A., in $9.61 million annually, 3.67 times the 2008 annual spending for the counties' existing mosquito management program (Halasa et al., 2012). Two years later Shepard *et al.* – with Halasa among the authors – published a study (Shepard et al., 2014) with an economic evaluation of the Area Wide – Integrated Pest Management plan (AW-IPM), active for the same two counties in New Jersey. They found that the number of hours lost for porch and yard activities, due to mosquito bites, between the base year and the AW-IPM intervention years (2009-2011), declined by 3.30 hours per week during the summer period, and based on the residents' evaluation of this improvement, they calculated in $314.63 per adult the net gain due to the control activities. The net benefit-cost ratio of the plan resulted 8.64, meaning a net gain in additional time for yard and porch activities valuable worth over $8 for each dollar spent on AW-IPM activities.

Both studies used residents' contingent valuation methods to shed light on the intangible impacts of the invasion in areas where the perception of epidemic risk is reasonably low, in absence of an epidemic outbreak experience, and so the impact should be attributable in its major part to the nuisance problem.

The expenditures incurred for prevention measures against bites may be an additional way to assess the value given by residents to a reduction of mosquito nuisance. This is valid both for the public programs decided by public authorities, and for the expenditures incurred by residents in a private form. Relative to the above mentioned Island of La Reunión, in 2012 Thuilliez *et al.* undertook a study (Thuilliez et al., 2014) in order to understand how public perception and behaviour was affected by the *Ae. albopictus* infestation, and to estimate residents' private expenditure. The study, carried on a few years

after the 2007 chikungunya epidemic, found that the threat of a new epidemic outbreak was associated with an increase in the expenditure for protective measures, and that the overall household expenditure over a one-year period was $28.05 million, for an estimated population in 2009 of about 816,360 inhabitants. Unfortunately, it was not possible to capture the whole value of the total public expenditure on mosquito prevention and control in the Island, due to fact that numerous authorities/entities are involved in the pest management, playing some role in the reduction of the mosquito density (Thuilliez et al., 2014).

Some different approach use complex indicators that mix quantitative and qualitative information on health, such as the Disability Adjusted Life Years (DALYs) and the Quality Adjusted Life Years (QALYs), to understand the impact on human health. Both indicators can describe morbidity and mortality associated to a chikungunya epidemic within a single number, allowing a better estimation of the burden of the disease and comparisons across populations, diseases and interventions. In a study published in 2009, Krishnamoorthy *et al*. (Krishnamoorthy et al., 2009) used DALYs to estimate the epidemiological burden of a major chikungunya epidemic outbreak, occurred in India during 2006. Their results, although not including mortality data, estimated the impact of the epidemic in 45.26 DALYs per million, and the overall impact of the epidemic in 25,588 DALYs, with an important differentiation among the various Indian states. The authors also estimated a productivity loss, intended in terms of income foregone due to the illness, in a minimum of Rs. 391 million, approximately € 5.35 million at the January 2016 exchange rate. The same approach was used by Yaseen *et al.* (Yaseen et al., 2012) for an estimation of the DALYs due to the 2005-2006 chikungunya epidemic outbreak of La Reunión Island, with very different, and higher, results. Yaseen *et al*. estimated an average disease burden of 65/73 DALYs/1000 population – approximately 1,500 times higher than the DALY rate estimated by Krishnamoorthy *et al*. for the Indian case – and an overall impact of approximately 55,000 DALYs. Reasons for these huge differences has been suggested directly by Yaseen *et al*. as the absence of mortality data for the Indian estimation, and higher values for the disability data used in La Reunion case (i.e. longer duration of the chronic phase, and higher proportion of chronic patients). The difference in the relative burden should be also attributed to the higher prevalence of la Reunión epidemic (more than 38% versus less than 0.12%), while further studies are needed to clarify how much of these differences are

attributable to the different main vectors during the outbreaks, *Ae. aegypti* in India, and *Ae. albopictus* in La Reunión Island.

These different methods capture diverse aspects of the impact related to the invasion, but any off them is able to account for all of them together. Moreover, there are other costs not estimated in any of them. The impact on tourism, for example, which, at least during or after an epidemic outbreak, may be significant, or the impact on economic activities which existence rely on a suitable environment for humans, i.e. an environment with a mosquito density below a tolerance threshold. Restaurants, bars, chiringuitos and any other open air activity, may be damaged together with hotels and the whole touristic sector. A working paper by Mavalankar *et al.* of the Indian Institute of Management (Mavalankar et al., 2009), estimated that the impact of chikungunya and dengue epidemics on tourism revenues may be very important, and should not be ignored when calculating the burden of these diseases, although their data was insufficient to make more than a preliminary estimation. Another impact rarely assessed is that on animal health, and in particular on pets' health, that directly influence the expenditure and the well-being of its owners. In particular, *Ae. Albopictus* is a known vector of the dog heartworm *Dirofiliaria immitis* in south-east Asia and south-eastern U.S.A., and of both *D. immitis*, and *Dirofiliaria repens* in Italy (Cancrini et al., 2003a, 2003b), causing expenditure for veterinary medicine, and for prevention activities related to pets' health.

1.3. Public goods, the weakest link problem and the Area Wide – Integrated Pest Management approach to *Ae. albopictus* control

1.3.1. A mosquito density below epidemic and tolerance thresholds – a Public Good perspective

As we have seen, the *Ae. Albopictus* invasion may have a huge range of impacts, as typical for many IAS. A useful way of approaching the whole consequences of this biological invasion may be to consider an environment free of *Ae. albopictus* – or the reduction of its population density below an epidemic risk threshold, a tolerance threshold, or a combination of both – as a natural resource, or a public good. The damage to this public good (i.e. a mosquito population density over the thresholds) directly impact on a number of other public goods, ranging from public health (human and animal) to the cultural ecosystem services provided by parks, woods and green areas, in urban and suburban environment. The damage to these public goods may consequently have an economic impact, relative to medical and veterinarian cares, and to economic activities linked to the availability of an environment with an acceptable mosquito population density. The impacts on public health, as well as on the ecosystem services, should heavily weight on the decision making around the public efforts for the eradication or control of the mosquito density, and for the households' decisions making around private expenditure for prevention of mosquito bites.

The expenditures incurred for personal, or family, preventive measures, and the expenditures incurred for public management plans for mosquito control, should be assessed considering its beneficial influences on the negative impacts, in order to understand its real net costs, or net gains, for the society. As I am going to explain in the next subchapter, if any control activity may be assessed investigating the whole range of its effects, for the control of a pest such as the mosquito *Ae. albopictus*, the suggested control methods bring together various type of activities, which combined effect determine the effect of the control program.

1.3.2. Mosquito control activities: The weakest-link problem

Maintaining an environment with a density of biting *Ae. albopictus* mosquitoes below a tolerance threshold, as well as below a risk threshold, may be intended as a "weakest-link" public good (Hirshleifer, 1983; Perrings et al., 2002). This means that efforts made by each actor involved to contain the invasion influence each other, and the least effective actor will determine the overall level of protection.

Translated for the mosquito control activities, the weakest-link problem means that that the efforts made in a defined territory, for example a municipality, a province or a region, may have their results strongly limited if a neighbouring territory do not apply the same control measures. But it also means that the efforts made within a certain territory or community, for example a municipality or a part of it, will result deeply damaged if the backyard of one or some of the householders is not controlled, and the control activities not carried on.

This kind of situation encourage maverick behaviours, giving more importance to the public sector and enhancing the importance of multi-level territorial coordination for the containment plans, as well as for the community awareness and participation. A coordination assured by public authorities is better suited to ensure that the activities will be carried on systematically, minimizing the presence of weaker links. Moreover, the weakest-link problem adds an extra motivation for the importance of the *Area Wide* scale of the AW-IPM plan, and stresses how larger institutional entities, such as the European Union, are those appointed to give the guidelines for the activities, that smaller institutions should follow. At the same time, the impossibility for the public institutions to reach the totality of the private areas gives inestimable value to the direct action of individuals, associations building managers, etc. which need to be thoroughly familiar with AW-IPM principles and actions in order to synergistically act for the mosquito control.

1.3.3. Mosquito control activities: Area Wide – Integrated Pest Management

The mosquito control strategy suggested by the World Health Organization (WHO, 2004, 2012, 2013), by the European Centre for Diseases Prevention and Control (ECDC, 2012) and by the European Mosquito Control Association (EMCA & WHO, 2013), is a combination of vector control methods, multi-diseases approaches and inter-sectorial collaboration, with an evidence-based decision-making process capable of improving the vector control system and strengthening the ability of reducing its population. This approach has received different names, e.g. Integrated Vector Management or Pest Control Management, and Area-Wide Integrated Pest Management (AW-IPM), which I chose to use in this work. The AW-IPM analysis the ecology and life cycle of the target mosquito and its interactions with humans and man-made environments, and uses this information to minimize its impacts. The use of the terms *Area Wide* highlights the fact that the biological and ecological characteristics of the mosquitoes requires a large scale (Area-Wide) approach of the control activities, in contrast to the field to field operations, and the IPM approach should involve public authorities at all levels, from local to regional, national and international, combining a centrally managed top-down approach with a strongly built bottom-up methodology, requiring long-term commitment and consistency.

The AW-IPM approach for mosquito control – developed in response to the low effectiveness of field to field interventions for the control of highly mobile pests, such as *Ae. albopictus*, and to preserve local ecosystems and human (and animal) health threatened by the massive use of pesticides, as well as to minimize the development of insecticide resistance by the target mosquitoes (Hendrichs et al., 2007) – aims at improve the cost-effectiveness and efficacy of the pest control, and its main goal is the reduction of the population density of adult females of *Ae. albopictus* below acceptable risk and tolerance thresholds, with acceptable ecological, biological and health costs.

An AW-IPM plan should include surveillance (monitoring) activities, tailor-made controls, surveillance and removal of potential and active breeding sites, public awareness and participation, balance of aquatic ecosystems (with natural predators for mosquitoes at all development stages, such as fish and invertebrates), personal protection methods, and

the use of chemical and biological control agents for larvae, pupae and adult life stages (EMCA & WHO, 2013). All the available mosquito control technics may be used, taking care of the balance between control effects and ecological and health impacts.

Particular importance is given to the community awareness and participation, especially for the identification and removal of potential water holding containers in their residences, the *Ae. albopictus* primary breeding site (Bartlett-Healy et al., 2012).

The goals and objectives of a well-organized AW-IPM are summarized by the Regional Framework for Surveillance and Control of Invasive Mosquito Vectors and Re-Emerging Vector-Borne Diseases, a partnership built by WHO, ECDC and EMCA – around which I will further explain on chapter 2.2.2. – and indicated as its main goals and objectives (WHO, 2013):

- Prevent the introduction of invasive mosquitoes into the Region;
- Prevent the spread of invasive mosquitoes, especially into new areas;
- Prevent outbreaks of dengue and chikungunya fever and reduce the risk of their transmission in areas where invasive mosquitoes have become firmly established;
- Improve entomological surveillance and monitoring of invasive species of mosquito;
- Improve surveillance and control of dengue and chikungunya viruses;
- Improve disease management and thus reduce morbidity and mortality due to dengue and chikungunya.

Highlighting the need for particular procedures, decision-making criteria and principles, the Global Strategic Framework for Integrated Vector Management of the WHO identified five key elements for a successful implementation of an Integrated Vector Management (IVM) plan (WHO, 2004):

- **Advocacy, social mobilization and legislation.** Promotion of IVM principles, regulatory and legislative controls for public health and empowerment of communities;

- **Collaboration within the health sector and with other sectors**. Optimal use of resources, monitoring and communication; subsidiarity in planning and decision-making;
- **Integrated approach.** Use of all available resources for the integration of non-chemical and chemical vector control methods with other disease control measures.
- **Evidence-based decision making.** Adaptation of the strategies to local epidemiology, ecology and resource availability, guided by operational research routinely evaluated;
- **Capacity building.** Development of adequate human resources, training and careers, essential physical infrastructure and financial resource at national and local level to promote capacity building and manage IVM programmes;

The use of IVM terminology by the WHO rely on the need for the differentiation of the control of vector species, a particular kind of pest, and agricultural pests. The IVM approach have the same attention to the ecological and environmental sustainability than the IPM do, and both share the general principles, and agree on the fact that the health sector alone cannot ensure an effective control of pests.

AW-IPM plans related to the control of a vector such as *Ae. albopictus* may be included in the category of Environmental Health Interventions (EHI), together with improving sanitation and hygiene practices, food safety and poison control, reduced exposure to air pollution, ensuring safe drinking water, solid waste management, improved traffic safety and noise reduction, improved occupational health and safety, etc. This inclusion deepen the understanding of the complex inter causal relations existing between mosquitoes, humans, the environment and the ecological system, as well as the cross-sectoral aspects among human, animal and environmental health.

As we will see in the next chapters, the *Ae. albopictus* management set up by the Emilia-Romagna region in Italy after the 2007 epidemic outbreak of chikungunya is to all effects an AW-IPM plan, systematically realized in a territory with a considerable size of 22,453 km^2, and a population of approximately 4.45 million residents. Its assessment is of

particular interest mostly due to the availability of highly detailed data on its organization and costs.

2. The Emilia-Romagna Chikungunya epidemic outbreak of 2007

2.1. A chikungunya epidemic outbreak in the European mainland territory

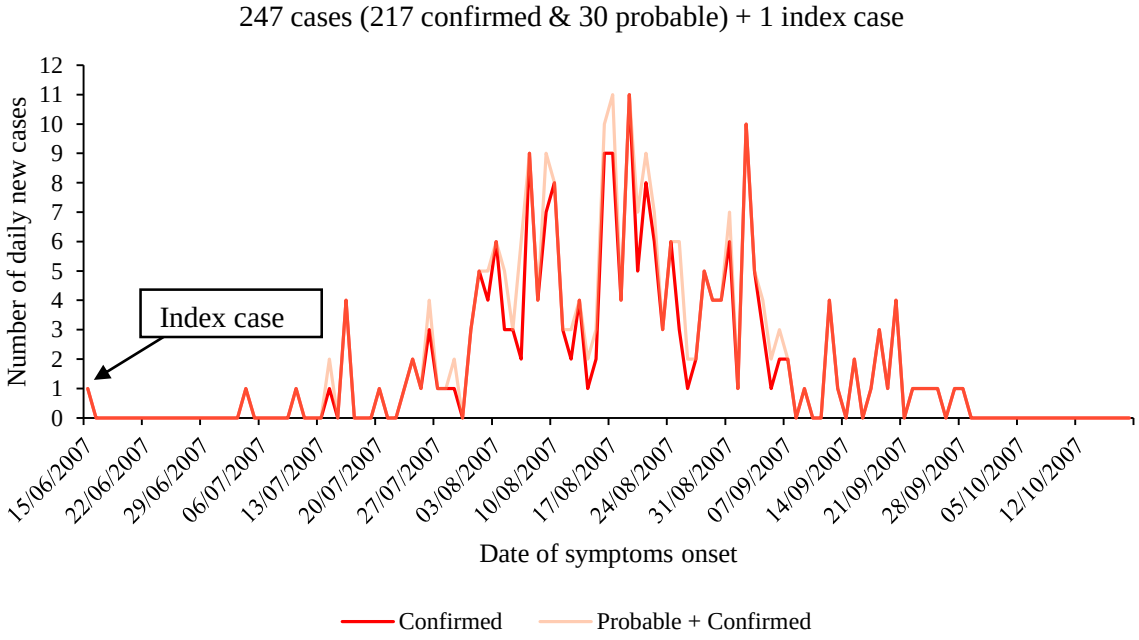
The first documented outbreak of chikungunya in the European mainland territory occurred during summer 2007 in Emilia-Romagna, a north-eastern region of Italy (hereafter "ERR"), situated between the 43th and 45th parallel north, and the 9th and 12th meridian east. The climate of the region is generally temperate sub-continental, with very hot and humid summers, and long and cold winters, except for the eastern part, which, along the Adriatic coast, has a Mediterranean climate. Approximately half of the ERR territory, corresponding to its northern part, is a plain – part of the Po river valley – while the rest is composed by hills (27.1%) and mountains (25.1%), this latter being the only part of the territory free from the *Ae. albopictus* infestation.

The survival and settlement of *Ae. albopictus* at this latitude has been possible thanks to its capacity to overwinter in the egg stage, entering in a state of hatching suppression during the colder months, known as diapause, a genetically determined ability. During the diapause state, the eggs are characterized by reduced morphogenesis, increased resistance to environmental extremes, and reduced or altered behavioural activity (Estrada-Franco and Craig, 1995). The phenomenon is considered to be hormonally mediated, and respondent to a stimulus mainly related to photoperiod and temperature (Focks et al., 1994; Hawley, 1988). In other words, shorter days and low temperatures during the autumn season (less than 13.5 hours of day light) trigger the egg diapause, during while the hatching is suppressed, while longer days reactivate the life cycle, make the hatching restart and

favours continuous non-diapause growth and development (Estrada-Franco & Craig, 1995). This genetic adaptation made possible a high concentration of *Ae. albopictus* female adults during the warmer season, a necessary condition for the vector borne transmission of the Chikungunya Virus.

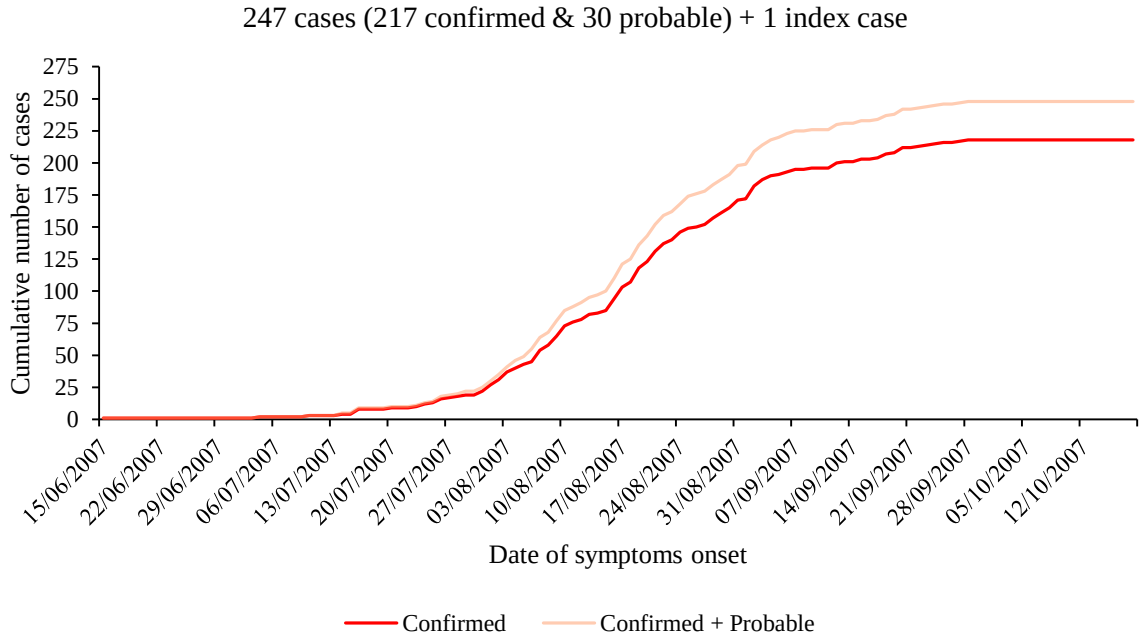
The epidemic outbreak took place in the provinces of Ravenna, Forlì, Cesena, Rimini, and Bologna, but the majority of cases were registered in the province of Ravenna. The suspected *index case* was a man returning from a trip to Kerala, India, a region at that time affected by an outbreak of chikungunya (Rezza et al., 2007). From July 4th, to September 28th, 337 suspected cases were reported for the whole ERR, out of which 217 were confirmed by lab test, 30 were classified as probable because of absence or inadequacy of blood samples, and 89 resulted negative (Angelini et al., 2008a). Figure 2 shows the epidemic curve of the outbreak, while figure 2 shows the cumulative number of confirmed and probable cases during the epidemic.

Figure 2 Epidemic Curve for 2007 CHIKV Outbreak in Emilia-Romagna region, Italy



Source: Own elaboration on Emilia-Romagna data.

Figure 3 – Cumulative confirmed and probable cases of CHIKV infection during the 2007 CHIKV outbreak in Emilia-Romagna Region, Italy



Source: Own elaboration on Emilia-Romagna data

The outbreak shed light on the ability of the *Ae. albopictus* to vector chikungunya in Europe, something that until then had only been hypothesized (Depoortere et al., 2006). A genetic mutation of the CHIKV seems to have played an important role, fostering the replication capacity of the virus in the *Ae. albopictus*, which consequently become a more efficient vector for the modified pathogen (Bordi et al., 2008). Fortunately, CHIKV vertical transmission appear to be a rare event, and field observations, conducted during the Spring 2008, showed no evidence of the presence of infected overwintering progeny produced by *A.albopictus* females infected during the 2007 outbreak (Bellini et al., 2012). In the European climatic condition, where the activity of *Ae. albopictus* is reduced to the warmer season, the absence of vertical transmission constitutes an obstacle for the epidemic transmission, which remain stopped by the winter months. When new adult females develop at the beginning of the warmer season, humans infected before the winter break will no longer be viraemic, so unless new virus introduction, there will not be new cases of diseases nor vector transmission.

2.1.1. The development of the epidemic outbreak

The first case of chikungunya in the ERR has been reported to the Public Health Department of the Local Health Authority (LHA) of Ravenna on August 9th, 2007. In the following days an important and unusual number of cases of febrile illness, compatible with the chikungunya clinical manifestations, were detected in two little villages of the Ravenna province, Castiglione di Cervia and Castiglione di Ravenna. The two small villages are practically neighbours, separated only by a small river named Savio, with relatively stagnant water resulting from the presence of a weir, and is realistic to assume a residents' high mobility between them. On the middle of August, it was already available a first list of 47 similar cases, and hypothesis of an arboviral diseases transmitted by mosquitoes was on the road, although still needing a laboratory confirmation, which arrived in late August (ECDC & WHO, 2007; La Torre et al., 2009).

At the end of the emergency, a total of 142 confirmed cases was recorded from the two small villages of Castiglione di Cervia and Castiglione di Ravenna, where the outbreak originated (Angelini et al., 2008b). From there the pathogen spread out, thus resulting in a number a smaller secondary clusters in the areas of Cervia (19 confirmed cases), Ravenna (9 confirmed cases), Cesena (15 confirmed cases) and Rimini (6 cases), which are located among 9 to 49 km from the originally affected villages, and Bologna (5 cases), the capital and bigger municipality in the ERR, home of the regional institutions, located at approximately 80 km from the initially affected villages. Further isolated cases were confirmed from various spots in the same geographical area of the major clusters, for a total of 247 cases (suspected or confirmed).

For at least three of the five epidemic clusters it has been judged reasonable that the main determinant of the local transmission has been the population movement, that is, people that visited the originally infected area, or people from the originally infected area that visited one of the other cities where the clusters has been found (Angelini et al., 2007b).

On the clinical manifestations, 94.5% of cases reported fever and 93.6% arthralgia, 53.5% skin rash and few cases itching. 94.5% of cases reported asthenia, 49.8% myalgia and 50.2% cephalalgia, 25 patients were hospitalized and only one, a man of 83 years old

with severe underlying conditions, died. The distribution of cases by sex resulted quite homogeneous, with 45.6% of males and 54.4% of females among the infected, but mainly concentrated among the elderly population. The average age resulted of nearly 57 years old, ranging from 3 to 95, and more than 40% of cases were older than 65 (Angelini et al., 2008; ECDC & WHO, 2007; La Torre et al., 2009; Rezza et al., 2007; Tomasello & Schlagenhauf, 2013).

The index case (i.e. the first human case infected with Chikungunya Virus, which originated all the subsequent local infections) has been recognised in a man, native of India but resident in the ERR, who returned from a trip to Kerala, India, on June 21th, during the viraemic asymptomatic stage of the infection, and developed the symptoms two days later, during a visit to his relatives in Castiglione di Cervia (Angelini et al., 2007a; Rezza et al., 2007). Excluding the index case, the first case of the ERR outbreak has been backdated to the July 4th, whereas for the last case the symptoms started on September 28th (Angelini et al., 2008b). The Italian Health Ministry declared over the epidemic on November 20th.

At the end, a total of 337 suspected cases were reported, out of which 217 were confirmed as positive by laboratory test, 30 were classified as probable because the patients refused blood test, and 89 resulted negative (Angelini et al., 2008a). The peak of the epidemic curve corresponded to the third week of August, after which, although new cases has been found, the curve shows a decreasing trend (Angelini et al., 2007a).

Sequence analyses of the genome of CHIKV strains revealed that the replication capacity of the virus in the tissues of *Ae. albopictus* has been improved by relatively recent mutation in the envelope protein gene (E1-A226V), which is believed to have contributed to the increased global frequency of Chikungunya outbreaks during the last decade, and seem to have played a role, at least, in the epidemics occurred in Kenya (2004), in Comoros (2005), La Reunión (2005-2006) and Italy (2007) (Bordi et al., 2008; Schuffenecker et al., 2006; Tsetsarkin et al., 2007). The mutated CHIKV strain isolated in this latter epidemics make *Ae. albopictus* a more efficient competent vector for CHIKV, reducing the importance of the previously known CHIKV main vector *Ae. aegypti.* At the same time the mutated strain has important implications for the areas of new establishment of *Ae. albopictus,* where it widespread distribution and high density may led to establish CHIKV transmission cycles, increasing its potential to permanently extend

it range into Europe and the Americas (Bordi et al., 2008; Schuffenecker et al., 2006; Tsetsarkin & Weaver, 2011; Tsetsarkin et al., 2007).

2.1.2. The response of the Health Authority

2.1.2.1. Control measures implemented against the ERR 2007 CHIKV Epidemic Outbreak

Well before the laboratory confirmation of the Chikungunya Virus presence, the clinical symptoms of the illness cases, the fact that the first known febrile illness case was a patient coming back from Kerala, an Indian State where a chikungunya epidemic was ongoing, and a high density of *Ae. albopictus* in the area of Castiglione di Cervia and Castiglione di Ravenna, suggested the probable arboviral origin of the illness.

Soon after the first notifications, received by the LHA of Ravenna on August 9th, the local health authorities contacted the hospital of Ravenna and the general practitioners (GPs) of Castiglione di Cervia, asking them to actively search for cases with compatible symptomatology to immediately start an epidemiological investigation. To follow the emergency, it was rapidly set up the Regional Group of Health's Entomology, constituted by biologist, entomologist, veterinarians and physician hygienists of the following agencies: Regional Services for Public and Animal Health and Food Safety; Veterinary and Public Health Department of the University of Bologna; Experimental Zooprophylactic Institute of Lombardy and Emilia-Romagna (IZSLER); the Public Health Department of the Local Health Authorities of Cesena and Ravenna; and the Environment and Agriculture Centre "Giorgio Nicoli" (CAA: Centro Agricoltura Ambiente "Giorgio Nicoli").

During the night between August 18th and 19th, still in absence of a confirmation on the pathology and its vector, first extraordinary pest control treatments against adult mosquitoes were carried out in the whole centre of Castiglione di Cervia. Some days later, from August 23th to 27th, the pest control activities were extended systematically to the whole affected area, and included (Angelini et al., 2008a, 2008b; ECDC & WHO, 2007):

- Repetitive adulticidal treatments (with the use of pyrethroids) for five consecutive nights, within a radius of 100 meters around the residence of all confirmed and suspected cases, and within a radius of 300 meters around every cluster of cases;
- Systematic larvicidal treatments and removal of active and potential breeding sites in all the public areas;
- Extraordinary door-to-door activity in all the private dwellings, with larvicidal treatments and removal of al active and potential mosquito breeding sites.

2.1.2.2. Epidemiological surveillance and possible, probable and confirmed case definition during the ERR 2007 CHIKV Epidemic Outbreak

By the middle of August, 47 suspected cases had been identified through the active case search, and on August 20th begun the collection of blood samples for the laboratory tests. The epidemiological surveillance was extended to all GPs of the province of Ravenna on August 24th, requesting them to notify all the suspected (possible and probable) cases of chikungunya, on the base of high fever (> 38.5 °C), joint pains, asthenia and/or skin rash, living or having stayed in the two affected villages (even if only for a reduced number of hours), or with a history of travel abroad to endemic areas (ECDC & WHO, 2007; La Torre et al., 2009). On August 29th (20 days after the communication of the first case), the health authorities of the ERR released the first guidelines for active Chikungunya Virus surveillance purposes, issued to all the LHAs, GPs and health emergency units of the whole region, and based on the following criteria for the detection of all the suspected and confirmed cases (ECDC & WHO, 2007; La Torre et al., 2009):

- *Clinical criteria*: acute onset of fever (>38.5˚C) and severe arthralgia not explained by other medical conditions;

- *Epidemiological criteria*: residing or having visited epidemic areas within 15 days prior to the onset of symptoms;
- *Laboratory criteria*: positivity to at least one of the following tests, realized on a blood sample during the acute phase:
    a. Virus isolation from a blood sample extracted within 5 days from the onset of symptoms;
    b. Presence of viral RNA by RT-PCR test on a blood sample collected within 5 days from the onset of symptoms;
    c. Presence of virus-specific antibodies in a single serum sample collected within 5 days from the onset of symptoms.

Based on the abovementioned criteria, three cases definitions were established:

- *Possible chikungunya case*: a patient meeting the clinical criteria;
- *Probable chikungunya case*: a patient meeting both the clinical and the epidemiological criteria;
    a. *National probable case*: a patient meeting the clinical criteria and exposed in one of the provinces affected by transmission of Chikungunya Virus;
    b. *Local probable case*: a patient meeting the clinical criteria and exposed in one of the municipalities affected by transmission of Chikungunya Virus
- *Confirmed chikungunya case*: a patient meeting the laboratory criteria, irrespective of the clinical presentation.

For the operational purposes, the term *suspected case* has been used both for possible and probable cases waiting the laboratory confirmation, after which they were classified negative if respected one of the following criteria:

- Absence of viral RNA by RT-PCR on blood samples collected within the first five days after the onset of symptoms;

- Negative serology test realized on samples collected 6 days or more after the onset of symptoms.

The Italian National Health Institute (Istituto Superiore di Sanità, ISS) confirmed the diagnosis of chikungunya on August 30th (Angelini et al., 2008a), and on the same day the Italian Ministry of Health notified a laboratory confirmed outbreak of chikungunya in the ERR to the EU authorities (i.e. the European Union Member States and the European Centre for Diseases Prevention and Control), and to the International Health Regulation (IHR) Point of Contact at the World Health Organization regional office for Europe.

Finally, on August 31st the laboratories of the Experimental Zooprophylactic Institute of Lombardy and Emilia-Romagna isolated the Chikungunya Virus on an *Ae. albopictus* captured in the area of the main epidemic cluster, definitely confirming the identity of the pathogen and the role of mosquitoes as vectors (Bonilauri et al., 2008).

2.1.2.3. Impact of the epidemic on blood transfusion and transplant activities

To avoid the risk of more infections, on August 31st blood donations from the residents of Ravenna and Cervia was suspended until further indication from the Ministry, while people who visited the affected areas were suspended from donating blood for 21 days after the visit. The measures on blood donations were extended to Cesena and Cesenatico in September 3rd, with an important impact on the blood supply. It was estimated that prevented 2,100 blood donations per month from residents of the affected areas, and 400 per month from people that travelled to them. Since the region usually supplies blood to other regions in the country, the impact of these measures may has been important, threatening the blood and plasma supply beyond the ERR territory.

Other additional measures were implemented at national level on the donation and transplantation of human organs and tissues. In particular, the donation of tissues from cadavers were forbidden from:

- Any resident in the affected area;

- Anyone who had visited the affected areas within the four weeks before the donation;
- Anyone who was infected by CHIKV within the six months before the donation;
- Anyone with an ongoing chikungunya infection.

While the donations of organs from cadavers were banned from:

- Any resident in the affected area;
- Anyone who had visited the affected areas within the three weeks before the donation;
- Anyone who acquired chikungunya infection, within the three weeks after the fever remission;
- Anyone with an ongoing chikungunya infection.

Due to the importance of tissues and organs donations, the prohibition could have been overcome for donors without an ongoing infection after a molecular test excluding the infection, and after receiving national expert advice.

In case of living tissue donors, if he or she had visited or was resident in the affected areas, a four-week quarantine period was required to release the tissue, as well as clinical observation of the donor. Additional measures were taken for umbilical cord donation and cord collection: not allowed for autologous and allogenic use for parturient woman resident in the affected areas; and not allowed for allogenic use for parturient woman that had visited – even for a few hours – the affected areas during the three weeks prior to the delivery.

2.2. After the ERR 2007 CHIKV Epidemic Outbreak, a new scenario for Europe

2.2.1. Lessons from the ERR 2007 CHIKV Epidemic Outbreak

The ERR 2007 CHIKV epidemic outbreak practically demonstrated the possibility of local arboviral transmission in temperate European territories, and concretized the risk of an epidemic outbreak in Europe.

The process called globalization, with its enormous increase in mobility of people, goods and services, as well as the great demographic growth that multiplied human pressure on the environment, increased the probability of new introduction of pathogens in the European Countries, while the climate change occurred in the last decades made part of the European temperate environment suitable for the *Ae. albopictus* settlement.

This new scenario implies that new epidemics of arboviral diseases may occur, especially if we do not implement the necessary prevention. The risk of new epidemics is deeply linked to human behaviour, especially to the capacity of individual and communities to collaborate for the reduction of water-holding containers, which can serve as breeding sites and offer the environment for mosquito development, and to the availability and use of personal protection measures, from the chemical repellents for the skin use to the windows mosquito nets.

As major determinants of the ERR 2007 CHIKV epidemic outbreak have been listed (Bordi et al., 2008; Charrel & de Lamballerie, 2008; ECDC & WHO, 2007; Rezza et al., 2007):

- The high density of a competent vector (i.e. *Ae. Albopictus* mosquitoes);
- The high density of human population
- The arrival from India of a CHIKV infected traveller during the viraemic period;
- The seasonal synchronicity and related overlapping of arthropod activity between India and Italy;

- A mutation of CHIKV that enhanced his capacity of being vectored by the *Ae. albopictus* mosquito species.

As suggested by this and previous outbreaks in other regions of the world, two of the above summarized conditions – i.e. the introduction of the virus by an infected individual in the viraemic period; and a high population density of a competent vector, in Italy the *Ae. albopictus* mosquito – are the main variables upon which we can intervene with individual and collective action mediated by public authorities. In the impossibility of eliminate neither the vector presence nor the risk of new CHIKV introductions through infected travellers, the core of the prevention measures is the surveillance and reduction of the mosquito population density and the epidemiological surveillance to rapidly detect any introduction of an infected individual into the European territory.

Persuaded by the risks to the public health carried by this new scenario, and aware of the biological, ecological and behavioural characteristic of the *Ae. albopictus* and of its progressive invasion of the Italian territory, the ERR public authorities decided to put in place, from the first year following the epidemic event (i.e. 2008), an Integrated Plan for the fight against the Asian Tiger Mosquito and the prevention of Dengue and Chikungunya epidemics. The Integrated Plan (hereafter called the "ERR AW-IPM Plan") has been elaborated through the collaboration among regional, national and international scientific and public health institutions, such as the Italians Ministry of Health and the National Health Institute (ISS), the ECDC, the WHO and French Ministry of Health, and was adopted by the ERR Regional Council with Resolution no. 280 of March 3rd, 2008.

The collaboration between local, national and international authorities continued in the following years, and if the Italian CHIKV epidemic outbreak of 2007 in some way woke up Europeans around the new epidemic risks of the third millennium, the need for an improved collaboration resulted in regional framework that institutionalized the joint efforts against the invasive vectors, and serve as a reference for the organization of mosquito control activities in Europe.

2.2.2. European Regional Framework for Surveillance and Control of Invasive Mosquito Vectors and Re-Emerging Vector-Borne Diseases

In order to assist the European Countries in the organization, development and improving of national plans for the control of invasive mosquitoes (mainly *Ae. albopictus* and *Ae. aegypti*) in the European territory, a regional partnership has been built by the Regional Office for Europe of the World Health Organization, the European Mosquito Control Association and the European Centre for Disease Prevention and Control, in partnership with the VBORNET network of public health experts and medical entomologists. Main result of the collaboration, the Regional Framework for Surveillance and Control of Invasive Mosquito Vectors and Re-Emerging Vector-Borne Diseases (hereafter the "RFCM") has the objective of improving the knowledge, the understanding and the awareness around the mosquito invasion problem, and to assist the countries in the early detection through surveillance and quick response through mosquito control actions and preventive measures.

The framework strategy, with a time frame from 2014 to 2020, aim at working for the improvement of national strategies, harmonization of strategies between countries, developing and improvement of cross-border actions, and mobilization of resources for the implementation of the activities. As we have seen in the chapter 1.3.2., the territorial dimension of the operating control activities, as well as their universality, and the participation of public authorities as well as individuals and communities is of major importance for an efficient control of the *Ae.* mosquito species. In line with the that, the regional framework outlines strategic approaches and core activities for the mosquito control, and its main goals are to prevent the entrance of new mosquito species in the European territory, to eradicate them when possible, and to integrate disease and vector surveillance for the prevention of epidemic outbreak when the mosquitoes, as the *Ae. albopictus* in Italy, are already established and well settled in the new territories.

The RFCM goes in the direction of the requirements of the International Health Regulations (IHR) for WHO Member States on the management of acute, unexpected or unusual public heath events, and on the development and improvement of their action

capacities at designated ports, airports and ground crossings (WHO, 2005). The main goals and objectives of the RFCM, which I summarized also in chapter 1.3.2., as example for an AW-IPM approach, are the following:

- Prevent the introduction of invasive mosquitoes into the Region;
- Prevent the spread of invasive mosquitoes, especially into new areas;
- Prevent outbreaks of dengue and chikungunya fever and reduce the risk of their transmission in areas where invasive mosquitoes have become firmly established;
- Improve entomological surveillance and monitoring of invasive species of mosquito;
- Improve surveillance and control of dengue and chikungunya viruses;
- Improve disease management and thus reduce morbidity and mortality due to dengue and chikungunya.

RFCM propose a set of strategic approaches and core activities for the control of Ae. mosquitoes, and highlights in every passage the importance of regional and bilateral collaboration to take efficient cross-border actions, as well as the need for an adequate resource allocation at country and regional level, and the need for further scientific basic and applied research to further understand the characteristic of the invasive mosquito spp., and to study methods for their control and for the control of the re-emerging vector-borne diseases there are responsible for.

The proposed approaches and core activities are listed in Table 1 (WHO, 2013)

Table 1. Main strategic approaches and core activities suggested by the RFCM

Strategic Approaches	***Core Activities***	
1. Prevention of establishment of invasive mosquitoes	1.1	Prevention of introduction of invasive mosquitoes
	1.2	Mosquito detection at points of entry and high-risk sites
	1.3	Prompt elimination of foci of colonization
	1.4	Prevention of spread of established populations
2. Integrated surveillance	2.1	Development of an integrated system of vector and diseases surveillance
3. Prevention and control of outbreaks	3.1	Preparation for disease outbreak response
	3.2	Improvement of disease diagnosis and case management
	3.3	Sustainable vector control to prevent transmission
4. Awareness-raising about invasive mosquitoes and re-emerging vector-borne diseases	4.1	Generation of political support
	4.2	Implementation of communication strategies
5. Regional and bilateral coordination	5.1	Coordination and harmonization of prevention, surveillance and control activities
	5.2	Coordination and harmonization of biocides registration
6. Capacity development and resource allocation	6.1	Development of human capacity and resources for surveillance and control of vectors and disease
	6.2	Establishment of a network of reference centres
7. Basic and applied research	7.1	Promotion of research on entomological parameters
	7.2	Study of methods of control of invasive mosquitoes and re-emerging disease

3. The Emilia-Romagna Area Wide – Integrated Pest Management Plan for *Ae. albopictus*

3.1. An AW-IPM approach for the Emilia-Romagna Plan to control the *Ae. albopictus* mosquitoes. History and organizational framework.

The arrival of *Ae. albopictus* in the territory of ERR dates back to 1994, when it has been found for the first time in a large deposit of used tires imported from various countries outside Europe, including U.S.A. and Japan. At that time the invasion concerned about ten municipalities, but in the following decade *Ae. albopictus* progressively conquered most of the ERR's territory, all the major cities and most of the plains and low hills municipalities of every province. Currently *Ae. albopictus* extended its presence to all the municipalities situated in the plain area – about half (47.8%) – and on the hills – 27.1% – of the ERR's territory, and only the municipalities in the mountains, situated up to 670 meters above the sea level, remain excluded (Angelini & Giovannini, 2012; Servizio Sanitario Regionale Emilia-Romagna, 2008).

This situation led the Regional Department of Health Policy to set up a first experimental project for the monitoring and control of the *Ae. albopictus* population in 2005, which was aimed at:

- Developing guidelines for a correct approach to the management of *Ae. albopictus* mosquitoes, both in term of monitoring its population density and distribution, and in terms of fighting the mosquito abundance through the control of its population;
- Promoting innovative approaches to the mosquito control;

- Encouraging the residents' participation to the mosquito control activities, in particular for what concern the elimination of potential and active breeding sites, or for the larvicidal treatment of the non-removable water-holding containers.

On the basis of this experimental plan, after the epidemic outbreak of 2007 the regional authorities set up a more comprehensive program, extended to all the regional territory except for the mountain areas were the *Ae. albopictus* is not present. This plan, named Regional Plan for Asian Tiger Mosquito Containment and Chikungunya and Dengue Prevention (hereafter "the E-R Plan"), started in 2008 and has a multisector approach typical of the Area-Wide Integrated Pest Management programs (Servizio Sanitario Regionale Emilia-Romagna, 2008), with different levels of planning and numerous activities aimed at limit and control the *Ae. albopictus* invasion on the whole ERR territory, with two main objectives:

- Reducing the harassment caused by the Asian Tiger Mosquito bites;
- Reducing the risk of chikungunya and dengue vector-borne infectious diseases diffusion among the population.

The E-R Plan was adopted by the Regional Council with the Resolution number 380 of March 3rd, 2008, and is the result of a collaboration with regional scientific institutions and national (Ministry of health and Istituto Superiore di Sanità, the Italian Insitute of Health) and international (ECDC, WHO, French Ministry of Health) health agencies (Angelini et al., 2008a).

The choose of targeting the E-R Plan on reducing the risk of chikungunya and dengue epidemic outbreaks, although the mosquito is able to vector many other pathogens such as a number of Flavivirus, Bunyavirus and Alfavirus, as well as the filarial worms (see chapter 1.2.4.), is due to evaluations on specific conditions that make this option particularly convenient, without reducing the level of potential effectiveness of the plan. The following reasons has been listed (Emilia Romagna Region, 2008):

- Epidemiological risk related to the probability that an individual in the viraemic phase enter the ERR territory. Both dengue and chikungunya are extremely common diseases of global concern. 2.5 billion people worldwide are exposed to Dengue Virus, and 1.5 billion to Chikungunya Virus, because living, working or travelling to areas where the virus are endemic, with millions of cases every year. In the case of chikungunya, the risk is even higher because of its epidemic resurgence, thanks to the mutated CHIKV strain responsible also for the Italian epidemic outbreak;
- A similar symptomatology of both diseases, that allow a unique surveillance system;
- The fact that a different surveillance system is possible for the West Nile Fever disease in the veterinary field.

On top of the regional support and coordination activities has been running, since 2009, the Regional Technical Coordination Group "Fight against the Asian Tiger Mosquito" (hereafter only Regional Technical Coordination Group, or RTCG), coordinated by the Regional Department of Health Policy, with the support of the Public Health Department of the LHA of Cesena. The members of the RTCG has been appointed by the provincial administrations or by the social and health territorial Conferences (Conferenze territoriali sociali e sanitarie – CTSS – an organism at disposal of municipalities, composed by all the mayors of the municipalities situated in the territory of a Local Health Authority and by the President of the province, aimed at improving the integrated governance, coordination and direction of municipalities' functions for regulating, programming, government, verification and implementation of social and health services) of the ERR. A technical operator and a health expert participate to the RTCG in representation of the municipalities for the territory of each different LHA, allowing a direct relation of the RTCG with the municipality authorities, the institutional level that directly realize the control activities.

The municipality authorities are responsible for the management of the control activities that realize on a voluntary basis, while the Regional Health Authority (RHA) supports the local public administrations in the monitoring activities, the planning of the

interventions and the communication strategies for residents' participation. This regional centralized supporting action is of particular importance for those smaller municipalities which do not have human and/or capital resources for the fulfilment of all the requirements of the E-R Plan, and that because of that should become a source of infestation, i.e., the weakest link that lowers the overall level of effectiveness achieved by the E-R Plan.

3.2. The Emilia-Romagna Regional Plan for Asian Tiger Mosquito Containment and Chikungunya and Dengue Prevention (the E-R Plan)

3.2.1. Activities and population included in the E-R Plan

The AW-IPM activities of the E-R Plan are listed in Table 2 and basically consist in: systematic monitoring of the Asian Tiger Mosquito infestation through an ovitrap network; Elimination of potential breeding sites if possible; larvicidal treatments of water road drains in public and in private areas, and related quality checks; information to citizens and in primary schools; emergency treatments against adult mosquitoes to isolate viraemic human cases; provision of municipality ordinances requiring citizens to adopt good practices against proliferation of tiger mosquitoes in private areas; and other various actions undertaken by municipalities admitted to financial support of the ERR on a case-by-case basis. Most of the activities are implemented between April/May and early October, when biting and reproduction of tiger mosquitoes are more intensive in the region.

Table 2. Control activities included in the E-R Plan (2008-2015).

AW-IPM activities of the E-R Plan and implemented by municipalities
(a) Epidemiological surveillance for the early detection of cases of infectious disease;
(b) Management of reported cases. In case of detection of potentially viraemic patients, a protocol activates emergency actions to reduce the possibility of epidemic outbreaks: this includes treatments against adult mosquitoes aimed at isolating the potential outbreak hotspots;
(c) Entomological surveillance. Monitoring the intensity of the infestation through a network of about 2,700 ovitraps distributed on the ERR territory;
(d) Delivering of municipality ordinances requiring citizens to adopt good practices to prevent proliferation of tiger mosquitoes in private areas (courtyards, gardens, etc.);
(e) Removal when possible, and mapping and census of non-removable potential breeding sites and "sensible sites";
(f) Regular larvicidal treatments (from April/May to October) of road drains in public areas;
(g) Census and georeferencing of the urban road drains $^{\alpha}$;
(h) Door-to-door interventions in private areas;
(i) Quality controls on the efficacy of larvicidal treatments (b) in public areas $^{\beta}$;
(j) Education activities in primary schools $^{\alpha}$;
(k) Site inspections and purchase of larvicidal kits for private use;
(l) Information to citizens through various activities (information campaigns, distribution of larvicidal products, inspections in private areas under request, etc.);
(m) Other activities undertaken by municipalities $^{\Phi}$;

α Specifically financed only from the year 2013

β Activity not included in the Regional plan in the year 2008.

ϕ Only for the year 2008, this item includes expenditure for census and cleaning of road drains and adulticide treatments in sensible sites (public parks, school gardens, cemeteries, etc.).

Source: own elaboration.

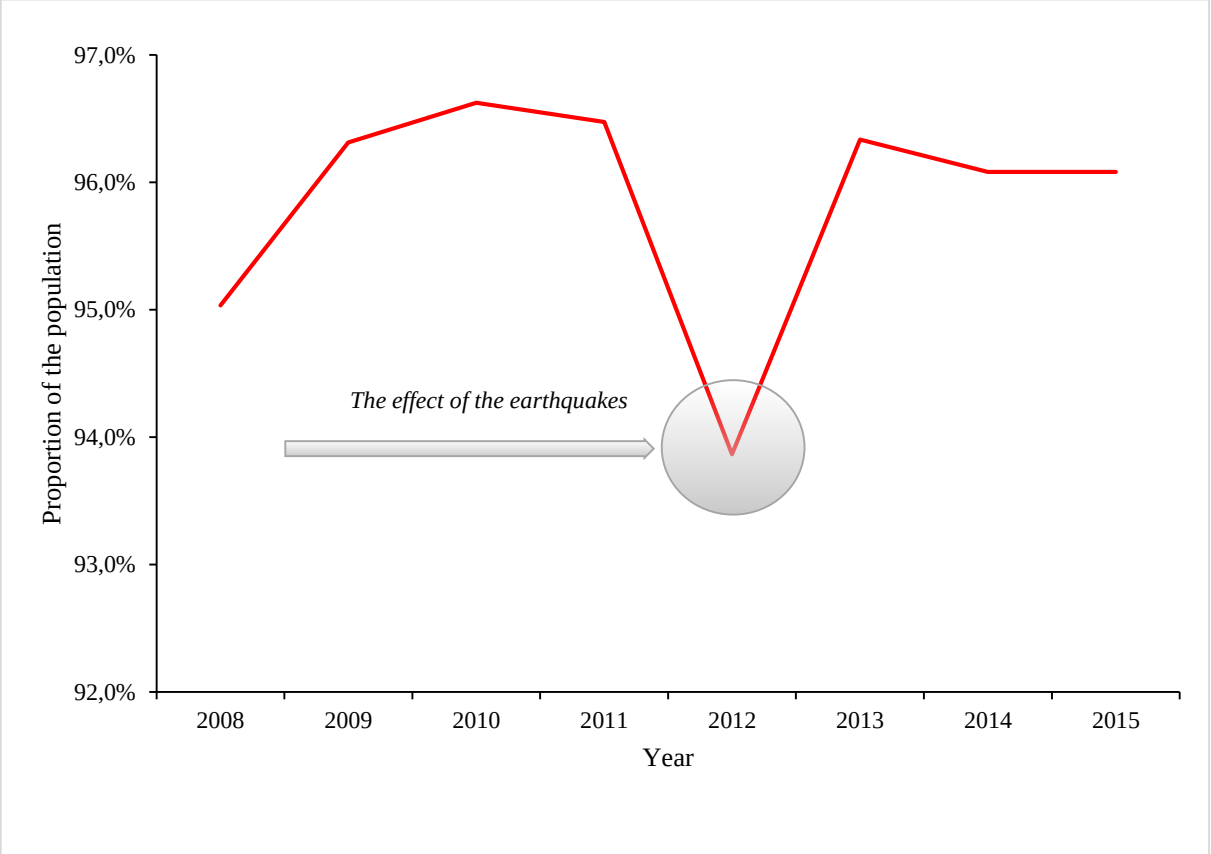
In addition, the E-R Plan includes:

- Specific instructions for the epidemic surveillance of the population, in order to quickly detect any case of infectious vector-borne disease;
- A specific protocol to activate in case of suspected or proven infectious vector-borne disease, which includes special and thorough mosquito control activities and public health prescriptions

The numbers of municipalities included in the E-R Plan has changed among the years, nonetheless remaining a high proportion of those in the ERR, assuring a high coverage of the regional territory (Table 3). Consequently, also the population included in the E-R Plan has always been a high proportion of the total population of the ERR – more than 90% – with small fluctuations from 4.1 to 4.3 million people (Table 4).

Little is generally known to explain these small variations, which are mostly due to specific local situations and depends on the decisions of the local administrations, that may change year by year for many different reasons (e.g. budget constraints or organizational limits). The only important exception is relative to the year 2012, when in the month of May two mayor earthquakes with registered magnitude of 5.9 and 5.6 struck in the ERR, in the territory of the LHA of Modena and at about 36 km in the north of the city of Bologna. The earthquakes caused important damages especially around the town of Finale Emilia, and among the consequences, 8 towns in the territory of the LHA of Modena did not realize any activity of the E-R Plan, thus resulting in a reduction of municipalities and population involved.

Figure 4. Proportion of the population residing in the ERR involved in the E-R Plan, 2008-2015



Source: Own elaboration.

Table 3. Number of municipalities participating in the E-R Plan for the fight against Ae. albopictus mosquitoes

LHAs of the ERR	***Total municipalities included in the LHAs territory***	***Number of municipalities participating in the Regional Plan****							
		2008	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***
Piacenza	48	37	38	39	39	40	40	41	41
Parma	47 - 46 [α]	33	35	35	34	35	34	33	32
Reggio Emilia	45	33	34	35	37	37	39	40	39
Modena	47	30	30	30	30	22	30	30	30
Bologna	50 - 46 [α]	37	40	42	39	37	36	32	35
Imola	10	10	10	10	10	9	8	10	9
Ferrara	26 - 24 [α]	26	26	26	26	26	26	24	24
Ravenna	18	18	18	18	18	18	18	18	18
Forlì	15	15	15	15	15	15	15	15	15
Cesena	15	14	14	14	15	15	15	15	15
Rimini	20 – 27 - 26 [α]	20	20	27	27	27	27	26	26
Total	**340 [β]**	**273**	**280**	**291**	**290**	**281**	**288**	**284**	**284**

*****: The figures include all the municipalities receiving financial contribution from the Regional Health Authority for the implementation of, at least, one activity of the Regional Plan; **α**: Since 2010: the LHA of Rimini includes seven new municipalities, which were formerly part of the bordering Marche region; in 2014: the municipalities of Bazzano, Castello di Serravalle, Crespellano, Monteveglio and Savigno, in the LHA of Bologna, merged to create the municipality of Valsamoggia; the municipalities of Massa Fiscaglia, Migliarino and Migliaro, in the LHA of Ferrara, merged to create the municipality of Fiscaglia; the municipalities of Sissa and Trecasali, in the LHA of Parma, merged to create the municipality of Sissa Trecasali; the municipalities of Poggio Berni and Torriana, in the LHA of Rimini, merged to create the municipality of Poggio Torriana; **β**: The total number of municipalities, consequent to the changes described above, moved from 341 to 348 in 2010, and went back to 340 in 2014, when a certain number of municipalities merged to create larger administration units.

Source: Own elaboration on Emilia-Romagna data

Table 4. Population involved in the E-R Plan, for each of the LHAs, 2008-2015

	Resident population							
	2008		2009		2010		2011	
LHAs of the ERR	***Total population in the LHAs***	***Population involved in the E-R Plan - absolute and (%)***	***Total population in the LHAs***	***Population involved in the E-R Plan - absolute and (%)***	***Total population in the LHAs***	***Population involved in the E-R Plan - absolute and (%)***	***Total population in the LHAs***	***Population involved in the E-R Plan - absolute and (%)***
Piacenza	281,613	270,980 (96.2)	285,937	277,839 (97.2)	288,011	281,055 (97.6)	289,887	283,074 (97.6)
Parma	425,690	397,329 (93.3)	433,096	414,736 (95.8)	437,308	419,044 (95.8)	442,070	420,252 (95.1)
Reggio Emilia	510,148	469,045 (91.9)	519,480	488,855 (94.1)	525,297	496,616 (94.5)	530,388	509,714 (96.1)
Modena	677,672	614,097 (90.6)	688,286	623,984 (90.7)	694,580	630,033 (90.7)	700,914	636,382 (90.8)
Bologna	836,511	769,857 (92.0)	846,583	810,097 (95.7)	853,319	825,370 (96.7)	860,037	817,583 (95.1)
Imola	127,554	127,554 100.0)	129,587	129,587 (100.0)	131,022	131,022 (100.0)	131,961	131,961 (100.0)
Ferrara	355,809	355,809 (100.0)	357,979	357,979 (100.0)	358,966	358,966 (100.0)	359,994	359,994 (100.0)
Ravenna	379,467	379,467 (100.0)	385,729	385,729 (100.0)	389,508	389,508 (100.0)	392,458	392,458 (100.0)
Forlì	182,682	182,682(100.0)	184,977	184,977 (100.0)	186,748	186,748 (100.0)	187,698	187,698 (100.0)
Cesena	200,364	198,390 (99.0)	203,042	201,060 (99.0)	205,582	203,602 (99.0)	207,788	207,788 (100.0)
Rimini	298,333	298,333 (100.0)	303,270	303,270 (100.0)	325,265	325,265 (100.0)	329,244	329,244 (100.0)
Total	**4,275,843**	**4,063,543 (95.0)**	**4,337,966**	**4,178,113 (96.3)**	**4,395,606**	**4,247,229 (96.6)**	**4,432,439**	**4,276,148 (96.5)**

Source: Own elaboration on Emilia-Romagna data

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	Resident population							
	2012		2013		2014		2015	
LHAs of the ERR	***Total population in the LHAs***	***Population involved in the E-R Plan - absolute and (%)***	***Total population in the LHAs***	***Population involved in the E-R Plan - absolute and (%)***	***Total population in the LHAs***	***Population involved in the E-R Plan - absolute and (%)***	***Total population in the LHAs***	***Population involved in the E-R Plan - absolute and (%)***
Piacenza	291,302	286,110 (98.2)	290,966	285,931 (98.3)	288,982	285,447 (98.9)	288,620	285,200 (98.8)
Parma	445,283	427,340 (98.6.0)	447,251	425,742 (95.2)	444,285	418.824 (94.3)	445,451	413,007 (92.7)
Reggio Emilia	534,014	507,824 (95.1)	535,869	523,407 (97.7)	534,845	526.665 (98.5)	534,086	520,370 (97.4)
Modena	705,164	550,685 (78.1)	706,417	642,209 (90.9)	702,761	639.168 (91.0)	703,114	639,763 (91.0)
Bologna	866,294	797,888 (2.1)	870,507	814,675 (93.6)	868,575	794.947 (91.5)	871,830	832,996 (95.5)
Imola	132,637	131,390 (99.1)	133,408	128,685 (96.5)	132,876	132.876 (100.0)	133,302	132,086 (99.1)
Ferrara	359,686	359,686 (100.0)	358,116	358,116 (100.0)	355,334	355.334 (100.0)	354,673	354,673 (100.0)
Ravenna	394,464	394,464 (100.0)	395,077	395,077 (100.0)	393,184	393.184 (100.0)	393,154	393,154 (100.0)
Forlì	188,710	188,710 (100.0)	188,357	188,357 (100.0)	187,691	187,691 (100.0)	187,496	187,496 (100.0)
Cesena	209,622	209,622 (100.0)	209,805	209,805 (100.0)	209,216	209,216 (100.0)	209,200	209,200 (100.0)
Rimini	332,070	332,070 (100.0)	335,331	335,331 (100.0)	335,033	335,033 (100.0)	336,189	336,189 (100.0)
Total	**4,459,246**	**4,185,789 (93.9)**	**4,471,104**	**4,307,335 (96.3)**	**4,452,782**	**4,278,385 (96.1)**	**4,457,115**	**4,304,134 (96.6)**

Source: Own elaboration on Emilia-Romagna data

3.2.2. Epidemiological surveillance for early detection of cases of infectious disease

3.2.2.1. Epidemiological surveillance of human cases of chikungunya and dengue

The epidemiological surveillance for the early detection of cases of chikungunya or dengue is based on the cases definition established at European level, that differentiate for possible cases, defined through clinical criteria, probable cases, defined through clinical and epidemiological criteria, and confirmed cases, defined through laboratory confirmation independently from clinical and epidemiological criteria (ECDC & WHO, 2007). The relative clinical, epidemiological and laboratory criteria are indicated in Table 5 (Angelini et al., 2008; ERR, 2008).

For the purposes of the epidemic surveillance it is asked to all general practitioner to report within the 12 hours any case, suspected or confirmed, following the procedures defined by the system for rapid reporting of epidemic and sentinel events, communicating it to the Health Department of the competent Local Health Authority. Following the case report, the LHAs immediately activate a detailed epidemiological survey, keeping the contact with the suspected case giving information to him/her and the familiars on the measures to take to avoid further vector transmission, and to allow:

- The definition of the area where there will be implemented the emergency control measures within the following 24 hours;
- The identification of the way the patient may have been infected, in order to differentiate for imported cases and local transmission;
- The identification of the environmental and housing condition of the patient, in order to evaluate his or her risk of exposure to arthropod vector bites.

Table 5. Case definition criteria for the E-R Plan

Disease	Clinical criteria	Epidemiological criteria	Laboratory criteria
Chikungunya Fever	Acute onset of fever (>38.5˚C) and severe arthralgia not explained by other medical conditions;	Residing or having visited epidemic areas within 15 days prior to the onset of symptoms.	Positivity to at least one of the following tests, realized on a blood sample during the acute phase: a. Virus isolation from a blood sample extracted within 5 days from the onset of symptoms; b. Presence of viral RNA by RT-PCR test on a blood sample collected within 5 days from the onset of symptoms; c. Presence of virus-specific IgM antibodies in a single serum sample collected within 5 days from the onset of symptoms; d. Seroconversion, or an increase of at least four times of the antibody titer (IgG or total), on blood samples taken at distance of two - three weeks (the first during the acute phase and the second during convalescence).
Dengue Fever	Acute onset of fever (>38.5˚C) lasting between two and seven days, and at least two of the following symptoms: severe headache and retro-orbital pain; myalgia; arthralgia; lumbago; maculo-papular rash and minor haemorrhage		
Dengue Haemorrhagic Fever (DHF)	The following symptoms are present: a. Present or past fever lasting between two and seven days b. Haemorrhage c. Thrombocytopenia d. Evidence of increased capillary permeability		

Source: Angelini et al., 2008, translation is mine.

A blood sample taken from the patient must be sent to the regional laboratory responsible for its examination, i.e. the Regional Centre for the Microbiological Emergences (Centro Regionale di Riferimento per le Emergenze Microbiologiche – CREEM, Azienda ospedaliera-universitaria di Bologna). The laboratory will send the results of the laboratory tests to the Health Department of the competent LHA and to the RHA within the 24 hours from the receiving of the blood sample.

During the period of major activity of *Ae. albopictus* the active surveillance shall be reinforced, including periodic communications with the general practitioner and the paediatricians, as well as with the doctors of the First-care Stations, in order to improve the

sensibility around the epidemic surveillance system and to collect any case report that may have been ignored.

Table 6. Confirmed cases of Chikungunya and Dengue Fever in the Emilia-Romagna Region, imported from abroad (2008-2015)

Vector-Borne Disease	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***
Dengue Fever	5	8	19	16	11	24	17	15
Chikungunya Fever	1	2	3	1	0	1	15	1
Total	6	10	22	17	11	25	32	16

Source: Regione Emilia-Romagna for 2008-2013, www.zanzaratigreonline.it for 2014-2015.

3.2.3. The management of suspected or proven cases of infectious disease

In case of the presence of a suspected or confirmed case of vector-borne disease (dengue or chikungunya) during the period of activity of the vector, the E-R Plan requires the conduct of emergency control measures, which includes adulticidal treatments of the interested areas, that have to start within the 24 hours following the case report.

The area to submit to the emergency treatments change depending on the number of cases reported:

- In case of single suspected or confirmed case, the adulticidal treatments must be conducted in an area corresponding to a circle of radius equal to 100 metres from the house of the infected person, and to other areas may identified according to his or her behavioural habits, with particular attention to the usually frequented environments, such as the workplace;
- In case of a cluster of cases (two or more cases from the same area in less than 30 days), the Health Department of the local LHA will extend the area

interested by the emergency operations up to 300 meters from the dwellings or other usually frequented environments, of the most peripheral cases.

The emergency control measures are structured in three different phases which, to ensure the highest efficacy, must be conducted in an appropriate and mutually reinforcing manner, and includes adulticidal treatments, larvicidal treatments and removal of all potential and active breeding sites. The order and manner in which these activities should be realized is the following:

- Adulticidal treatments in the public areas, to realize during three consecutive nights, to ensure the minimum impact of the pest products on health;
- Adulticidal, larvicidal and removal of potential and active breeding sites, through door-to-door activity;
- Simultaneous larvicidal treatments of the public road drains

3.2.3.1. Adulticidal treatments

The adulticidal treatments are included in the activities of the E-R Plan only in case of suspected or proven presence of an arboviral infection, because considered not sufficiently efficient during the ordinary control activities, when other actions are suggested. Nonetheless, they assume an important role to rapidly reduce the number of adult mosquitoes to avoid the epidemic transmission during the emergency control activities. For their execution the E-R Plan indicates the following characteristics:

- Products: Pyrethroids are suggested, in the lower impact versions, such as xylene and toluene;
- Equipment: Depending on the accessibility of the areas to be treated, may be used portable nebulisers or they can be installed on motor vehicles. The delivered particles must have a diameter minor than 50 microns;

- Treatment areas: vegetation on public and private areas, up to four metres high;
- Number of treatments: Three consecutive nights. In case of heavy rainfalls, the operation must be carried on at the end of the rains;
- Safety norms: treatments must be carried on without the presence of humans or animals, and must be postponed in case of wind speed superior than 3 metres per second, Personal safety measures are mandatory for the operators;
- Documentation: a detailed relation on the intervention must be produced

3.2.4. Epidemiological surveillance for West Nile Virus and other arboviruses with potential human health impact, and an animal – vector – man prevalent epidemic cycle

Although not transmitted by the *Ae. albopictus*, the regional protocol for the surveillance of arboviruses includes the surveillance of other viruses potentially dangerous for human health, for which other mosquito species play a role in the epidemic cycle. Among them special attention is given to the West Nile Virus (WNV), which complex ecology involve birds in the epidemic cycle, serving both as prime reservoir host and virus amplifier, and mosquitoes, especially those of the genus Culex, as the principal vector. In mammals, e.g. equines and humans, which may be accidentally infected through the bite of an infected mosquito, the virus does not develop high viremia during the infection, and therefore it not transmitted again in the event of a bite by another competent vector. These accidental hosts are then so-called dead-end hosts, i.e. which not concur to the circulation of the virus.

Given these characteristics of the WNV ecology, for an efficient surveillance the regional protocol requires an integrated surveillance which includes entomological, veterinarian and human aspects, and activate special control activities directed at control the mosquito species responsible for the transmission if the surveillance reports a virus circulation above some defined thresholds. As we will see in the next chapter, the E-R Plan provides a financial contribution also for the management activities activated in such cases,

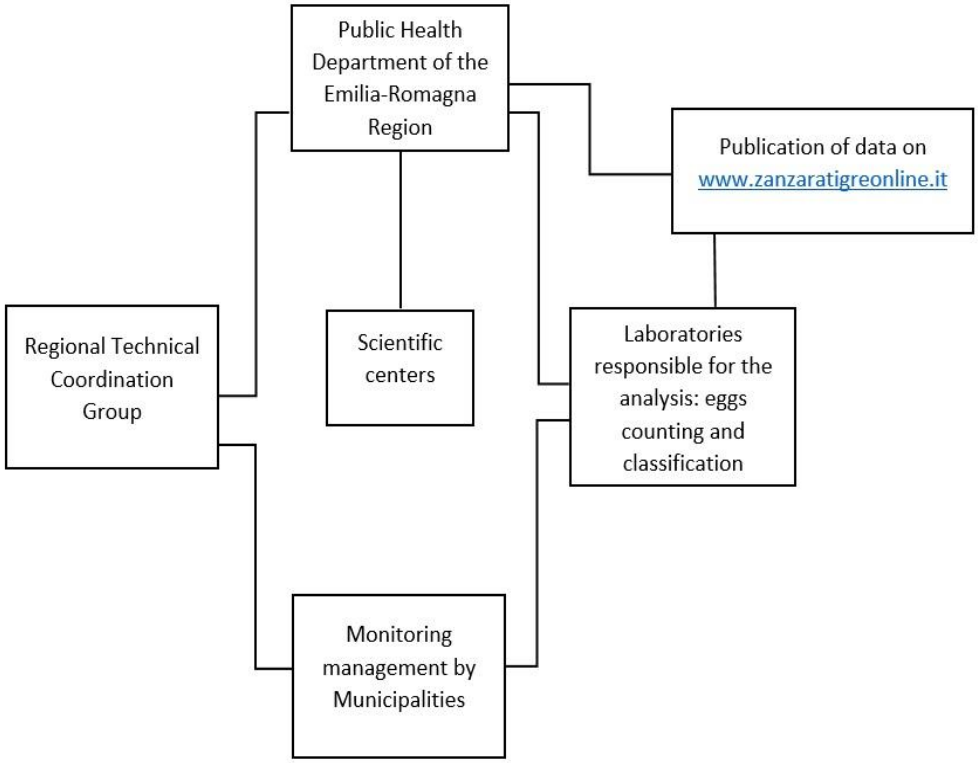
no matter if the *Ae. albopictus* is not responsible (For further information on the surveillance of arboviruses other than chikungunya and dengue see ERR, 2015).

3.2.5. Entomological surveillance, the ovitrap monitoring system

The existing ovitrap network for the surveillance of the *Ae. albopictus* population has been reinforced after the epidemic outbreak occurred in 2007 (Carrieri et al., 2011; ERR, 2008). The entomological surveillance aims at a quantitative estimate of the *Ae. albopictus* population density, and at an immediate identification of mosquito invasive species of new introduction, to allow a quick response with appropriate control activities. The large scale monitoring system has been organized to allow the comparability of the results at provincial and municipal levels, and the minimum number of ovitraps needed to obtain acceptable precision levels, calculated using Taylor's power law applied to egg density data for 2007, was then used from 2008 to set up the monitoring network extended to approximately 250 municipalities (Carrieri et al., 2011a), and composed by nearly 2700 ovitraps.

Skilled technicians were responsible for the choice of the place and the position of the ovitraps, for which effectiveness and comparability the habitat characteristics and the environmental parameters are fundamental (Williams et al., 2006). The routine management of the ovitraps, that means the collection of the substrates where the mosquitoes lay the eggs, their storage and the transport to the laboratory for the egg counting and classification, is conducted by technicians of municipalities, and the involved laboratories are the Provincial Laboratories Network of the Regional Agency for Environmental Protection (ARPA), the universities of Parma and Ferrara, and the Museum of Natural History of Parma.

Figure 5. The organization of the monitoring system of the E-R Plan



Source: Adaptation from (Carrieri et al., 2011a)

The monitoring network is active during the period of seasonal activity of the mosquito. That means that the ovitraps are regularly checked from April/May to late October, but yearly changes are possible depending of the registered density of mosquito population, which in turn depends on the seasonal weather and climate trend. In 2008 and 2009 the ovitraps were checked weekly, but from 2010, thanks to a technical improvement that concerns the use of water solution with Bacillus thuringiensis var. israelensis (Bti) in the ovitraps (Carrieri et al., 2009), the frequency of the checks became biweekly.

The data resulting on the monitoring system are periodically published on a dedicated site (www.zanzaratigreonline.,it), with three different levels of accessibility concerning the data and the possibility of generating reports. The members of the Regional Technical Coordination Group can access to the data provided by each single ovitrap and to data at municipal and provincial level, all registered users may access to basic statistics on the weekly mean of the mosquito population density and to statistics on the trend of the

infestation at provincial scale, while the operators of the municipalities have access also to data statistics related to their territory.

A reduced monitoring network is active also during the winter period, concentrated in the major cities of the region, to check for any wintering activity of the mosquito. The reduced number of ovitraps is not sufficient for the monitoring of the mosquito population density, but is useful to find for adult mosquitoes of *Ae. albopictus*, or for new species, active during winter, and therefore gives an important information for the mosquito management, and allow for a rapid discovery of any adaptation of the Italian population of the Asian Tiger Mosquito allowing changes in the period of activity, which could be facilitated by the global warming.

3.2.6. The control of the *Ae. albopictus* density in the E-R urban areas

3.2.6.1. The municipality ordinances requiring the adoption of good practices by citizens

The RTCG has prepared an example of a municipality ordinance requiring citizens to adopt good practices to prevent proliferation of tiger mosquitoes in private areas (courtyards, gardens, etc.). The ordinance can be found online at www.zanzaratigreonline.it and on the guidelines of the E-R Plan published in 2008 (ERR Health Department, 2008), and is a useful tool in the hand of municipality administrations to clarify the responsibility of householders, private organizations and business companies (and everyone may have at his or disposal any kind of urban areas) on the fight against the invasive mosquito.

In the model there is also a section dedicated to the sanctions for citizens who do not realize the activities indicated as good practices, and the activities that will be realize in case of suspected or proven case of infectious disease

3.2.6.2. Removal when possible, and mapping and census of non-removable potential breeding sites and “sensible sites”

Particular attention should be put on the removal of all potential breeding sites, when possible. This includes (ERR Health Department, 2008):

- Treatment of all the waste micro landfills in urban and sub-urban areas;
- The elimination, water depletion and indoor storage of containers and artefacts of potential risk;
- Indoor storage of used tires, or their alternative coverage in order to avoid the water stagnation
- The treatment of cavities and holes in the trees;
- Etc.

The mapping and census of non-removable potential breeding sites is an ongoing commitment that is very important to orientate the control activities every year. For “sensible sites” the E-R Plan intend areas where an intensive infestation may cause particular harassment, such as schools and day nurseries, care homes for elderly people, sport centres, cemeteries, etc.

3.2.6.3. The regular larvicidal treatments

The regular larvicidal treatments of road drains in public areas (independently from the presence of water inside), aimed at preventing the development of infestation hotspots in the areas that are not under the responsibility of individual citizens or private organisations, is carried on systematically in all the urban territories. The E-R Plan suggests to realize the larvicidal treatments for five rounds during the period of seasonal activity of *Ae. albopictus*, unless the occurrence rainfall or other adverse climate events, in which case the treatments need to be repeated to assure their effectiveness. To improve this activity, in

the yearly relation on the activities realized, that every municipality have to compile, are asked also the number of the road drains in the municipality and the number of rounds of treatments that have been realized. The census and georeferencing of the road drains is an activity that receive partial reimbursement from the ERR only from 2013, but in the previous years their census, georeferencing, as well as their cleaning and removal of leaves and other materials capable of constituting an obstacle to their correct treatment was already included in the reimbursed activities case by case, after the presentation of related documents.

Table 7. Number of treated road drains for each of the LHAs, in 2015

Piacenza	***Parma***	***Reggio Emilia***	***Modena***	***Bologna***	***Imola***	***Ferrara***	***Ravenna***	***Forlì***	***Cesena***	***Rimini***	***Total***
47,295	36,083	107,132	133,573	278,134	42,792	114,464	182,682	63,624	67,775	116,440	1,189,994

* These figures are to be considered a downward approximation of reality, because not all the municipalities that realized larvicidal activities in 2015 reported the number of road drains on which they have been made. Consequently, the calculation for the LHAs do not account for some these municipalities.

Source: Own elaboration on Emilia-Romagna data

For the larvicidal activities in public road drains it is mandatory to use commercial products registered at the Italian Ministry of Health for this usage, and which effectiveness is not less than four weeks. For these reasons the active ingredients currently more frequently used are Diflubenzuron and Pyriproxyfen. The Bacillus thuringiensis var. israelensis, which lasting effectiveness is too short, is recommended for larvicidal treatments in private areas by householders, also for its extremely law toxic profile.

3.2.6.4. Census and georeferencing of the urban road drains

From 2013 the E-R Plan includes a financial contribution for those municipalities that realize a census and georeferencing of the road drains in the public area. This is a very useful tool for the organization of larvicidal activities, as well as for the relative quality controls. The knowledge about the exact number of road drains and their positioning in map may also help the responsible operators to not leave any of them without the larvicidal treatment.

3.2.6.5. The door-to-door intervention in private areas

As a further measure to ensure the realization of the larvicidal treatments and the commitments of the householders, as well as their knowledge around the *Ae. albopictus* characteristics and the activities required to reduce its proliferation, the E-R Plan includes the possibility for municipalities to organize door-to-door activities (DtD), which are particularly recommended in coastal cities and in cases of particularly higher infestation. For this activity skilled operators of the municipalities goes door to door in sample areas, or in urban zone with particular higher infestation, and entre to private dwellings. During the visits information on the good practices for the control of the mosquito and on the importance of doing it is provided, potential and active breeding sites are removed if possible, or treated with larvicidal products, and instructions on how to carry out the larvicidal activity during the season of activity of the mosquito is provided.

Table 8. Number of private buildings interested by door-to-door activities, 2008-2015

LHAs of the Emilia-Romagna region	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***
Piacenza	n.a.	3,456	0	0	n.a.	0	0	0
Parma	n.a.	56	30	30	n.a.	0	23	0
Reggio Emilia	n.a.	7,860	6,450	4,800	n.a.	0	2,250	2,417
Modena	n.a.	24,372	0	0	n.a.	132	81	0
Bologna	n.a.	6,314	5,003	12,549	n.a.	7,103	9,955	12,337
Imola	n.a.	45	0	60	n.a.	0	0	0
Ferrara	n.a.	0	0	223	n.a.	103	51	32
Ravenna	n.a.	17,467	14,880	14,910	n.a.	13,781	23,781	13,781
Forlì	n.a.	0	0	0	n.a.	0	0	0
Cesena	n.a.	13,556	8,155	7,550	n.a.	5,221	6,320	4,678
Rimini	n.a.	46,350	38,755	31,917	n.a.	19,882	1,190	680
Total	**n.a.**	**119,476**	**73,273**	**72,039**	**n.a.**	**46,222**	**43,651**	**33,925**

n.a. stands for "data not available"

Source: Own elaboration on Emilia-Romagna data

3.2.6.6. The quality controls on larvicidal activity

Quality control activities may be realized by municipalities on the larvicidal treatments, in order to ensure the effectiveness of the treatments and the fact that they have been carried on in conformity with recommendations of the E-R Plan. These controls are made on a sample of road drains according to a regional protocol that regulates the technical and statistical aspects, by skilled operators that check for the presence of living larvae, pupae or adult mosquitoes in the water.

3.2.6.7. The education activity in public schools

Among the activities planned for the involvement of the population in the pest control the educational interventions in primary school are considered of particular importance, a fact recognized by the total reimbursement that they receive in the E-R Plan. Realized on a

sample of the fifth classes of the primary schools, with children that unless exceptions are aged between 10 and 11 years old, the lessons are focused on the Asian Tiger Mosquito behaviour, reproduction strategies, the importance of the control and how to realize it in their dwellings. The involvement of children of this age is supposed to influence the level of attention the families put on the control activities.

3.2.6.8. Site inspections and purchase of larvicidal kits for private use

The distribution of kits with larvicidal products among the population, such as Bti, is also included in the activities of the E-R Plan, and may happen during the DtD activities, the home visits on requests, the public events on squares, and any other occasion that lends itself to this purpose. Municipalities also may realize agreements with the drugstores to sell the larvicidal products with a discounted price.

In case of a situation of particular infestation in a private area, for which the responsible do not realize the appropriated control measures, the municipality should realize a site inspection to verify the reasons for the source of infestation, and may sanction the owner in this possibility is included in the municipal ordinance on the control of Asian Tiger Mosquito.

3.2.6.9. Information to citizens through various activities

Municipalities may realize a number of other activities in order to increase the attention of citizens to the Asian Tiger Mosquito problem. Among them dedicated publications in public newspapers, the production of informative posters and brochures, the organization of creative competitions to involve school students or other sectors of the population, or “Asian Tiger Mosquito days”, i.e. days dedicated to the information on the invasive mosquito, with events in public squares, home visits on request, etc.

For the school year 2009-2010 the ERR organized a competition for the students, to whom it was asked to realize the logo of the future campaigns for the control of *Ae. albopictus*.

Figure 6. Poster of the school competition organized by the ERR in 2009-2010

3.2.6.10. Other activities organized by municipalities

The municipalities involved in the E-R Plan may organize some other activities especially designed for the need of the town and conducted independently or in association with other municipalities, LHAs or the Region. These activities may include, for example, the extraordinary maintenance of canals and riversides in order to avoid water stagnation, or the realization of other control activities such as the introduction of Cyclopoids micro crustaceans – a natural predator of mosquito larvae – in public fountains, etc.

4. An economic cost description of the Emilia-Romagna AW-IPM Plan

4.1. Institutions involved, the regulation of the public expenditure and the source of our data

As we have seen in the previous chapter, the municipality authorities are responsible for the management of the control activities, which realize on a voluntary basis. In this task they are supported by the Regional Health Authority, which supply technical and organizational help for the monitoring activities, the planning of the interventions and the communication strategies for residents' participation. A part from this, the RHA also provide a financial support, which goes to partially or totally refund the costs incurred by municipalities.

Each year the institutions participating to the E-R Plan (i.e. Municipalities, LHAs, Unions of municipalities and provincial administrations, which in some cases substitute the municipalities in the realization of the E-R Plan or some of its activities) submit to the RHA a technical and financial report of the activities implemented in their respective territories – and included in the E-R Plan – to obtain the financial contribution. This is the main data source of this chapter, which excludes the overhead costs related to the implementation of the E-R Plan's activities by public institutions, for which I do not have information, as well as for all the other activities against the Asian Tiger Mosquito undertaken by public institutions that do not receive the ERR financial support. This includes the adulticidal treatments, which except for the emergency interventions in case of suspected or proved case of infectious disease, were included in the E-R Plan only for 2008, when received the

same type of contribution of the larvicidal treatments. Since 2009 the municipalities that decide to carry on these treatments do not receive any reimbursement from the ERR.

The yearly report is based on a model distributed by the RHA, which has changed over time following the changes of the list of activities included for the ERR financial contribution, indicated in Table 2. Compiling the model, the municipalities indicates every year the costs incurred (reported with VAT) for each of the activities carried out, and some additional information, which includes:

- The number of treated road drains in the public areas;
- The number of rounds of treatments realized in the road drains in public areas;
- The number of private houses, apartment building and other private areas included in the door-to-door activities;
- The number of rounds of door-to-door visits

Two activities: the municipality spending for emergency actions (in case of suspected or confirmed case of infectious disease); and the educational interventions in primary schools (started in 2009), has always been fully reimbursed by the RHA, a detail that indicates that are considered of particular importance to prevent the spread of epidemics and to improve the participation of householders in the control activities. The same should be said for the activities related to the monitoring system, which received a fully reimbursement from 2010, when the ovitraps checks frequency changed from weekly to biweekly, and for the quality controls on larvicidal treatments, which are refund for the half of their cost for municipalities.

After the payment of these items, the rest of the budget deployed by the ERR is destined to a partial reimbursement of the municipality expenditure for larvicidal treatments, for the involvement and information of citizens, for the door-to-door interventions in private areas, for the census and georeferenciation of the road drains in public areas, and for the other activities realized by municipalities that have been included in the reimbursements case by case, after the presentation of the relative documentation. This partial reimbursement is calculated as a percentage of the municipality expenditure and varies year-by-year, according to the ERR budget provisions and to the amount of the

paid refunds. The rates of the reimbursement for each of the activities are showed in Table 2, while in Table 1 it is reported the model compiled by municipalities in the years 2013, 2014 and 2015, with a translation of the items (made by me). Copies of the original models used from 2009 to 2011, and from 2013 to 2015 are attached at the end of this sub chapter.

Table 9. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan since 2013

Regional Plan for the Surveillance of arboviruses
Report of the expenditures incurred in 2015

Municipality or other institution that manages the activities of the Regional Plan for the surveillance of arboviruses

……..

(Write the name of the municipality or of the supra-municipal entity responsible for the management of the Regional Plan, specifying, in the case of supra-municipal entity, which are the municipalities involved. Any subsequent information should refer to the municipality or to the group of municipalities specified here).

Data relative to the activities of the Regional Plan realized before August 31st, 2015

Activity	*Description*	*Data*	*Notes*
1. Management of cases of suspected or proven transmissible disease (chikungunya or dengue)	a. Number of reported cases:	Chikungunya: Dengue:	Write the number of cases of transmissible disease reported by the competent authorities to which has followed, according to the regional protocol, the realization of adulticidal and larvicidal activities to prevent the risk of disease transmission.
	b. Total expenditures incurred for adulticidal treatments in private and public areas (Euro, including VAT):		Write the total expenditures incurred for adulticidal treatments realized following the instructions of the regional protocol for the reported cases of transmissible diseases referred to the point (a) above.

Table 9. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan since 2013. Continue from the previous page

		c. Total expenditures incurred for "door-to-door" larvicidal interventions realized in private areas (Euro, including VAT):		Write the total expenditures incurred for larvicidal treatments realized in private areas ("door-to-door") for the cases of transmissible disease referred to the point (a) above. For the definition of "door-to-door see the remark at the point 5-k below.
	2. Management of case of suspected or proven transmissible disease (other than chikungunya or dengue)	d. Total expenditures incurred for adulticidal treatments in private and public areas (Euro, including VAT):		Write the total expenditures incurred for adulticidal treatments realized following the instructions of the regional protocol for the cases of transmissible diseases other than chikungunya or dengue.
		e. Total expenditures incurred for "door-to-door" larvicidal interventions realized in private areas (Euro, including VAT):		Write the total expenditures incurred for larvicidal treatments realized in private areas ("door-to-door") for the cases of transmissible disease (other than chikungunya or dengue). For the definition of "door-to-door see the remark at the point 5-k below.
		f. Total expenditures incurred to realize other kind of interventions:		Write the total expenditures incurred for other kind of interventions related to the management of reported cases of vector-borne diseases (other than those reported at the points 1-b, 1-c, 2-d, 2-e indicated above).
	3. Census and georeferencing of the urban road drains (if realized in the current year)	g. Total expenditures incurred for the census and GPS georeferencing of road drains and manholes in the public areas (Euro, including VAT):		In the event that a census with GPS georeferencing has been carried out during the current year, indicate the total expenditures incurred. If not, tick below as appropriate: • **A census of the road drains and manholes in the public areas already exist, realized in previous years.** • **A census of the road drains and manholes does not exist.**
	4. Larvicidal treatments of the road drains in public areas	h. Total number of rounds of larvicidal treatments realized in public road drains:		Write the number of rounds of treatments of the road drains in public areas realized.

Table 9. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan since 2013. Continue from the previous page

	i. Total number of road drains and manholes treated at each round of treatments:		Write the total number of road drains and manholes, with the best possible approximation if a census has not been realized.
	j. Total expenditures incurred for the larvicidal treatments in public areas (Euro, including VAT):		Write the total expenditures incurred for the larvicidal treatments. Do not include the expenditure for the quality controls on the larvicidal treatments, which has to be indicated in the point 6.
5. Larvicidal treatments realized in private areas ("door-to-door"), excluding the treatments that refers to the points 1 and 2 above.	k. Number of private buildings interested by the "door-to-door" activity:		With "door-to-door" is intended the activity carried out in private areas, in which one or more technicians explain the good practices needed to avoid the mosquito reproduction, realize larvicidal treatments in the non-removable potential breeding sites and remove the others, and provide instructions on how to realize larvicidal treatments during the season of activity of the Asian Tiger Mosquito. If this activity has been carried out, indicate the number of private areas interested.
	l. Total number of rounds of "door-to-door" visits realized in the private areas referred to the point (k) above:		Write the total number door-to-door visits realized in private areas.
	m. Total expenditures incurred for larvicidal door-to-door activities realized in private areas (Euro, including VAT):		Write the total cost incurred for "door-to-door" activities carried out in private areas, including VAT.
6. Inspections in private areas under request	n. Total number of inspections realized in private areas under request of citizens:		Indicate the total number of inspections realized in private areas under request of citizens.

Table 9. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan since 2013. Continue from the previous page

7. Quality controls on larvicidal treatments, referred to section 4 above, only if carried out according to the regional protocol, as indicated in the letter of the Regional Minister for Health Policies (Assessore Regionale alle Politiche per la Salute), PG/2008/101 of January 1st, 2008.	o. Number of sampled road drains during the quality controls related to larvicidal treatments:		With quality control are intended those carried out on a sample according to the procedure of the regional protocol - letter of the Regional Minister for Health Policies (Assessore Regionale alle Politiche per la Salute), PG/2008/101 of January 1st, 2008. Write the total number of road drains included in the checked sample. Any quality control realized not following the regional protocol cannot be considered.
	p. Number of rounds of larvicidal treatments in public areas to which quality controls have been carried out:		Write the number of rounds of larvicidal treatments to which quality controls have been carried out according to the regional protocol.
	q. Total expenditures incurred for the quality controls on larvicidal treatments carried out in public areas (Euro, including VAT):		Write the total expenditures incurred (including VAT) for quality controls on larvicidal activities carried out in public areas.
8. Distribution of larvicidal kit to the population	r. Number of larvicidal kits distributed:		Write the number of larvicidal kits distributed free of charge to the population.
	s. Total expenditures incurred for larvicidal kits (Euro, including VAT)		Write the total expenditures incurred for the larvicidal kits distributed free of charge to the population, including the expenditure for the distribution, if contracted-out.
Total expenditures incurred (Euro, including VAT)			Write the sum of the following points: b + c + d + e + f + g + j + m + q + s;

Number of reported violations to the municipal ordinance……
Number of sanctions applied…….

Source: Emilia-Romagna region,

Table 10. Activities included in the E-R Plan receiving RHA financial contribution after the presentation of the yearly reports of municipality expenditures (2008-2015)

AW-IPM activities of the Regional Plan implemented by municipalities	***Proportion of the declared by declared expenditures reimbursed by the RHA***			
	2008	***2009***	***2010***	***2011***
Monitoring of Ae. albopictus population*	Lump sum: € 3.5 for each ovitrap check	Lump sum: € 3.5 for each ovitrap check	Lump sum: € 7 for each ovitrap check during winter; € 9 for each ovitrap check during spring/summer	Lump sum: € 7 for each ovitrap check during winter; € 9 for each ovitrap check during spring/summer
Larvicidal treatments of public road drains	18.24%	18.88%	12.48%	11.64%
DtD interventions in private areas	18.24%	18.88%	12.48%	11.64%
Quality controls on the efficacy of larvicidal treatments (b) in public areas α	Not reimbursed	50%	50%	50%
Site inspections and purchase o larvicidal kits for private use	18.24%	18.88%	12.48%	11.64%
Education in primary schools α	Not reimbursed	100%	100%	100%
Census and georeferenciation of the urban road drains β	Not reimbursed	Not reimbursed	Not reimbursed	Not reimbursed
Other activities undertaken by municipalities ϕ	18.24%	18.88%	12.48%	11.64%
Management of reported cases (emergency)	100%	100%	100%	100%
Legislative references	Resolution of the Regional Council n° 2236/2008	Resolution of the Regional Council n° 2374/2009[1]	Resolution of the Regional Council n° 2112/2010	Resolution of the Regional Council n° 2135/2011
Total Contribution (€)	**€ 2,046,707.14**	**€ 1,599,973.42**	**€ 1,200,001.74**	**€ 1,100,000.00**

[1] Corrected by resolution of the Regional council n° 323/2010

Table 10. Activities included in the E-R Plan receiving RHA financial contribution after the presentation of the yearly reports of municipality expenditures (2008-2015). Continue from the previous page

AW-IPM activities of the Regional Plan implemented by municipalities	***Proportion of the declared by declared expenditures reimbursed by the RHA***			
	2012	***2013***	***2014***	***2015***
Monitoring of Ae. albopictus population*	Lump sum: € 7 for each ovitrap check during winter; € 9 for each ovitrap check during spring/summer	Lump sum: € 7 for each ovitrap check during winter; € 9 for each ovitrap check during spring/summer	Lump sum: € 7 for each ovitrap check during winter; € 9 for each ovitrap check during spring/summer	Lump sum: € 7 for each ovitrap check during winter; € 9 for each ovitrap check during spring/summer
Larvicidal treatments of public road drains	25.16%	16.88%	14.96%	21.88%
DtD interventions in private areas	25.16%	16.88%	14.96%	21.88%
Quality controls on the efficacy of larvicidal treatments (b) in public areas α	50%	50%	50%	50%
Site inspections and purchase of larvicidal kits for private use	25.16%	16.88%	14.96%	21.88%
Education in primary schools α	100%	100%	100%	100%
Census and georeferenciation of the urban road drains β	Not reimbursed	16.88%	14.96%	21.88%
Other activities undertaken by municipalities ϕ	25.16%	16.88%	14.96%	21.88%
Management of reported cases (emergency)	100%	100%	100%	100%
Legislative references	Resolution of the Regional Council n° 1623/2012	Resolution of the Regional Council n° 2374/2013	Resolution of the Regional Council n° 1829/2014	Resolution of the Regional Council n° 1699/2015
Total Contribution (€)	**€ 1,100,000.00**	**€ 1,000,000.00**	**€ 1,000,000.00**	**€ 1,000,000.00**

***** In 2008 and 2009 the lump sum is supposed to cover the 50% of the total expenditures. From 2010, when the checks became biweekly, the lump sum is supposed to cover 100% of the total expenditures; **α** Activity not included in the Regional plan in the year 2008; **β** The census of public road drains has been included case by case until 2012; **ϕ** Only for the year 2008, this item includes expenditure for adulticide treatments in sensible sites (public parks, school gardens, cemeteries, etc.). Source: Own elaboration.

The following tables show the models distributed by the RHA for the yearly reports.

Table 11. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan in 2009, 2010, 2011 and 2012

COMUNE DI…….		
Gestione casi di malattia segnalati(Chik, Dengue, West Nile,ecc..)	**Costo totale trattamenti adulticidi (IVA inclusa)**	
	Costo totale trattamenti porta a porta (IVA inclusa)	
Disinfestazione	**N° tombini**	
	N° turni di trattamenti antilarvali	
	Costo totale trattamenti antilarvali (IVA inclusa)	
	N° edifici privati coinvolti nel porta a porta	
	N° turni dei tratt. porta a porta (esclusi quelli per la gestione casi di malattia segnalati)	
	Costo totale trattamenti antilarvali porta a porta (esclusi quelli per la gestione casi di malattia segnalati) IVA inclusa	
Controllo	**Costo totale verifica qualità trattamenti (IVA inclusa)**	
Coinvolgimento cittadini	**Costo totale sopralluoghi su segnalazione (IVA inclusa)**	
	Costo totale acquisto kit larvicidi (IVA inclusa)	
	Costo totale interventi formativi scuola primaria° (IVA inclusa)	
Altro*	**Altro* (IVA inclusa)**	
TOTALE COMUNE (IVA inclusa)		

*Per le spese rendicontate alla voce "Altro" va allegata una scheda descrittiva degli interventi per i quali si chiede il contributo

°Come da accordi con il gruppo regionale "Sorveglianza e lotta alla zanzara tigre" alle somme indicate in questa voce va allegata la scheda con le informazioni indicate; in caso di mancanza delle suddette verrà valutata caso per caso l'ammissibilità al finanziamento.

Source: Emilia-Romagna region

Table 12. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan since 2013

Piano Regionale di sorveglianza delle arbovirosi
Rendicontazione spese sostenute nell'Anno 2015

Comune o Ente che gestisce le attività del Piano Regionale di sorveglianza delle arbovirosi:
……..
(Inserire il nome del comune o dell'ente sovra comunale incaricato della gestione sul territorio del Piano Regionale, specificando, nel caso di ente sovra-comunale, quali sono i comuni che coinvolge. Tutte le successive informazioni dovranno fare riferimento al Comune o al gruppo di comuni qui indicato).

Dati relativi alle attività del Piano Regionale realizzate alla data del 31 AGOSTO 2015

Attività	*Descrizione*	*Dati*	*Note*
1. Gestione dei casi segnalati di malattia trasmissibile (chikungunya e dengue)	a. Numero di casi segnalati:	Chikungunya:	Indicare il numero dei casi di malattia trasmissibile segnalati dalle autorità competenti a cui fa seguito, secondo il protocollo regionale, la realizzazione di trattamenti adulticidi e larvicidi volti a prevenire
		Dengue:	il pericolo di contagio.
	b. Spesa totale sostenuta per i trattamenti adulticidi effettuati in aree pubbliche e private (Euro, IVA inclusa):		Inserire la spesa totale sostenuta per i trattamenti adulticidi realizzati secondo le modalità previste dal protocollo regionale per i casi segnalati di malattie trasmissibili di cui al punto (a) sopra.
	c. Spesa totale sostenuta per i trattamenti antilarvali effettuati "porta a porta" in aree private (Euro, IVA inclusa):		Inserire la spesa totale sostenuta per i trattamenti antilarvali effettuati in aree private ("porta a porta") per i casi segnalati di malattie trasmissibili di cui al punto (a) sopra. Per la definizione di "porta a porta" si veda più sotto la nota al punto 5-k.
2. Gestione dei casi segnalati di altre malattie da vettore (diverse da chikungunya e dengue)	d. Spesa totale sostenuta per i trattamenti adulticidi effettuati in aree pubbliche e private (Euro, IVA inclusa):		Inserire la spesa totale sostenuta per i trattamenti adulticidi realizzati secondo le modalità previste dal protocollo regionale per i casi segnalati di altre malattie da vettore (diverse da chikungunya e dengue).
	e. Spesa totale sostenuta per i trattamenti antilarvali effettuati "porta a porta" in aree private (Euro, IVA inclusa):		Inserire la spesa totale sostenuta per i trattamenti antilarvali effettuati in aree private ("porta a porta") per i casi segnalati di altre malattie da vettore (diverse da chikungunya e dengue). Per la definizione di "porta a porta" si veda più sotto la nota al punto 5-h.

Table 12. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan since 2013. Continue from the previous page

		f. Spesa totale sostenuta per altri tipi di intervento (Euro, IVA inclusa):		Inserire la spesa totale sostenuta per gli altri tipi di intervento correlati alla gestione di casi segnalati di malattie da vettore (diversi da quelli relativi ai punti 1-b, 1-c, 2-d, 2-e indicati sopra).
	3. Censimento e georeferenziazione delle caditoie e dei tombini (se effettuato nell'anno in corso)	g. Spesa totale sostenuta per il censimento e la georeferenziazione GPS delle caditoie e dei tombini presenti in aree pubbliche (Euro, IVA inclusa):		Nel caso in cui sia stato effettuato un censimento con georeferenziazione GPS delle caditoie nell'anno in corso, indicare la spesa totale sostenuta. Diversamente barrare sotto come appropriato: • **Esiste un censimento con georeferenziazione delle caditoie realizzato in anni precedenti** • **Non esiste un censimento con georeferenziazione delle caditoie**
	4. Trattamenti antilarvali in aree pubbliche	h. Numero totale di turni di trattamenti antilarvale effettuati in aree pubbliche:		Inserire il numero dei turni di trattamenti antilarvale effettuati in aree pubbliche.
		i. Numero complessivo di tombini e caditoie trattati in ogni turno di trattamenti:		Inserire il numero complessivo di tombini trattati, con la migliore approssimazione possibile nel caso non sia stato realizzato un censimento.
		j. Spesa totale sostenuta per i trattamenti antilarvali effettuati in aree pubbliche (Euro, IVA inclusa):		Inserire la spesa totale sostenuta per i trattamenti antilarvali effettuati. Sono escluse le spese per i controlli di qualità che vanno indicati al punto 6.
	5. Trattamenti antilarvali effettuati a domicilio in aree private ("porta a porta"), con esclusione dei trattamenti di cui ai punti 1 e 2 sopra	k. Numero di edifici privati le cui pertinenze sono state interessate dai trattamenti larvicidi "porta a porta":		Si intende per "porta a porta" l'attività realizzata a domicilio, in cui uno o più operatori spiegano le norme di comportamento per evitare la riproduzione delle zanzare, applicano il prodotto larvicida nei potenziali focolai impossibili da rimuovere, rimuovono i focolai eliminabili e forniscono istruzioni sui trattamenti larvicidi da effettuarsi durante la stagione. Nel caso venga realizzata questa attività, indicare il numero di edifici privati le cui pertinenze sono state interessate.

Table 12. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan since 2013. Continue from the previous page

		l. Numero complessivo di visite per trattamenti "porta a porta" effettuate nelle pertinenze di edifici privati di cui sopra:		Indicare il numero complessivo di visite effettuate per i trattamenti antilarvali "porta a porta" in aree private.
		m. Spesa totale sostenuta per i trattamenti antilarvali effettuati a domicilio ("porta a porta") in aree private (Euro, IVA inclusa):		Indicare la spesa totale sostenuta per i trattamenti "porta a porta", comprensiva di IVA.
	6. Sopralluoghi effettuati su segnalazione	n. Numero complessivo di visite a domicilio realizzate in seguito a segnalazioni di cittadini:		Indicare il numero complessivo di visite a domicilio effettuate dall'amministrazione comunale a seguito di segnalazioni dei cittadini.
	7. Controlli di qualità sui trattamenti antilarvali in aree pubbliche di cui alla sezione 4 sopra (solo se effettuati secondo il protocollo regionale, di cui alla lettera dell'Assessore Regionale alle Politiche per la Salute, PG/2008/101 del 02/01/2008)	o. Numero di caditoie campionate nei controlli di qualità sui trattamenti antilarvali in aree pubbliche:		Si intendono per controlli di qualità quelli realizzati a campione secondo la procedura prevista dal protocollo regionale (lettera Assessore Regionale alle Politiche per la Salute PG/2008/101 del 02/01/2008). Indicare il numero complessivo di caditoie incluso nel campione controllato. I controlli realizzati secondo altre modalità non vanno considerati.
		p. Numero di turni di trattamenti antilarvali in aree pubbliche sottoposti a controllo di qualità:		Indicare il numero dei turni di trattamenti antilarvali in aree pubbliche sottoposti al controllo di qualità secondo la procedura prevista dal protocollo regionale.
		q. Spesa totale sostenuta per i controlli di qualità sui trattamenti antilarvali in aree pubbliche (IVA inclusa):		Indicare la spesa totale sostenuta (comprensiva di IVA) per i controlli di qualità sui trattamenti antilarvali in aree pubbliche.

Table 12. The model compiled by municipalities to report the activities realized and the expenditures incurred for the E-R Plan since 2013. Continue from the previous page

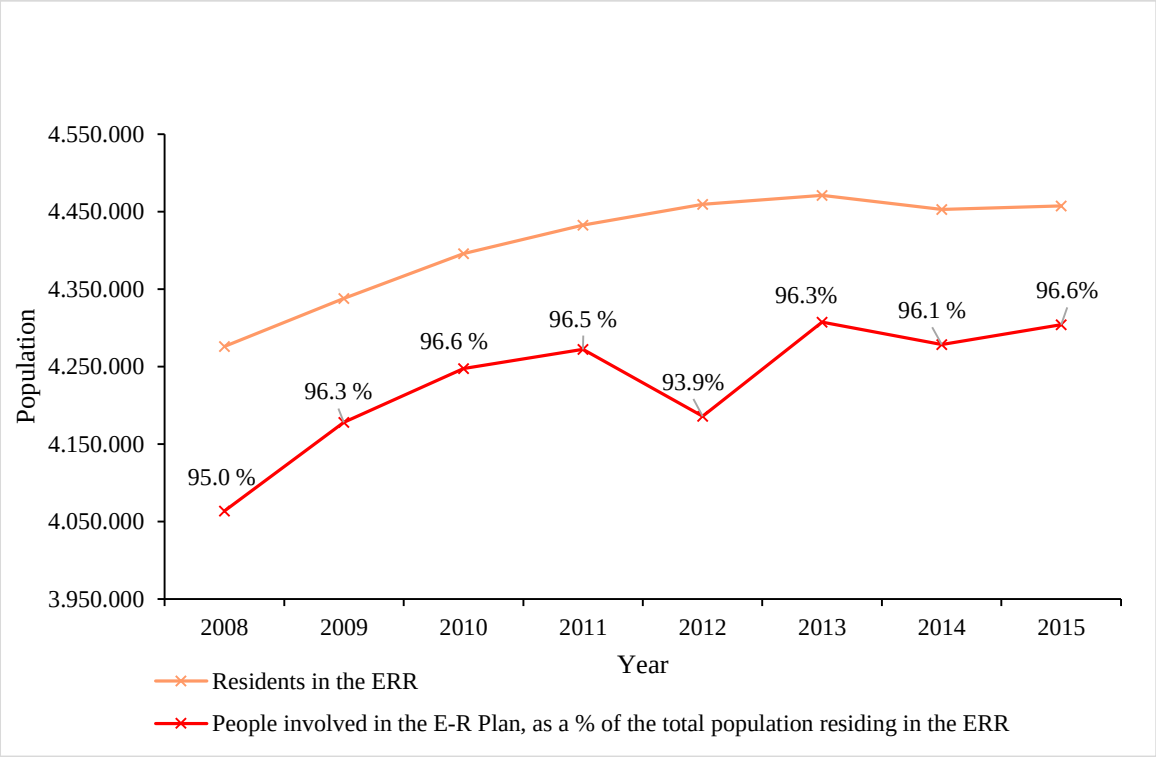
8. Distribuzione kit larvicidi alla popolazione	r. Numero di kit larvicidi distribuiti:		Indicare il numero complessivo di kit larvicidi distribuiti gratuitamente alla popolazione da parte del Comune.
	s. Spesa totale sostenuta per l'acquisto di kit larvicidi da distribuire alla popolazione (Euro, IVA inclusa)		Indicare la spesa totale sostenuta per l'acquisto dei kit larvicidi da distribuire gratuitamente alla popolazione da parte del Comune, incluse le spese sostenute per la distribuzione se affidata a terzi.
Spese complessivamente sostenute (Euro, IVA inclusa)			Indicare la somma dei seguenti punti: b + c + d + e + f + g + j + m + q + s;

Numero di violazioni all'Ordinanza Comunale riscontrate ……..;
Numero di sanzioni comminate ……

Source: Emilia-Romagna region

In Figure 7 are showed the population involved in the E-R Plan and the population residing in the ERR, year by year. A high proportion of the population, on average the 95.1 %, resides in municipalities which has been involved in one or more of the activities, with a little fall in 2012 mainly because of the described earthquake.

Figure 7. The population involved in the E-R Plan and the population residing in the ERR, year by year.



Source: Own elaboration

4.2. The total expenditures incurred for the activities of the E-R Plan

4.2.1. The total costs of the E-R Plan and the distribution of the expenditure among the activities and the LHAs

The first thing to appoint about the data analysed is their variability. This concerns both the values of the expenditure, which for similar activities has changed year by year and among the LHAs, and the quality of the data recorded. Although there have been important progresses in this direction – made possible through the commitment of the RHA and the RTCG in highlighting the importance of the E-R Plan and its activities one by one – still persist some municipalities which do not accurately compile the model for the report of the activities, or do not or partially realize some of them. The changes made to the model for the report of the activities in 2013 have been important to improve the quality of data, and for example the elimination of reported expenditures for activities not included in a specific item, and therefore inserted in the item "other activities undertaken by municipalities" (Table 13), may be intended as a signal of a step forward in the standardization of the activities carried out to fight the Asian Tiger Mosquito. Nonetheless is not to forgive that some local administrations undertake other activities not included among those which receive a financial contribution, such as periodical adulticidal treatments in public areas, for which we do not have any specific data, even if they may represent a significant fraction of the efforts made. Another detail that may reduce the quality of the data collected is the fact that each municipality compiles its own report, allowing – despites the efforts made by the RHA to clearly define the items with a unique language – different interpretations of what to include by the public officials in charge of compiling.

A part from these limitations, the RHA collected an important quantity of data since 2008, which gives us discretely clear indications on how the E-R Plan has been realized, how much it costs and which is the relative importance of each activity in the expenditures incurred.

Giving a first look at the data showed in Table 13, Table 14 and Table 15, we can see that the expenditure for the E-R Plan, considering all the administration levels involved, has been steadily shrinking since 2008, and we can identify three different periods based its level: the year 2008, the first year after the epidemic outbreak, with an expenditure of around € 7.6 million; the three years since 2009 to 2011, along which the expenditure gradually fallen from around € 5.9 million to around € 5.3 million; and the four years period since 2012 to 2015, during which the expenditure has been further reduced, from about € 3.5 million to about € 3.1 million.

Table 13. Total expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity	***2008***		***2009***		***2010***		***2011***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments of road drains in public areas	3,613,998.22	47.5	3,225,620.88	54.3	3,328,512.82	59.7	3,293,796.22	62.4
DtD interventions in private areas	1,128,537.82	14.8	657,444.40	11.1	590,203.82	10.6	446,276.96	8.4
Site inspections and purchase of larvicidal kits for private use*	694,775.54	9.1	624,698.46	10.5	584,614.21	10.5	469,572.07	8.9
Monitoring of Ae. albopictus population α	409,864.00	5.4	385,994.00	6.5	255,476.00	4.6	257,575.00	4.9
Quality controls on the efficacy of larvicidal treatments of public road drains	n.a.	-	340,394.21	5.7	335,091.65	6.0	308,261.27	5.8
Management of reported cases (emergency)	647,111.00	8.5	124,644.07	2.1	35,752.08	0.6	7,797.00	0.1
Education in primary schools	n.a.	-	187,238.11	3.2	141,771.95	2.5	150,100.80	2.8
Census and georeferencing of the urban road drains	n.a.	-	n.a.	-	n.a.	-	n.a.	-
Other activities undertaken by municipalities β	1,112,382.18	14.6	391,055.75	6.6	300,001.08		348,928.14	6.6
Total	**7,606,668.76**	**100.0**	**5,937,089.89**	**100.0**	**5,571,423.61**	**94.6**	**5,282,307.46**	**100.0**

*****: Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns; **α**: Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010; **β**: Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data.

Table 13. Total expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015. Continue from the previous page

Kind of activity	*2012*		*2013*		*2014*		*2015*		*Variation 2015/2009*	
	€	*%*	*€*	*%*	*€*	*%*	*€*	*%*	*€*	*%*
Larvicidal treatments of road drains in public areas	2,373,647.96	67.5	2,020,203.15	62.1	2,183,272.61	64.6	2,088,164.90	67.0	-1,137,456	-35.3
DtD interventions in private areas	376,320.94	10.7	313,900.97	9.6	286,609.24	8.5	252,338.20	8.1	-405,106	-61.6
Site inspections and purchase of larvicidal kits for private use*	412,278.81	11.7	239,373.62	7.4	203,314.49	6.0	239,661.45	7.7	-385,037	-61.6
Monitoring of Ae. albopictus population α	237,816.00	6.8	252,341.00	7.8	251,963.80	7.5	226,767.85	7.3	-159,226	-41.3
Quality controls on the efficacy of larvicidal treatments of public road drains	104,150.30	3.0	152,053.86	4.7	143,655.45	4.3	165,613.12	5.3	-174,781	-51.3
Management of reported cases (emergency)	14,584.96	0.4	120,393.39	3.7	153,903.66	4.6	121,245.24	3.9	-3,399	-2.7
Education in primary schools	n.a.	-	108,767.41	3.3	116,676.32	3.5	0.00	0.0	-187,238	-100.0
Census and georeferencing of the urban road drains	n.a.	-	47,952.70	1.5	38,638.00	1.1	20,935.19	0.7	20,935	-
Other activities undertaken by municipalities β	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	-391,056	-100.0
Total	**3,518,798.97**	**100.0**	**3,254,986.10**	**100.0**	**3,378,033.57**	**100.0**	**3,114,725.95**	**100.0**	**-2,822,363.94**	**-47.5**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Some hypothesis may be formulated to explain the higher expenditure relative to the 2008:

- It was the first year after the chikungunya epidemic outbreak in the ERR: giving that the *Ae. albopictus* has in the regional climate a period of activity of around 6 months, approximately between the beginning of May and the end of October, there was a perceived risk that the Chikungunya Virus could overwinter in the eggs and give place to a new virus circulation in 2008. The fact that the vertical transmission of CHIKV (i.e. a transovarial transmission which may carry the virus from an adult female to its progeny) is a very rare event (Bellini et al., 2012; Mourya, 1987; Vazeille et al., 2009) played a relevant role in avoiding this risk, possibly helped by the high level of attention to the mosquito control ensured by the launch of the E-R Plan;
- The low level of householders' knowledge on *Ae. albopictus* control prior to 2008, and the need of a rapid change in the approach on this problem, which led both to a particularly high commitment in the DtD interventions and to the organization of a number of special communication activities for the involvement of the population;
- The low level of technical and organizational skills available for the local administration, which were coping with a control plan for which they did not have experience, which may have negatively influenced economical inefficiencies in the realization of the activities.

The reduction of the total expenditure in 2009 is explainable for its 56.6% by the reduction of the expenditures reported in the items "other activities undertaken by municipalities", and "management of reported cases (emergency)" (excluding the expenditures for the quality controls on larvicidal treatments and for the education in primary schools, which have been introduced in 2009). For the first, the 95.1% of the reduction is due to the fact that only for 2008 were included in the item the adulticidal treatments in sensible sites – which accounted alone for € 332,661.21– and the census and cleaning of the public road drains, with an expenditure of € 353,254.27. For the second the higher expenditure of 2008 is hardly explainable, giving that 2008 was a year with a particularly low number of reported cases (6, as shown in Table 6 of the Chapter 3). A

possible explanation, nevertheless not relying on quantitative data, may be a higher sensibility of the GPs for the communication of suspected and probable cases to the RHA, and a higher propensity of the patients to go to the GPs or hospitals when interested by symptoms which in other years may have been considered as due to a seasonal flu, and consequently ignored or treated at home, without involving general GPs or the RHA.

The reduction of the expenditure for the DtD interventions explain an additional 21.4% (€ 471,093.42) of the total expenditure decline after 2008, and the larvicidal treatments of road drains in public areas another 17.7%. For these items little is possible to say at this stage of the analysis, since for the first we do not have clear information on the number of private dwelling visited, and for the second there is not a reduction in the number of municipalities realizing the larvicidal activity, nor in the population residing in that municipalities, sufficient to be explain the expenditure decline. In the continuation of this chapter I will further explore this question by a deeper view of the data relative to each of the activities.

The other items were less significant, i.e. the site inspections and purchase of larvicidal kits for private use item, which in 2008 included the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control (€ 48,915.44), and the expenditures related to other extraordinary communication campaigns (€ 180,617.23) accounted for a 3.2%, and the monitoring of the mosquito population only for the 1.1% of the expenditure decline.

As a methodology for this study, I will concentrate the assessment on the dynamic of the expenditure considering 2008 as a "special" year, after which the E-R Plan reached a higher stability and standardization of the activities. In other words, the 2008 was a year that may be considered of partial emergency, a circumstance that may help to explain its abnormal level of expenditures without a clear correspondence in the number or the quality of the activity (which instead has ameliorated in the later years). For this reason, in most of the observations the comparison of the incurred expenditures is done among the years since 2009, and not 2008.

Showed on Table 13 we can also see how the larvicidal treatments have been for far the more representative activity of the E-R Plan in terms of the expenditures incurred, always absorbing a high percentage of the total expenditure. Oscillating between the 47.5% of 2008 and the 67.5 % of 2012, the increase of this relative expenditure is the result of the

relative and absolute reduction of the expenditure relative to other activities, rather to an increase of the expenditure in absolute values, which in fact felt down from € 3.6 million in 2008, steadily up to € 3 million in the period 2009-2011, to a little over € 2 million in 2012-2015 period. Differently from the period 2009-2011, in 2012-2015 there is a little reduction both in the number of municipalities than in the population involved (Table 14).

The DtD interventions and the site inspections and purchase of larvicidal treatments are both – with some minor differences from year by year - ranked in the second position from the point of view of the expenditure level. Both are in some way *communication* and *including* activities, and in the same time directly influence the active control of the mosquito breeding sites, and therefore the mosquito population. The DtD interventions are mainly organized changing the areas of intervention from year to year, in order to maximise the number of people contacted, while the site inspections and the distribution of larvicidal kits may potentially reach the entire population every year, as well as every year the same proportion of the population made by the more committed families. These aspects are important to keep in mind when analysing the data, in order to avoid misinterpretations, because more detailed data is not included in this work.

From Table 14 and Table 15 we can see that the DtD intervention declined in number of included municipalities, population and expenditure comparing the two highlighted periods, and the same happened for the site inspections and purchase of larvicidal kits.

The main change in the expenditure for the ovitraps monitoring system is relative to the years 2010 and 2011, when a technical improvement allowed the switch from a weekly to a bi-weekly ovitrap checking, without missing the quality of the data (Carrieri et al., 2011a, 2009). This improvement is based on the use of a 1% *Bacillus thuringiensis var. israelensis* (Bti) solution in the ovitraps, which prevents the mosquitoes to complete the development cycle, still enhancing the oviposition rate of *Ae. albopictus* in the ovitraps. After this change both the population, the municipalities and the expenditures incurred remained more or less constant, thus highlighting a high degree of standardization and organization of the activity, which is, together with the larvicidal treatments, the activity of the E-R Plan involving a higher proportion of the ERR population.

The quality controls on the larvicidal treatments has seen a reduction both in the number of municipalities and population involved, as well as in the expenditure, a fact that is evident also comparing the two periods: during the years 2009-2011 realized quality

controls a mean of 126 municipalities with a mean population of 2.7 million, and a mean expenditure of € 327,915.71, while in the 2012-2015 period they was a mean of 75 municipalities, inhabited by 2,149,582 people, with an expenditure of € 141,368.18 on average. The higher reduction of the expenditure compared to the population should be further investigated, in order to evaluate if there has been a reduction in the number of road drains verified, or what else, but these data are not at my disposal.

Table 14. Distribution and mean expenditures incurred for the realization of the activities included in the E-R Plan in 2008, and for the periods 2009-2011, 2012-2015 and 2009-2015

	Mean Expenditure							
Kind of activity	***2008***		***2009-2011***		***2012-2015***		***2009-2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments of road drains in public areas	3,613,998.22	47.5	3,282,643.31	58.7	2,166,322.15	65.3	2,644,745.51	61.6
DtD interventions in private areas	1,128,537.82	14.8	564,641.73	10.1	307,292.34	9.3	417,584.93	9.7
Site inspections and purchase of larvicidal kits for private use*	694,775.54	9.1	559,628.25	10.0	273,657.09	8.3	396,216.16	9.2
Monitoring of Ae. albopictus population α	409,864.00	5.4	299,681.67	5.4	242,222.16	7.3	266,847.66	6.2
Quality controls on the efficacy of larvicidal treatments of public road drains	n.a.	-	327,915.71	5.9	141,368.18	4.3	221,317.12	5.2
Management of reported cases (emergency)	647,111.00	8.5	56,064.38	1.0	102,531.81	3.1	82,617.20	1.9
Education in primary schools	n.a.	-	159,703.62	2.9	56,360.93	1.7	100,650.66	2.3
Census and georeferencing of the urban road drains	n.a.	-	n.a.	-	26,881.47	0.8	15,360.84	0.4
Other activities undertaken by municipalities β	1,112,382.18	14.6	346,661.66	6.2	0.00	0.0	148,569.28	3.5
Total	**7,606,668.76**	**100.0**	**5,596,940.32**	**100.0**	**3,316,636.15**	**100.0**	**4,293,909.36**	**100.0**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution.

Source: Own elaboration on ERR data

Table 15. Number of municipalities that realized activities included in the E-R Plan, and their population (residents), 2008-2015

Kind of activity	*2008*		*2009*		*2010*		*2011*	
	Municip.	*Population*	*Municip.*	*Population*	*Municip.*	*Population*	*Municip.*	*Population*
Larvicidal treatments of road drains in public areas	251	3,941,742	254	4,028,916	260	4,075,566	254	4,121,149
DtD interventions in private areas	76	1,047,177	59	1,254,788	52	1,063,598	41	782,326
Site inspections and purchase of larvicidal kits for private use*	187	3,136,747	184	2,994,084	174	3,461,731	152	2,946,958
Monitoring of Ae. albopictus population α	238	3,590,023	245	3,906,715	211	3,226,560	256	3,975,462
Quality controls on the efficacy of larvicidal treatments of public road drains	n.a.	-	125	2,768,594	127	2,662,495	126	2,685,841
Management of reported cases (emergency)	80	1,679,032	33	1,066,970	13	1,114,959	5	575,652
Education in primary schools	n.a.	-	60	1,752,799	97	2,675,132	117	3,009,940
Census and georeferencing of the urban road drains	n.a.	-	n.a.	-	n.a.	-	n.a.	-
Other activities undertaken by municipalities β	206	3,598,570	80	2,175,255	66	1,634,518	51	1,594,432
Total	**273**	**4,063,543**	**280**	**4,178,113**	**291**	**4,247,229**	**290**	**4,276,148**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution.

Source: Own elaboration on ERR data

Table 15. Number of municipalities that realized activities included in the E-R Plan, and their population (residents), 2008-2015. Continue from the previous page

Kind of activity	*2012*		*2013*		*2014*		*2015*	
	Municip.	*Population*	*Municip.*	*Population*	*Municip.*	*Population*	*Municip.*	*Population*
Larvicidal treatments of road drains in public areas	233	3,939,981	210	3,769,314	204	3,763,625	221	3,989,363
DtD interventions in private areas	32	718,748	36	919,143	27	1,037,202	33	876,640
Site inspections and purchase of larvicidal kits for private use*	138	2,713,592	115	1,954,827	110	1,956,715	123	1,899,848
Monitoring of Ae. albopictus population α	251	3,960,750	262	4,098,558	257	4,086,406	256	4,085,204
Quality controls on the efficacy of larvicidal treatments of public road drains	49	1,649,631	86	2,314,718	78	2,249,284	88	2,384,695
Management of reported cases (emergency)	5	890,902	56	1,709,418	79	2,624,557	66	1,977,147
Education in primary schools	111	2,975,699	67	1,959,206	93	2,041,579	0	0
Census and georeferencing of the urban road drains	n.a.	-	23	529,306	22	624,987	22	354,122
Other activities undertaken by municipalities β	0	0	0	0	0	0	0	0
Total	**281**	**4,185,789**	**288**	**4,307,335**	**284**	**4,278,385**	**284**	**4,304,134**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution.

Source: Own elaboration on ERR data

The management of reported cases of dengue and chikungunya is an interesting case, since the expenditure, as well as the number of municipalities which has seen this kind of intervention in their territory, do not appear closely linked with the number of proved cases of infectious disease, and did not follow the same oscillations, except for the years since 2013 (Table 16 and Figure 8). During the 2013-2015 period increases or decreases relative to the number of chikungunya and dengue cases, have been accompanied with increases or decreases in the number of municipalities that realized treatments for the management of suspected or proven cases, and consequently by the same movements of the expenditures incurred.

Table 16. Number of imported cases of chikungunya and dengue in the ERR, number of municipalities that reported some expenditure for the management of the cases (suspected or proven), and expenditures incurred for their management. 2008-2015

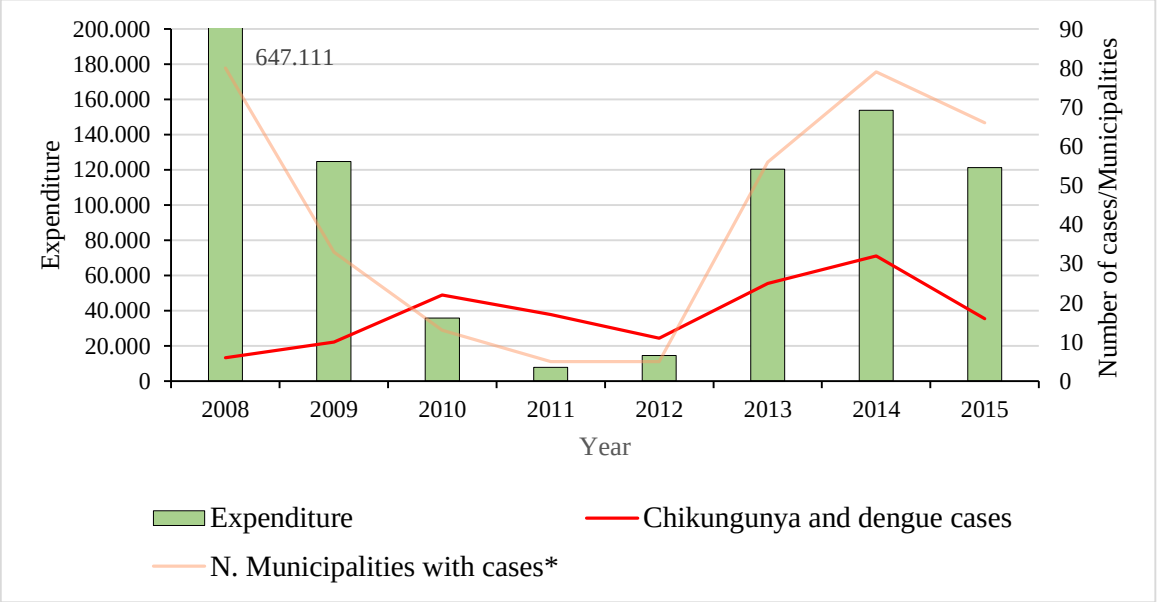
Year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Chikungunya and dengue cases	6	10	22	17	11	25	32	16
N. Municipalities with cases*	80	33	13	5	5	56	79	66
Expenditure	**647,111**	**124,644**	**35,752**	**7,797**	**14,584**	**120,393**	**153,903**	**121,245**

*Number of municipalities that declared expenditures for the management of suspected or proved cases of dengue or chikungunya

Source: Own elaboration on data from: ECDC for 2008, Italian Health Minister for 2009-2013, www.zanzaratigreonline.it for 2014-2015

On another hand the expenditures incurred in 2008 was extremely high compared to later years and to the number of confirmed cases, a fact that seems to suggest that a part of the 2008 expenditure should be considered as directly consequent to the epidemic outbreak of 2007, i.e. as a result of the fear due to a higher perceived risk of infectious diseases. However, without more data this remains only a hypothesis.

Figure 8. Number of imported cases of chikungunya and dengue in the ERR, number of municipalities that reported some expenditure for the management of the cases (suspected or proven), and expenditures incurred for their management. 2008-2015



*Number of municipalities that declared expenditures for the management of suspected or proved cases of dengue or chikungunya

Source: Own elaboration on data from: ECDC for 2008, Italian Health Minister for 2009-2013, www.zanzaratigreonline.it for 2014-2015

The expenditures incurred for the education in primary schools also declined (Table 13) although the two periods 2009-2011 and 2012-2015 are not clearly defined as for other activities. Is important to say that the number of municipalities that realized the education activity in the schools is not complete, unless for the years 2011 and 2012, because the activity has been financed in many occasions directly by the LHAs or by the provinces, thus making harder to know the exact number of schools, classes or municipalities included. In 2012 there are not declared expenditures because the financing system switched from one based on provisional budget to one based on the final budget. In this way the activities of 2012 were already financed based on expenditure previsions included in the report of 2011, while the expenditures for the 2013 were to be included in 2013 report.

As regards the census and georeferencing of the road drains, an average of 22 municipalities has realized it since 2013, when it started to be partially funded whit a

specific item in the yearly reports. I will further say about it costs assessing the expenditures incurred by the municipalities which realized it later in this chapter.

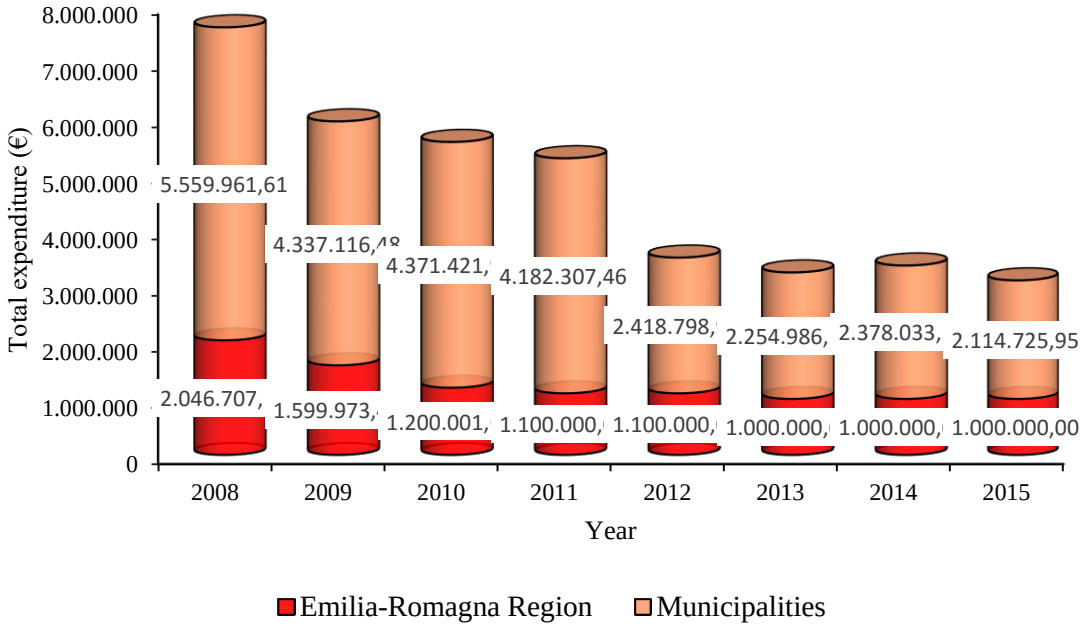
The expenditure not included in a specific item, and therefore resumed in the item "other activities undertaken by municipalities" has declined until the 2011, and totally annulled since 2012. This is probably due to several factors, may including: the increase of the documentation required to receive the ERR financial contribution, which may have discouraged some local administrations from reporting these expenditures (in this case the decline would be only apparent); a greater accuracy in the organization and realization of the activities, reached with the efforts in the training of the personnel responsible for the fight against the Asian Tiger Mosquito in the in the municipalities of the ERR; and an improvement of the information collected by the RHA, thanks to the modified version of the model for the yearly report of the activities and their relative expenditures incurred.

4.2.1.1. The distribution of the expenditure among the Emilia-Romagna Region and the municipalities or other local institutions included in the E-R Plan

If the total expenditures incurred for the realization of the activities of the E-R Plan has declined for 1.67 million from 2008 to 2009, and € 2.82 million between 2009 and 2015, (Table 13) the dynamic of the expenditure has not been the same for municipalities than for the ERR.

As we can see in tables Table 18,Table 19, Table 20 and Table 21, and graphically showed in Figure 9, both the municipalities and ERR reduced their expenditures, but in different proportions: the municipalities spent € 5.56 million in 2008, € 4.34 million in 2009, and then progressively reduced the expenditure until € 2.11 million in 2015; while the ERR spent € 2.06 million in 2008, € 1.60 in 2009 and then progressively reduced the expenditure until 2013. Since that year the ERR financial contribution has been stably equal to € 1.00 million.

Figure 9. The expenditures incurred for the realization of the activities of the E-R Plan: final expenditure for municipalities and other local institutions, and ERR financial contribution



Source: Own elaboration on ERR data.

In relative terms the municipalities reduced the expenditure for the 51.2% since 2009, with a clear differentiation among the periods 2009-2011 and 2012-2015, when the mean expenditure was respectively € 4.30 million and € 2.30 million. The ERR reduced its expenditure for the 37.5% since 2009, and the mean expenditure in the two cited periods was respectively € 1.30 million and € 1.025 million.

On the side of the percentage of the total expenditure, the municipalities increased their share (Table 17) until 2011, from 73.1 % to 79.2%, and then reduced it below the 70%. Consequently, the percentage of the ERR declined in the years 2009-2010 and 2011, and then increased to over 32% of the total expenditure.

Table 17. The expenditures incurred by the municipalities and by the ERR for the realization of the activities of the E-R Plan, as a percentage of the total expenditure, 2008-2015

Expenditure	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***
Municipality expenditure in % of the total expenditure of the E-R Plan	73.1	73.1	78.5	79.2	68.7	69.3	70.4	67.9
ERR expenditure in % of the total expenditure of the E-R Plan	26.9	26.9	21.5	20.8	31.3	30.7	29.6	32.1

Source: Own elaboration on ERR data

These changes had consequences on the budget dedicated to each of the activities. During the whole period the expenditure for the larvicidal treatments progressively increased in relative terms (although declined in absolute values) and reached the highest percentage of the total expenditure of the municipalities in 2014, the 78.1%, and then declined to the 77.1% in 2015. This was because of the importance of the larvicidal treatments, which are considered the basic control activity of the E-R Plan. As the contribution of the ERR declined from € 1.60 to € 1.00 million from 2009 to 2015, and so did the expenditures incurred by municipalities, the local authorities were pushed to dedicate a higher part of the budget for the larvicidal treatments, consequently reducing the budget at disposal of the other activities, which decline was deeper. In 2015, compared to 2009, their expenditure for the larvicidal treatments declined by 37.7%, while the decline for the other was higher than 50% (Table 18).

On the other hand, also the financial contribution of the ERR is concentrated on the larvicidal treatments, although at a low level and with a fluctuating trend during the considered period. As is showed in Table 19 and Table 21 it was the 32.2% of the total contribution in 2008, fluctuated between 38.1% and 34.6% in the 2009-2011 period, and then increased to the 54.3% in 2012 to decrease again in 2013 and 2014 when it was the 32.7%. In 2015 it was the 45.7%. From the moment that certain activities are financed with fixed values at the 50% or 100% of their total costs, the budget levels for the rest depend, a part from the budget decisions at the ERR level, on how much the local authorities spent for the management of suspected or proven cases, the monitoring system, the education activities in primary schools, and the quality controls on larvicidal treatments.

Looking at the mean values of the 2009-2015 period we can see that after the larvicidal treatments was the monitoring system which absorb the second higher proportion of the financial contribution (20.9%), after which we find the other activities financed at fixed proportions, i.e. the quality controls on the efficacy of the larvicidal treatments (9.7%), the education in primary schools (8.8%), and the management of the reported cases (7.2%). The other activities received a lower part of the ERR contribution: 6.2% for the DtD intervention in private areas, 5.9% for the site inspections together with the distribution of larvicidal kits, 0.2% for the census and georeferencing of the road drains in public areas, and 1.9% for the other activities undertaken by municipalities.

Looking at the absolute values we can say that the reduction of the ERR contribution was than mostly due to the educational interventions in primary school, since for the fact of not being realized in 2015, they have contributed for € 187,238 to the total decline of € 599,973 in 2009-2015, and to the contribution for the larvicidal treatments, which declined for an additional € 152,059, i.e. the 25.0% since 2009, the DtD interventions in private areas and the site inspections and purchase of larvicidal kits declined both by the 55.5%, respectively minus € 68,908 and € 65,500, while the quality controls have seen the financial contributions declined by 51.35%, corresponding to € 87,391.

The monitoring system, financed for the 100% of its costs since 2010, has consequently seen the financial contribution increase by the 17.5% (€ 33,771) although the technical improvement that allowed biweekly ovitrap checks, and the management of reported cases, after the increase occurred since 2013, received in 2015 a very similar contribution than in 2009. The item that includes all the activities that come under the heading “other activities undertaken by municipalities” have seen the contribution, and the expenditures, equal to 0 since the 2012.

Table 18. The total expenditures incurred by the municipalities and other institution involved for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity	*2008*		*2009*		*2010*		*2011*	
	€	*%*	*€*	*%*	*€*	*%*	*€*	*%*
Larvicidal treatments of road drains in public areas	2,954,804.94	53.1	2,616,623.66	60.3	2,913,114.42	66.6	2,910,558.30	69.6
DtD interventions in private areas	922,692.52	16.6	533,318.90	12.3	516,546.38	11.8	394,351.99	9.4
Site inspections and purchase of larvicidal kits for private use*	568,048.48	10.2	506,755.39	11.7	511,654.36	11.7	414,936.68	9.9
Monitoring of Ae. albopictus population α	204,932.00	3.7	192,997.00	4.4	0.00	0.0	0.00	0.0
Quality controls on the efficacy of larvicidal treatments of public road drains	n.a.	-	170,197.11	3.9	167,545.83	3.8	154,130.64	3.7
Management of reported cases (emergency)	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Education in primary schools	n.a.	-	0.00	0.0	0.00	0.0	0.00	0.0
Census and georeferencing of the urban road drains	n.a.	-	n.a.	-	n.a.	-	n.a.	-
Other activities undertaken by municipalities β	909,483.67	16.4	317,224.42	7.3	262,560.95	6.0	308,329.85	7.4
Total	**5,559,961.61**	**100.0**	**4,337,116.48**	**100.0**	**4,371,421.93**	**100.0**	**4,182,307.46**	**100.0**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 18. The total expenditures incurred by the municipalities and other institution involved for the realization of the activities included in the E-R Plan, 2008-2015. Continue from the previous page

Kind of activity	*2012*		*2013*		*2014*		*2015*		*Variation 2015/2009*	
	€	*%*	*€*	*%*	*€*	*%*	*€*	*%*	*€*	*%*
Larvicidal treatments of road drains in public areas	1,776,511.42	73.4	1,679,213.04	74.5	1,856,704.88	78.1	1,631,226.47	77.1	-985,397.19	-37.7
DtD interventions in private areas	281,650.21	11.6	260,917.62	11.6	243,739.04	10.2	197,120.81	9.3	-336,198.09	-63.0
Site inspections and purchase of larvicidal kits for private use*	308,562.19	12.8	198,969.74	8.8	172,903.28	7.3	187,218.02	8.9	-319,537.37	-63.1
Monitoring of Ae. albopictus population α	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	-192,997.00	-100.0
Quality controls on the efficacy of larvicidal treatments of public road drains	52,075.15	2.2	76,026.93	3.4	71,827.73	3.0	82,806.56	3.9	-87,390.55	-51.3
Management of reported cases (emergency)	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	-
Education in primary schools	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	-
Census and georeferencing of the urban road drains	n.a.	-	39,858.76	1.8	32,858.64	1.4	16,354.09	0.8	16,354.09	-
Other activities undertaken by municipalities β	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	-317,224.42	-100.0
Total	**2,418,798.97**	**100.0**	**2,254,986.10**	**100.0**	**2,378,033.57**	**100.0**	**2,114,725.95**	**100.0**	**-2,222,390.53**	**-51.2**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 19. The financial contribution of the ERR to support the municipalities and the other institutions involved in the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity	***2008***		***2009***		***2010***		***2011***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments of road drains in public areas	659,193.28	32.2	608,997.22	38.1	415,398.40	34.6	383,237.92	34.8
DtD interventions in private areas	205,845.30	10.1	124,125.50	7.8	73,657.44	6.1	51,924.97	4.7
Site inspections and purchase of larvicidal kits for private use*	126,727.06	6.2	117,943.07	7.4	72,959.85	6.1	54,635.39	5.0
Monitoring of Ae. albopictus population α	204,932.00	10.0	192,997.00	12.1	255,476.00	21.3	257,575.00	23.4
Quality controls on the efficacy of larvicidal treatments of public road drains	n.a.	-	170,197.11	10.6	167,545.83	14.0	154,130.64	14.0
Management of reported cases (emergency)	647,111.00	31.6	124,644.07	7.8	35,752.08	3.0	7,797.00	0.7
Education in primary schools	n.a.	-	187,238.11	11.7	141,771.95	11.8	150,100.80	13.6
Census and georeferencing of the urban road drains	n.a.	-	n.a.	-	n.a.	-	n.a.	-
Other activities undertaken by municipalities β	202,898.51	9.9	73,831.33	4.6	37,440.13	3.1	40,598.29	3.7
Total	**2,046,707.14**	**100.0**	**1,599,973.41**	**100.0**	**1,200,001.68**	**100.0**	**1,100,000.00**	**100.0**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 19. The financial contribution of the ERR to support the municipalities and the other institutions involved in the realization of the activities included in the E-R Plan, 2008-2015. Continue from the previous page

Kind of activity	*2012*		*2013*		*2014*		*2015*		*Variation 2015/2009*	
	€	*%*	*€*	*%*	*€*	*%*	*€*	*%*	*€*	*%*
Larvicidal treatments of road drains in public areas	597,136.54	54.3	340,990.11	34.1	326,567.73	32.7	456,938.43	45.7	-152,058.79	-24.97
DtD interventions in private areas	94,670.73	8.6	52,983.35	5.3	42,870.20	4.3	55,217.39	5.5	-68,908.11	-55.51
Site inspections and purchase of larvicidal kits for private use*	103,716.62	9.4	40,403.88	4.0	30,411.21	3.0	52,443.43	5.2	-65,499.64	-55.53
Monitoring of Ae. albopictus population α	237,816.00	21.6	252,341.00	25.2	251,963.80	25.2	226,767.85	22.7	33,770.85	17.50
Quality controls on the efficacy of larvicidal treatments of public road drains	52,075.15	4.7	76,026.93	7.6	71,827.73	7.2	82,806.56	8.3	-87,390.55	-51.35
Management of reported cases (emergency)	14,584.96	1.3	120,393.39	12.0	153,903.66	15.4	121,245.24	12.1	-3,398.83	-2.73
Education in primary schools	n.a.	-	108,767.41	10.9	116,676.32	11.7	0.00	0.0	-187,238.11	-100.0(
Census and georeferencing of the urban road drains	n.a.	-	8,094	0.8	5,779	0.6	4,581	0.5	4,581.10	-
Other activities undertaken by municipalities β	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	-73,831.33	-100.0(
Total	**1,100,000.00**	**100.0**	**1,000,000.00**	**100.0**	**1,000,000.00**	**100.0**	**1,000,000.00**	**100.0**	**-599,973.40**	**-37.5**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 20. The total expenditures incurred by the municipalities and other institution involved for the realization of the activities included in the E-R Plan in 2008, and for the periods 2009-2011, 2012-2015 and 2009-2015

	Mean Expenditure							
Kind of activity	***2008***		***2009-2011***		***2012-2015***		***2009-2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments of road drains in public areas	2,954,804.94	53.1	2,813,432.13	65.5	1,735,913.95	75.7	2,197,707.45	69.7
DtD interventions in private areas	922,692.52	16.6	481,405.76	11.2	245,856.92	10.7	346,806.42	11.0
Site inspections and purchase of larvicidal kits for private use*	568,048.48	10.2	477,782.14	11.1	216,913.31	9.5	328,714.24	10.4
Monitoring of Ae. albopictus population α	204,932.00	3.7	64,332.33	1.5	0.00	0.0	27,571.00	0.9
Quality controls on the efficacy of larvicidal treatments of public road drains	n.a.	-	163,957.86	3.8	70,684.09	3.1	110,658.56	3.5
Management of reported cases (emergency)	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Education in primary schools	n.a.	-	0.00	0.0	0.00	0.0	0.00	0.0
Census and georeferencing of the urban road drains	n.a.	-	n.a.	-	22,267.87	1.0	12,724.50	0.4
Other activities undertaken by municipalities β	909,483.67	16.4	296,038.41	6.9	0.00	0.0	126,873.60	4.0
Total	**5,559,961.61**	**100.0**	**4,296,948.62**	**100.0**	**2,291,636.15**	**100.0**	**3,151,055.78**	**100.0**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution.

Source: Own elaboration on ERR data

Table 21. The financial contribution of the ERR to support the municipalities and the other institutions involved in the realization of the activities included in the E-R Plan in 2008, and for the periods 2009-2011, 2012-2015 and 2009-2015

	Mean Expenditure							
Kind of activity	***2008***		***2009-2011***		***2012-2015***		***2009-2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments of road drains in public areas	659,193.28	32.2	469,211.18	36.1	430,408.20	42.0	447,038.05	39.1
DtD interventions in private areas	205,845.30	10.1	83,235.97	6.4	61,435.42	6.0	70,778.51	6.2
Site inspections and purchase of larvicidal kits for private use*	126,727.06	6.2	81,846.10	6.3	56,743.78	5.5	67,501.92	5.9
Monitoring of Ae. albopictus population α	204,932.00	10.0	235,349.33	18.1	242,222.16	23.6	239,276.66	20.9
Quality controls on the efficacy of larvicidal treatments of public road drains	n.a.	-	163,957.86	12.6	70,684.09	6.9	110,658.56	9.7
Management of reported cases (emergency)	647,111.00	31.6	56,064.38	4.3	102,531.81	10.0	82,617.20	7.2
Education in primary schools	n.a.	-	159,703.62	12.3	56,360.93	5.5	100,650.66	8.8
Census and georeferencing of the urban road drains	n.a.	-	n.a.	-	4,613.60	0.5	2,636.34	0.2
Other activities undertaken by municipalities β	202,898.51	9.9	50,623.25	3.9	0.00	0.0	21,695.68	1.9
Total	**2,046,707.14**	**100.0**	**1,299,991.70**	**100.0**	**1,025,000.00**	**100.0**	**1,142,853.58**	**100.0**

***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution.

Source: Own elaboration on ERR data

4.2.2. The distribution of the expenditure among the LHAs

4.2.2.1. The total expenditures incurred for the E-R Plan, the costs for the municipalities and the ERR financial contribution among the LHAs

Since 2009 the total expenditures incurred for the realization of the activities included in the E-R Plan have decreased in the territories of each of the LHAs of the ERR (Table 25), although in different proportions among them, and rarely in line with the regional value (-47.5%). Specifically, only in a small part of the regional territory, formed by the LHAs of Bologna (-45.2%), Imola (-48.4%) and Ferrara (-44.3%), the reduction of the expenditure was close to the regional value. For a second group of LHAs – Forlì (-32.0%), Ravenna (-35.1%), Reggio Emilia (-40.5%) and Cesena (-40.6%) - the reduction of the expenditure has been significantly lower than the regional value, while for the LHAs of Rimini (-53.7%) and Modena (-56.2%) the reduction was significantly higher. Two LHAs, Piacenza (-68.4%) and Parma (72.1%) have seen a reduction of the expenditure particularly high, respectively up to 40% and 50% of the regional value.

This variability is confirmed by the dynamic of the expenditure registered for the municipalities taken one by one, which as we will further see, is also very diversified.

In Table 22 it is showed how the reduction of the expenditure follow a dynamic differentiated between the two periods 2009-2011 and 2012-2015 for each of the LHAs, although there are differences among them. Two LHAs, Piacenza and Parma had a mean expenditure in 2012-2015 lower than the half of the period 2009-2011, the LHAs of Reggio Emilia, Modena, Bologna, Imola, and Rimini had a mean expenditure in 2012-2015 ranging from the 50.5% to the 59.3% of the previous period, and the LHAs of Ferrara, Ravenna, Forlì and Cesena had a mean expenditure in 2012-2015 ranging from the 67.9% to the 72.9% of the 2009.2011 period.

Table 22. Mean expenditures incurred for the realization of the activities included in the E-R Plan in the territory of each LHA in 2008 and for the periods 2009-2011, 2012-2015 and 2009-2015

LHAs of the ERR	***Mean Expenditure***			
	2008	***2009-2011***	***2012-2015***	***2009-2015***
Piacenza	303,564.22	210,792.44	94,045.45	144,079.87
Parma	476,938.79	302,118.31	105,699.74	189,879.13
Reggio Emilia	729,904.97	670,948.46	382,513.55	506,128.51
Modena	860,980.71	563,494.97	284,540.95	404,092.67
Bologna	1,060,397.25	1,059,706.29	592,096.70	792,500.81
Imola	173,776.40	124,314.89	68,935.87	92,669.74
Ferrara	947,056.42	635,619.37	442,250.86	525,123.08
Ravenna	914,829.58	683,830.48	498,577.67	577,971.73
Forlì	201,057.25	214,432.59	153,733.45	179,747.36
Cesena	559,210.25	342,143.94	232,391.33	279,428.17
Rimini	1,378,952.92	789,538.59	461,850.59	602,288.30
Total	**7,606,668.76**	**5,596,940.32**	**3,316,636.15**	**4,293,909.36**

Source: Own elaboration on ERR data

As for the total expenditure, also the expenditures incurred by the municipalities declined in the territories of the 11 LHAs, but in different proportions (Table 26). At regional level the whole decline in 2009.2015 period was € 2.22 million, the 51.2% of the expenditures incurred in 2009, and the LHAs with a similar trend are Ferrara (-46.9%), Bologna (-48.3%), Imola (-52.1%) and Rimini (-55.6%). The LHAs of Forlì (-31.6%) and Ravenna (-37.5%) registered much lower declines, the LHAs of Reggio Emilia (-43.4%) and Cesena (45.4%) registered declines between 10% and 20% of the regional value, while Modena (-62%) registered a higher decline. The LHAs of Piacenza (-76.6%) and Parma (-81%) registered the most pronounced declines, as it is for the total expenditure.

Table 23. Mean expenditures incurred by municipalities for the realization of the activities included in the E-R Plan in the territory of each LHA in 2008 and for the periods 2009-2011, 2012-2015 and 2009-2015

LHAs of the Emilia-Romagna Region	***Mean Expenditure***			
	2008	***2009-2011***	***2012-2015***	***2009-2015***
Piacenza	238,714.38	158,330.05	57,218.35	100,551.94
Parma	372,171.90	228,716.33	55,166.56	129,545.03
Reggio Emilia	583,417.76	513,845.19	267,987.59	373,355.14
Modena	633,664.27	432,712.29	185,945.48	291,702.68
Bologna	819,068.67	817,175.42	417,007.23	588,507.89
Imola	133,367.98	99,049.74	47,878.11	69,808.81
Ferrara	684,145.12	477,820.43	290,151.77	370,581.20
Ravenna	563,290.05	532,572.79	359,808.83	433,850.53
Forlì	157,448.02	152,409.59	103,863.55	124,669.00
Cesena	420,976.72	262,491.22	162,094.78	205,121.83
Rimini	953,696.73	621,825.56	344,513.89	463,361.75
Total	**5,559,961.61**	**4,296,948.62**	**2,291,636.15**	**3,151,055.78**

Source: Own elaboration on ERR data

Does exist, also for the expenditure of municipalities, a pronounced differentiation of the 2009-2011 and 2012-2015 periods (Table 23). At a regional level the mean expenditure of the municipalities for the years since 2012 has been the 53.3% of the previous period, while the most pronounced declines are those relative to the LHAs of Parma and Piacenza, which have had, since 2012, respectively a mean expenditure correspondent to the 24.1% and the 36.1% of the previous period. Since 2012, the LHAs of Modena, Imola, Bologna, Reggio Emilia, and Rimini have had mean expenditures close to half of the previous period, while the mean values relatives to the LHAs of Ferrara, Cesena, Ravenna and Forlì during the 2012-2015 period are up to the 60% of the previous one.

As it is showed in (Table 27) the declining trend did not exclude the financial contribution in any of the LHAs of the ERR territory. However, compared to the trend related to the expenditures incurred by the municipalities, or to the total expenditure, this decline has been less pronounced. Four LHAs registered a decrease of the financial contribution close to the regional value (-37.5%): Bologna (-36.7%), Imola (-37.7%), Ferrara (-39.7%) and Modena (-40.0%). The LHAs of Cesena (-26.8%), Ravenna (-28.4%), Reggio Emilia (-31.8%) and Forlì (-32.8%) registered the smallest declines of the ERR financial contribution, while Parma (-43.9%), Piacenza (-45.1%) and Rimini (-48.1%) the highest.

Table 24. Mean financial contribution of the Emilia-Romagna Region for the realization of the activities included in the E-R Plan in the territory of each LHA in 2008 and for the periods 2009-2011, 2012-2015 and 2009-2015

LHAs of the Emilia-Romagna Region	***Mean ERR financial contribution***			
	2008	***2009-2011***	***2012-2015***	***2009-2015***
Piacenza	64,849.84	52,462.39	36,827.10	43,527.94
Parma	104,766.89	73,401.98	50,533.18	60,334.10
Reggio Emilia	146,487.21	157,103.27	114,525.96	132,773.38
Modena	227,316.44	130,782.68	98,595.47	112,389.99
Bologna	241,328.58	242,530.87	175,089.46	203,992.92
Imola	40,408.42	25,265.15	21,057.76	22,860.93
Ferrara	262,911.30	157,798.94	152,099.08	154,541.88
Ravenna	351,539.53	151,257.68	138,768.84	144,121.20
Forlì	43,609.23	62,023.00	49,869.89	55,078.37
Cesena	138,233.53	79,652.72	70,296.55	74,306.34
Rimini	425,256.19	167,713.03	117,336.70	138,926.55
Total	2,046,707.14	1,299,991.70	1,025,000.00	1,142,853.58

Source: Own elaboration on ERR data

In relation the 2009-2011 and 2012-2015 periods, the comparison is less pronounced in the case of the ERR financial contribution (Table 24). If a mean decline is registered in all the LHAs, these is very small in the LHAs of Ferrara (-3.6%) and Ravenna (-8.3%), and little higher in the LHAs of Cesena (-11.7%), Imola (-16.7%) and Forlì (-19.6%). The highest decline has been registered for the mean contribution relative to the LHA of Parma (-31.2%), while all the other LHAs have had a reduction of the contribution between 24.6% (LHA of Modena) and 30.0% (LHA of Rimini).

Table 25. Total expenditures incurred for the realization of the activities included in the E-R Plan in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	303,564.22	232,579.00	214,275.60	185,522.71	115,744.04	101,074.50	85,952.58	73,410.69	-159,168.31	-68.4
Parma	476,938.79	356,760.45	280,621.88	268,972.59	108,216.62	106,269.13	108,696.82	99,616.39	-257,144.06	-72.1
Reggio Emilia	729,904.97	709,778.82	689,688.17	613,378.40	404,773.64	341,629.65	361,622.99	422,027.92	-287,750.90	-40.5
Modena	860,980.71	605,764.83	547,091.29	537,628.79	251,912.92	294,309.81	326,901.33	265,039.73	-340,725.10	-56.2
Bologna	1,060,397.25	1,065,683.07	1,088,422.02	1,025,013.79	639,003.24	590,491.49	555,182.51	583,709.55	-481,973.52	-45.2
Imola	173,776.40	135,053.41	128,757.66	109,133.59	63,585.75	68,481.94	73,971.38	69,704.42	-65,348.99	-48.4
Ferrara	947,056.42	708,982.80	605,981.78	591,893.53	412,043.90	477,629.29	484,443.01	394,887.22	-314,095.58	-44.3
Ravenna	914,829.58	702,988.59	675,096.60	673,406.24	485,957.17	477,049.89	575,401.46	455,902.15	-247,086.44	-35.1
Forlì	201,057.25	213,304.07	222,057.60	207,936.10	150,985.10	141,980.28	176,862.42	145,105.98	-68,198.09	-32.0
Cesena	559,210.25	358,539.75	321,487.81	346,404.26	263,567.30	222,096.07	231,052.02	212,849.95	-145,689.80	-40.6
Rimini	1,378,952.92	847,655.10	797,943.20	723,017.46	623,009.29	433,974.05	397,947.05	392,471.95	-455,183.15	-53.7
Total	**7,606,668.76**	**5,937,089.89**	**5,571,423.61**	**5,282,307.46**	**3,518,798.97**	**3,254,986.10**	**3,378,033.57**	**3,114,725.95**	**-2,822,363.94**	**-47.5**

Source: Own elaboration on ERR data

Table 26. Total expenditures incurred by the municipalities and the other institutions involved in the realization of the activities included in the E-R Plan in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	238,714.38	172,360.95	164,895.28	137,733.91	73,202.82	64,709.70	50,632.63	40,328.26	-132,032.69	-76.6
Parma	372,171.90	271,236.80	209,045.10	205,867.08	68,458.31	52,037.77	48,569.93	51,600.22	-219,636.58	-81.0
Reggio Emilia	583,417.76	533,999.46	532,639.30	474,896.82	281,196.17	240,169.14	248,474.85	302,110.22	-231,889.25	-43.4
Modena	633,664.27	447,253.53	426,812.80	424,070.54	164,712.84	191,038.45	218,131.06	169,899.56	-277,353.98	-62.0
Bologna	819,068.67	785,458.27	854,849.85	811,218.15	447,601.48	417,317.52	396,852.90	406,257.03	-379,201.24	-48.3
Imola	133,367.98	100,210.88	105,958.81	90,979.52	41,966.14	48,504.19	53,048.28	47,993.85	-52,217.04	-52.1
Ferrara	684,145.12	454,988.28	493,595.41	484,877.62	287,680.91	307,222.48	324,078.08	241,625.60	-213,362.67	-46.9
Ravenna	563,290.05	520,462.85	535,320.36	541,935.17	329,483.69	347,924.84	436,579.89	325,246.89	-195,215.96	-37.5
Forlì	157,448.02	147,470.92	160,162.61	149,595.25	100,687.47	95,734.58	118,166.77	100,865.40	-46,605.52	-31.6
Cesena	420,976.72	267,159.54	247,637.53	272,676.60	177,717.68	152,656.65	172,057.34	145,947.45	-121,212.09	-45.4
Rimini	953,696.73	636,514.99	640,504.88	588,456.80	446,091.45	337,670.79	311,441.84	282,851.47	-353,663.52	-55.6
Total	**5,559,961.61**	**4,337,116.48**	**4,371,421.93**	**4,182,307.46**	**2,418,798.97**	**2,254,986.10**	**2,378,033.57**	**2,114,725.95**	**-2,222,390.53**	**-51.2**

Source: Own elaboration on ERR data

Table 27. The financial contribution of the ERR to support the municipalities and the other institutions involved in the realization of the activities included in the E-R Plan in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	64,849.84	60,218.05	49,380.32	47,788.80	42,541.22	36,364.80	35,319.95	33,082.43	-27,135.62	-45.1
Parma	104,766.89	85,523.65	71,576.78	63,105.51	39,758.31	54,231.36	60,126.89	48,016.17	-37,507.48	-43.9
Reggio Emilia	146,487.21	175,779.36	157,048.87	138,481.58	123,577.47	101,460.51	113,148.14	119,917.70	-55,861.65	-31.8
Modena	227,316.44	158,511.30	120,278.49	113,558.25	87,200.08	103,271.36	108,770.27	95,140.17	-63,371.12	-40.0
Bologna	241,328.58	280,224.79	233,572.17	213,795.64	191,401.76	173,173.97	158,329.61	177,452.51	-102,772.28	-36.7
Imola	40,408.42	34,842.53	22,798.85	18,154.07	21,619.61	19,977.75	20,923.10	21,710.57	-13,131.95	-37.7
Ferrara	262,911.30	253,994.52	112,386.37	107,015.91	124,362.99	170,406.81	160,364.93	153,261.62	-100,732.91	-39.7
Ravenna	351,539.53	182,525.74	139,776.24	131,471.07	156,473.48	129,125.05	138,821.57	130,655.26	-51,870.48	-28.4
Forlì	43,609.23	65,833.15	61,894.99	58,340.85	50,297.63	46,245.70	58,695.65	44,240.58	-21,592.57	-32.8
Cesena	138,233.53	91,380.21	73,850.28	73,727.66	85,849.62	69,439.42	58,994.68	66,902.50	-24,477.71	-26.8
Rimini	425,256.19	211,140.11	157,438.32	134,560.66	176,917.84	96,303.26	86,505.21	109,620.48	-101,519.63	-48.1
Total	**2,046,707.14**	**1,599,973.41**	**1,200,001.68**	**1,100,000.00**	**1,100,000.00**	**1,000,000.00**	**1,000,000.00**	**1,000,000.00**	**-599,973.40**	**-37.5**

Source: Own elaboration on ERR data

4.2.2.2. The relation between the expenditures incurred for the realization of the activities of the E-R Plan and the ERR financial contribution among the LHAs

Considered as a percentage of the total expenditures incurred for the realization of the activities included in the E-R Plan (Table 28), the financial contribution of the Emilia-Romagna Region has increased in the territories of all the regional LHAs, with the only exclusion of the LHA of Forlì.

Table 28. The financial contribution of the ERR as a percentage of the total expenditures incurred for the realization of the activities included in the E-R Plan in the territory of each LHA, 2008-2015

LHAs of the ERR	***Mean ERR financial contribution (€)***								***Variation 2015/2009***
	2008	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***%***
Piacenza	21.4	25.9	23.0	25.8	36.8	36.0	41.1	45.1	74.1
Parma	22.0	24.0	25.5	23.5	36.7	51.0	55.3	48.2	101.1
Reggio Emilia	20.1	24.8	22.8	22.6	30.5	29.7	31.3	28.4	14.7
Modena	26.4	26.2	22.0	21.1	34.6	35.1	33.3	35.9	37.2
Bologna	22.8	26.3	21.5	20.9	30.0	29.3	28.5	30.4	15.6
Imola	23.3	25.8	17.7	16.6	34.0	29.2	28.3	31.1	20.7
Ferrara	27.8	35.8	18.5	18.1	30.2	35.7	33.1	38.8	8.3
Ravenna	38.4	26.0	20.7	19.5	32.2	27.1	24.1	28.7	10.4
Forlì	21.7	30.9	27.9	28.1	33.3	32.6	33.2	30.5	-1.2
Cesena	24.7	25.5	23.0	21.3	32.6	31.3	25.5	31.4	23.3
Rimini	30.8	24.9	19.7	18.6	28.4	22.2	21.7	27.9	12.1
Total	***26.9***	***26.9***	***21.5***	***20.8***	***31.3***	***30.7***	***29.6***	***32.1***	***21.3***

Source: Own elaboration on ERR data

Although the relative increase of the financial contribution is very differentiated among the LHAs, i.e. distributed among the 8.3% increase of the LHA of Ferrara and the 101.1% increase of the LHA of Parma, with an average increase by 21.3%, the resultant mean financial contribution for the 2012-2015 is at some point more homogeneous (Table 29).

Table 29. Mean financial contribution of the ERR as a percentage of the total expenditures incurred for the realization of the activities included in the E-R Plan in the territory of each LHA, 2008, 2009-2011, 2012-2015 and 2009-2015 periods

LHAs of the Emilia-Romagna Region	***Mean ERR financial contribution (€)***			
	2008	***2009-2011***	***2012-2015***	***2009-2015***
Piacenza	21.4	24.9	39.7	33.4
Parma	22.0	24.3	47.8	37.7
Reggio Emilia	20.1	23.4	30.0	27.1
Modena	26.4	23.1	34.7	29.7
Bologna	22.8	22.9	29.5	26.7
Imola	23.3	20.0	30.7	26.1
Ferrara	27.8	24.2	34.4	30.0
Ravenna	38.4	22.1	28.0	25.5
Forlì	21.7	28.9	32.4	30.9
Cesena	24.7	23.2	30.2	27.2
Rimini	30.8	21.1	25.1	23.4
Total	26.9	23.1	30.9	27.6

Source: Own elaboration on ERR data

Specifically, in the territory of six LHAs the mean percentage of the financial contribution during the 2012-2015 remain in a range between the ±10% of the regional mean (30.9%) for the same period: Ravenna (28.0%), Bologna (29.5%), Reggio Emilia (30.0%), Cesena (30.2%), Imola (30.7%) and Forlì (32.4%). Two LHAs, Rimini and Ravenna have a had a lower mean financial contribution, while in the territories of Piacenza (39.7%) and Parma (47.8%) have been recorded the highest proportion of financial contribution.

The description of these dynamics allow some general consideration on the expenditures incurred for the E-R Plan:

- The expenditures incurred for the activities declined in the territories of all the 11 LHAs of the ERR territory, although not in the same proportions. This fact need to be further investigated, assessing the municipalities one by one and verifying if and how this has had some impact on the *Ae. albopictus* invasion;
- The expenditures incurred by the municipalities and the financial contribution of the ERR has not declined in the same proportions, and the ERR contribution has mitigated the particularly high declines of the municipal

expenditures. This is confirmed by the dynamic of the proportion of the financial contribution on the total expenditure. In the LHAs that have seen higher reductions of the expenditures, the ERR contribution covered in 2015, and as a mean in the 2012-2015 period, a higher proportion of the total costs.

- The proportion of the regional financial contribution received in the territory of each of the LHAs in relation to the total expenditures incurred, indicates that the modulation of the contribution based on the type of activity carried out, intended to particularly encourage some activities considered of major effectiveness, obtained also a significant homogeneity in the distribution of the ERR contribution among the regional territory.

4.2.2.3. The expenditures incurred for the activities included in the E-R in the territory of the 11 LHAs

The following tables show the detail of the expenditures incurred in the territories of the 11 LHAs of the Emilia-Romagna Region for the realization of the E.R Plan. For each of the LHAs they include the expenditures incurred for each of the activities carried out, since 2008.

Table 30. LHA of Piacenza: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	***2008***		***2009***		***2010***		***2011***		***2012***		***2013***		***2014***		***2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments	149,589.51	49.3	151,905.60	65.3	148,421.80	69.3	133,681.16	72.1	87,110.59	75.3	73,508.05	72.7	56,259.23	65.5	46,704.49	63.6
DtD	6,600.00	2.2	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Site insp. & larv. kits*	70,312.88	23.2	34,061.00	14.6	29,747.00	13.9	13,434.00	7.2	9,893.45	8.5	4,341.95	4.3	3,278.95	3.8	4,920.50	6.7
Monitoring Ae. a. α	29,848.00	9.8	25,256.00	10.9	17,511.00	8.2	17,266.00	9.3	17,536.00	15.2	17,563.00	17.4	17,170.00	20.0	15,612.50	21.3
Quality controls	n.a.	-	5,049.00	2.2	5,049.00	2.4	6,278.15	3.4	1,204.00	1.0	0.00	0.0	0.00	0.0	0.00	0.0
Reported cases	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	1,633.50	1.6	2,732.80	3.2	6,173.20	8.4
Education	n.a.	-	8,476.60	3.6	6,191.40	2.9	9,661.40	5.2	0.00	0.0	4,028.00	4.0	6,511.60	7.6	0.00	0.0
Census and georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	0.00	0.0	0.00	0.0	0.00	0.0
Other β	47,213.83	15.6	7,830.80	3.4	7,355.40	3.4	5,202.00	2.8	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**303,564.22**	**100.0**	**232,579.00**	**100.0**	**214,275.60**	**100.0**	**185,522.71**	**100.0**	**115,744.04**	**100.0**	**101,074.50**	**100.0**	**85,952.58**	**100.0**	**73,410.69**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 31. LHA of Parma: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	***2008***		***2009***		***2010***		***2011***		***2012***		***2013***		***2014***		***2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments	304,482.16	63.8	220,321.75	61.8	155,231.87	55.3	147,827.09	55.0	81,947.32	75.7	58,100.71	54.7	53,666.18	49.4	60,110.91	60.3
DtD	360.00	0.1	0.00	0.0	1,000.00	0.4	9,040.00	3.4	237.00	0.2	0.00	0.0	0.00	0.0	0.00	0.0
Site insp. & larv. kits*	38,261.14	8.0	9,932.00	2.8	17,650.00	6.3	6,227.60	2.3	9,284.80	8.6	4,504.13	4.2	3,446.50	3.2	5,943.54	6.0
Monitoring Ae. a. α	36,036.00	7.6	28,294.00	7.9	15,147.00	5.4	17,532.00	6.5	15,840.00	14.6	16,020.00	15.1	15,372.00	14.1	14,353.80	14.4
Quality controls	n.a.	-	9,204.60	2.6	4,947.00	1.8	7,735.93	2.9	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Reported cases	7,740.00	1.6	4,080.00	1.1	8,550.00	3.0	270.00	0.1	907.50	0.8	13,395.29	12.6	24,439.94	22.5	19,208.14	19.3
Education	n.a.	-	3,930.00	1.1	15,950.00	5.7	14,838.00	5.5	0.00	0.0	14,249.00	13.4	11,772.20	10.8	0.00	0.0
Census and georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	0.00	0.0	0.00	0.0	0.00	0.0
Other β	90,059.49	18.9	80,998.10	22.7	62,146.01	22.1	65,501.97	24.4	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**476,938.79**	**100.0**	**356,760.45**	**100.0**	**280,621.88**	**100.0**	**268,972.59**	**100.0**	**108,216.62**	**100.0**	**106,269.13**	**100.0**	**108,696.82**	**100.0**	**99,616.39**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 32. LHA of Reggio Emilia: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind activity @	2008		2009		2010		2011		2012		2013		2014		2015	
	€	%	€	%	€	%	€	%	€	%	€	%	€	%	€	%
Larvicidal treatments	546,744.77	74.9	435,395.32	61.3	432,945.92	62.8	398,656.47	65.0	285,219.37	70.5	225,347.47	66.0	237,865.29	65.8	302,050.78	71.6
DtD	102,123.00	14.0	98,923.44	13.9	89,761.80	13.0	59,911.50	9.8	43,015.50	10.6	34,305.35	10.0	30,626.00	8.5	42,213.60	10.0
*Site insp. larv. kits**	8,550.40	1.2	31,005.75	4.4	27,460.00	4.0	37,000.00	6.0	46,570.01	11.5	17,652.00	5.2	14,634.63	4.0	22,728.25	5.4
Monitoring Ae. a. α	42,042.00	5.8	33,187.00	4.7	21,482.00	3.1	22,056.00	3.6	21,480.00	5.3	21,480.00	6.3	21,360.70	5.9	19,137.25	4.5
Quality controls	n.a.	-	75,708.41	10.7	73,173.55	10.6	69,029.53	11.3	1,361.25	0.3	19,341.20	5.7	15,396.20	4.3	30,848.00	7.3
Reported cases	0.00	0.0	0.00	0.0	4,320.00	0.6	0.00	0.0	7,127.51	1.8	3,153.63	0.9	10,515.17	2.9	5,050.04	1.2
Education	n.a.	-	9,720.00	1.4	23,925.00	3.5	23,925.00	3.9	0.00	0.0	20,350.00	6.0	31,225.00	8.6	0.00	0.0
Census ar georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	0.00	0.0	0.00	0.0	0.00	0.0
Other β	30,444.80	4.2	25,838.90	3.6	16,619.90	2.4	2,799.90	0.5	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**729,904.97**	**100.0**	**709,778.82**	**100.0**	**689,688.17**	**100.0**	**613,378.40**	**100.0**	**404,773.64**	**100.0**	**341,629.65**	**100.0**	**361,622.99**	**100.0**	**422,027.92**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 33. LHA of Modena: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	2008		2009		2010		2011		2012		2013		2014		2015	
	€	%	€	%	€	%	€	%	€	%	€	%	€	%	€	%
Larvicidal treatments	452,607.89	52.6	403,481.08	66.6	413,522.53	75.6	411,691.89	76.6	187,727.53	74.5	166,220.32	56.5	223,971.16	68.5	181,634.58	68.5
DtD	6,028.80	0.7	8,634.26	1.4	13,280.00	2.4	4,008.00	0.7	2,020.70	0.8	8,829.37	3.0	9,995.95	3.1	8,488.88	3.2
*Site insp. & larv. kits**	89,534.91	10.4	49,285.38	8.1	51,329.20	9.4	53,582.60	10.0	15,135.23	6.0	10,344.54	3.5	9,529.90	2.9	16,884.29	6.4
Monitoring Ae. a. α	58,604.00	6.8	50,533.00	8.3	38,265.00	7.0	37,795.00	7.0	24,286.00	9.6	35,322.00	12.0	35,726.20	10.9	30,362.30	11.5
Quality controls	n.a.	-	10,475.20	1.7	11,280.00	2.1	13,110.80	2.4	22,743.46	9.0	18,460.39	6.3	17,859.17	5.5	16,379.71	6.2
Reported cases	63,186.07	7.3	6,033.70	1.0	2,516.39	0.5	0.00	0.0	0.00	0.0	7,135.19	2.4	19,043.95	5.8	11,289.97	4.3
Education	n.a.	-	24,978.56	4.1	13,799.55	2.5	14,232.95	2.6	0.00	0.0	14,665.00	5.0	8,275.00	2.5	0.00	0.0
Census and georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	33,333.00	11.3	2,500.00	0.8	0.00	0.0
Other β	191,019.04	22.2	52,343.65	8.6	3,098.62	0.6	3,207.55	0.6	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**860,980.71**	**100.0**	**605,764.83**	**100.0**	**547,091.29**	**100.0**	**537,628.79**	**100.0**	**251,912.92**	**100.0**	**294,309.81**	**100.0**	**326,901.33**	**100.0**	**265,039.73**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 34. LHA of Bologna: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	*2008*		*2009*		*2010*		*2011*		*2012*		*2013*		*2014*		*2015*	
	€	*%*	*€*	*%*	*€*	*%*	*€*	*%*	*€*	*%*	*€*	*%*	*€*	*%*	*€*	*%*
Larvicidal treatments	560,818.19	52.9	549,707.95	51.6	575,148.77	52.8	570,877.17	55.7	402,916.75	63.1	377,177.44	63.9	338,368.69	60.9	372,361.10	63.8
DtD	38,656.90	3.6	34,764.91	3.3	46,841.60	4.3	57,922.75	5.7	51,965.36	8.1	57,069.51	9.7	54,952.99	9.9	77,931.38	13.4
Site insp. & larv. kits*	130,196.94	12.3	215,532.35	20.2	211,025.57	19.4	162,258.69	15.8	134,125.10	21.0	43,442.83	7.4	49,165.96	8.9	43,652.43	7.5
Monitoring Ae. a. α	73,164.00	6.9	57,883.00	5.4	38,130.00	3.5	37,282.00	3.6	36,250.00	5.7	38,654.00	6.5	38,732.00	7.0	33,396.95	5.7
Quality controls	n.a.	-	79,021.53	7.4	75,906.70	7.0	77,678.52	7.6	13,540.60	2.1	40,514.00	6.9	41,102.62	7.4	39,128.37	6.7
Reported cases	30,180.08	2.8	868.19	0.1	11,646.67	1.1	6,207.00	0.6	205.43	0.0	16,412.33	2.8	10,280.25	1.9	16,171.15	2.8
Education	n.a.	-	44,027.20	4.1	29,356.00	2.7	29,767.00	2.9	0.00	0.0	17,221.38	2.9	22,580.00	4.1	0.00	0.0
Census and georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	0.00	0.0	0.00	0.0	1,068.17	0.2
Other β	227,381.14	21.4	83,877.93	7.9	100,366.71	9.2	83,020.66	8.1	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**1,060,397.25**	**100.0**	**1,065,683.07**	**100.0**	**1,088,422.02**	**100.0**	**1,025,013.79**	**100.0**	**639,003.24**	**100.0**	**590,491.49**	**100.0**	**555,182.51**	**100.0**	**583,709.55**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 35. LHA of Imola: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activit	***2008***		***2009***		***2010***		***2011***		***2012***		***2013***		***2014***		***2015***	
@	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments	128,975.71	74.2	90,612.26	67.1	90,742.42	70.5	76,952.23	70.5	43,019.11	67.7	45,501.90	66.4	51,699.72	69.9	52,904.71	75.9
DtD	0.00	0.0	561.41	0.4	1,629.60	1.3	2,063.87	1.9	849.71	1.3	0.00	0.0	0.00	0.0	0.00	0.0
Site insp. & larv. kits*	13,702.28	7.9	27,078.16	20.0	27,230.64	21.1	23,409.96	21.5	10,485.39	16.5	10,925.21	16.0	9,449.51	12.8	6,622.16	9.5
Monitoring Ae a. α	9,100.00	5.2	7,000.00	5.2	2,160.00	1.7	2,160.00	2.0	6,660.00	10.5	6,102.00	8.9	6,771.00	9.2	6,093.90	8.7
Quality controls	n.a.	-	1,570.00	1.2	2,040.00	1.6	941.76	0.9	2,571.54	4.0	3,202.83	4.7	2,091.15	2.8	2,985.65	4.3
Reported cases	7,120.16	4.1	2,621.58	1.9	1,080.00	0.8	0.00	0.0	0.00	0.0	0.00	0.0	1,210.00	1.6	1,098.00	1.6
Education	n.a.	-	5,610.00	4.2	3,575.00	2.8	3,605.77	3.3	0.00	0.0	2,750.00	4.0	2,750.00	3.7	0.00	0.0
Census an georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	0.00	0.0	0.00	0.0	0.00	0.0
Other β	14,878.25	8.6	0.00	0.0	300.00	0.2	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**173,776.40**	**100.0**	**135,053.41**	**100.0**	**128,757.66**	**100.0**	**109,133.59**	**100.0**	**63,585.75**	**100.0**	**68,481.94**	**100.0**	**73,971.38**	**100.0**	**69,704.42**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 36. LHA of Ferrara: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	***2008***		***2009***		***2010***		***2011***		***2012***		***2013***		***2014***		***2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments	401,827.41	42.4	478,387.20	67.5	519,527.58	85.7	510,563.23	86.3	360,901.73	87.6	352,202.42	73.7	351,823.64	72.6	289,384.16	73.3
DtD	5,890.00	0.6	0.00	0.0	0.00	0.0	3,630.00	0.6	0.00	0.0	3,738.00	0.8	1,900.00	0.4	1,193.00	0.3
Site insp. & larv. kits*	87,070.19	9.2	32,250.00	4.5	30,742.40	5.1	24,821.70	4.2	14,792.17	3.6	6,512.49	1.4	6,317.72	1.3	7,432.47	1.9
Monitoring Ae. a. α	36,218.00	3.8	34,223.00	4.8	25,440.00	4.2	25,440.00	4.3	23,350.00	5.7	23,350.00	4.9	23,739.70	4.9	21,550.85	5.5
Quality controls	n.a.	-	12,200.00	1.7	7,200.00	1.2	9,650.00	1.6	13,000.00	3.2	11,896.00	2.5	10,881.00	2.2	13,905.00	3.5
Reported cases	96,214.98	10.2	111,040.60	15.7	0.00	0.0	0.00	0.0	0.00	0.0	69,380.38	14.5	64,040.95	13.2	59,021.74	14.9
Education	n.a.	-	19,250.00	2.7	13,475.00	2.2	13,541.60	2.3	0.00	0.0	10,550.00	2.2	11,100.00	2.3	0.00	0.0
Census and georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	0.00	0.0	14,640.00	3.0	2,400.00	0.6
Other β	319,835.84	33.8	21,632.00	3.1	9,596.80	1.6	4,247.00	0.7	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**947,056.42**	**100.0**	**708,982.80**	**100.0**	**605,981.78**	**100.0**	**591,893.53**	**100.0**	**412,043.90**	**100.0**	**477,629.29**	**100.0**	**484,443.01**	**100.0**	**394,887.22**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 37 LHA of Ravenna: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	***2008***		***2009***		***2010***		***2011***		***2012***		***2013***		***2014***		***2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments	397,351.62	43.4	380,064.45	54.1	428,790.94	63.5	437,125.44	64.9	280,208.37	57.7	277,130.20	58.1	297,147.75	51.6	282,753.81	62.0
DtD	11,154.00	1.2	83,142.94	11.8	79,963.52	11.8	79,705.88	11.8	74,685.40	15.4	77,188.85	16.2	146,335.00	25.4	68,947.24	15.1
Site insp. & larv kits*	182,434.69	19.9	102,231.00	14.5	84,341.56	12.5	72,817.12	10.8	69,048.56	14.2	49,378.38	10.4	55,302.53	9.6	48,613.70	10.7
Monitoring Ae. a.	49,686.00	5.4	57,876.00	8.2	35,970.00	5.3	36,040.00	5.4	32,980.00	6.8	33,970.00	7.1	33,713.20	5.9	30,527.00	6.7
Quality controls	n.a.	-	23,954.00	3.4	22,755.40	3.4	23,168.18	3.4	24,384.32	5.0	24,735.00	5.2	24,803.00	4.3	25,060.40	5.5
Reported cases	206,573.31	22.6	0.00	0.0	3,141.42	0.5	0.00	0.0	4,650.52	1.0	3,306.40	0.7	1,412.42	0.2	0.00	0.0
Education	n.a.	-	30,000.00	4.3	14,575.00	2.2	14,014.80	2.1	0.00	0.0	11,341.06	2.4	16,687.56	2.9	0.00	0.0
Census and georef	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	0.00	0.0	0.00	0.0	0.00	0.0
Other β	67,629.96	7.4	25,720.20	3.7	5,558.76	0.8	10,534.82	1.6	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**914,829.58**	**100.0**	**702,988.59**	**100.0**	**675,096.60**	**100.0**	**673,406.24**	**100.0**	**485,957.17**	**100.0**	**477,049.89**	**100.0**	**575,401.46**	**100.0**	**455,902.15**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 38. LHA of Forlì: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	2008		2009		2010		2011		2012		2013		2014		2015	
	€	%	€	%	€	%	€	%	€	%	€	%	€	%	€	%
Larvicidal treatments	152,077.24	75.6	146,626.48	68.7	154,119.00	69.4	149,012.00	71.7	132,815.80	88.0	107,752.17	75.9	135,389.53	76.6	126,632.88	87.3
DtD	312.00	0.2	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	1,089.00	0.8	1,085.80	0.6	0.00	0.0
*Site insp. & larv. kits**	8,028.38	4.0	2,013.12	0.9	8,400.00	3.8	300.00	0.1	891.10	0.6	0.00	0.0	0.00	0.0	0.00	0.0
Monitoring Ae. a. α	21,840.00	10.9	26,929.00	12.6	16,971.00	7.6	17,194.00	8.3	16,044.00	10.6	16,420.00	11.6	16,017.10	9.1	14,587.70	10.1
Quality controls	n.a.	-	26,535.47	12.4	31,616.00	14.2	34,870.00	16.8	1,234.20	0.8	10,529.42	7.4	4,210.06	2.4	3,885.40	2.7
Reported cases	0.00	0.0	0.00	0.0	2,481.60	1.1	0.00	0.0	0.00	0.0	689.70	0.5	14,659.97	8.3	0.00	0.0
Education	n.a.	-	11,000.00	5.2	6,050.00	2.7	6,310.10	3.0	0.00	0.0	5,499.99	3.9	5,499.96	3.1	0.00	0.0
Census and georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	0.00	0.0	0.00	0.0	0.00	0.0
Other β	18,799.63	9.4	200.00	0.1	2,420.00	1.1	250.00	0.1	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**201,057.25**	**100.0**	**213,304.07**	**100.0**	**222,057.60**	**100.0**	**207,936.10**	**100.0**	**150,985.10**	**100.0**	**141,980.28**	**100.0**	**176,862.42**	**100.0**	**145,105.98**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 39. LHA of Cesena: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	***2008***		***2009***		***2010***		***2011***		***2012***		***2013***		***2014***		***2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments	168,117.17	30.1	151,206.12	42.2	162,979.23	50.7	185,478.88	53.5	165,970.20	63.0	126,443.30	56.9	148,876.06	64.4	134,337.56	63.1
DtD	211,933.75	37.9	89,557.44	25.0	57,167.30	17.8	55,269.36	16.0	40,247.27	15.3	34,600.55	15.6	36,022.20	15.6	37,460.10	17.6
Site insp. & larv. kits*	49,883.73	8.9	36,680.10	10.2	17,878.40	5.6	8,400.00	2.4	18,468.90	7.0	7,099.25	3.2	3,505.00	1.5	3,168.00	1.5
Monitoring Ae. a. α	26,208.00	4.7	33,250.00	9.3	20,850.00	6.5	21,190.00	6.1	19,770.00	7.5	19,840.00	8.9	19,347.70	8.4	19,347.70	9.1
Quality controls	n.a.	-	13,344.00	3.7	18,750.00	5.8	19,626.00	5.7	19,110.93	7.3	23,375.02	10.5	19,312.25	8.4	18,536.59	8.7
Reported cases	34,136.40	6.1	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	1,172.97	0.5	1,151.81	0.5	0.00	0.0
Education	n.a.	-	11,326.25	3.2	9,650.00	3.0	8,112.98	2.3	0.00	0.0	8,112.98	3.7	275.00	0.1	0.00	0.0
Census and georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	1,452.00	0.7	2,562.00	1.1	0.00	0.0
Other β	68,931.20	12.3	23,175.84	6.5	34,212.88	10.6	48,327.04	14.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**559,210.25**	**100.0**	**358,539.75**	**100.0**	**321,487.81**	**100.0**	**346,404.26**	**100.0**	**263,567.30**	**100.0**	**222,096.07**	**100.0**	**231,052.02**	**100.0**	**212,849.95**	**100.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 40. LHA of Rimini: The expenditures incurred for the realization of the activities included in the E-R Plan, 2008-2015

Kind of activity @	***2008***		***2009***		***2010***		***2011***		***2012***		***2013***		***2014***		***2015***	
	€	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***	***€***	***%***
Larvicidal treatments	351,406.55	25.5	217,912.67	25.7	247,082.76	31.0	271,930.66	37.6	345,811.19	55.5	210,819.17	48.6	288,205.36	72.4	239,289.92	61.0
DtD	745,479.37	54.1	341,860.00	40.3	300,560.00	37.7	174,725.60	24.2	163,300.00	26.2	97,080.34	22.4	5,691.30	1.4	16,104.00	4.1
Site insp. & larv. kits*	16,800.00	1.2	84,629.60	10.0	78,809.44	9.9	67,320.40	9.3	83,584.10	13.4	85,172.84	19.6	48,683.79	12.2	79,696.11	20.3
Monitoring Ae. a. α	27,118.00	2.0	31,563.00	3.7	23,550.00	3.0	23,620.00	3.3	23,620.00	3.8	23,620.00	5.4	24,014.20	6.0	21,797.90	5.6
Quality controls	n.a.	-	83,332.00	9.8	82,374.00	10.3	46,172.40	6.4	5,000.00	0.8	0.00	0.0	8,000.00	2.0	14,884.00	3.8
Reported cases	201,960.00	14.6	0.00	0.0	2,016.00	0.3	1,320.00	0.2	1,694.00	0.3	4,114.00	0.9	4,416.40	1.1	3,233.00	0.8
Education	n.a.	-	18,919.50	2.2	5,225.00	0.7	12,091.20	1.7	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Census and georef.	n.a.	-	n.a.	-	n.a.	-	n.a.	-	n.a.	-	13,167.70	3.0	18,936.00	4.8	17,467.02	4.5
Other β	36,189.00	2.6	69,438.33	8.2	58,326.00	7.3	125,837.20	17.4	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Total	**1,378,952.92**	**.00.0**	**847,655.10**	**.00.0**	**797,943.20**	**.00.0**	**723,017.46**	**.00.0**	**623,009.29**	**.00.0**	**433,974.05**	**.00.0**	**397,947.05**	**.00.0**	**392,471.95**	**.00.0**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

4.2.2.4. The distribution of the expenditure among the activities included in the E.R Plan in the territory of each LHA

The following three tables show the distribution of the expenditure among the activities included in the E-R Plan in the territories of the 11 LHAs of the ERR, summarizing some of the information already presented in the previous tables.

In the LHA of Piacenza (Table 41) the expenditure for the larvicidal treatments in relation to the total expenditures has not significantly changed since 2009, the DtD interventions has not been realized except in 2008, and any of the municipalities had expenditures for the census and georeferencing of the road drains. Thanks to a pronounced decline of the proportion of the expenditures dedicated to the other activities, the monitoring system has acquired over the year a greater proportion of the total expenditures.

In the LHA of Parma (Table 41) there has been a small increase in the proportion of the expenditures dedicated to the larvicidal treatments, to the site inspections and purchase of larvicidal kits, and to the education activities in primary schools. Any of the municipalities had expenditures for the census and georeferencing of the road drains, and on an other hand, the proportion of the expenditure for the monitoring system and for the management of the reported cases has significantly growth in the 2012-2015 period compared to the 2009-2011 period. The activities included in the item dedicated to the other activities undertaken by the municipalities has had a particularly high proportion of the expenditure in 2009-2011 period (23.1%).

In the LHA of Emilia Romagna (Table 41) there has been a particularly high proportion of the expenditures dedicated to the DtD interventions, with a mean of 10.8% in the 2009-2015 period, and a decline from the 12.2% of the 2009-2011 period to the 9.8% of the 2012-2015. Also the quality controls had a proportion of expenditure higher than other LHAs, and consequently the quote for the monitoring system has been lower. Any of the municipalities had expenditures for the census and georeferencing of the road drains.

Also in the LHA of Modena (Table 41) has been recorded a significant proportion of the expenditure dedicated to the site inspections and purchase of larvicidal kits, although

declined in the 2012-2015 period compared to the previous one. The proportion of the expenditure dedicated to the quality controls of larvicidal treatments has increased in the later period, to a mean of 6.7% during 2012-2015. The 3.0% of the expenditures in 2012-2015 has been dedicated to the census and georeferencing of the road drains.

In Table 42 we can see that in the territory of the LHA of Bologna there has been a particularly high proportion of the expenditure dedicated to the site inspections and purchase of larvicidal kits, although declining in the 2012-2015 period compared to the previous one. Also the DtD interventions has had a significant proportion of the expenditures, increasing in the 2012-2015 period. Particularly low is the proportion of the expenditure dedicated to the monitoring system.

In the territory of the LHA of Imola (Table 42) the expenditure dedicated to the site inspections (16.8%) has been even higher than in the territory of the LHA of Bologna, although also there declining in the 2012-2015 period. The expenditure dedicated to the DtD interventions has been particularly low (0.7%) in the 2009-2015 period, and any expenditure has been dedicated to the census and georeferencing of the road drains.

In the territory of the LHA of Ferrara (Table 42) the expenditure dedicated to the larvicidal treatments in the 2009-2015 period has been particularly higher (78.1%) compared to the regional mean (61.6%). Consequently, the proportion of the expenditure dedicated to the other activities has been particularly low, except for the management of reported cases of dengue and chikungunya, which has been the 5.2% in 2009-2011 and 10.7% in 2012-2015 period.

In the territory of the LHA of Ravenna (Table 42) the expenditure dedicated to the DtD interventions (15.4%) and to the site inspections and purchase of larvicidal kits in 2009-2015 period have been particularly higher, above the regional mean (respectively the 9.7% and the 9.2%), although in 2012-2015, compared to 2009-2011, the first has increased while the second decreased. The expenditure dedicated to the larvicidal treatments (58.8%) has been below the regional mean considering the 2009-2015 period, although higher for the period 2009-2011.

As in the case of the territory of the LHA of Ferrara, also in the territory of the LHA of Forlì (Table 43) the expenditure for the larvicidal treatments has been higher than the regional mean, particularly in the 2012-2015 period, when they reached the 81.9% of the total expenditures for the E-R Plan. The 10.0% has been dedicated to the monitoring

system, the 8.1% for the quality controls, and for all the other activities the proportion of the expenditure has been particularly low.

Particularly relevant in the territory of the LHA of Cesena (Table 43) is the proportion of the expenditure dedicated to the DtD interventions, both in 2008 and in the two considered periods. The result is an average in 2009-2015 period of 17.5% of the expenditure dedicated to the DtD interventions.

In the territory of the LHA of Rimini (Table 43) the distribution of the expenditure among the activities has been particularly favourable for the DtD interventions which, although declining along the years, reached the 22.3% of the total expenditure in the 2009-2015 period. However, this high value had been more than doubled in 2008, when to the DtD interventions was dedicated the 54.1% of the total expenditure (34.1% in 2009-2012 and 13.5% in 2012-2015). Particularly low is the proportion of the expenditure for the larvicidal treatments (47.4% in 2009-2015), while that for the site inspections and purchase of larvicidal kits increased in the 2012-2015 period.

Table 41. Mean distribution of the expenditures incurred for the realization of the activities included in the E-R Plan in the territory of the LHAs of Piacenza, Parma, Reggio Emilia and Modena. 2008, 2009-2011, 2012.2015 and 2009-2015

Kind of activity @	***Local Health Authorities***															
	Piacenza				***Parma***				***Reggio Emilia***				***Modena***			
	2008	***2009-11***	***2012-15***	***2009-15***	***2008***	***2009-11***	***2012-15***	***2009-15***	***2008***	***2009-11***	***2012-15***	***2009-15***	***2008***	***2009-11***	***2012-15***	***2009-15***
Larvicidal treatments	49.3	68.9	69.3	69.1	63.8	57.3	60.0	58.9	74.9	63.0	68.4	66.1	52.6	72.9	67.0	69.5
DtD	2.2	0.0	0.0	0.0	0.1	1.2	0.1	0.6	14.0	12.2	9.8	10.8	0.7	1.5	2.5	2.1
Site insp. & larv. kits*	23.2	11.9	5.8	8.4	8.0	3.8	5.5	4.8	1.2	4.8	6.5	5.8	10.4	9.2	4.7	6.6
Monitoring Ae. a. α	9.8	9.4	18.4	14.6	7.6	6.6	14.6	11.2	5.8	3.8	5.5	4.8	6.8	7.5	11.0	9.5
Quality controls	n.a.	2.6	0.3	1.3	n.a.	2.4	0.0	1.0	n.a.	10.8	4.4	7.2	n.a.	2.1	6.7	4.7
Reported cases	0.0	0.0	3.3	1.9	1.6	1.4	13.8	8.5	0.0	0.2	1.7	1.1	7.3	0.5	3.1	2.0
Education	n.a.	3.9	2.9	3.3	n.a.	4.1	6.1	5.2	n.a.	2.9	3.6	3.3	n.a.	3.1	1.9	2.4
Census and georef.	n.a.	n.a.	0.0	0.0	n.a.	n.a.	0.0	0.0	n.a.	n.a.	0.0	0.0	n.a.	n.a.	3.0	1.7
Other β	15.6	3.2	0.0	1.4	18.9	23.1	0.0	9.9	4.2	2.2	0.0	0.9	22.2	3.3	0.0	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (€)	**303,564**	**210,792**	**94,045**	**144,080**	**476,939**	**302,118**	**105,700**	**189,879**	**729,905**	**670,948**	**382,514**	**506,129**	**860,981**	**563,495**	**284,541**	**404,093**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 42. Mean distribution of the expenditures incurred for the realization of the activities included in the E-R Plan in the territory of the LHAs of Bologna, Imola, Ferrara and Ravenna. 2008, 2009-2011, 2012.2015 and 2009-2015

	Local Health Authorities															
Kind of activity @	***Bologna***				***Imola***				***Ferrara***				***Ravenna***			
	2008	***2009-11***	***2012-15***	***2009-15***	***2008***	***2009-11***	***2012-15***	***2009-15***	***2008***	***2009-11***	***2012-15***	***2009-15***	***2008***	***2009-11***	***2012-15***	***2009-15***
Larvicidal treatments	52.9	53.4	62.9	58.8	74.2	69.4	70.0	69.7	42.4	79.8	76.8	78.1	43.4	60.8	57.4	58.8
DtD	3.6	4.4	10.3	7.8	0.0	1.2	0.3	0.7	0.6	0.2	0.4	0.3	1.2	11.8	18.0	15.4
Site insp. & larv. kits*	12.3	18.5	11.2	14.3	7.9	20.9	13.7	16.8	9.2	4.6	2.0	3.1	19.9	12.6	11.2	11.8
Monitoring Ae. a. α	6.9	4.2	6.2	5.4	5.2	2.9	9.3	6.6	3.8	4.4	5.2	4.9	5.4	6.3	6.6	6.5
Quality controls	n.a.	7.3	5.8	6.4	n.a.	1.2	4.0	2.8	n.a.	1.5	2.9	2.3	n.a.	3.4	5.0	4.3
Reported cases	2.8	0.6	1.9	1.3	4.1	0.9	0.8	0.9	10.2	5.2	10.7	8.3	22.6	0.2	0.5	0.3
Education	n.a.	3.2	1.7	2.4	n.a.	3.4	1.9	2.6	n.a.	2.4	1.1	1.7	n.a.	2.8	1.3	2.0
Census and georef.	n.a.	n.a.	0.0	0.0	n.a.	n.a.	0.0	0.0	n.a.	n.a.	0.9	0.5	n.a.	n.a.	0.0	0.0
Other β	21.4	8.4	0.0	3.6	8.6	0.1	0.0	0.0	33.8	1.8	0.0	0.8	7.4	2.0	0.0	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (€)	**1,060,397**	**1,059,706**	**592,097**	**792,501**	**173,776**	**124,315**	**68,936**	**92,670**	**947,056**	**635,619**	**442,251**	**525,123**	**914,830**	**683,830**	**498,578**	**577,972**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

Table 43. Mean distribution of the expenditures incurred for the realization of the activities included in the E-R Plan in the territory of the LHAs of Forlì, Cesena and Rimini. 2008, 2009-2011, 2012-2015 and 2009-2015

	Local Health Authorities								Local Health Authorities			
Kind of activity @	***Forlì***				***Cesena***				***Rimini***			
	2008	***2009-11***	***2012-15***	***2009-15***	***2008***	***2009-11***	***2012-15***	***2009-15***	***2008***	***2009-11***	***2012-15***	***2009-15***
Larvicidal treatments	75.6	69.9	81.9	76.8	30.1	48.8	61.9	56.3	25.5	31.4	59.4	47.4
DtD	0.2	0.0	0.3	0.2	37.9	19.6	16.0	17.5	54.1	34.1	13.5	22.3
Site insp. & larv. kits*	4.0	1.6	0.1	0.8	8.9	6.1	3.3	4.5	1.2	9.7	16.4	13.5
Monitoring Ae. a. α	10.9	9.5	10.3	10.0	4.7	7.3	8.5	8.0	2.0	3.3	5.2	4.4
Quality controls	n.a.	14.5	3.3	8.1	n.a.	5.1	8.7	7.2	n.a.	8.8	1.7	4.7
Reported cases	0.0	0.4	2.2	1.4	6.1	0.0	0.3	0.1	14.6	0.1	0.8	0.5
Education	n.a.	3.6	1.7	2.6	n.a.	2.8	0.9	1.8	n.a.	1.5	0.0	0.7
Census and georef.	n.a.	n.a.	0.0	0.0	n.a.	n.a.	0.4	0.3	n.a.	n.a.	3.1	1.7
Other β	9.4	0.4	0.0	0.2	12.3	10.4	0.0	4.4	2.6	11.0	0.0	4.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (€)	**201,057**	**214,433**	**153,733**	**179,747**	**559,210**	**342,144**	**232,391**	**279,428**	**1,378,953**	**789,539**	**461,851**	**602,288**

@ The activities are listed in the following order (the part reproduced in the table is italicized): *Larvicidal treatments* of road drains in public areas; *DtD* interventions in private areas; *Site insp*ections and purchase of *larv*icidal *kits* for private use, *Monitoring* of *Ae. albopictus* population; *Quality controls* on the efficacy of larvicidal treatments of public road drains; Management of *reported cases* (emergency); *Education* in primary schools; *Census and georef*erencing of the urban road drains; *Other* activities undertaken by municipalities. ***** Only for the year 2008, the item includes the expenditure for educational courses and financial contributions to the organization of volunteers committed with the mosquito control, and the expenditure related to other extraordinary communication campaigns. **α** Estimation realized on the base of the lump sum calculated by the RHA, used for the financial contribution relative to this activity: two times the lump sum for the years 2008 and 2009; and the amount of the lump sum for the years since 2010. **β** Only for the year 2008, the item includes the census and cleaning of the road drains, the adulticidal treatments and other expenditures evaluated case by case before receiving the financial contribution. **n.a.**: not included in the E-R Plan, and not admitted for financial contribution. Source: Own elaboration on ERR data

4.3. The per capita expenditures incurred for the realization of the activities included in the E-R Plan

As I already explained, not in every municipality are realized the same type of activities, which are always carried out on a voluntary basis by the local administrations. In some urban territories the only activity carried out may be the monitoring of *Ae. albopictus* infestation through the ovitrap network disseminated in the urban areas of the ERR – an activity which is fully reimbursed by the ERR financial contribution – while in others the entire list of activities included in the E-R Plan has been realized, in some cases even inventing ingenious ways to involve the householders, not specifically listed in the E-R Plan (although this has not happened in recent years). For these reasons to calculate the per capita costs of the E-R Plan, a useful tool to allow comparisons between different towns and territories, I excluded those municipalities which did not realized the larvicidal treatments, has we have seen the activity at the base of the *Ae. albopictus* control. The purpose of this exclusion is to render more homogeneous the included municipalities from the point of view of the activities carried out. The variability of the activities carried out year by year implies that one or more municipalities may be considered for one or for several years, and not for others, depending on if in that years had been realized the larvicidal treatments. At the end of sub chapter 4.3 it is possible to find tables with the per capita expenditure data including also those municipalities which did not realize larvicidal treatments.

In Table 44 are listed the per capita expenditures, excluding municipalities which did not realize the larvicidal treatments, for the territories of each of the LHAs and for every year since 2008. As we should expect at this point of the study, the per capita expenditure recorded in 2008 are the higher of the series for all the LHAs, except for the territory of the LHA of Forlì. Specifically, they are higher on average by 29.7% compared to the year

2009[2], which itself is the year with higher per capita expenditures, excluding 2008, in all the LHAs (except for the territory of the LHA of Reggio Emilia).

Table 44. Per capita expenditures incurred for the realization of the activities included in the E-R Plan, excluding municipalities that did not realize larvicidal treatments, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	1.14	0.91	0.81	0.73	0.44	0.42	0.36	0.31	-0.60	-65.9
Parma	1.24	0.91	0.74	0.70	0.27	0.29	0.31	0.25	-0.66	-72.1
Reggio Emilia	1.58	1.48	1.50	1.26	0.91	0.81	0.95	0.87	-0.61	-41.4
Modena	1.41	0.97	0.89	0.84	0.47	0.52	0.51	0.41	-0.56	-57.3
Bologna	1.38	1.37	1.33	1.28	0.84	0.75	0.74	0.70	-0.67	-48.8
Imola	1.36	1.04	0.98	0.83	0.48	0.53	0.56	0.53	-0.51	-49.4
Ferrara	2.68	1.98	1.69	1.64	1.15	1.33	1.36	1.11	-0.87	-43.8
Ravenna	2.41	1.82	1.73	1.72	1.23	1.21	1.46	1.16	-0.66	-36.4
Forlì	1.10	1.21	1.19	1.11	0.80	0.75	0.94	0.77	-0.44	-36.0
Cesena	2.82	1.78	1.58	1.68	1.27	1.10	1.11	1.03	-0.76	-42.5
Rimini	4.70	2.82	2.51	2.27	1.94	1.37	1.24	1.19	-1.63	-57.8
Total	**1.88**	**1.46**	**1.35**	**1.27**	**0.88**	**0.83**	**0.86**	**0.75**	**-0.71**	**-48.62**

Source: Own elaboration on ERR data

The exclusion of a part of the municipalities had as a consequence a reduction of the population and municipalities considered, as well as a reduction of the absolute values of the expenditure. Nevertheless, the average values of the population and expenditure considered are higher than the 90% of the respective total values. Specifically, the population included for each year is on average up to 4 million, or up to the 90% of the population residing in the ERR, and the expenditures incurred in this municipalities is on average up to the 99% of the total expenditures incurred for the E-R Plan (Table 45) since 2008.

[2] 29.7% is the average difference between 2008 and 2009, relative to territories of the LHAs considered separately. Ata regional level the per capita expenditure in 2008 has been higher than the one of 2009 by 28.8%

Table 45. Per capita expenditures incurred for the realization of the activities included in the E-R Plan, excluding municipalities that did not realize larvicidal treatments. 2008, 2009-2011, 2012-2015 and 2009-2015 periods

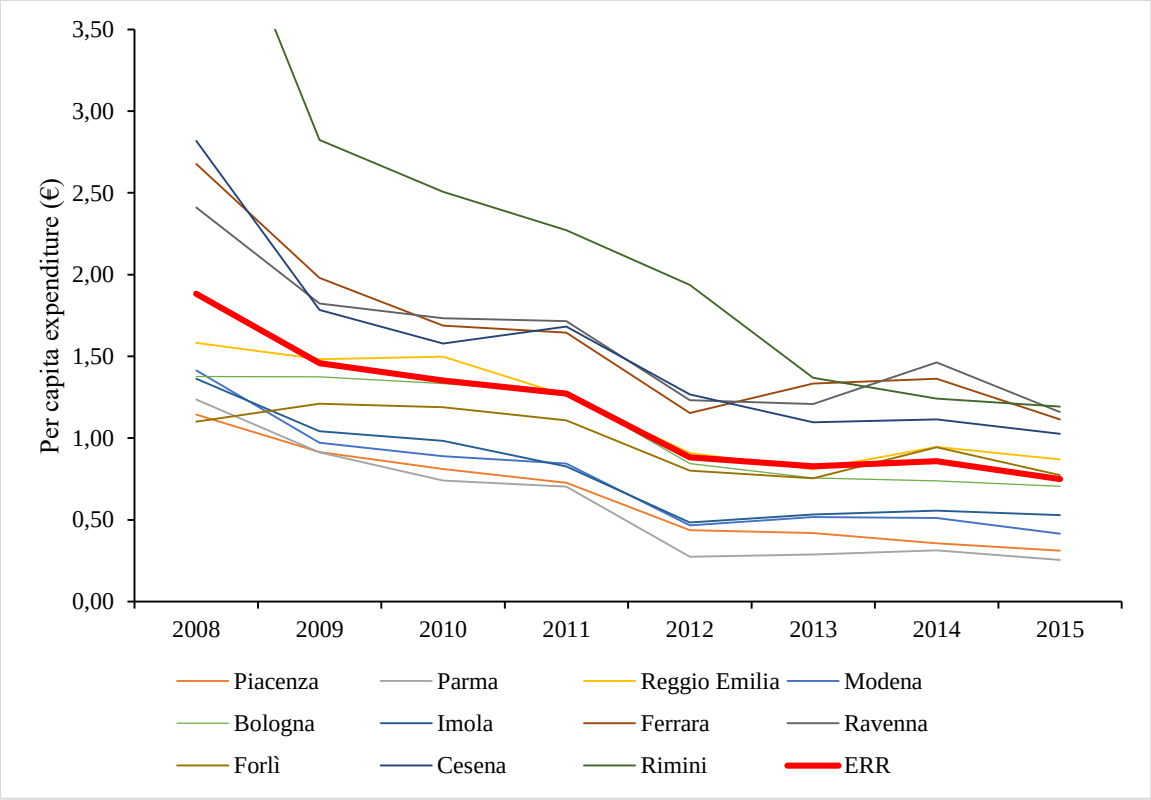
		Population		Expenditure incurred (E-R Plan)					
LHAs of the ERR	***Number of municipalities (mean)***	***In the included municipalities (mean)***	***As % of the population residing in the LHAs (mean)***	***In the included municipalities (Euro, mean)***	***As % of the total expenditure in the LHAs (mean)***	***Per capita expenditure 2008 (€, mean)***	***Per capita expenditure 2009-2011 (€, mean)***	***Per capita expenditure 2012-2015 (€, mean)***	***Per capita expenditure 2009-2015 (€, mean)***
Piacenza	27	242,509	83.89	140,505.25	96.5	1.14	0.82	0.38	0.57
Parma	23	363,172	82.19	184,384.13	95.6	1.24	0.78	0.28	0.50
Reggio Emilia	29	444,918	83.91	499,396.27	98.4	1.58	1.41	0.88	1.11
Modena	28	604,744	86.40	401,619.10	99.2	1.41	0.90	0.48	0.66
Bologna	34	783,644	90.87	788,409.34	99.5	1.38	1.33	0.76	1.00
Imola	9	131,087	99.23	92,669.74	100.0	1.36	0.95	0.53	0.71
Ferrara	25	357,419	99.89	525,110.22	100.0	2.68	1.77	1.24	1.47
Ravenna	18	391,939	100.00	577,971.73	100.0	2.41	1.76	1.27	1.48
Forlì	15	185,746	99.12	179,332.94	99.8	1.10	1.17	0.82	0.97
Cesena	14	204,912	98.64	279,144.02	99.9	2.82	1.68	1.13	1.36
Rimini	21	317,834	96.91	602,005.44	100.0	4.70	2.53	1.43	1.91
Total	**243**	**4,027,922**	**90.95**	**4,270,548.17**	**99.4**	**1.88**	**1.36**	**0.83**	**1.06**

Only the values relatives for municipalities which in a considered year declared expenditures incurred for the larvicidal treatments of the road drains in public areas are included in the table.

Source: Own elaboration on ERR data

The per capita expenditure in 2008 at the ERR level has been € 1.88, while considering all the other years, i.e. the 2009-2015 period, it has declined to € 1.06. As it might be expected there is a significant difference between the 2009-2011 period and the 2012-2015 period. During the first the per capita expenditure has been € 1.36, while in the second period it has been € 0.83, lower by 39.0% (Table 45).

Figure 10. The per capita expenditures incurred for the realization of the activities included in the E-R Plan, in the territory of each LHA and in the whole ERR. 2008-2015



Source: Own elaboration on ERR data

In Figure 10 are graphically showed the data on the per capita expenditures for each LHA and year by year, and the per capita expenditure at ERR level. The same data are showed in Table 44 and Table 45. The decline is significant for all the LHAs, although of different proportions. The variability of the declines for each LHA resulted in a smaller mean variability of the LHAs' per capita expenditure in 2015 than in previous years (Figure 10). The coefficient of variation of the per capita expenditure values of the LHAs declined

from 60.6% in 2008 to 23.2% in 2009, 19.9% in 2010, 19.8% in 2011, 26,6% in 2012, 17.2% in 2013, 18.7% in 2014 and 15.6% in 2015.

Although the decline, the variability remains significant for most of the LHAs' territories, which in 2015 had per capita expenditures distributed among the € 0.25 in the territory of the LHA of Parma and € 1.19 of the LHA of Rimini. Only in the territories of three LHAs the per capita expenditures were in a range between ±20% of the regional value (€ 0.75): Bologna (€ 0.70), Forlì (€ 0.77) and Reggio Emilia (€ 0.87).

Considering the 2009-2015 period the lower mean per capita expenditure has been recorded in the territory of the LHA of Parma (€ 0.50), while the highest in the territory of the LHA of Rimini (€ 1.91). Three LHAs have a mean per capita expenditure close to the regional mean (€ 1.06), i.e. in a range between ±10% of this value: Forlì (€ 0.97), Bologna (€ 1.00) and Reggio Emilia (€ 1.11).

From Table 47 to Table 57 are shown the per capita expenditure for each of the municipalities participating in the E-R Plan that realized larvicidal treatments at least for one seasons of activity of *Ae. albopictus*, since 2008. There we can see that the variability of the per capita expenditure is even more high considering the municipalities separately. The lower value is that of the municipality of Grizzana Morandi, which realized the larvicidal treatments only in 2010 with an expenditure of € 120.00, declaring 28 rounds of treatments, a value that is very much higher than the 5 rounds that are suggested seasonally. A part from it, there are 45 municipalities with a mean expenditure in the 2009-2015 period below the half of the regional value (€ 1.06), distributed in the LHAs of Piacenza (15 municipalities), Parma (10 municipalities), Reggio Emilia (4 municipalities), Modena (9 municipalities), Bologna (3 municipalities), Imola (1 municipality), Forlì (1 municipality) and Rimini (2 municipalities). "0 municipalities have a per capita mean expenditure in the 2009-2015 period higher than the double of the regional mean, distributed in the LHAs of Bologna (3 municipalities), Ferrara (10 municipalities), Ravenna (1 municipality), Forlì (1 municipality). Cesena (3 municipalities) and Rimini (2 municipalities). The higher mean values have been recorded in the LHA of Ferrara: € 4.44 in the municipality of Masi Torello and 4.19 in the municipality of Tresigallo; and in the LHA of Ravenna, where the municipality of Cervia, interested by the 2007 CHIKV epidemic outbreak had a mean per capita expenditure in the 2009-2015 of € 4.41.

4.3.1. The per capita expenditure in the municipalities with a developed touristic sector of high economic relevance

The four LHAs which territory includes coastal municipalities on the Adriatic Sea (Ferrara, Ravenna, Cesena and Rimini), some of them famous internationally, like Rimini and Riccione, had in their territories the higher values for the per capita expenditure. A way to explain it may be a higher perceived importance of keeping the *Ae. albopictus* population at acceptable levels in terms of nuisance and risk thresholds, to not hamper the touristic activities.

In Table 46 it is shown a comparison of the per capita expenditures in the seaside municipalities and in municipalities with thermal resources of touristic importance ((ERR, 2014), with their respective LHAs and with the regional values, all referred to per capita expenditures.

For 7 of the 12 municipalities of the Adriatic seaside, the mean per capita expenditure in 2009-2015 period is higher than the value for the respective LHAs, and for 11 municipalities, i.e. all except San Mauro Pascoli, it is higher than the ERR mean.

As regards to the thermal municipalities, those that had a mean per capita expenditure higher than their respective LHAs are only 4, in the LHAs of Piacenza, Parma and Ravenna, and only 3 of them have a mean per capita expenditure higher than the ERR mean.

Table 46. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the coastal and SPA municipalities, mean values for the 2009-2015 period and comparison with their respective LHAs

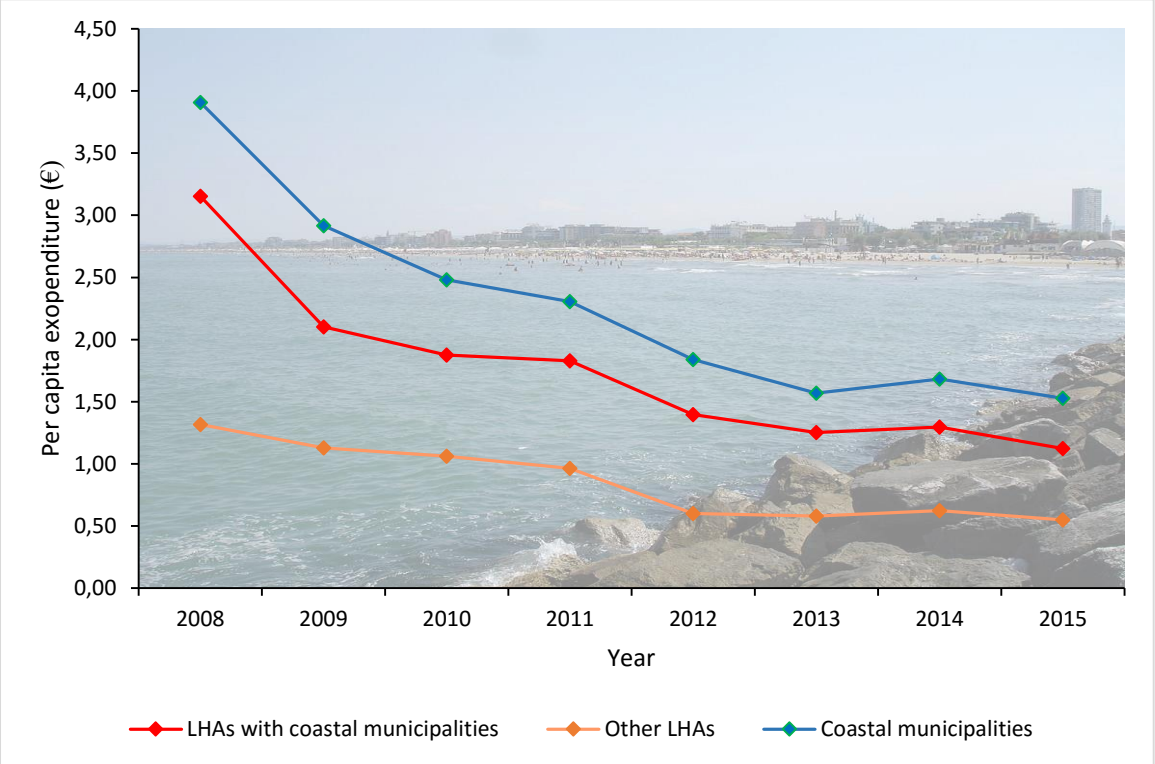
			Per capita expenditure (€)					*Per capita expenditure (€)*	
Coastal municipalities	***LHA***	***Resident population (mean)***	***In the municipality (mean)***	***In the LHA (mean)***	***Thermal municipalities***	***LHA***	***Resident population (mean)***	***In the municipality (mean)***	***In the LHA (mean)***
Comacchio	FE	23,014	2.05	1.47	*Alseno*	PC	4,864	0.62	0.57
Ravenna	RA	158,019	1.45	1.48	*Bobbio*	PC	3,723	0.39	0.57
Cervia	RA	28,916	4.41	1.48	*Castell'Arquato*	PC	4,723	0.35	0.57
Cesenatico	CE	25,554	1.77	1.36	*Montechiarugolo*	PR	10,574	1.71	0.50
Gatteo	CE	8,826	2.26	1.36	*Salsomaggiore Terme*	PR	19,989	1.19	0.50
Savignano sul Rubicone	CE	17,511	2.16	1.36	*Castel San Pietro Terme*	IM	20,652	0.66	0.71
San Mauro Pascoli	CE	11,195	1.04	1.36	*Brisighella*	RA	7,776	0.61	1.48
Bellaria-Igea Marina	RN	19,227	1.16	1.91	*Riolo Terme*	RA	5,787	1.73	1.48
Cattolica	RN	16,887	1.60	1.91	*Castrocaro Terme e Terra del Sole*	FO	6,552	0.83	0.97
Misano Adriatico	RN	12,381	1.72	1.91	*Bagno di Romagna*	CE	6,157	0.57	1.36
Riccione	RN	35,499	2.91	1.91	**Mean per capita expenditure in the Emilia-Romagna Region 2009-2015**				**1.06**
Rimini	RN	143,764	2.02	1.91					

Source: Own elaboration on ERR data

The values expenditure for the coastal municipalities seems to confirm a relation between the importance of the touristic sector and a higher attention to the mosquito management, however, other circumstances cast doubt on this statement. For example, similar values of the per capita expenditure should have been registered also for the thermal municipalities, but it is not the case. This may be due to the fact that being the thermal baths enjoyable 12 months per year, the season of *Ae. albopictus* activity have a lower impact on touristic activities linked to it, compared to those of the coastal municipalities. In the latter, the major touristic months overlaps the period of mosquito activity.

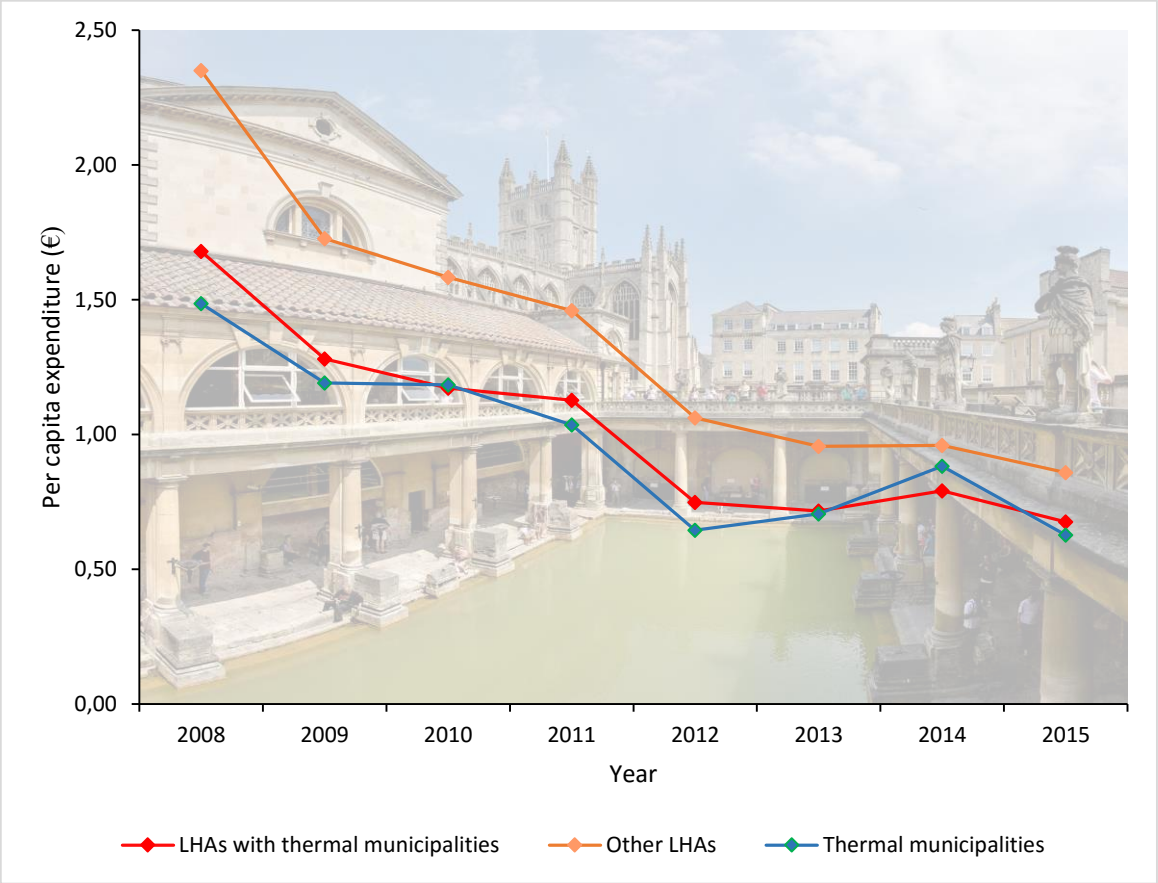
To strengthen this hypothesis, it would be useful to compare the per capita expenditure values with data related to the mosquito infestation, obtained through the ovitrap network of the monitoring system of the E-R Plan.

Figure 11. Yearly mean per capita expenditure in coastal municipalities, in LHAs with coastal municipalities and in the other LHAs, 2008-2015



Picture: free from licence. Source: own elaboration on ERR data.

Figure 12. Yearly mean per capita expenditure in thermal municipalities, in LHAs with thermal municipalities and in the other LHAs, 2008-2015



Picture by David Iliff. License: CC-BY-SA 3.0. Source: own elaboration on ERR data

In Figure 11 are showed together the mean per capita expenditure values relative to the coastal municipalities, to the LHAs in which territories the coastal municipalities are situated, and to other LHAs. The yearly values relative to the LHAs are the mean of the LHAs per capita expenditure values, calculated using the total expenditures incurred in the LHAs territories by the population residing in them (the municipalities that did not realized larvicidal treatments are excluded). The yearly values relative to the coastal municipalities are the mean of the per capita expenditure values of each municipality. As we can see, the per capita expenditure has been higher for coastal municipalities for every year since 2008, both compared to their respective LHAs than to the other LHAs. Moreover, also the per

capita expenditure in LHAs with coastal municipalities has been higher than in the other LHAs, since 2008.

On the other hand, in Figure 12 we can see how the situation for thermal municipalities is totally different. The mean per capita expenditure has been lower than that of the mean relative to their respective LHAs for most of the years since 2008, with the exception of 2010 and 2014.

Table 47. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Piacenza, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Agazzano	PC	2078	3.47	2.22	1.09	1.03	-	0.46	0.65	0.28	1.45	0.46	0.96	7
Alseno	PC	4864	1.26	1.01	0.94	0.91	0.43	0.15	-	0.30	0.95	0.29	0.62	7
Besenzone	PC	989	0.63	0.84	0.73	1.15	0.93	0.92	1.41	1.14	0.91	1.10	1.02	8
Bettola	PC	3013	0.66	0.26	0.22	0.22	0.23	0.16	0.23	0.16	0.23	0.20	0.21	8
Bobbio	PC	3723	-	0.29	0.84	0.31	0.13	-	-	-	0.48	0.13	0.39	4
Borgonovo Val Tidone	PC	7698	1.20	0.34	0.53	-	0.08	-	-	-	0.44	0.08	0.32	4
Cadeo	PC	6135	0.92	-	-	0.25	0.35	0.24	0.43	0.29	0.25	0.33	0.31	6
Calendasco	PC	2494	1.76	1.28	-	-	-	-	-	-	1.28	-	1.28	2
Caorso	PC	4860	2.28	1.49	1.93	0.36	0.53	0.69	0.65	0.58	1.26	0.61	0.89	8
Carpaneto Piacentino	PC	7616	1.34	1.13	0.80	0.65	0.26	0.12	0.19	0.19	0.86	0.19	0.48	8
Castell'Arquato	PC	4723	0.53	-	0.34	0.29	0.42	-	-	-	0.32	0.42	0.35	4
Castel San Giovanni	PC	13794	0.85	0.58	0.71	0.56	0.37	0.43	0.24	0.29	0.62	0.33	0.45	8
Castelvetro Piacentino	PC	5534	1.54	0.90	0.80	0.69	0.45	0.26	0.45	0.61	0.80	0.44	0.60	8
Cortemaggiore	PC	4565	1.75	1.41	1.09	1.09	0.84	-	0.91	-	1.20	0.88	1.07	6
Fiorenzuola d'Arda	PC	15136	1.18	0.99	0.96	0.64	0.24	0.28	0.24	0.13	0.86	0.22	0.50	8
Gazzola	PC	2030	0.83	1.08	0.62	0.36	-	-	-	-	0.69	-	0.69	4
Gossolengo	PC	5314	1.19	0.80	0.40	0.56	0.23	-	0.28	0.39	0.59	0.30	0.44	7
Gragnano Trebbiense	PC	4399	2.13	-	0.58	-	-	-	-	-	0.58	-	0.58	2
Gropparello	PC	2404	0.51	0.46	0.42	0.20	0.17	0.20	0.16	-	0.36	0.18	0.27	7
Lugagnano Val d'Arda	PC	4255	1.25	-	-	-	-	-	-	-	-	-	-	1
Monticelli d'Ongina	PC	5435	0.99	0.70	0.61	0.61	0.48	0.47	0.20	-	0.64	0.39	0.51	7
Nibbiano	PC	2291	1.52	1.25	0.69	0.87	-	-	-	-	0.94	-	0.94	4

Table 47. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Piacenza, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods. Continue from the previous page

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries *
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Piacenza	PC	102585	0.82	0.99	0.85	0.88	0.51	0.50	0.30	0.25	0.91	0.39	0.61	8
Pianello Val Tidone	PC	2285	-	0.80	0.61	-	-	0.69	-	-	0.70	0.69	0.70	3
Piozzano	PC	655	1.47	1.20	1.14	1.07	-	-	-	-	1.14	-	1.14	4
Podenzano	PC	9021	2.38	0.91	0.91	0.92	0.67	0.24	-	-	0.91	0.45	0.73	6
Ponte dell'Olio	PC	4964	0.91	0.84	0.60	0.46	0.35	0.29	0.24	0.26	0.63	0.29	0.43	8
Pontenure	PC	6315	1.64	0.88	0.64	0.20	0.24	0.24	0.53	0.35	0.57	0.34	0.44	8
Rivergaro	PC	6858	1.03	0.84	0.96	0.88	0.44	0.39	0.59	0.60	0.89	0.50	0.67	8
Rottofreno	PC	11597	0.95	0.69	0.57	0.58	0.36	0.38	0.37	0.44	0.61	0.39	0.48	8
San Giorgio Piacentino	PC	5825	0.74	0.88	0.84	0.85	0.32	0.47	0.42	0.42	0.86	0.41	0.60	8
San Pietro in Cerro	PC	944	2.07	0.61	0.54	0.55	0.73	-	0.45	-	0.57	0.59	0.58	6
Sarmato	PC	2894	4.73	-	1.98	0.62	0.34	0.26	0.43	0.52	1.30	0.39	0.69	7
Travo	PC	2045	1.46	0.96	0.96	1.57	1.06	1.08	1.25	1.07	1.16	1.12	1.14	8
Vigolzone	PC	4282	1.39	1.10	0.93	-	0.66	-	-	-	1.02	0.66	0.90	4
Villanova sull'Arda	PC	1932	1.13	-	-	-	-	-	-	-	-	-	-	1
Ziano Piacentino	PC	2660	1.29	0.33	0.32	0.33	0.33	0.33	0.34	0.32	0.33	0.33	0.33	8
Mean α	**PC**	**278211**	**1.42**	**0.90**	**0.79**	**0.66**	**0.43**	**0.40**	**0.48**	**0.43**	**0.78**	**0.44**	**0.64**	-

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population).

Source: Own elaboration on ERR data.

Table 48. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Parma, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Busseto	PR	7051	0.82	0.42	0.36	0.51	0.33	0.45	0.61	-	0.43	0.46	0.45	7
Calestano	PR	2099	1.37	-	-	0.60	0.46	0.69	0.52	0.44	0.60	0.53	0.54	6
Collecchio	PR	13995	0.89	0.59	0.59	0.58	0.26	0.32	0.38	0.36	0.59	0.33	0.44	8
Colorno	PR	9022	0.74	0.78	1.10	0.72	0.42	0.46	0.87	0.63	0.87	0.59	0.71	8
Felino	PR	8527	0.76	0.61	0.48	0.53	0.25	0.21	0.25	0.36	0.54	0.27	0.38	8
Fidenza	PR	26011	2.82	3.92	3.50	3.09	0.31	0.45	0.36	0.29	3.50	0.35	1.70	8
Fontanellato	PR	6972	1.24	0.83	0.79	0.79	1.29	-	0.87	-	0.80	1.08	0.91	6
Fontevivo	PR	5563	1.19	0.67	0.63	0.58	0.72	-	0.38	-	0.63	0.55	0.60	6
Fornovo di Taro	PR	6245	-	-	0.41	-	-	-	-	-	0.41	-	0.41	1
Langhirano	PR	9879	0.37	0.28	0.25	0.24	0.20	-	-	0.12	0.26	0.16	0.22	6
Lesignano de' Bagni	PR	4796	1.01	0.97	0.37	0.35	0.22	-	-	0.19	0.57	0.20	0.42	6
Medesano	PR	10741	1.25	0.50	0.47	0.45	0.28	-	-	-	0.47	0.28	0.42	5
Mezzani	PR	3343	1.24	1.21	1.26	-	0.38	0.62	0.40	0.73	1.24	0.53	0.80	7
Montechiarugolo	PR	10574	4.33	3.54	3.39	0.78	0.89	0.94	1.27	1.14	2.57	1.06	1.71	8
Neviano Degli Arduini	PR	3735	-	-	-	-	-	-	-	0.23	-	0.23	0.23	1
Noceto	PR	12618	1.20	0.41	0.28	0.59	0.27	0.27	-	0.18	0.43	0.24	0.33	7
Parma	PR	186284	1.02	0.50	0.23	0.10	0.06	0.05	0.11	0.08	0.28	0.07	0.16	8
Pellegrino Parmense	PR	1111	-	-	1.39	-	-	-	-	-	1.39	-	1.39	1
Polesine Parmense	PR	1490	2.43	1.15	-	-	1.11	-	-	-	1.15	1.11	1.13	3
Roccabianca	PR	3103	1.88	2.12	1.29	1.43	1.34	1.52	-	0.87	1.61	1.24	1.43	7
Sala Baganza	PR	5426	1.24	1.20	1.36	1.15	0.94	0.44	-	0.47	1.23	0.62	0.93	7
Salsomaggiore Terme	PR	19989	0.93	0.43	-	2.98	-	-	-	0.16	1.71	0.16	1.19	4

Table 48. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Parma, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods. Continue from the previous page

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
San Secondo Parmense	PR	5636	0.62	0.89	0.74	0.79	0.73	1.11	1.21	1.21	0.81	1.07	0.96	8
Sissa	PR	4266	1.72	1.07	0.96	1.08	0.48	0.77	-	-	1.04	0.63	0.87	6
Soragna	PR	4835	1.04	0.71	0.58	0.57	0.75	0.77	0.99	0.69	0.62	0.80	0.72	8
Sorbolo	PR	9570	1.24	1.21	1.26	-	0.38	0.62	0.40	0.73	1.24	0.53	0.80	7
Torrile	PR	7694	1.32	0.87	0.79	0.79	0.52	1.10	-	0.53	0.82	0.72	0.77	7
Traversetolo	PR	9320	0.69	1.14	1.05	0.81	0.65	0.39	0.60	0.38	1.00	0.50	0.72	8
Trecasali	PR	3625	-	0.88	-	-	0.51	-	-	-	0.88	0.51	0.69	2
Varano de' Melegari	PR	2682	1.24	0.91	0.75	0.74	0.42	0.69	1.00	0.71	0.80	0.71	0.75	8
Varsi	PR	1300	0.96	-	1.38	1.37	-	-	-	-	1.37	-	1.37	3
Zibello	PR	1871	2.06	0.98	0.73	-	-	-	-	-	0.86	-	0.86	3
Mean	**PR**	**409370**	**1.34**	**1.07**	**0.98**	**0.90**	**0.54**	**0.62**	**0.64**	**0.50**	**0.97**	**0.56**	**0.78**	**-**

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population)

Source: Own elaboration on ERR data

Table 49. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Reggio Emilia, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Albinea	RE	8726	1.36	2.37	1.35	1.35	1.01	0.94	1.00	1.20	1.69	1.04	1.32	8
Bagnolo in Piano	RE	9544	1.64	2.99	3.27	0.98	0.87	0.77	-	1.11	2.41	0.82	1.78	7
Baiso	RE	3414	-	-	-	-	-	-	0.16	-	-	0.16	0.16	1
Bibbiano	RE	9981	1.47	1.73	1.02	0.75	-	-	-	0.81	1.17	0.81	1.08	5
Boretto	RE	5278	1.64	1.23	1.05	1.16	0.79	0.87	-	0.81	1.15	0.82	0.99	7
Brescello	RE	5553	1.63	1.60	1.72	1.70	1.22	0.27	0.80	-	1.67	0.76	1.22	7
Cadelbosco di Sopra	RE	10523	1.40	1.40	1.54	1.42	0.84	0.74	-	1.11	1.46	0.79	1.19	7
Campagnola Emilia	RE	5574	1.09	0.91	1.07	0.98	0.24	0.39	0.39	0.41	0.99	0.36	0.63	8
Campegine	RE	5142	1.25	1.22	1.23	1.36	1.01	1.37	1.11	0.98	1.27	1.12	1.18	8
Casalgrande	RE	18757	1.69	1.67	1.64	1.38	0.99	1.11	-	0.63	1.56	0.91	1.24	7
Castellarano	RE	15059	1.74	1.60	1.57	1.66	1.34	0.90	0.99	0.94	1.61	1.04	1.29	8
Castelnovo di Sotto	RE	8644	1.55	1.49	1.59	0.88	0.84	0.72	-	1.11	1.32	0.78	1.10	7
Castelnovo ne' Monti	RE	10649	-	-	-	0.12	-	-	-	-	0.12	-	0.12	1
Cavriago	RE	9709	1.58	1.53	1.51	1.55	1.13	0.33	1.15	0.79	1.53	0.85	1.14	8
Canossa	RE	3825	1.80	1.06	0.87	1.01	0.63	0.62	0.72	0.73	0.98	0.68	0.81	8
Correggio	RE	25205	2.47	1.49	1.40	1.26	0.74	0.71	0.72	0.64	1.38	0.70	0.99	8
Fabbrico	RE	6708	1.54	0.96	1.14	1.15	0.80	0.71	1.06	1.07	1.08	0.91	0.98	8
Gattatico	RE	5875	1.53	1.59	1.45	1.54	0.97	1.13	-	1.42	1.53	1.17	1.35	7
Gualtieri	RE	6651	1.66	0.94	-	0.26	-	0.18	0.34	0.14	0.60	0.22	0.37	6
Guastalla	RE	15094	1.31	1.05	1.01	1.02	0.83	0.71	1.12	0.92	1.03	0.89	0.95	8
Luzzara	RE	9200	1.77	2.27	1.89	1.85	1.14	1.18	1.25	0.86	2.00	1.11	1.49	8
Montecchio Emilia	RE	10379	1.79	1.54	1.72	1.76	1.18	0.51	0.78	0.89	1.67	0.84	1.20	8

Table 49. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Reggio Emilia, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods. Continue from the previous page

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Novellara	RE	13744	1.77	1.75	1.83	1.68	1.22	-	0.87	0.64	1.75	0.91	1.33	7
Poviglio	RE	7244	1.69	1.50	1.42	1.40	0.73	0.62	-	0.74	1.44	0.70	1.07	7
Quattro Castella	RE	13050	2.01	1.78	1.75	1.61	1.31	1.29	1.33	1.39	1.71	1.33	1.49	8
Reggiolo	RE	9270	-	0.50	-	0.40	-	-	-	0.24	0.45	0.24	0.38	3
Reggio nell'Emilia	RE	169328	1.35	1.31	1.37	1.32	0.92	0.80	0.93	0.94	1.33	0.90	1.09	8
Rio Saliceto	RE	6067	1.61	1.60	1.58	1.57	0.90	0.29	1.01	1.18	1.58	0.85	1.16	8
Rolo	RE	4087	1.77	1.75	1.72	1.74	-	-	1.48	1.32	1.74	1.40	1.60	6
Rubiera	RE	14584	1.78	1.61	-	-	-	-	-	0.62	1.61	0.62	1.12	3
San Martino in Rio	RE	7960	1.94	1.57	1.64	1.10	0.72	0.63	1.32	0.88	1.44	0.89	1.12	8
San Polo d'Enza	RE	5897	1.72	1.68	1.79	1.75	-	1.25	1.45	1.04	1.74	1.25	1.49	7
Sant'Ilario d'Enza	RE	10999	1.74	1.72	1.73	1.72	1.19	1.27	-	1.62	1.73	1.36	1.54	7
Scandiano	RE	25022	1.65	1.62	1.62	0.50	0.30	-	-	0.19	1.24	0.25	0.84	6
Vezzano sul Crostolo	RE	4267	1.83	1.78	1.69	1.71	0.25	-	-	-	1.73	0.25	1.36	5
Viano	RE	3422	-	-	-	-	-	-	0.24	-	-	0.24	0.24	1
Mean	**RE**	**504426**	**1.65**	**1.54**	**1.54**	**1.26**	**0.89**	**0.78**	**0.92**	**0.88**	**1.40**	**0.80**	**1.07**	**-**

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population)

Source: Own elaboration on ERR data

Table 50. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Modena, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Bastiglia	MO	4101	1.31	1.13	0.62	0.52	0.39	0.57	0.51	0.46	0.76	0.48	0.60	8
Bomporto	MO	9793	1.31	1.13	0.62	0.52	0.39	0.57	0.51	0.46	0.76	0.48	0.60	8
Campogalliano	MO	8601	1.39	0.63	0.76	0.74	0.75	-	0.58	0.33	0.71	0.55	0.63	7
Camposanto	MO	3228	1.36	1.03	1.33	0.81	0.48	0.38	0.76	0.60	1.06	0.48	0.91	8
Carpi	MO	68938	0.89	0.89	0.55	0.45	0.38	0.37	0.48	0.15	0.63	0.35	0.47	8
Castelfranco Emilia	MO	31713	1.69	1.05	1.07	0.93	0.21	-	0.30	0.06	1.02	0.19	0.60	7
Castelnuovo Rangone	MO	14357	1.54	1.31	0.93	0.69	0.34	0.37	0.38	0.33	0.97	0.36	0.62	8
Castelvetro di Modena	MO	11110	0.38	0.75	1.02	0.72	-	-	0.30	0.62	0.83	0.46	0.68	6
Cavezzo	MO	7218	1.16	0.53	0.52	0.44	-	0.38	0.76	0.60	0.50	-	0.50	7
Concordia sulla Secchia	MO	8951	1.58	0.40	0.45	0.46	-	0.38	0.76	0.60	0.44	-	0.44	7
Finale Emilia	MO	15885	1.22	0.25	-	0.36	-	0.38	0.76	0.60	0.31	-	0.31	6
Fiorano Modenese	MO	17010	1.65	0.90	1.00	0.85	0.30	0.33	0.36	0.43	0.92	0.36	0.60	8
Formigine	MO	33766	0.97	0.70	0.65	0.73	0.50	-	0.62	0.42	0.69	0.51	0.60	7
Maranello	MO	16967	2.36	0.82	0.75	0.76	0.63	0.72	0.64	0.55	0.78	0.63	0.69	8
Marano sul Panaro	MO	4727	0.70	0.76	1.39	1.23	0.59	-	0.44	0.26	1.13	0.43	0.78	7
Medolla	MO	6303	2.23	0.80	1.16	0.44	-	0.38	0.76	0.60	0.80	-	0.80	7
Mirandola	MO	24269	4.44	0.78	0.48	0.43	-	0.38	0.76	0.60	0.56	-	0.56	7
Modena	MO	183866	1.30	1.34	1.33	1.40	0.52	0.72	0.56	0.52	1.36	0.58	0.91	8
Nonantola	MO	15446	1.72	1.68	1.57	1.56	1.64	0.56	0.61	0.74	1.61	0.89	1.20	8
Novi di Modena	MO	11059	1.07	0.87	0.84	0.82	-	0.33	0.58	0.56	0.85	0.49	0.67	7
Ravarino	MO	6275	1.31	1.13	0.62	0.52	0.39	0.57	0.51	0.46	0.76	0.48	0.60	8
San Cesario sul Panaro	MO	6124	1.53	0.81	0.74	0.73	0.50	0.65	0.65	0.62	0.76	0.60	0.67	8

Table 50. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Modena, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods. Continue from the previous page

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
San Felice sul Panaro	MO	11028	-	0.97	0.85	0.38	-	0.38	0.76	0.60	0.73	-	0.73	6
San Possidonio	MO	3779	1.44	0.87	0.88	0.87	-	0.38	0.76	0.60	0.87	-	0.87	7
San Prospero	MO	5835	5.11	0.57	0.66	0.58	0.06	0.38	0.76	0.60	0.60	0.06	0.47	8
Sassuolo	MO	41339	0.51	0.52	0.24	0.26	0.15	0.11	0.17	0.14	0.34	0.14	0.23	8
Savignano sul Panaro	MO	9390	2.31	0.36	0.56	0.71	0.58	-	0.34	0.33	0.54	0.42	0.48	7
Soliera	MO	15260	1.69	0.61	0.74	0.83	0.42	0.96	0.50	0.33	0.73	0.55	0.63	8
Spilamberto	MO	12278	1.22	0.71	0.39	0.38	0.45	0.29	0.17	0.26	0.49	0.29	0.38	8
Vignola	MO	24694	0.92	0.93	0.52	0.49	0.43	0.50	0.37	0.37	0.65	0.42	0.52	8
Mean	**MO**	**633306**	**1.60**	**0.84**	**0.80**	**0.69**	**0.48**	**0.46**	**0.55**	**0.46**	**0.77**	**0.44**	**0.63**	-

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population)

Source: Own elaboration on ERR data

Table 51. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Bologna, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Anzola dell'Emilia	BO	12006	4.01	2.78	2.85	3.08	2.09	1.31	1.80	1.57	2.90	1.69	2.21	8
Argelato	BO	9697	1.41	1.16	1.48	1.64	1.02	0.44	0.85	0.88	1.43	0.80	1.07	8
Baricella	BO	6710	1.50	1.04	1.00	1.08	0.95	0.59	0.87	1.01	1.04	0.85	0.93	8
Bazzano	BO	6818	-	1.77	1.71	1.72	-	0.89	-	-	1.74	0.89	1.52	4
Bentivoglio	BO	5288	1.76	2.36	2.62	2.89	2.31	1.20	1.07	1.55	2.62	1.53	2.00	8
Bologna	BO	380387	1.09	1.13	1.08	1.06	0.53	0.48	0.47	0.40	1.09	0.47	0.74	8
Budrio	BO	17965	2.20	2.13	2.12	0.85	0.71	0.80	0.57	0.55	1.70	0.66	1.11	8
Calderara di Reno	BO	13141	3.04	2.80	2.84	2.36	1.06	1.00	0.94	0.82	2.67	0.96	1.69	8
Casalecchio di Reno	BO	35830	1.16	0.73	1.02	0.84	0.68	0.62	0.49	0.69	0.87	0.62	0.73	8
Castello d'Argile	BO	6422	1.48	-	2.11	1.52	0.95	2.26	3.10	0.85	1.81	1.79	1.80	7
Castello di Serravalle	BO	4848	1.44	1.29	1.19	0.80	1.10	-	-	-	1.09	1.10	1.09	5
Castel Maggiore	BO	17534	1.51	1.61	1.50	1.43	1.05	1.01	0.97	0.96	1.51	1.00	1.22	8
Castenaso	BO	14382	1.79	1.82	1.86	1.34	1.26	0.98	1.23	2.14	1.67	1.40	1.52	8
Crespellano	BO	9814	-	1.79	-	3.08	3.04	3.00	-	-	2.43	3.02	2.73	4
Crevalcore	BO	13539	1.91	1.73	1.89	1.82	0.87	0.87	1.10	1.00	1.81	0.96	1.33	8
Galliera	BO	5534	0.93	1.12	1.26	1.40	0.85	1.07	1.25	2.17	1.26	1.33	1.30	8
Granarolo dell'Emilia	BO	10717	2.72	2.25	2.41	1.09	1.03	0.84	1.11	0.94	1.92	0.98	1.38	8
Grizzana Morandi	BO	4013	-	-	0.03	-	-	-	-	-	0.03	-	0.03	1
Loiano	BO	4462	-	-	0.16	-	-	-	-	-	0.16	-	0.16	1
Malalbergo	BO	8790	1.89	1.97	1.81	1.55	1.38	1.08	1.34	1.27	1.78	1.27	1.49	8
Marzabotto	BO	6797	0.87	1.08	1.22	1.27	0.69	-	0.70	0.57	1.19	0.65	0.92	7
Minerbio	BO	8695	0.96	0.88	0.85	0.93	0.73	0.89	-	0.54	0.89	0.72	0.80	7
Molinella	BO	15777	4.20	4.27	4.51	4.08	2.47	3.32	0.53	2.54	4.28	2.22	3.10	8

Table 51. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Bologna, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods. Continue from the previous page

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Monghidoro	BO	3873	0.41	0.13	0.10	0.11	-	-	-	-	0.12	-	0.12	4
Monterenzio	BO	5987	0.64	0.61	0.54	-	0.50	0.40	-	0.70	0.58	0.53	0.55	6
Monte San Pietro	BO	10974	0.77	0.71	0.70	0.63	-	0.54	-	0.55	0.68	0.55	0.63	6
Monteveglio	BO	5291	1.03	1.14	1.08	1.10	0.91	-	-	-	1.11	0.91	1.06	5
Monzuno	BO	6437	1.14	1.50	1.76	-	1.67	-	0.60	0.44	1.63	0.90	1.19	6
Ozzano dell'Emilia	BO	12886	1.46	1.32	1.44	1.32	1.19	1.14	0.91	0.89	1.36	1.03	1.17	8
Pianoro	BO	17256	0.69	0.88	0.65	0.69	-	0.66	-	0.46	0.74	0.56	0.67	6
Pieve di Cento	BO	7004	1.46	1.31	1.28	1.10	0.88	-	0.98	0.67	1.23	0.84	1.04	7
Porretta Terme	BO	4797	1.05	1.66	0.94	-	-	-	-	-	1.30	-	1.30	3
Sala Bolognese	BO	8262	2.08	2.47	2.12	2.38	1.73	1.31	1.29	1.04	2.32	1.34	1.76	8
San Giorgio di Piano	BO	8241	2.52	2.42	2.27	1.90	1.68	1.22	1.57	1.48	2.20	1.48	1.79	8
San Giovanni in Persiceto	BO	27272	1.48	1.57	1.57	1.54	1.34	1.05	1.44	1.62	1.56	1.36	1.45	8
San Lazzaro di Savena	BO	31444	1.20	1.11	1.01	0.89	0.63	0.47	0.52	0.50	1.00	0.53	0.73	8
San Pietro in Casale	BO	11788	1.66	1.88	1.32	1.71	1.43	0.92	0.99	1.20	1.63	1.14	1.35	8
Sant'Agata Bolognese	BO	7295	1.08	1.23	1.38	1.46	1.09	0.93	0.91	0.40	1.36	0.83	1.06	8
Sasso Marconi	BO	14683	-	-	1.18	-	-	-	-	1.16	1.18	1.16	1.17	2

Table 51. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Bologna, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods. Continue from the previous page

Municipality	**LHA**	**Population (mean 2008-15)**	**Per capita expenditure (€)**								**Per capita exp. (mean, €)**			**Entries***
			2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2009-11**	**2012-15**	**2009-15**	
Savigno	BO	2797	1.49	1.49	1.53	1.62	0.79	-	-	-	1.55	0.79	1.36	5
Vergato	BO	7767	1.49	1.07	1.08	1.14	0.78	0.68	0.56	0.49	1.09	0.63	0.83	8
Zola Predosa	BO	18252	1.11	-	1.06	1.05	-	0.80	-	0.52	1.05	0.66	0.86	5
Mean	**BO**	**831470**	**1.58**	**1.57**	**1.48**	**1.51**	**1.19**	**1.06**	**1.04**	**0.99**	**1.47**	**1.06**	**1.21**	-

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population).

Source: Own elaboration on ERR data.

Table 52. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Imola, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Borgo Tossignano	IM	3324	1.39	0.98	0.98	0.98	0.72	0.79	0.81	0.62	0.98	0.74	0.84	8
Casalfiumanese	IM	3450	1.45	1.49	1.30	1.27	1.24	-	1.59	1.23	1.36	1.36	1.36	7
Castel del Rio	IM	1243	1.38	1.01	1.50	0.93	-	-	1.38	-	1.14	1.38	1.20	5
Castel Guelfo di Bologna	IM	4282	4.17	3.81	3.56	1.19	1.11	0.83	0.82	0.93	2.85	0.92	1.75	8
Castel San Pietro Terme	IM	20652	1.41	0.82	0.81	0.86	0.55	0.58	0.45	0.55	0.83	0.53	0.66	8
Dozza	IM	6462	1.06	0.77	0.60	0.53	0.43	0.34	0.41	0.26	0.63	0.36	0.48	8
Fontanelice	IM	1936	1.32	1.35	1.24	1.17	1.01	0.99	1.03	1.01	1.25	1.01	1.12	8
Imola	IM	68959	1.09	0.80	0.69	0.68	0.32	0.40	0.40	0.40	0.72	0.38	0.53	8
Medicina	IM	16580	1.71	1.26	1.37	0.96	0.58	0.73	0.75	0.79	1.20	0.71	0.92	8
Mordano	IM	4655	1.91	1.17	1.70	1.07	0.74	0.59	0.63	0.63	1.31	0.65	0.93	8
Mean	**IM**	**131543**	**1.69**	**1.35**	**1.37**	**0.96**	**0.75**	**0.66**	**0.83**	**0.71**	**1.23**	**0.80**	**0.98**	**-**

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population)

Source: Own elaboration on ERR data

Table 53. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Ferrara, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Argenta	FE	22418	1.68	1.49	1.34	1.22	0.59	0.59	0.61	0.63	1.35	0.60	0.92	8
Berra	FE	5237	-	1.41	1.32	1.71	1.35	1.84	1.99	0.99	1.48	1.54	1.51	7
Bondeno	FE	15224	1.74	1.45	1.31	1.21	0.94	0.51	0.62	0.63	1.32	0.68	0.95	8
Cento	FE	35329	1.25	0.99	0.86	0.88	0.61	0.58	0.57	0.51	0.91	0.57	0.71	8
Codigoro	FE	12519	3.85	2.75	1.84	1.88	1.83	2.47	2.69	3.04	2.16	2.51	2.36	8
Comacchio	FE	23014	3.37	2.45	2.22	2.29	1.74	1.71	2.22	1.75	2.32	1.86	2.05	8
Copparo	FE	17190	-	0.87	1.42	1.63	1.41	1.62	1.67	1.54	1.31	1.56	1.45	7
Ferrara	FE	134533	2.56	1.87	1.62	1.60	0.88	0.82	0.87	0.42	1.69	0.75	1.15	8
Formignana	FE	2820	4.43	3.07	2.06	2.18	-	3.35	3.16	5.35	2.44	3.95	3.19	7
Jolanda di Savoia	FE	3087	-	2.61	2.12	2.24	1.45	3.82	4.80	3.25	2.32	3.33	2.90	7
Lagosanto	FE	4902	-	4.95	3.44	1.46	2.23	3.65	3.15	3.78	3.29	3.20	3.24	7
Masi Torello	FE	2388	4.51	5.41	3.77	4.20	3.71	4.14	5.02	4.81	4.46	4.42	4.44	8
Massa Fiscaglia	FE	3662	2.94	1.13	0.81	0.82	0.83	2.52	-	-	0.92	1.67	1.22	6
Mesola	FE	7157	-	1.83	1.61	1.61	1.36	3.68	1.61	1.45	1.69	2.02	1.88	7
Migliarino	FE	3710	5.28	2.93	2.65	2.74	2.23	2.73	-	-	2.77	2.48	2.66	6
Mirabello	FE	3448	3.27	2.49	2.22	2.43	1.57	1.15	0.95	0.76	2.38	1.11	1.65	8
Ostellato	FE	6497	3.26	2.11	2.75	2.38	1.80	2.30	2.63	2.69	2.41	2.36	2.38	8
Poggio Renatico	FE	9592	1.76	1.48	1.28	1.30	0.90	0.93	0.92	0.81	1.36	0.89	1.09	8
Portomaggiore	FE	12308	2.16	1.79	1.84	2.02	1.90	2.18	2.40	2.01	1.88	2.12	2.02	8
Ro	FE	3411	-	3.83	1.78	1.76	1.23	2.21	1.88	1.22	2.46	1.64	1.99	7
Sant'Agostino	FE	7046	2.56	1.97	1.88	1.99	1.59	1.21	0.88	1.04	1.95	1.18	1.51	8
Vigarano Mainarda	FE	7500	2.59	1.82	1.20	1.16	0.79	0.82	0.79	0.95	1.40	0.84	1.08	8

Table 53. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Ferrara, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods. Continue from the previous page

Municipality	**LHA**	**Population (mean 2008-15)**	**Per capita expenditure (€)**								**Per capita exp. (mean, €)**			**Entries***
			2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2009-11**	**2012-15**	**2009-15**	
Voghiera	FE	3873	7.37	4.77	2.76	3.07	1.90	3.25	3.64	4.04	3.53	3.21	3.35	8
Tresigallo	FE	4594	8.42	5.89	5.83	4.23	3.24	4.29	3.14	2.72	5.32	3.35	4.19	8
Goro	FE	3918	5.20	5.15	1.55	0.50	1.29	2.58	2.09	1.51	2.40	1.86	2.09	8
Migliaro	FE	2263	4.88	2.45	2.12	2.14	2.09	2.45	-	-	2.24	2.27	2.25	6
Mean	**FE**	**357638**	**3.65**	**2.65**	**2.06**	**1.95**	**1.58**	**2.21**	**2.10**	**1.99**	**2.22**	**2.00**	**2.09**	**-**

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; α Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population)

Source: Own elaboration on ERR data

Table 54. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Ravenna, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Alfonsine	RA	12334	1.34	1.07	1.28	1.28	0.86	0.75	0.63	0.66	1.21	0.72	0.93	8
Bagnacavallo	RA	16706	1.73	1.15	1.17	0.82	0.52	0.49	0.62	0.63	1.04	0.56	0.77	8
Bagnara di Romagna	RA	2304	1.98	1.28	1.59	1.54	1.30	0.90	1.03	0.86	1.47	1.02	1.21	8
Brisighella	RA	7776	0.96	0.76	0.79	0.62	0.49	0.54	0.58	0.51	0.72	0.53	0.61	8
Casola Valsenio	RA	2735	0.85	0.65	0.69	0.67	0.68	0.71	0.68	0.68	0.67	0.69	0.68	8
Castel Bolognese	RA	9530	1.11	1.08	0.59	0.61	0.56	0.68	0.83	0.69	0.76	0.69	0.72	8
Cervia	RA	28916	6.84	5.05	4.91	4.74	3.94	4.03	4.19	4.00	4.90	4.04	4.41	8
Conselice	RA	9900	2.42	2.15	2.10	2.04	1.68	0.93	1.06	0.94	2.10	1.15	1.56	8
Cotignola	RA	7397	1.64	1.56	1.53	1.62	1.08	0.89	1.01	0.68	1.57	0.91	1.19	8
Faenza	RA	57994	0.89	0.96	0.89	0.72	0.38	0.42	0.42	0.36	0.86	0.40	0.59	8
Fusignano	RA	8347	1.45	1.23	1.00	0.99	0.78	0.72	0.84	0.67	1.07	0.75	0.89	8
Lugo	RA	32685	0.92	0.98	0.90	0.99	0.80	0.61	0.73	0.58	0.95	0.68	0.80	8
Massa Lombarda	RA	10576	1.71	0.91	1.03	1.00	0.83	0.71	0.83	0.50	0.98	0.72	0.83	8
Ravenna	RA	158019	2.74	1.55	1.66	1.75	1.19	1.18	1.66	1.15	1.65	1.30	1.45	8
Riolo Terme	RA	5787	1.91	1.73	1.74	2.06	1.67	1.48	1.97	1.45	1.85	1.64	1.73	8

Table 54. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Ravenna, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods. Continue from the previous page

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Russi	RA	12093	1.59	1.41	1.30	1.02	0.51	0.64	0.93	0.84	1.24	0.73	0.95	8
Sant'Agata sul Santerno	RA	2813	2.64	1.91	1.80	1.86	1.14	0.66	0.77	0.72	1.86	0.82	1.27	8
Solarolo	RA	4467	1.21	1.31	1.20	1.32	1.17	1.42	1.18	1.20	1.28	1.24	1.26	8
Mean	**RA**	**390380**	**1.88**	**1.48**	**1.45**	**1.43**	**1.09**	**0.99**	**1.11**	**0.95**	**1.45**	**1.03**	**1.21**	**-**

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population).

Source: Own elaboration on ERR data

Table 55. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Forlì, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Bertinoro	FO	10957	0.70	-	0.46	0.45	0.42	0.58	0.67	0.66	0.46	0.58	0.54	7
Castrocaro Terme e Terra del Sole	FO	6552	1.47	1.51	1.15	0.90	0.72	0.54	0.57	0.38	1.19	0.55	0.83	8
Civitella di Romagna	FO	3815	1.23	1.42	0.88	0.84	0.79	0.75	0.68	0.66	1.05	0.72	0.86	8
Dovadola	FO	1695	1.63	1.75	1.56	1.40	0.68	0.80	1.16	0.67	1.57	0.83	1.15	8
Forlì	FO	117635	1.04	1.20	1.30	1.25	0.91	0.75	1.04	0.84	1.25	0.89	1.04	8
Forlimpopoli	FO	13051	0.97	0.70	0.71	0.80	0.60	0.60	0.79	0.73	0.74	0.68	0.70	8
Galeata	FO	2532	1.22	0.71	0.53	0.50	0.50	0.54	0.50	0.47	0.58	0.50	0.54	8
Meldola	FO	10158	0.72	0.82	1.06	0.69	0.25	0.59	0.77	0.56	0.86	0.54	0.68	8
Modigliana	FO	4770	1.82	0.85	0.85	0.81	0.87	0.89	0.81	0.69	0.84	0.82	0.82	8
Portico e San Benedetto	FO	793	3.25	3.00	2.62	2.62	2.74	2.05	0.94	1.83	2.75	1.89	2.26	8
Predappio	FO	6497	0.85	0.69	0.99	0.44	0.34	0.37	0.59	0.25	0.71	0.39	0.52	8
Premilcuore	FO	817	1.70	1.49	0.86	0.93	1.28	1.28	-	1.12	1.09	1.23	1.16	7
Rocca San Casciano	FO	2023	2.04	1.55	1.50	1.48	1.23	1.24	1.53	1.21	1.51	1.30	1.39	8
Santa Sofia	FO	4220	1.42	1.09	1.04	0.97	0.71	0.98	1.04	1.03	1.03	0.94	0.98	8
Tredozio	FO	1281	5.27	1.78	1.52	1.54	1.55	1.57	1.57	1.56	1.61	1.56	1.58	8
Mean	**FO**	**186795**	**1.69**	**1.33**	**1.14**	**1.04**	**0.91**	**0.90**	**0.90**	**0.84**	**1.15**	**0.89**	**1.00**	**-**

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population)

Source: Own elaboration on ERR data

Table 56. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Cesena, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Bagno di Romagna	CE	6157	0.60	0.62	0.65	0.65	0.52	-	0.44	0.52	0.64	0.49	0.57	7
Borghi	CE	2713	3.32	3.13	2.89	1.65	1.08	0.78	0.87	0.89	2.56	0.91	1.61	8
Cesena	CE	96626	1.66	0.98	1.05	1.43	1.00	0.82	1.07	1.00	1.16	0.97	1.05	8
Cesenatico	CE	25554	7.14	3.19	2.24	2.02	1.99	1.20	0.99	0.73	2.49	1.23	1.77	8
Gambettola	CE	10465	4.16	1.66	1.40	1.51	1.32	0.58	0.74	0.66	1.52	0.83	1.13	8
Gatteo	CE	8826	3.26	2.59	2.54	2.52	2.00	2.05	2.13	1.97	2.55	2.04	2.26	8
Longiano	CE	6927	4.46	1.64	1.41	1.56	1.17	0.94	0.56	0.64	1.54	0.83	1.13	8
Mercato Saraceno	CE	6968	2.02	2.05	1.39	1.52	1.10	1.17	0.67	0.68	1.65	0.91	1.23	8
Montiano	CE	1697	1.44	2.34	5.52	1.20	0.89	1.23	0.93	0.92	3.02	0.99	1.86	8
Roncofreddo	CE	3362	5.91	5.30	1.42	1.12	1.07	0.71	1.17	0.54	2.61	0.87	1.62	8
San Mauro Pascoli	CE	11195	2.24	2.35	0.95	1.05	0.95	0.73	0.63	0.63	1.45	0.74	1.04	8
Sarsina	CE	3635	2.26	1.54	0.66	0.72	1.75	1.86	2.64	1.16	0.97	1.85	1.48	8
Savignano sul Rubicone	CE	17511	2.72	2.68	2.80	2.75	1.59	1.91	1.58	1.82	2.74	1.72	2.16	8
Sogliano al Rubicone	CE	3226	1.78	3.37	3.20	3.07	2.45	1.58	2.32	2.35	3.21	2.18	2.62	8
Mean	**CE**	**204863**	**3.07**	**2.39**	**2.01**	**1.63**	**1.35**	**1.20**	**1.20**	**1.04**	**2.01**	**1.18**	**1.54**	**-**

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population)

Source: Own elaboration on ERR data

Table 57. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Rimini, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	LHA	Population (mean 2008-15)	Per capita expenditure (€)								Per capita exp. (mean, €)			Entries*
			2008	2009	2010	2011	2012	2013	2014	2015	2009-11	2012-15	2009-15	
Bellaria-Igea Marina	RN	19227	1.93	1.57	1.24	1.22	1.15	0.96	1.01	1.00	1.34	1.03	1.16	8
Cattolica	RN	16887	2.19	2.68	2.29	1.60	1.00	0.82	1.52	1.31	2.19	1.16	1.60	8
Coriano	RN	10099	1.95	1.76	0.67	0.54	1.52	0.49	0.75	0.65	0.99	0.85	0.91	8
Gemmano	RN	1186	1.44	1.65	1.51	1.37	1.35	0.55	0.82	1.00	1.51	0.93	1.18	8
Misano Adriatico	RN	12381	7.00	3.53	1.81	1.65	1.09	0.90	1.49	1.56	2.33	1.26	1.72	8
Mondaino	RN	1463	1.37	2.91	0.93	0.85	0.84	0.53	0.88	0.82	1.56	0.77	1.11	8
Monte Colombo	RN	3261	-	-	0.42	-	-	-	-	-	0.42	-	0.42	1
Montefiore Conca	RN	2210	-	0.65	0.66	0.61	0.47	0.41	0.59	0.44	0.64	0.48	0.55	7
Montegridolfo	RN	1032	1.70	1.52	1.51	1.52	1.59	0.78	1.18	1.02	1.52	1.14	1.30	8
Montescudo	RN	3258	1.09	0.37	0.41	0.41	-	0.34	-	0.32	0.39	0.33	0.37	6
Morciano di Romagna	RN	6901	2.36	2.37	1.56	1.52	1.18	0.66	1.06	0.78	1.82	0.92	1.30	8
Poggio Berni	RN	3379	0.94	0.86	0.92	0.96	0.84	0.83	-	-	0.91	0.84	0.88	6
Riccione	RN	35499	4.53	4.62	4.47	3.47	3.16	1.72	1.69	1.23	4.19	1.95	2.91	8
Rimini	RN	143764	2.94	2.71	2.64	2.62	2.28	1.64	1.07	1.17	2.66	1.54	2.02	8
Saludecio	RN	3017	1.21	0.55	0.93	0.76	0.65	0.76	0.68	0.56	0.75	0.66	0.70	8
San Clemente	RN	5182	2.38	2.07	2.13	0.98	0.63	0.48	0.85	0.62	1.73	0.65	1.11	8
San Giovanni in Marignano	RN	9092	5.41	2.63	2.44	1.45	1.24	0.85	1.31	1.00	2.18	1.10	1.56	8

Table 57. Per capita expenditures incurred for the realization of the activities included in the E-R Plan in the municipalities of the LHA of Rimini, excluding municipalities that did not realize larvicidal treatments, 2008-2015, every year and 2009-2011, 2012-2015 and 2009-2015 periods

Municipality	**LHA**	**Population (mean 2008-15)**	**Per capita expenditure (€)**								**Per capita exp. (mean, €)**			**Entries***
			2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2009-11**	**2012-15**	**2009-15**	
Santarcangelo di Romagna	RN	21414	3.74	2.28	2.18	2.17	1.32	1.23	1.56	1.89	2.21	1.50	1.81	8
Torriana	RN	1533	2.15	4.08	2.72	2.83	2.00	1.60	-	-	3.21	1.80	2.65	6
Verucchio	RN	10019	0.36	0.37	0.93	1.48	1.51	-	0.70	0.49	0.93	0.90	0.91	7
Mean	**RN**	**310803**	**2.48**	**2.06**	**1.62**	**1.47**	**1.32**	**0.86**	**1.07**	**0.93**	**1.67**	**1.04**	**1.31**	**-**

***** Refers to the entries used for the mean of the 2009-2015 period; - means that in that year the municipalities did not declared expenditure for the larvicidal treatments; ***α*** Total population residing in the municipalities included in the table, and mean values of the per capita expenditure for each of them (i.e. the means do not refer to the sum of the expenditures divided by the sum of the population)

Source: Own elaboration on ERR data

Table 58. Per capita expenditures incurred for the realization of the activities included in the E-R Plan, including municipalities that did not realize larvicidal treatments. 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009 %***
Piacenza	1.12	0.84	0.76	0.67	0.41	0.37	0.31	0.27	-68.1
Parma	1.24	0.89	0.69	0.66	0.26	0.26	0.27	0.25	-71.9
Reggio Emilia	1.56	1.45	1.43	1.21	0.80	0.65	0.69	0.86	-40.9
Modena	1.45	1.00	0.90	0.87	0.48	0.55	0.61	0.50	-50.4
Bologna	1.38	1.32	1.32	1.25	0.80	0.72	0.70	0.70	-46.7
Imola	1.36	1.04	0.98	0.83	0.48	0.53	0.56	0.53	-49.4
Ferrara	2.66	1.98	1.69	1.64	1.15	1.33	1.36	1.11	-43.8
Ravenna	2.41	1.82	1.73	1.72	1.23	1.21	1.46	1.16	-36.4
Forlì	1.10	1.15	1.19	1.11	0.80	0.75	0.94	0.77	-32.9
Cesena	2.82	1.78	1.58	1.67	1.26	1.06	1.10	1.02	-42.9
Rimini	4.70	2.82	2.51	2.27	1.94	1.37	1.24	1.19	-57.8
Total	**1.87**	**1.42**	**1.31**	**1.24**	**0.84**	**0.76**	**0.79**	**0.72**	**-49.1**

Source: Own elaboration on ERR data

Table 59. Per capita expenditures incurred for the realization of the activities included in the E-R Plan, including municipalities that did not realize larvicidal treatments. 2008, 2009-2011, 2012-2015 and 2009-2015 periods

		Population		Expenditure incurred (E-R Plan)				
LHAs of the ERR	***Number of municipalities (mean)***	***In the included municipalities (mean)***	***As % of the population residing in the LHAs (mean)***	***Total Expenditure 2009-2015 (€, mean)***	***Per capita expenditure 2008 (€, mean)***	***Per capita expenditure 2009-2011 (€, mean)***	***Per capita expenditure 2012-2015 (€, mean)***	***Per capita expenditure 2009-2015 (€, mean)***
Piacenza	39	283,522.29	98.1	144,079.87	1.1	0.8	0.3	0.5
Parma	34	419,849.29	95.0	189,879.13	1.2	0.7	0.3	0.5
Reggio Emilia	37	510,493.00	96.2	506,128.51	1.6	1.4	0.7	1.0
Modena	29	623,174.86	89.0	404,092.67	1.4	0.9	0.5	0.7
Bologna	37	813,365.14	94.3	792,500.81	1.4	1.3	0.7	1.0
Imola	10	131,086.71	99.2	92,669.74	1.4	1.0	0.5	0.7
Ferrara	26	357,821.14	100.0	525,123.08	2.7	1.8	1.2	1.5
Ravenna	18	391,939.14	100.0	577,971.73	2.4	1.8	1.3	1.5
Forlì	15	187,382.43	100.0	179,747.36	1.1	1.2	0.8	1.0
Cesena	15	207,184.71	99.7	279,428.17	2.8	1.7	1.1	1.4
Rimini	25	328,057.43	100.0	602,288.30	4.7	2.5	1.4	1.9
Total	**284**	**4,253,876.14**	**96.0**	**4,293,909.36**	**1.9**	**1.3**	**0.8**	**1.0**

Source: Own elaboration on ERR data

4.4. The expenditures incurred for the different activities of the E-R Plan

4.4.1. The management of suspected or proven cases of dengue and chikungunya

The expenditure for the management of suspected or proven cases of dengue and chikungunya declined from € 647,111.00 in 2008 to € 7,797.00 in 2011, and then increased again in later years, although remaining well above the 2008 value. As we have seen, since 2012 there has been a higher number of imported cases, which may explain this dynamic. The LHA of Ferrara had the higher expenditures in 2009, 2013, 2014 and 2015, well above the territories of the other LHAs.

Table 60. Total expenditure of the E-R Plan for the management of reported cases (emergency) in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	-	-	-	-	-	1,634	2,733	6,173	6,173	-
Parma	7,740	4,080	8,550	270	908	13,395	24,440	19,208	15,128	370.8
Reggio Emilia	-	-	4,320	-	7,128	3,154	10,515	5,050	5,050	-
Modena	63,186	6,034	2,516	-	-	7,135	19,044	11,290	5,256	87.1
Bologna	30,180	868	11,647	6,207	205	16,412	10,280	16,171	15,303	1,762.6
Imola	7,120	2,622	1,080	-	-	-	1,210	1,098	-1,524	-58.1
Ferrara	96,215	111,041	-	-	-	69,380	64,041	59,022	-52,019	-46.8
Ravenna	206,573	-	3,141	-	4,651	3,306	1,412	-	0	-
Forlì	-	-	2,482	-	-	690	14,660	-	0	-
Cesena	34,136	-	-	-	-	1,173	1,152	-	0	-
Rimini	201,960	-	2,016	1,320	1,694	4,114	4,416	3,233	3,233	-
Total	**647,111**	**124,644**	**35,752**	**7,797**	**14,585**	**120,393**	**153,904**	**121,245**	**-3,399**	**-2.7**

Source: Own elaboration on ERR data

4.4.2. The monitoring system

As already explained, the monitoring system if totally reimbursed by the ERR on a lump sum basis of € 7.00 during summer months, and € 9 during winter, which is supposed to cover the 100% of its costs. The reduction of the regional expenditure occurred between 2009 and 2010 (-33.3%) is due to the described technical improvement which allowed the switch from a weekly to a biweekly interval between the ovitrap checks. A part from this, the variability of the data in the LHAs may be explained with the fluctuations in the number of municipalities realizing the monitoring activity, which have small variation among the years, and with the single ovitrap checks not realized or not sent to the laboratories responsible for the egg counting.

Table 61. Total expenditure of the E-R Plan for the monitoring of the Ae. albopictus population in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	29,848	25,256	17,511	17,266	17,536	17,563	17,170	15,613	-9,644	-38.2
Parma	36,036	28,294	15,147	17,532	15,840	16,020	15,372	14,354	-13,940	-49.3
Reggio Emilia	42,042	33,187	21,482	22,056	21,480	21,480	21,361	19,137	-14,050	-42.3
Modena	58,604	50,533	38,265	37,795	24,286	35,322	35,726	30,362	-20,171	-39.9
Bologna	73,164	57,883	38,130	37,282	36,250	38,654	38,732	33,397	-24,486	-42.3
Imola	9,100	7,000	2,160	2,160	6,660	6,102	6,771	6,094	-906	-12.9
Ferrara	36,218	34,223	25,440	25,440	23,350	23,350	23,740	21,551	-12,672	-37.0
Ravenna	49,686	57,876	35,970	36,040	32,980	33,970	33,713	30,527	-27,349	-47.3
Forlì	21,840	26,929	16,971	17,194	16,044	16,420	16,017	14,588	-12,341	-45.8
Cesena	26,208	33,250	20,850	21,190	19,770	19,840	19,348	19,348	-13,902	-41.8
Rimini	27,118	31,563	23,550	23,620	23,620	23,620	24,014	21,798	-9,765	-30.9
Total	**409,864**	**385,994**	**255,476**	**257,575**	**237,816**	**252,341**	**251,964**	**226,768**	**-159,226**	**-41.3**

Source: Own elaboration on ERR data

4.4.3. The control of the *Ae. albopictus* density in the E-R urban areas

4.4.3.1. The regular larvicidal treatments

Although declining in 10 of the 11 LHAs of the ERR, the expenditures incurred for the larvicidal treatments has been the highest of the E-R Plan along the years. This activity is at the base of the management of the *Ae. albopictus* population, and represent its most important expenditure for the municipalities, which receive only a partial reimbursement by the ERR.

In Table 62 we can see that the decline has not been of the same proportions in all the LHAs, and in particular in the territories of the LHAs of Parma (-72.7%) and Piacenza (-69.3%) the decline has been up to 2/3 of the expenditures incurred in 2009. The of the LHA of Rimini is the only one in which this expenditure has been higher in 2015 compared to 2009, when the expenditure for the larvicidal treatments was the lower of the 8 years' series. The territories of the LHAs of Cesena (-11.2%) and Forlì (13.6%) registered the small declines.

Table 62. Total expenditure of the E-R Plan for the larvicidal treatments in public areas in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	149,590	151,906	148,422	133,681	87,111	73,508	56,259	46,704	-105,201	-69.3
Parma	304,482	220,322	155,232	147,827	81,947	58,101	53,666	60,111	-160,211	-72.7
Reggio Emilia	546,745	435,395	432,946	398,656	285,219	225,347	237,865	302,051	-1330,345	-30.6
Modena	452,608	403,481	413,523	411,692	187,728	166,220	223,971	181,635	-221,847	-55.0
Bologna	560,818	549,708	575,149	570,877	402,917	377,177	338,369	372,361	-177,347	-32.3
Imola	128,976	90,612	90,742	76,952	43,019	45,502	51,700	52,905	-37,708	-41.6
Ferrara	401,827	478,387	519,528	510,563	360,902	352,202	351,824	289,384	-189,003	-39.5
Ravenna	397,352	380,064	428,791	437,125	280,208	277,130	297,148	282,754	-97,311	-25.6
Forlì	152,077	146,626	154,119	149,012	132,816	107,752	135,390	126,633	-19,994	-13.6
Cesena	168,117	151,206	162,979	185,479	165,970	126,443	148,876	134,338	-16,869	-11.2
Rimini	351,407	217,913	247,083	271,931	345,811	210,819	288,205	239,290	21,377	9.8
Total	**3,613,998**	**3,225,621**	**3,328,513**	**3,293,796**	**2,373,648**	**2,020,203**	**2,183,273**	**2,088,165**	**-1,137,456**	**-35.3**

Source: Own elaboration on ERR data

4.4.3.2. The door-to-door activity in private areas

The expenditure for the DtD interventions in private areas declined by the 61.6% at a regional level, with significant differences among the territories of the LHAs. Specifically, in the LHA of Piacenza this activity has been realized only in 2008, and in the LHAs of Parma and Imola only until 2012. In the territory of the LHA of Bologna there has been an increase by 124.2%, the unique case in the ERR. In the territory of the LHA of Rimini, where there has been the higher expenditures until 2013, these has been reduced to € 5,691.30 in 2014, and 16,104.00 in 2015. This latter value is reduced by 95.3% compared to 2009.

The LHAs in which some municipalities have realized the DtD interventions for all the years since 2008 are Reggio Emilia, Modena, Bologna, Ravenna, Cesena and Rimini.

Table 63. Total expenditure of the E-R Plan for the door-to-door interventions in private areas in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	6,600	-	-	-	-	-	-	-	-	-
Parma	360	-	1,000	9,040	237	-	-	-	-	-
Reggio Emilia	102,123	98,923	89,762	59,912	43,016	34,305	30,626	42,214	-56,710	-57.3
Modena	6,029	8,634	13,280	4,008	2,021	8,829	9,996	8,489	-145	-1.7
Bologna	38,657	34,765	46,842	57,923	51,965	57,070	54,953	77,931	43,166	124.2
Imola	-	561	1,630	2,064	850	-	-	-	-561	-100.0
Ferrara	5,890	-	-	3,630	-	3,738	1,900	1,193	1,193	-
Ravenna	11,154	83,143	79,964	79,706	74,685	77,189	146,335	68,947	-14,196	-17.1
Forlì	312	-	-	-	-	1,089	1,086	-	-	-
Cesena	211,934	89,557	57,167	55,269	40,247	34,601	36,022	37,460	-52,097	-58.2
Rimini	745,479	341,860	300,560	174,726	163,300	97,080	5,691	16,104	-325,756	-95.3
Total	**1,128,538**	**657,444**	**590,204**	**446,277**	**376,321**	**313,901**	**286,609**	**252,338**	**-405,106**	**-61.6**

Source: Own elaboration on ERR data

4.4.3.3. The quality controls

The quality control on larvicidal treatments in public road drains has been included in the E-R Plan since 2009, with a financial contribution equal to the 50% of the expenditure declared by the municipalities. Since 2009 this expenditure declined by 51.3%, although not in the territories of all the LHAs. In particular, it increased in the territories of the LHAs of Modena, Imola, Ferrara, Ravenna and Cesena. Although increasing, the expenditure remained low, in absolute values, especially for the LHAs of Imola, Ferrara and Ravenna.

In the LHA of Parma any municipality realized the quality control after 2011, and the same happened in the territory of the LHA of Piacenza after 2012.

Table 64. Total expenditure of the E-R Plan for the quality controls on the efficacy of larvicidal treatments in public road drains in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	-	5,049	5,049	6,278	1,204	-	-	-	-5,049	-100.0
Parma	-	9,205	4,947	7,736	-	-	-	-	-9,205	-100.0
Reggio Emilia	-	75,708	73,174	69,030	1,361	19,341	15,396	30,848	-44,860	-59.3
Modena	-	10,475	11,280	13,111	22,743	18,460	17,859	16,380	5,905	56.4
Bologna	-	79,022	75,907	77,679	13,541	40,514	41,103	39,128	-39,893	-50.5
Imola	-	1,570	2,040	942	2,572	3,203	2,091	2,986	1,416	90.2
Ferrara	-	12,200	7,200	9,650	13,000	11,896	10,881	13,905	1,705	14.0
Ravenna	-	23,954	22,755	23,168	24,384	24,735	24,803	25,060	1,106	4.6
Forlì	-	26,535	31,616	34,870	1,234	10,529	4,210	3,885	-22,650	-85.4
Cesena	-	13,344	18,750	19,626	19,111	23,375	19,312	18,537	5,193	38.9
Rimini	-	83,332	82,374	46,172	5,000	-	8,000	14,884	-68,448	-82.1
Total	**-**	**340,394**	**335,092**	**308,261**	**104,150**	**152,054**	**143,655**	**165,613**	**-174,781**	**-51.3**

Source: Own elaboration on ERR data

4.4.3.4. The education activity in primary schools

The expenditure for the education activity in primary schools declined by 37.7% (€ 70,562.79) since 2009, the first year in which it has been included in the E-R Plan. The decline has been higher in the territory of the LHA of Rimini, in which these activities has not been realized since 2013, in the territory of the LHAs of Cesena (-97.6%) and Modena (-66.9%). For the year 2012 any expenditure has been recorded but the activities have been realized. This is due to a change in the way they are reported: before 2012 the municipalities asked the financial contribution on the base of the estimated costs for the later year, and after 2012 they have to ask the contribution on the expenditures incurred in the current year.

In 2015 this activity has not been financed.

Table 65. Total expenditure of the E-R Plan for the education in primary schools in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2014/2009***	
									Euro	***%***
Piacenza	-	8,477	6,191	9,661	-	4,028	6,512	-	-1,965	-23.2
Parma	-	3,930	15,950	14,838	-	14,249	11,772	-	7,842	199.5
Reggio Emilia	-	9,720	23,925	23,925	-	20,350	31,225	-	21,505	221.2
Modena	-	24,979	13,800	14,233	-	14,665	8,275	-	-16,704	-66.9
Bologna	-	44,027	29,356	29,767	-	17,221	22,580	-	-21,447	-48.7
Imola	-	5,610	3,575	3,606	-	2,750	2,750	-	-2,860	-51.0
Ferrara	-	19,250	13,475	13,542	-	10,550	11,100	-	-8,150	-42.3
Ravenna	-	30,000	14,575	14,015	-	11,341	16,688	-	-13,312	-44.4
Forlì	-	11,000	6,050	6,310	-	5,500	5,500	-	-5,500	-50.0
Cesena	-	11,326	9,650	8,113	-	8,113	275	-	-11,051	-97.6
Rimini	-	18,920	5,225	12,091	-	-	-	-	-18,920	-100.0
Total	**-**	**187,238**	**141,772**	**150,101**	**-**	**108,767**	**116,676**	**-**	**-70,562**	**-37.7**

Source: Own elaboration on ERR data

4.4.3.5. Site inspections and purchase of larvicidal kits

The expenditure for the site inspections and larvicidal kits has declined by 61.6% since 2008 (€-385,037.01). In the territory of the LHA of Bologna it has been recorded a significant part of this decline (€ 171,879.92), equal to the 79.7% of the expenditures incurred in 2009, with a pronounced reduction since 2012. In the territory of the LHA of Forlì the expenditures incurred for this activity, which already had very low costs, has been annulled since 2013, while in the LHAs of Cesena, Piacenza, Ferrara and Imola, together with that of Bologna, the expenditure declined respectively by 91.4%, 85.6%, and 77.0%, 75.5%.

The smaller decline is that of the territory of the LHA of Rimini (-5.8%), in which, after a very pronounced decline in 2014, this expenditure increased again to € 79,696.11.

Table 66. Total expenditure of the E-R Plan for the site inspections and purchase of larvicidal kits for private use in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	70,313	34,061	29,747	13,434	9,893	4,342	3,279	4,921	-29,141	-85.6
Parma	38,261	9,932	17,650	6,228	9,285	4,504	3,447	5,944	-3,988	-40.2
Reggio Emilia	8,550	31,006	27,460	37,000	46,570	17,652	14,635	22,728	-8,278	-26.7
Modena	89,535	49,285	51,329	53,583	15,135	10,345	9,530	16,884	-32,401	-65.7
Bologna	130,197	215,532	211,026	162,259	134,125	43,443	49,166	43,652	-171,880	-79.7
Imola	13,702	27,078	27,231	23,410	10,485	10,925	9,450	6,622	-20,456	-75.5
Ferrara	87,070	32,250	30,742	24,822	14,792	6,512	6,318	7,432	-24,818	-77.0
Ravenna	182,435	102,231	84,342	72,817	69,049	49,378	55,303	48,614	-53,617	-52.4
Forlì	8,028	2,013	8,400	300	891	-	-	-	-2,013	-100.0
Cesena	49,884	36,680	17,878	8,400	18,469	7,099	3,505	3,168	-33,512	-91.4
Rimini	16,800	84,630	78,809	67,320	83,584	85,173	16,800	79,696	-4,933	-5.8
Total	**694,776**	**624,698**	**584,614**	**469,572**	**412,279**	**239,374**	**171,431**	**239,661**	**-385,037**	**-61.6**

Source: Own elaboration on ERR data

4.4.3.6. Census and georeferencing of the road drains in public areas

As it is shown in Table 67 the expenditures incurred for the census and georeferencing of the road drains in public areas, included in the E.R Plan since 2013, has been realized only in the territories of the LHAs of Modena, Bologna, Ferrara, Cesena and Rimini. At this regard is important to highline that is an activity not be reproduced more than one time, since the position of the road drains will not change every year, and only updates will be required, in case of urban expansions. Moreover, there is a certain number of municipalities which already have done the census, and in some cases the georeferencing, in the years before 2013, when it was partially reimbursed together with the activities recorded in the item "other activities undertaken by municipalities".

Up to 2015 in the territory of the LHA of Rimini there has been the higher expenditure for this activity.

Table 67. Total expenditure of the E-R Plan for the Census and georeferencing of the urban road drains in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	-	-	-	-	-	-	-	-	-	-
Parma	-	-	-	-	-	-	-	-	-	-
Reggio Emilia	-	-	-	-	-	-	-	-	-	-
Modena	-	-	-	-	-	33,333.00	2,500.00	-	-	-
Bologna	-	-	-	-	-	-	-	1,068.17	-	-
Imola	-	-	-	-	-	-	-	-	-	-
Ferrara	-	-	-	-	-	-	14,640.00	2,400.00	-	-
Ravenna	-	-	-	-	-	-	-	-	-	-
Forlì	-	-	-	-	-	-	-	-	-	-
Cesena	-	-	-	-	-	1,452.00	2,562.00	-	-	-
Rimini	-	-	-	-	-	13,167.70	18,936.00	17,467.02	-	-
Total	**-**	**-**	**-**	**-**	**-**	**47,952.70**	**38,638.00**	**20,935.19**	**-**	**-**

Source: Own elaboration on ERR data

4.4.3.7. Other activities undertaken by municipalities

The most reliable aspect of the expenditures incurred for the other activities undertaken by municipalities is the fact that it has been annulled since 2012. Until then, the expenditures recorded in this item has been very differentiated among the LHAs, with the higher expenditures reported in the territories of the LHAs of Rimini, Bologna, Parma and Cesena, and the lower in the territories of the LHA of Imola, € 14,878 in 2008 and € 300 in 2010. Zero for the other years.

Table 68. Total expenditure of the E-R Plan for other activities undertaken by the municipalities in the territory of each LHA, 2008-2015

LHAs of the ERR	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***Variation 2015/2009***	
									Euro	***%***
Piacenza	47,214	7,831	7,355	5,202	-	-	-	-	-7,831	-100.0
Parma	90,059	80,998	62,146	65,502	-	-	-	-	-80,998	-100.0
Reggio Emilia	30,445	25,839	16,620	2,800	-	-	-	-	-25,839	-100.0
Modena	191,019	52,344	3,099	3,208	-	-	-	-	-52,344	-100.0
Bologna	227,381	83,878	100,367	83,021	-	-	-	-	-83,878	-100.0
Imola	14,878	-	300	-	-	-	-	-	0	-
Ferrara	319,836	21,632	9,597	4,247	-	-	-	-	-21,632	-100.0
Ravenna	67,630	25,720	5,559	10,535	-	-	-	-	-25,720	-100.0
Forlì	18,800	200	2,420	250	-	-	-	-	-200	-100.0
Cesena	68,931	23,176	34,213	48,327	-	-	-	-	-23,176	-100.0
Rimini	36,189	69,438	58,326	125,837	-	-	-	-	-69,438	-100.0
Total	**1,112,382**	**391,056**	**300,001**	**348,928**	**-**	**-**	**-**	**-**	**-391,056**	**-100.0**

Source: Own elaboration on ERR data

5. Assessment of the expenditures incurred for the larvicidal treatments to control the *Ae. albopictus* population

5.1. Municipalities, population and per capita expenditure for the larvicidal treatments

Considering the whole period since the year after the set-up of the of the E-R Plan in 2008, the larvicidal treatments of the road drains situated in public areas has been realized yearly by a mean of 243 municipalities. Nonetheless this value hides a significant variation between the 2009-2011 and the 2012-2015 periods which, as we have seen in the previous chapter, are significantly differentiated based on the expenditures incurred and on activities realized. I.e., in the 2009-2011 period the mean number of municipalities realizing this activity was 260, with approximately 4.1 million inhabitants (93.5% of the population residing in the ERR), while in 2012-2015 period there has been a small decline, with a yearly mean of 230 municipalities included with a population of approximately 4.0 million inhabitants (89.0% of the population residing in the ERR). Table 69 shows the mean values relative to the number of municipalities, population and expenditures incurred for the larvicidal treatments considering the 2009-2015 period, and the per capita expenditures incurred for this activity separated for 2009-2011, 2012-2015 and 2009-2015 periods. As we can see there has been huge differences among the LHAs, as well as between the first and the second period. The total expenditure for the larvicidal treatments shifted since the mean of approximately € 3.3 million of 2009-2011 to the mean of approximately € 2.2 million 2012-2015, with consequent reductions in all the LHAs (except for the LHA of Rimini), although not in the same proportions. Considering the whole region, the per capita expenditure for this activity declined from a yearly mean of € 0.80 to a yearly mean of €

0.55, while the range of per capita expenditure for larvicidal treatments related to the LHAs shifted from [€ 0.46 - € 1.40] to [€ 0.18 – € 0.95], maintaining the same lower (LHA of Parma) and higher (LHA of Ferrara) extremes.

*Table 69. Per capita expenditures incurred for the larvicidal treatments in the LHAs of the ERR. 2009-2011, 2012-2015 and 2009-2015 periods**

		Population		***Expenditure incurred (E-R Plan)***				
LHAs of the ERR	***Number of municipalities***	***In the included municipalities***	***As a % of the total***	***In the included municipalities***	***As % of the total expenditure in the LHAs***	***Per capita 2009-2011***	***Per capita 2012-2015***	***Per capita 2009-2015***
Piacenza	27	242,509	83.9	99,655.85	69.1	0.57	0.28	0.40
Parma	23	363,172	82.2	111,029.40	58.9	0.46	0.18	0.30
Reggio Emilia	29	444,918	83.9	331,068.66	66.1	0.90	0.62	0.74
Modena	28	604,744	86.4	284,035.58	69.5	0.66	0.32	0.47
Bologna	34	783,644	90.9	455,222.55	58.8	0.71	0.48	0.58
Imola	9	131,087	99.2	64,490.34	69.7	0.66	0.37	0.49
Ferrara	25	357,419	99.9	408,969.99	78.1	1.40	0.95	1.14
Ravenna	18	391,939	100.0	340,460.14	58.8	1.07	0.72	0.87
Forlì	15	185,746	99.1	136,049.69	76.8	0.82	0.67	0.73
Cesena	14	204,912	98.6	153,613.05	56.3	0.82	0.70	0.75
Rimini	21	317,834	96.9	259,867.39	47.4	0.78	0.84	0.82
Total	**243**	**4,027,922**	**91.0**	**2,644,462.65**	**62.5**	**0.80**	**0.55**	**0.65**

*All the values in the table refers to the mean of the values for each of the considered years. The per capita expenditures in the LHAs are the result of the total expenditures incurred for this activity divided per the populations residing in the municipalities which realized the activity.

Source: Own elaboration on ERR data

5.2. The treatment of a single treated road drain

5.2.1. Reliability of the data and methodology

In the models for the report of the activities carried out with the relative expenditures incurred, which I presented in the chapter 4, the ERR ask to the local administrations to indicate, at regard to the larvicidal treatments of the road drains in public areas, the expenditures incurred, the number of road drains in the urban area, i.e. the number of road drain that have been treated, and the number of rounds of treatments realized in the current year. The request of these information was included in both the models used for the reports, before and after 2013.

These data allow an assessment of the expenditures incurred for a single treated road drain, for a single round of treatments, in each of the municipalities, and the comparison of these values among different municipalities and LHAs territories, something that may help to shed light on the high variability of the expenditures incurred for the most important activity included in the E-R Plan.

Unfortunately, the definition of the expenditure for a single treated road drain is not possible for all the municipalities, since many of them did not indicated properly the number of road drains, or the number of rounds of treatments, or both. Furthermore, it is important to highlight that even when the calculation is possible, the reliability of the data, especially for the number of road drains, is not certain. This problem has been reduced in recent years, through the census and georeferencing of the road drains in urban areas, something that, however, has been realized only in few municipalities, as I showed in the previous chapter. Where the census has not been realized we are not sure if the indicated number of road drains is the result of an accurate study or just a rough estimate, and this uncertainty has had an indirect confirmation through a small number of interviews realized in 2011 with the responsible for the treatments in 10 different municipalities of various demographic dimensions and geographic location in the ERR. Questioned about this topic, half of them stated that the number of road drains indicated in the reports is not the result

of a census, but an estimation made specifically for the needs of the E-R Plan (Canali & Rivas Morales, 2012).

5.2.1.1. Municipalities and population included in the assessment of the expenditures incurred for a single treated road drain

Since the existence of the described situation, the number of municipalities for which it was possible to realize this assessment is reduced if compared to all the municipalities which realized the larvicidal treatments. Nevertheless, it is still a high proportion of the total, therefore maintaining an acceptable representativeness both in terms of the proportion of the population included, compared to the total population residing in municipalities that realized larvicidal treatments, and in terms of the proportion of the expenditures incurred for this activity in the municipalities included, compared to the total expenditures incurred for the larvicidal treatments. Data about the representativeness of the population and of the expenditure are showed in the following tables.

Table 70. Population and expenditures incurred for larvicidal treatments in the municipalities included for the assessment of the expenditures incurred for a single treated road drain, 2009 and 2010

LHAs of the ERR	***2009***					***2010***				
	A	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***
Piacenza	28	240,185	84.0	146,047	96.1	30	253,851	88.1	144,522	97.4
Parma	21	361,486	83.5	197,534	89.7	22	354,944	81.2	139,096	89.6
Reggio Emilia	31	462,371	89.0	426,155	97.9	30	453,379	86.3	432,946	100.0
Modena	24	553,448	80.4	362,190	89.8	25	569,678	82.0	399,881	96.7
Bologna	28	722,891	85.4	510,821	92.9	28	725,109	85.0	511,234	88.9
Imola	6	51,679	39.9	45,175	49.9	6	52,372	40.0	42,742	47.1
Ferrara	24	348,810	97.4	473,803	99.0	23	347,968	96.9	500,280	96.3
Ravenna	18	385,729	100.0	380,064	100.0	18	389,508	100.0	428,791	100.0
Forlì	14	174,326	94.2	146,626	100.0	14	180,264	96.5	150,900	97.9
Cesena	14	201,060	99.0	151,206	100.0	14	203,602	99.0	162,979	100.0
Rimini	18	299,229	98.7	216,349	99.3	22	317,508	97.6	243,631	99.4
ERR	**226**	**3,801,214**	**87.6**	**3,055,972**	**94.7**	**232**	**3,848,183**	**87.5**	**3,157,002**	**94.9**

(**A**): Number of municipalities included; (**B**): Population residing in the included municipalities; (**C**): B, as a % of the population residing in all the municipalities realizing larvicidal treatments of the road drains in public areas; (**D**): Expenditure incurred for the

larvicidal treatments of the road drains in public areas in the included municipalities; (**E**): D, as a % of the total expenditures incurred for the larvicidal treatments of the road drains in public areas.

Source: Own elaboration on ERR data

Table 71. Population and expenditures incurred for larvicidal treatments in the municipalities included for the assessment of the expenditures incurred for a single treated road drain, 2011 and 2012

LHAs of the ERR	***2011***					***2012***				
	A	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***
Piacenza	29	250,251	86.3	132,961	99.5	0	0	0.0	0	0.0
Parma	21	186,627	42.2	138,690	93.8	0	0	0.0	0	0.0
Reggio Emilia	31	465,067	87.7	395,943	99.3	0	0	0.0	0	0.0
Modena	27	616,179	87.9	406,051	98.6	13	468,352	66.4	148,746	79.2
Bologna	29	739,579	86.0	523,596	91.7	0	0	0.0	0	0.0
Imola	7	57,452	43.5	35,792	46.5	0	0	0.0	0	0.0
Ferrara	26	359,994	100.0	510,563	100.0	0	0	0.0	0	0.0
Ravenna	18	392,458	100.0	437,125	100.0	0	0	0.0	0	0.0
Forlì	14	185,166	98.7	148,250	99.5	0	0	0.0	0	0.0
Cesena	14	205,796	99.0	185,479	100.0	0	0	0.0	0	0.0
Rimini	21	318,270	96.7	268,491	98.7	0	0	0.0	0	0.0
ERR	**237**	**3,776,839**	**85.2**	**3,182,942**	**96.6**	**13**	**468,352**	**10.5**	**148,746**	**6.3**

(**A**): Number of municipalities included; (**B**): Population residing in the included municipalities; (**C**): B, as a % of the population residing in all the municipalities realizing larvicidal treatments of the road drains in public areas; (**D**): Expenditure incurred for the larvicidal treatments of the road drains in public areas in the included municipalities; (**E**): D, as a % of the total expenditures incurred for the larvicidal treatments of the road drains in public areas.

Source: Own elaboration on ERR data

Table 72. Population and expenditures incurred for larvicidal treatments in the municipalities included for the assessment of the expenditures incurred for a single treated road drain, 2013 and 2014

LHAs of the ERR	***2013***					***2014***				
	A	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***
Piacenza	26	240,365	82.6	73,508	100.0	21	218,687	75.7	54,113	96.2
Parma	17	325,675	72.8	55,706	95.9	14	302,724	68.1	50,043	93.2
Reggio Emilia	25	407,540	76.1	218,747	97.1	20	349,417	65.3	237,169	99.7
Modena	12	432,545	61.2	141,964	85.4	18	532,551	75.8	172,267	76.9
Bologna	29	728,172	83.6	350,777	93.0	27	717,947	82.7	309,934	91.6

LHAs of the ERR	*2013*					*2014*				
	A	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***
Imola	7	126,731	95.0	44,171	97.1	9	116,104	87.4	45,167	87.4
Ferrara	26	358,116	100.0	352,202	100.0	24	355,334	100.0	351,824	100.0
Ravenna	18	395,077	100.0	277,130	100.0	18	393,184	100.0	297,148	100.0
Forlì	15	188,357	100.0	107,752	100.0	14	186,884	99.6	135,390	100.0
Cesena	13	201,711	96.1	126,443	100.0	14	207,280	99.1	148,876	100.0
Rimini	21	317,231	94.6	208,086	98.7	19	320,586	95.7	286,863	99.5
ERR	**209**	**3,721,520**	**83.2**	**1,956,488**	**96.8**	**198**	**3,700,698**	**83.1**	**2,088,793**	**95.7**

(**A**): Number of municipalities included; (**B**): Population residing in the included municipalities; (**C**): B, as a % of the population residing in all the municipalities realizing larvicidal treatments of the road drains in public areas; (**D**): Expenditure incurred for the larvicidal treatments of the road drains in public areas in the included municipalities; (**E**): D, as a % of the total expenditures incurred for the larvicidal treatments of the road drains in public areas.

Source: Own elaboration on ERR data

Table 73. Population and expenditures incurred for larvicidal treatments in the municipalities included for the assessment of the expenditures incurred for a single treated road drain, 2015 and 2009-2011 period

LHAs of the ERR	*2015*					*2009-2011*				
	A	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***
Piacenza	20	216,202	74.9	46,704	100.0	29	248,096	86.2	141,177	97.7
Parma	16	332,316	74.6	48,770	81.1	21	301,019	68.9	158,440	91.0
Reggio Emilia	28	452,530	84.7	276,214	91.4	31	460,272	87.7	418,348	99.1
Modena	18	533,484	75.9	143,737	79.1	25	579,768	83.4	389,374	95.0
Bologna	33	822,149	94.3	368,132	98.9	28	729,193	85.5	515,217	91.2
Imola	9	132,086	99.1	52,905	100.0	6	53,834	41.1	41,237	47.8
Ferrara	24	354,673	100.0	289,384	100.0	24	352,257	98.1	494,882	98.4
Ravenna	18	393,154	100.0	282,754	100.0	18	389,232	100.0	415,327	100.0
Forlì	14	181,058	96.6	125,866	99.4	14	179,919	96.5	148,592	99.1
Cesena	14	207,281	99.1	134,338	100.0	14	203,486	99.0	166,555	100.0
Rimini	21	327,852	97.5	236,405	98.8	20	311,669	97.6	242,824	99.1
ERR	**215**	**3,952,785**	**88.7**	**2,005,209**	**96.0**	**232**	**3,808,745**	**86.8**	**3,131,972**	**95.4**

(**A**): Number of municipalities included; (**B**): Population residing in the included municipalities; (**C**): B, as a % of the population residing in all the municipalities realizing larvicidal treatments of the road drains in public areas; (**D**): Expenditure incurred for the larvicidal treatments of the road drains in public areas in the included municipalities; (**E**): D, as a % of the total expenditures incurred for the larvicidal treatments of the road drains in public areas. Source: Own elaboration on ERR data.

Table 74. Population and expenditures incurred for larvicidal treatments in the municipalities included for the assessment of the expenditures incurred for a single treated road drain, 2013-2015 and 2009-2015 (2012 is excluded) periods

LHAs of the ERR	***2013-2015***					***2009-2015***				
	A	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***
Piacenza	22	225,085	77.7	58,109	98.7	26	236,590	81.9	99,643	98.2
Parma	16	320,238	71.9	51,506	90.1	19	310,629	70.4	104,973	90.6
Reggio Emilia	24	403,162	75.4	244,044	96.1	28	431,717	81.5	331,196	97.6
Modena	16	499,527	71.0	152,656	80.5	21	539,648	77.2	271,015	87.8
Bologna	30	756,089	86.9	342,948	94.5	29	742,641	86.2	429,082	92.8
Imola	8	124,974	93.8	47,414	94.8	7	89,404	67.5	44,325	71.3
Ferrara	25	356,041	100.0	331,137	100.0	25	354,149	99.1	413,009	99.2
Ravenna	18	393,805	100.0	285,677	100.0	18	391,518	100.0	350,502	100.0
Forlì	14	185,433	98.7	123,003	99.8	14	182,676	97.6	135,797	99.5
Cesena	14	205,424	98.1	136,552	100.0	14	204,455	98.6	151,554	100.0
Rimini	20	321,890	95.9	243,785	99.0	20	316,779	96.8	243,304	99.1
ERR	**207**	**3,791,668**	**85.0**	**2,016,830**	**96.2**	**220**	**3,800,207**	**85.9**	**2,574,401**	**95.8**

(**A**): Number of municipalities included; (**B**): Population residing in the included municipalities; (**C**): B, as a % of the population residing in all the municipalities realizing larvicidal treatments of the road drains in public areas; (**D**): Expenditure incurred for the larvicidal treatments of the road drains in public areas in the included municipalities; (**E**): D, as a % of the total expenditures incurred for the larvicidal treatments of the road drains in public areas.

Source: Own elaboration on ERR data

As it is possible to see in Table 71, in 2012 there has been a few number of municipalities that has declared the data needed to know the cost of a single treated road drain, and they are all 13 concentrated in the territory of the LHA of Modena. For this reason, the year 2012 has been excluded from this assessment, both from the second period, which is therefore referred to the years since 2013 to 2015, and from the whole 2009-2015 period, where 2012 is excluded. As we may see in Table 73 and Table 74 the representativeness of the sample resulting after the exclusion of the year 2012 is the following (percentages indicates the mean of the yearly proportion of the population residing and of the expenditures incurred in the included municipalities, compared to these values for the totality of the municipalities realizing larvicidal treatments):

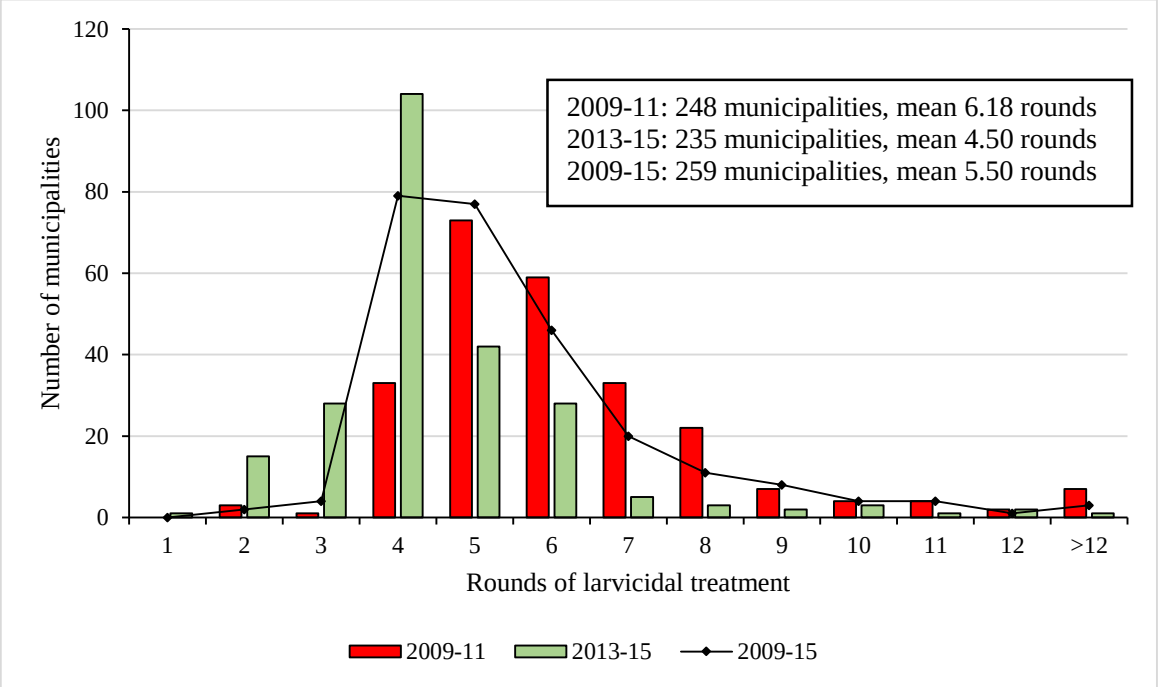
- 86.8% of the population and 95.5% of the expenditures in 2009-2011 period;
- 85.0% of the population and 96.3% of the expenditures in 2013-2015 period.

Particularly low is the representativeness of the sample for the LHA of Imola in 2009-2011 period – 41.1% of the population and 47.8% of the expenditure – mostly due to the exclusion of the municipality of Imola, which is the capital of the Province and its most populous city, but did not declared the number of road drains in its territory until 2013.

5.2.2. The rounds of treatments

Although the E-R Plan suggests to realize five rounds of treatments during the season of activity of *Ae. albopictus*, which is an appropriate number to ensure the effectiveness of the treatments based on the lasting of the chemical products effects (if using diflubenzuron, the most widely used active ingredient (Canali & Rivas Morales, 2012)) and on the life cycle of mosquitoes, many municipalities realized the treatments in a different number of rounds. Although there may be justifiable reasons to increase their number, as for example the eventually that heavy rains may "clean" the road drains making necessary the repeat of the operations before the scheduled time, the number of rounds of treatments have an impact on the costs of this activity, and therefore on the resources to be spent to carry out this fundamental task. Moreover, a limited number of rounds may reduce their effectiveness, and therefore increase the risk of higher nuisance and infectious disease transmission through bites.

Figure 13. Distribution of municipalities on the base of the rounds of larvicidal treatments realized in each of them. Mean of the values for 2009-2011, 2013-2015 and 2009-2015 periods.



The number of rounds of treatments are referred to the mean number of rounds that each municipality realized in the considered periods. Because of that the number of treatments in the figure indicate ranges of values around the natural number. I.e., 1 indicates the range between "0" and "1.49"; 2 indicates the range between "1.50" and "2.49", 3 indicates the range between "2.50" and "<3.49"; 4 indicates the range between "3.50" and "4.49", etc.

Source: Own elaboration on ERR data

Figure 13 shows the distribution of the municipalities on the base of the number of rounds of treatments realized in the considered periods (2009-2011, 2012-2015. 2009-2015), with in the vertical axis the number of municipalities, and in the horizontal axis the number of rounds. For each municipality I considered the mean of the values for every year, which compose also the indicated regional mean. The same values are showed in Table 75, with the detail for each of the 11 LHAs of the ERR.

There is an important difference among the two considered periods. In 2009-2011 the mean number of rounds of larvicidal treatments was 6.18, with 73 municipalities that realized 5 rounds, 59 that realized 6 rounds, 33 that realized 7 rounds, and 46 that realized

more than 7 rounds of treatments. In 2013-2015 the mean number of rounds was 4.50, with 104 municipalities that realized 4 rounds, 42 that realized 5 rounds, 28 that realized 6 rounds, and only 17 that realized more than 6 rounds of treatments. Figure 13 highlights the shift occurred between the two periods, as well as the concentration in the range between 3.50 and 4.49 for 2013-2015 (green column). As we have seen in chapter 4, the expenditure for the larvicidal treatments of the road drains in public areas declined significantly between 2011 (€ 3.3 million) and 2012 (€ 2.4 million), and remained close to 2012 level during the following years. This trend is confirmed by the mean expenditures for larvicidal treatments of the period 2009-2011 (€ 3.3 million) and 2012-2015 (€ 2.2 million).

As we can see in Figure 14, the number of rounds present some significant differences among the LHAs. For example, in the territory of the LHA of Parma there has been an especially large range of rounds of treatments among municipalities, in both considered periods: Between 5 and 14 in 2009-2011, and between 1 to 12 in 2013-2015. For the first period is extremely high also the mean, close to 10 rounds of treatments, declined to 6.6 in the second period (but still the higher value among the LHAs).

Table 75. Distribution of municipalities based on the mean number of rounds of larvicidal treatments realized in each municipality, for 2009-2011, 2013-2015 and 2009-2015 periods, in the territory of each LHAs of the ERR

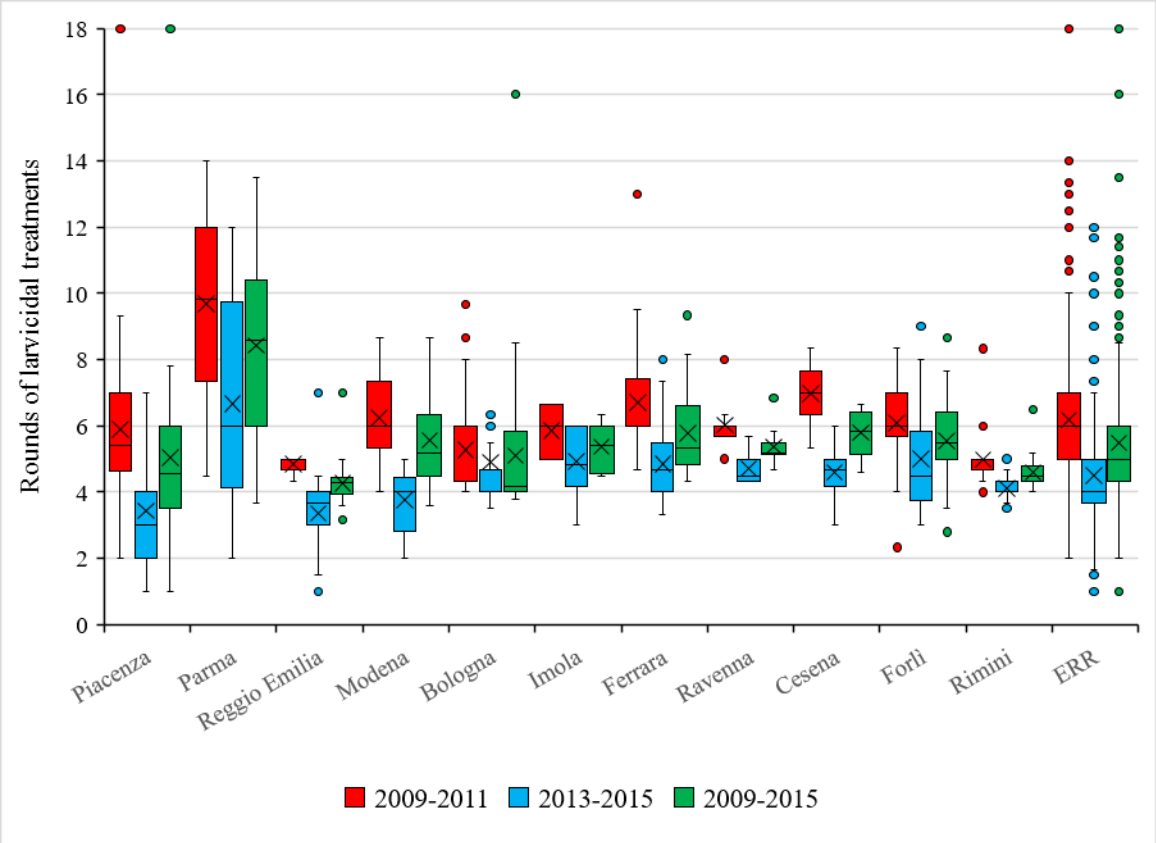
LHAs of the ERR	***1 - 3 rounds***			***4 rounds***			***5 rounds***			***6 rounds***			***7 rounds***			***8 rounds***			***9 rounds***			***10 rounds***			***>10 rounds***			***Total***			***Mean (rounds)****		
	A	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***
Piacenza	3	15	4	4	6	12	10	1	7	6	1	6	7	2	2	2	-	2	1	-	-	-	-	-	1	-	1	34	25	34	5.89	3.32	5.11
Parma	-	4	-	-	2	2	1	1	1	2	7	5	4	-	1	1	1	3	3	1	4	2	3	4	11	3	6	24	22	26	9.68	6.67	8.42
Reggio Emilia	-	13	1	5	18	25	27	1	7	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	32	33	34	4.85	3.36	4.27
Modena	-	6	-	2	7	6	5	5	9	10	-	7	5	-	2	4	-	2	1	-	1	-	-	-	-	-	-	27	18	27	6.24	3.76	5.56
Bologna	-	-	-	17	26	22	5	4	3	2	4	4	3	-	4	2	-	-	1	-	1	1	-	-	-	1	1	31	35	35	5.27	4.91	5.10
Imola	-	1	-	-	2	-	2	3	5	3	4	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	10	10	5.86	4.93	5.38
Ferrara	-	1	-	-	11	2	4	7	13	13	5	4	3	1	3	3	1	3	1	-	1	1	-	-	1	-	-	26	26	26	6.70	4.85	5.78
Ravenna	-	-	-	-	9	-	3	6	13	13	3	3	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	18	18	18	6.04	4.72	5.38
Forlì	1	3	1	2	4	1	-	3	5	6	2	5	3	1	1	3	1	1	-	1	1	-	-	-	-	-	-	15	15	15	6.08	5.00	5.55
Cesena	-	1	-	-	3	-	1	8	4	3	2	7	6	-	3	4	-	-	-	-	-	-	-	-	-	-	-	14	14	14	6.98	4.60	5.80
Rimini	-	-	-	3	16	9	15	3	10	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	20	19	20	4.98	4.11	4.59
Total	**4**	**44**	**6**	**33**	**104**	**79**	**73**	**42**	**77**	**59**	**28**	**46**	**33**	**5**	**20**	**22**	**3**	**11**	**7**	**2**	**8**	**4**	**3**	**4**	**13**	**4**	**8**	**248**	**235**	**259**	**6.18**	**4.50**	**5.50**

(**A**): 2009-2011 period; (**B**): 2013-2015 period; (**C**): 2009-2015 period, excluding 2012; (*): mean number of treatments in the municipalities of the LHAs. The number of rounds of treatments are referred to the mean number of rounds that each municipality realized in the considered periods. Because of that the number of treatments in the figure indicate ranges of values around the natural number. I.e., 1 - 3 indicates the range between “0” and “3.49”; 4 indicates the range between “3.50” and “4.49”, 5 indicates the range between “4.50” and “<5.49”; 6 indicates the range between “5.50” and “6.49”, etc.

Source: Own elaboration on ERR data

In 2009-2011 only the municipalities in the territory of the LHA of Rimini realized a mean number of rounds lower than 5, a situation completely reversed in 2013-2015, when only in the LHA of Forlì the number of rounds reached a mean of 5, being lower in all the other LHAs. The lower mean values have been registered in the territories of the LHAs of Piacenza (3.32), Reggio Emilia (3.36) and Modena (3.76).

Figure 14. Box and whiskers chart with the distribution of municipalities on the base of the rounds of larvicidal treatments of road drains in public areas, for the territory of each of the LHAs in the ERR, 2009-2015, 2013-2015 and 2009-2015 periods



The boxes and whiskers represent the distribution of the mean number of rounds of larvicidal treatments in each municipality, for the considered periods. The bottom end of the whiskers represents the minimum values; the upper end represents the maximum values. The values in between the end of the bottom whiskers and the bottom of the boxes are the lower quarter (25%) of the values. The range between the bottom of the boxes and the horizontal line inside the boxes (that represents the median value) represents the second quartile of the values; the range from the median line to the top of the box represents the values in the third quartile, and lastly, the upper whiskers, from the top of the boxes to the end of the whiskers, represents the fourth quartile, i.e. the higher 25% of the values. The “X” markers indicates the mean of the values represented in the chart. The

isolated dots represent the outliers, according to the Tukey industry standard, which states that the values are considered outliers if they lie beyond 1.5 times the length of the interquartile range (the box with second and third quartile) from either end of the box. Source: own elaboration on ERR data.

5.2.3. The number of road drains and of administered larvicidal doses

An important variable for the larvicidal treatments is the number of road drains in the urban areas. As I already explained, we only have this information for a reduced number of municipalities – a mean of 220 considering 2009-2015 period – which gave this information through the yearly reports of the activities carried out.

As it is showed in Table 76, the mean number of road drain treated every year has been 1,162,897, distributed in more than 200 municipalities. This value may change over time (Table 77), but if we consider the whole period (excluding 2012 for which data is not available) at a regional level there are 0.31 road drains for each person residing in the Emilia-Romagna. If we consider the municipalities separated, the arithmetic mean of the number of road drains result a little higher, i.e., 0.32 for every person residing in the ERR.

If we look at the single LHAs we may see that the higher values are in the territory of the LHA of Ravenna, 0.46 road drains per capita, and Rimini (0.40), while the lowers in the territory of the LHAs of Parma, Piacenza and Reggio Emilia, respectively with 0.17, 0.22 and 0.22 road drains for every resident.

Table 76. Absolute and per capita number of road drains in the municipalities and LHAs of the ERR, 2009-2015

LHAs of the ERR	*Municipalities included**	*Population included* [α]		*Road drains, absolute values* [β]	*Per capita road drains* [‡]	*Road drains, municipalities* [ϕ]		
		Absolute values	*As a % of the population residing in the LHAs*			*Per capita road drains*	*Standard deviation*	*Coefficient of variation (%)*
Piacenza	26	236,590	81.9	51,970	0.22	0.20	0.08	40.65
Parma	19	310,629	70.4	52,584	0.17	0.22	0.10	47.18
Reggio Emilia	28	431,717	81.5	92,727	0.22	0.25	0.07	27.93
Modena	21	539,648	77.2	140,056	0.26	0.27	0.09	34.47
Bologna	29	742,641	86.2	261,312	0.35	0.47	0.25	52.68
Imola	7	89,404	67.5	29,847	0.35	0.40	0.21	49.09
Ferrara	25	354,149	99.1	107,752	0.30	0.35	0.10	28.65
Ravenna	18	391,518	100.0	178,448	0.46	0.46	0.18	39.27
Forlì	14	182,676	97.6	59,149	0.32	0.28	0.09	31.11
Cesena	14	204,455	98.6	62,437	0.31	0.28	0.09	32.15
Rimini	20	316,779	96.8	126,615	0.40	0.32	0.15	43.30
ERR	**220**	**3,800,207**	**85.9**	**1,162,897**	**0.31**	**0.32**	**0.17**	**55.23**

(α): Yearly mean of the population included, and mean of the yearly proportion of this population compared to the population residing in the ERR; (β): Mean of the sum of the road drains declared yearly by the municipalities; (‡): Mean of the yearly relation between the sum of the road drains declared by municipalities and the population included; (ϕ): Mean of the yearly mean, standard deviation and coefficient of variation of the per capita road drains, considering each municipality separately

Source: Own elaboration on ERR data.

The fact that the values obtained using the means of the values of each municipality are quite different from the values at the LHA level, reflects the variability found among the municipalities, which is also showed in Table 76.

Table 77. Declared number of road drains by the municipalities in the territory of each LHA, 2009-2015

LHAs of the ERR	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Piacenza	52,451	55,563	55,771	0	53,435	47,305	47,295
Parma	83,698	92,398	40,569	0	33,840	30,915	34,083
Reggio Emilia	91,145	91,385	93,685	0	91,103	81,910	107,132
Modena	145,454	151,588	164,946	118,190	109,794	134,981	133,573
Bologna	250,243	249,249	262,406	0	248,821	279,018	278,134
Imola	18,448	19,928	22,497	0	38,846	36,569	42,792
Ferrara	102,118	101,376	107,755	0	109,444	111,355	114,464
Ravenna	173,090	176,600	177,875	0	178,035	182,408	182,682
Forlì	54,010	55,931	57,253	0	62,693	62,956	62,053
Cesena	56,278	57,041	62,281	0	64,893	66,356	67,775
Rimini	227,724	98,238	97,244	0	103,901	116,143	116,440
ERR	**1,254,659**	**1,149,297**	**1,142,282**	**118,190**	**1,094,805**	**1,149,916**	**1,186,423**

Source: Own elaboration on ERR data

To highlight the importance of the number of road drains in relation to the population, in Table 78 are listed these values, together with the rounds of treatments and the number of single treatments of a road drain (i.e. the product of the number of road drains multiplied by the rounds of treatments realized), all indexed to the regional means, for the periods 2009-2011 and 2013-2015. As we can see there are important differences among the territories of the LHAs, with at the opposite extremes the territory of the LHA of Piacenza, which municipalities have realized the 66% and the 51% of the regional mean in terms of single treatments of road drains, and the territory of the LHA of Ravenna, which municipalities have realized respectively the 166% and the 171% of the regional mean of single treatments of road drains drain in the considered periods.

Table 78. Road drains, rounds and number of single road drain treatments in relation to the population residing in the LHAs of the ERR, 2009-2011 and 2013-2015 periods. (Index numbers, ERR values = 100)

LHAs of the ERR	*Per capita road drains*	*Rounds of treatments*		*Per capita single treatments of road drains*	
		2009-2011	*2013-2015*	*2009-2011*	*2013-2015*
Piacenza	72	95	74	66	51
Parma	55	157	148	95	50
Reggio Emilia	71	79	75	52	60
Modena	85	101	83	88	75
Bologna	115	85	109	104	126
Imola	113	95	110	116	112
Ferrara	99	108	108	101	101
Ravenna	149	98	105	166	171
Forlì	106	98	111	100	117
Cesena	100	113	102	108	109
Rimini	132	81	91	123	105
ERR	**100**	**100**	**100**	**100**	**100**

Source: Own elaboration on ERR data

5.2.4. The expenditures incurred for a single treated road drain

5.2.4.1. In the Local Health Authorities and at the regional level

At a regional level, the expenditures incurred for a single treated road drain, i.e. the cost of the administration of a dose of larvicidal product in a road drain, has been € 0.44 during the period 2009-2011 and € 0.39 during the period 2013-2015.

Table 79. Expenditure incurred for a single treated road drain, 2009-2011

		Population included			Expenditures for larvicidal treatments (€, mean)			
LHAs of the ERR	***Municipalities included***	***Absolute values***	***As a % of the population residing in the LHAs***	***Larvicidal doses distributed***	***Absolute values****	***As a % of the expenditure for larvicidal treatments in the LHAs $^{\alpha}$***	***For a single treated road drain (LHAs values) $^{\beta}$***	***For a single treated road drain (municipality values) $^{\phi}$***
Piacenza	34	269,389	93.6	334,417	141,176.72	97.6	0.46	0.58
Parma	25	378,862	86.6	630,563	158,439.83	90.8	0.30	0.44
Reggio Emilia	33	474,435	90.4	467,890	418,348.09	99.1	0.93	0.87
Modena	26	610,191	87.8	999,811	389,374.12	95.1	0.41	0.40
Bologna	32	757,966	88.8	1,481,318	515,217.19	91.1	0.36	0.45
Imola	7	56,890	43.5	125,122	41,236.64	47.9	0.35	0.44
Ferrara	24	358,980	100.0	674,925	494,882.00	98.4	0.75	0.78
Ravenna	18	389,232	100.0	1,207,488	415,326.94	100.0	0.34	0.33
Forlì	15	186,474	100.0	347,158	148,592.16	99.1	0.44	0.50
Cesena	15	203,486	99.0	410,712	166,554.74	100.0	0.41	0.48
Rimini	19	307,179	96.2	712,312	242,823.62	99.1	0.42	0.57
ERR	**248**	**3,993,084**	**91.0**	**7,391,714**	**3,131,972.05**	**95.4**	**0.44**	**0.56**

(*****): Sum of the mean expenditures in the included municipalities for the considered years; ($^{\alpha}$): (*****) as a percentage of the mean total expenditures for larvicidal treatments in the considered years; ($^{\beta}$): Mean of the expenditure for larvicidal treatments in the included municipalities divided by the population residing in the included municipalities; ($^{\phi}$): Mean of the yearly mean of the municipality values for the considered periods

Source: Own elaboration on ERR data

Table 80. Expenditure incurred for a single treated road drain, 2013-2015

		Population included			Expenditures for larvicidal treatments (€, mean)			
LHAs of the ERR	***Municipalities included***	***Absolute values***	***As a % of the population residing in the LHAs***	***Larvicidal doses distributed***	***Absolute values****	***As a % of the expenditure for larvicidal treatments in the LHAs*** $^{\alpha}$	***For a single treated road drain (LHAs values)*** $^{\beta}$	***For a single treated road drain (municipality values)*** $^{\phi}$
Piacenza	25	240,498	83.1	171,039	58,108.54	98.8	0.37	0.58
Parma	23	372,480	83.6	276,941	51,506.15	89.9	0.24	0.47
Reggio Emilia	32	493,342	92.2	402,830	244,043.62	95.7	0.75	0.62
Modena	17	533,440	75.8	543,219	152,656.30	80.1	0.30	0.33
Bologna	35	813,048	93.4	1,474,539	338,942.28	93.5	0.27	0.33
Imola	9	133,195	100.0	213,240	47,414.08	94.8	0.25	0.34
Ferrara	26	356,103	100.0	495,743	322,183.57	97.3	0.67	1.05
Ravenna	18	393,805	100.0	925,456	285,677.25	100.0	0.31	0.29
Forlì	15	187,848	100.0	302,008	123,002.64	99.8	0.41	0.51
Cesena	15	207,469	99.1	309,779	136,552.31	100.0	0.44	0.42
Rimini	18	314,175	93.6	463,159	239,483.51	97.3	0.53	0.49
ERR	**235**	**4,045,403**	**90.7**	**5,577,952**	**1,999,570.24**	**95.3**	**0.39**	**0.52**

(*****): Sum of the mean expenditures in the included municipalities for the considered years; ($^{\alpha}$): (*****) as a percentage of the mean total expenditures for larvicidal treatments in the considered years; ($^{\beta}$): Mean of the expenditure for larvicidal treatments in the included municipalities divided by the population residing in the included municipalities; ($^{\phi}$): Mean of the yearly mean of the municipality values for the considered periods

Source: Own elaboration on ERR data

These values are the mean of the yearly expenditure for larvicidal treatments in the municipalities for which we have information around the number of road drains and the number of rounds of treatments, divided by the product of the road drains multiplied by the number of rounds of treatments, in each municipality, obtained with (1).

$$ExpRD_{ERR} = \frac{\sum_{i=1}^{n_y} \frac{ExpL}{\sum_{k=1}^{n_c}(n_{rd} \times n_{rt})}}{N_y} \qquad (1)$$

where $\boldsymbol{ExpRD_{ERR}}$ is the mean expenditure for a single treated road drain, considering the whole ERR, $\boldsymbol{i = (1 \ldots n_y)}$ are the years in the considered period, ***ExpL*** is the yearly regional expenditure for larvicidal treatments (in the municipalities which gave data on the road drains and round of treatments) in the considered period, $\boldsymbol{k = (1 \ldots n_c)}$ are all the municipalities which gave data on the road drains and round of treatments, in the considered year, $\boldsymbol{n_{rd}}$ is the number of road drains in the considered municipality, $\boldsymbol{n_{rt}}$ is the number of rounds of treatments realized in the considered municipality, in the considered year, and $\boldsymbol{N_y}$ is the number of years in the considered period.

The range of values relative to the LHAs – (2) – is large for both periods, with the same LHAs at the extremes: from € 0.30 in the LHA of Parma to € 0.93 in the LHA of Reggio Emilia in 2009-2011; from € 0.24 in the LHA of Parma to € 0.75 in the LHA of Reggio Emilia in 2013-15. To obtain this values the formula above has been modified in the following:

$$ExpRD_{LHA} = \frac{\sum_{i=1}^{n_y} \frac{ExpL\_LHA}{\sum_{k=1}^{n_{c\_LHA}}(n_{rd} \times n_{rt})}}{N_y} \qquad (2)$$

where $\boldsymbol{ExpRD_{LHA}}$ is the mean expenditure for a single treated road drain, in the territory of the considered LHA, ***ExpL_LHA*** is the yearly expenditure for larvicidal treatments (in the municipalities which gave data on the road drains and round of treatments) in the considered LHA, in the considered period, and $\boldsymbol{k = (1 \ldots n_{c\_LHA})}$ are all the municipalities

which gave data on the road drains and round of treatments, in the considered LHA, in the considered year.

The variability of the data is even higher considering the mean values relative to each municipality – (3) – and for 8 of 11 LHAs in 2009-2011, and 7 of 11 LHAs in 2013-2015, the expenditures incurred for a single treated road drain is higher (Table 79 and Table 80) compared to the values at LHA level. The formula used in this case is the following:

$$\mu_{ExpRD\_LHA\_mun} = \frac{\sum_{k=1}^{n_{c\_LHA}} \frac{\sum_{i=1}^{n_y} \frac{ExpLmun}{(n_{rd} \times n_{rt})}}{N_y}}{N_{c\_LHA}} \qquad (3)$$

where $\boldsymbol{\mu_{ExpRD\_LHA\_mun}}$ is the municipality's mean expenditure for a single treated road drain, in the considered LHA, as a mean of the municipality values, ***ExpL_mun*** is the expenditure for larvicidal treatments in the considered municipality, in the considered year, and $\boldsymbol{N_{c\_LHA}}$ is the number of municipalities which gave data on the road drains and round of treatments, in the considered period, in the considered LHA.

The mean of municipality values considering the whole ERR has been calculated by amending the latter formula in the following:

$$\mu_{ExpRD\_ERR\_mun} = \frac{\sum_{k=1}^{n_c} \frac{\sum_{i=1}^{n_y} \frac{ExpLmun}{(n_{rd} \times n_{rt})}}{N_y}}{N_c} \qquad (4)$$

Where $\boldsymbol{\mu_{ExpRD\_ERR\_mun}}$ is the municipality's mean expenditure for a single treated road drain, in the whole ERR, as a mean of municipality values, $\boldsymbol{k = (1 \ldots n_{c\_LHA})}$ has been modified in $\boldsymbol{k = (1 \ldots n_c)}$, and $\boldsymbol{N_{c\_LHA}}$ in $\boldsymbol{N_c}$, to indicate the inclusion of all the municipalities of the ERR which gave data on the road drains and round of treatments, in the considered period. The results are € 0.56 for 2009-2011, and € 0.52 for 2013-2015, respectively 27.3% and 33.3% higher than the values obtained with (1).

The variability of these values when considered separately for each municipality is shown in Table 81, which lists the values for the LHAs and the ERR of the expenditures incurred for single treated road drain, as well as the standard deviation and the coefficient of variation relative to the values of the municipalities used in the (3) and (4).

Table 81. Expenditure incurred for single treated road drain, and variability of the municipality values, 2009-2011 and 2013-2015 periods

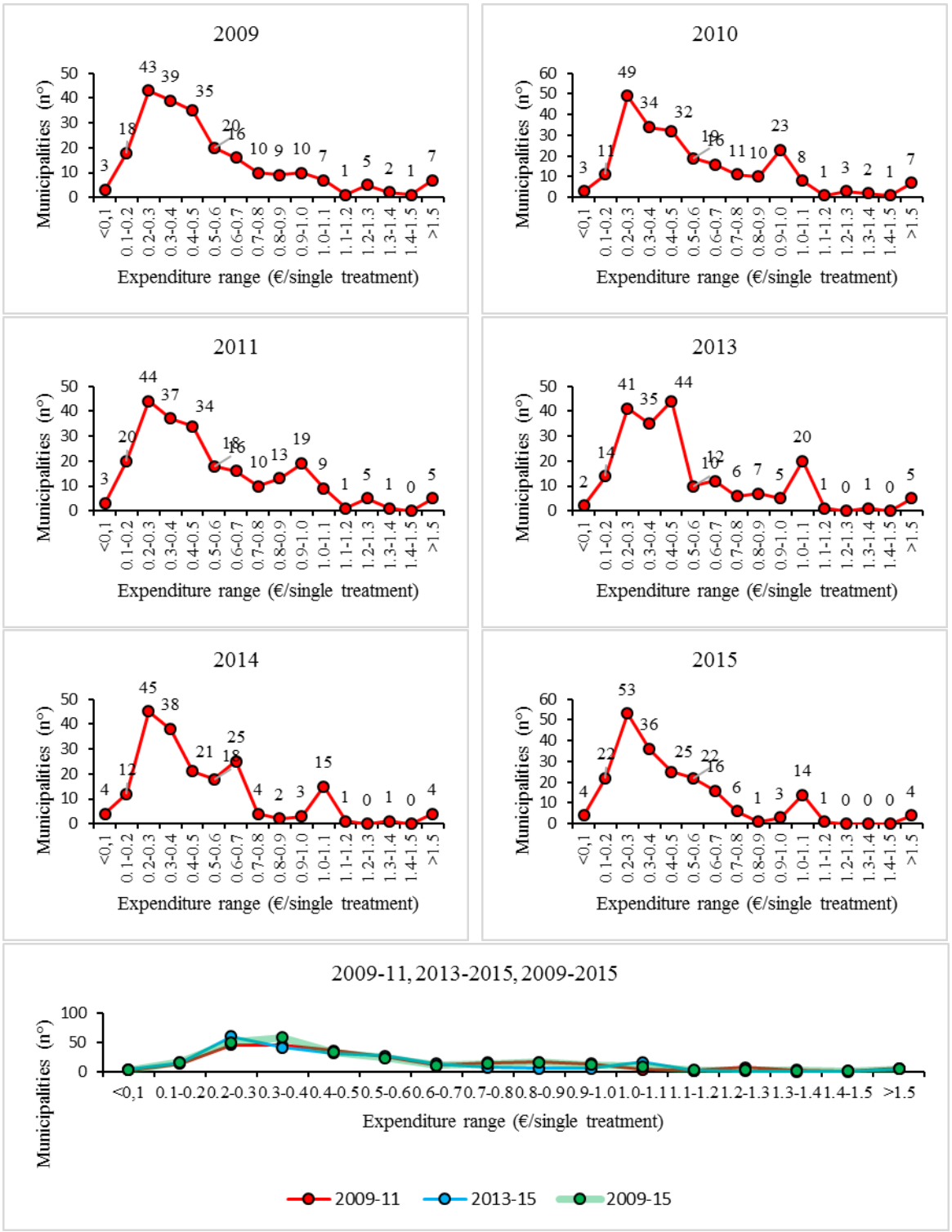
LHAs of the ERR	***Expenditures incurred for single treated road drain***							
	LHAs values - Formulas (1) and (2)		***Municipality values***					
			Formulas (3) and (4)		***Standard deviation***		***Coefficient of variation (%)***	
	2009-2011	***2013-2015***	***2009-2011***	***2013-2015***	***2009-2011***	***2013-2015***	***2009-2011***	***2013-2015***
Piacenza	0.46	0.37	0.58	0.58	0.43	0.48	73.5	82.4
Parma	0.30	0.24	0.44	0.47	0.34	0.94	78.8	202.5
Reggio Emilia	0.93	0.75	0.87	0.62	0.34	0.23	39.2	37.1
Modena	0.41	0.30	0.40	0.33	0.20	0.11	50.2	33.0
Bologna	0.36	0.27	0.45	0.33	0.67	0.15	146.5	45.4
Imola	0.35	0.25	0.44	0.34	0.23	0.22	52.1	64.5
Ferrara	0.75	0.67	0.78	1.05	0.22	1.06	28.0	101.2
Ravenna	0.34	0.31	0.33	0.29	0.08	0.13	26.0	43.5
Forlì	0.44	0.41	0.50	0.51	0.27	0.39	53.2	76.6
Cesena	0.41	0.44	0.48	0.42	0.21	0.20	42.5	48.4
Rimini	0.42	0.53	0.57	0.49	0.26	0.09	46.2	17.7
ERR	**0.44**	**0.39**	**0.56**	**0.52**	**0.39**	**0.55**	**70.8**	**105.6**

Source: Own elaboration on ERR data

The coefficient of variation of the municipality values, considering the whole ERR, has been higher in the second period, 105.6% compared to 70.8% of 2009-2011. The range of municipality values is extremely large for both periods: in 2009-2011 from an expenditure of € 0.04 in the municipality of Calendasco (in the LHA of Piacenza), which refers to 2009, the only year for which we have data on the number of rounds of treatments realized, to a mean expenditure of € 3.43 in the municipality of Bazzano (in the LHA of Bologna); in 2013-2015 from a mean expenditure of € 0.04 in the municipality of Gualtieri (in the LHA of Reggio Emilia), to an expenditure of € 6.10 in the municipality of Massa Fiscaglia (in the LHA of Ferrara),), which refers to 2013, the only year for which we have data on the number of rounds of treatments realized. Figure 15 shows the distribution of

the municipalities on the base of the expenditure for single treated road drain, year by year, and for the considered periods.

Figure 15. Expenditure incurred for single treated road drain. Distribution of municipalities per range of expenditure for the years since 2009, and for 2009-2011, 2013-2015 and 2009-2015 periods



Source: Own elaboration on ERR data

The values for the periods 2009-2011, 2013-2015 and 2009-2015 in Figure 15 has been calculated using the following formula:

$$\mu_{ExpRD\_mun} = \frac{\sum_{i=1}^{n_y} \frac{ExpLmun}{(n_{rd} \times n_{rt})}}{N_y} \quad (5)$$

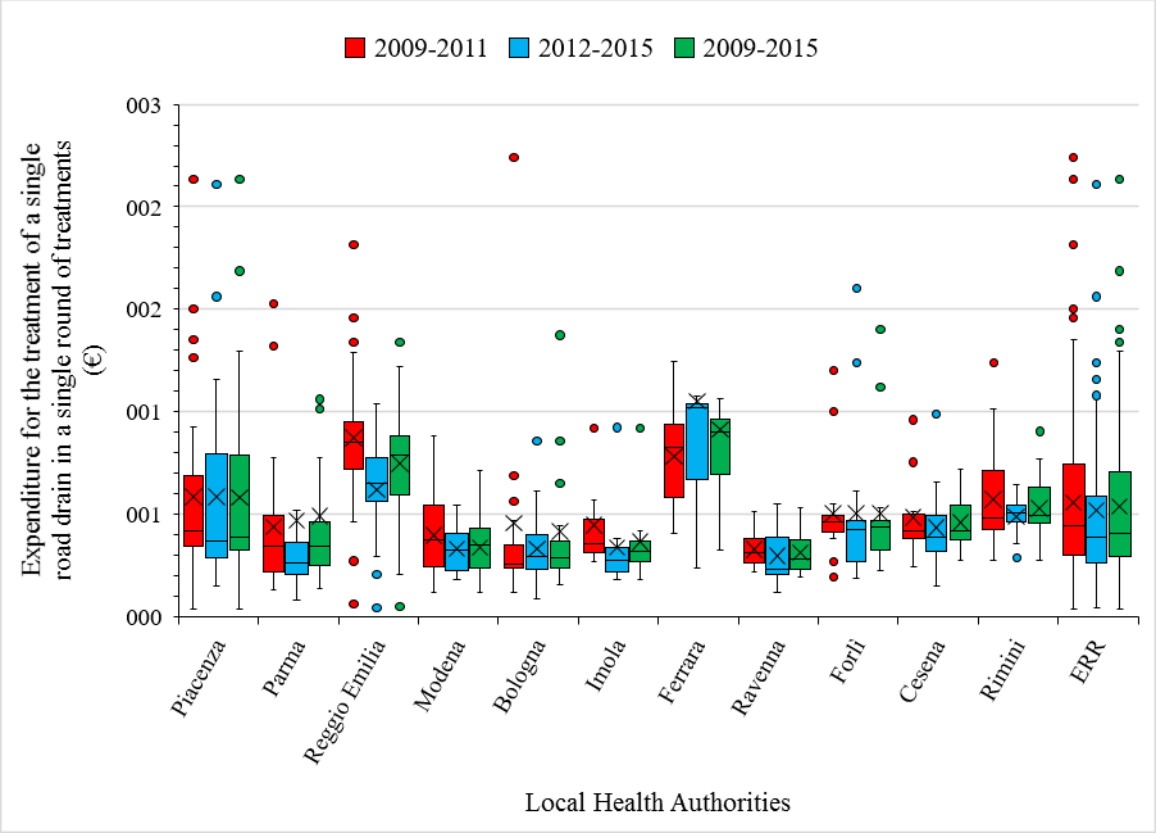
Which returns the mean expenditures incurred for single treated road drain, in the considered period, for a municipality.

The same values are showed in Figure 16, grouped by geographic location in the LHAs. As we can see here the variability is even more highlighted, both as regards to the average values and to their range of distribution. With this graphic representation is easier to see, for example, how the higher mean values, relatives to the territories of the LHAs of Reggio Emilia and Ferrara for both 2009-2011 and 2013-2015, are not due to especially high outliers but in line with the distribution of municipality values. I.e., in the territory of the LHA of Ferrara, where the higher mean value of € 1.05 was registered (2013-2015), more than half of municipalities had mean expenditures higher than € 1.00, a value rarely reached in other LHAs, while at the other extreme, all the municipalities in the LHA of Imola had for the same period mean values below € 0.50.

To limit the influence of the outliers, I reduced the sample of municipalities included for the estimation by progressively eliminating groups of extreme values (Table 82) that reached the following rules:

- Values that exceed the mean value (μ) by more or less two times the standard deviation (δ) calculated on the entire sample;
- Values that exceed the mean value (μ) by more or less one time the standard deviation (δ) calculated on the entire sample;
- Values that exceed the mean value (μ) by more or less 0.75 times the standard deviation (δ) calculated on the entire sample.

Figure 16. Box and whiskers chart of the expenditures incurred by municipalities for a single treated road drain, in the territories of the LHAs. 2009-2011, 2013-2015 and 2009-2015 periods



The boxes and whiskers represent the distribution of the expenditures incurred for single treated road drain in each municipality of the LHAs, for the considered periods. The bottom end of the whiskers represents the minimum values; the upper end represents the maximum values. The values in between the end of the bottom whiskers and the bottom of the boxes are the lower quarter (25%) of the values. The range between the bottom of the boxes and the horizontal line inside the boxes (that represents the median value) represents the second quartile of the values; the range from the median line to the top of the box represents the values in the third quartile, and lastly, the upper whiskers, from the top of the boxes to the end of the whiskers, represents the fourth quartile, i.e. the higher 25% of the values. The "X" markers indicates the mean of the values represented in the chart. The isolated dots represent the outliers, according to the Tukey industry standard, which states that the values are considered outliers if they lie beyond 1.5 times the length of the interquartile range (the box with second and third quartile) from either end of the box.

Table 82. Expenditure incurred for single treated road drain, reduced sample without the extreme values, 2009-2011, 2013-2015 and 2009-2015

Variables and indicators	*Entire sample*	*Excluding the extreme values*			*Entire sample*	*Excluding the extreme values*			*Entire sample*	*Excluding the extreme values*		
		2009-2011				*2013-2015*				*2009-2015 (excluding 2012)*		
Included values	-	*μ±2δ*	*μ±1δ*	*μ±0.75δ*	-	*μ±2δ*	*μ±1δ*	*μ±0.75δ*	-	*μ±2δ*	*μ±1δ*	*μ±0.75δ*
Number of excluded municipalities	-	8	37	88	-	3	11	34	-	7	34	84
- As a % of the entire sample	-	3.2	14.9	35.5	-	1.3	4.7	14.5	-	2.7	13.1	32.4
Number of included municipalities	248	240	211	160	235	232	224	201	259	252	225	175
- Range of expenditure for a single treated road drain	0.04	0.04	0.17	0.26	0.04	0.04	0.04	0.11	0.04	0.04	0.14	0.23
	3.43	1.34	0.95	0.85	6.10	1.60	1.05	0.92	3.27	1.34	0.94	0.81
Population	3,993,084	3,917,703	3,555,637	2,610,822	4,045,403	3,849,463	3,822,639	3,504,276	4,158,246	3,948,264	3,599,403	2,925,951
- As a % of the population in the ERR	91.0	89.3	81.0	59.5	90.7	86.3	85.7	78.6	94.0	89.2	81.4	66.1
Expenditure for larvicidal treatments	3,131,972	3,062,635	2,758,489	2,175,189	1,999,570	1,991,909	1,962,054	1,674,041	2,565,771	2,534,349	2,250,790	1,921,184
- As a % of the exp. In the ERR for this activity	95.4	93.3	84.0	66.3	95.3	95.0	93.6	79.8	95.4	94.2	83.7	71.4
Road drains	1,234,553	1,224,985	1,122,427	813,928	1,218,393	1,217,709	1,211,040	1,114,297	1,252,625	1,228,726	1,155,376	913,271
Rounds of treatments	6.18	6.19	6.21	6.17	4.50	4.52	4.51	4.50	5.50	5.51	5.47	5.38
Single treatments of a road drain	7,391,714	7,335,669	6,764,726	4,991,875	5,577,952	5,575,537	5,541,101	5,136,730	6,704,130	6,593,413	6,210,293	4,916,009
Mean of municipality values	**0.56**	**0.51**	**0.47**	**0.48**	**0.52**	**0.47**	**0.44**	**0.40**	**0.54**	**0.49**	**0.44**	**0.44**
δ of municipality values	0.39	0.28	0.21	0.17	0.55	0.28	0.24	0.18	0.40	0.27	0.21	0.15
Coefficient of variation (%)	70.8	55.6	45.4	34.6	105.6	60.4	55.3	44.5	75.2	55.4	47.0	34.6

(**μ±2δ**): Values that exceed the mean of the expenditure per road drain by more or less than two times the standard deviation relative to the entire sample has been excluded; (**μ±1δ**): Values that exceed the mean of the expenditure per road drain by more or less than one time the standard deviation relative to the entire sample has been excluded; (**μ±0.75δ**): Values that exceed the mean of the expenditure per road drain by more or less than 0.75 times the standard deviation relative to the entire sample has been excluded.
Source: Own elaboration on ERR data

The samples of municipalities obtained by eliminating the extreme values maintains a high representativeness of the population and expenditures incurred, especially until the exclusion of values that exceed the mean by plus or less than one time the standard deviation calculated on the entire sample. As showed in Table 82, in 2009-2011 period in this sample are included:

- 211 municipalities, with a population of 3.56 million residents, the 81.0% of the whole population residing in the ERR;
- A mean expenditures incurred for larvicidal treatments of € 2.76 million, the 84.0% of the total expenditures incurred for this activity.

With a municipality mean expenditures incurred for single treated road drain equal to € 0.47, and a coefficient of variation reduced to 45.3% (it is the 70.8% if calculated including all the values).

If applied to the 2013-2015 period, the exclusion of the values that exceed the mean by more or less one standard deviation result in sample composed by:

- 224 municipalities, with a population of 3.82 million residents, the 85.7% of the whole population residing in the ERR;
- A mean expenditures incurred for larvicidal treatments of € 1.96 million, the 93.6% of the total expenditures incurred for this activity.

With a municipality mean expenditures incurred for single treated road drain equal to € 0.35, and a coefficient of variation reduced to 55.3% (it is the 105.6% if calculated including all the values).

5.2.4.2. Assessed by deciles

Ordering the municipalities by deciles on the base of the expenditures incurred for single treated road drain may be an additional useful analytical tool to compare the LHAs, or to compare different considered periods. The deciles distribution is presented here using

two different tables: Table 83, where is synthetically showed the distribution of municipalities among the deciles for the periods 2009-2011, 2013-2015 and 2009-2015, and Table 84, which is a detailed table listing all the included municipalities, ordered by deciles on the base of the mean values relatives to the longer among the considered periods, 2009-2015.

In Table 83 we may see that in 2009-2011 the 40% of the municipalities, included from the 4th to the 7th deciles, had a range of expenditure from up to € 0.32 to € 0.63, which is a little reduced and lower in 2013-2015, from up to € 0.29 to € 0.53.

In the territory of the LHA of Piacenza, in 2009-2011, were included in this range 17 of 34 municipalities, 7 had lower while 10 had higher values. The municipalities were distributed in all the deciles except for the second (€ 0.21 to € 0.27), testifying the variability of their values. In 2013-2015 were included in the range among the 4th and 7th deciles 11 of 25 municipalities, and the others were distributed among the 1st, the 3rd, the 9th and the 10th deciles.

In the territory of the LHA of Parma there were 11 of 24 municipalities included in the range among the 4th and the 7th deciles in 2009-2011, while 5 municipalities were concentrated in the 1st decile. The trend has been similar for 2013-2015, period in which 8 of 22 municipalities had mean expenditures incurred for a single treated road drain included in the 4th to 7th deciles range, and 6 municipalities concentrated in the 1st decile.

Table 83. Distribution of municipalities per LHA and deciles of expenditure for single treated road drain, 2009-2011, 2013-2015 and 2009 2015

LHAs of the ERR	***Deciles relative to the expenditure for single treated road drain***														
	I			***II***			***III***			***IV***			***V***		
Period	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***
Until €	***0.23***	***0.21***	***0.22***	***0.27***	***0.24***	***0.27***	***0.32***	***0.29***	***0.32***	***0.38***	***0.34***	***0.37***	***0.44***	***0.39***	***0.40***
PC	2	1	2	-	-	1	5	6	5	6	3	7	6	3	4
PR	7	6	6	2	4	1	1	3	3	4	3	4	3	2	3
RE	1	3	3	1	-	-	-	-	-	-	1	-	-	1	1
MO	5	1	5	4	5	5	4	1	3	1	2	2	5	4	4
BO	6	5	5	11	5	9	5	6	6	2	6	7	2	4	1
IM	-	1	1	1	3	2	2	2	2	2	2	2	-	1	1
FE	-	-	-	-	-	-	-	2	1	-	-	-	2	-	1
RA	2	5	4	3	4	4	6	2	3	2	-	2	3	3	3
FO	2	1	-	1	2	4	-	1	-	-	2	-	1	-	2
CE	-	1	-	2	-	-	-	-	1	4	4	2	2	3	3
RN	-	-	-	-	-	-	2	1	2	3	-	-	1	2	2
Total	**25**	**24**	**26**	**25**	**23**	**26**	**25**	**24**	**26**	**24**	**23**	**26**	**25**	**23**	**25**

LHAs of the ERR	***Deciles relative to the expenditure for single treated road drain***														
	VI			***VII***			***VIII***			***IX***			***X***		
Period	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***
Until €	***0.51***	***0.46***	***0.48***	***0.63***	***0.53***	***0.59***	***0.81***	***0.66***	***0.80***	***0.96***	***0.99***	***0.94***	***3.43***	***6.10***	***3.27***
PC	3	4	2	2	1	3	4	-	1	2	2	4	4	5	5
PR	1	1	3	3	2	2	1	-	1	-	-	-	2	1	3
RE	1	1	-	3	2	4	7	11	10	12	13	11	7	1	5
MO	1	3	4	4	1	3	2	1	1	1	-	-	-	-	-
BO	1	3	3	1	3	-	1	2	1	-	1	1	2	-	2
IM	-	-	1	1	-	-	-	-	-	1	1	1	-	-	-
FE	1	1	-	5	2	3	5	2	4	8	4	8	5	15	9
RA	1	2	-	1	1	2	-	1	-	-	-	-	-	-	-
FO	7	4	6	2	2	1	-	1	-	-	-	-	2	2	2
CE	2	3	3	1	-	2	2	1	3	1	2	-	-	-	-
RN	7	2	4	1	9	6	3	5	5	-	-	1	3	-	-
Total	**25**	**24**	**26**	**24**	**23**	**26**	**25**	**24**	**26**	**25**	**23**	**26**	**25**	**24**	**26**

(**A**): 2009-2011 period; (**B**): 2013-2015 period; (**C**): 2009-2015 period, excluding 2012;

Source: Own elaboration on ERR data

In the territory of the LHA of Reggio Emilia, only 4 of 32 municipalities had mean expenditures included in the 4th to 7th deciles range in 2009-2011, which became 5 of 33 in 2013-2015. For both periods there is a concentration of municipalities in the upper deciles,

26 municipalities distributed among the 8th to the 10th deciles in 2009-2011, and 25 in 2013-2015.

In the territory of the LHA of Modena there were 11 of 27 municipalities in the 4th to 7th deciles range in 2009.2011, and 10 of 18 in 2013-2015. For both periods there were also a concentration in lower deciles, 13 municipalities in 2009-2011, and 7 in 2013-2015.

In the territory of the LHA of Bologna, in 2009-2011 22 of 31 municipalities were distributed among the 1st to the 3rd deciles, 6 were in the 4th to 7th deciles range and only 3 in the upper deciles, and in 2013-2015 the trend was similar, with 16 of 35 municipalities in the first 3 deciles, 16 municipalities in the 4th to 7th deciles range, and only 3 in the upper deciles.

In the territory of the LHA of Imola 3 of 7 and 3 of 10 municipalities were included in the 4th to 7th deciles range, 3 and 7 in the lower deciles, and always only 1 in the upper deciles, respectively in 2009-2011 and 2013-29015 periods.

In the territory of the LHA of Ferrara, which municipalities, has we have already seen, had the higher mean values in both periods, 18 and 21 of 26 municipalities were distributed among the upper deciles respectively in 2009-2011 and 2013-2015, while any in the first period, and 2 in the second, where distributed in the lower deciles.

In the territory of the LHA of Ravenna the distribution has been similar in both periods, 7 and 6 of 18 municipalities in the 4th to 7th deciles range, 11 municipalities in the lower deciles, and only 1 in 2013-2015 period in the upper deciles, specifically in the 8th.

In the territory of the LHA of Forlì 10 and 8 of 15 municipalities had mean values of expenditures in the 4th to 7th deciles range respectively in 2009-2011 and 2013-2015, 3 and 4 in the lower deciles, and 2 and 3 in the upper deciles.

In the territory of the LHA of Cesena 9 and 10 of 14 municipalities were concentrated in the 4th to 7th deciles range respectively in 2009-2011 and 2013-2015 periods, 2 and 1 had mean values in the lower deciles and 3, for both periods, in higher ones.

Finally, in the territory of the LHA of Rimini 12 of 20 municipalities were in the 4th to 7th deciles range in 2009-2011, 2 in the lower deciles and 6 in the upper deciles, 3 in the 8th and 3 in the 10th, while in the 2013-2015 period 13 of 19 municipalities were in the 4th to 7th deciles range, 1 in the 3rd decile, and 5 on the 8th decile of the distribution.

Table 84. Expenditure incurred for single treated road drain, 259 municipalities. Progressive order and breakdown by deciles relative to the 2009-2015 period

	LHAs	*Municipalities (I decile)*	*A*	*B*	*C*		*LHAs*	*Municipalities (II decile)*	*A*	*B*	*C*		*LHAs*	*Municipalities (III decile)*	*A*	*B*	*C*		*LHAs*	*Municipalities (IV decile)*	*A*	*B*	*C*
1	PC	Calendasco	0.04		0.04	27	FO	Forlimpopoli	0.21	0.19	0.22	53	BO	Zola Predosa		0.27	0.27	79	PC	Rivergaro	0.29	0.34	0.32
2	RE	Gualtieri	0.06	0.04	0.05	28	MO	Concordia sulla Secchia	0.23		0.23	54	BO	Sala Bolognese	0.23	0.31	0.27	80	PR	Colorno	0.38	0.27	0.33
3	RE	Viano		0.07	0.07	29	RA	Conselice	0.25	0.20	0.23	55	RN	Monte Colombo	0.27		0.27	81	BO	San Pietro in Casale	0.27	0.38	0.33
4	MO	Mirandola	0.12		0.12	30	BO	Ozzano dell'Emilia	0.32	0.09	0.23	56	CE	Gambettola	0.24	0.31	0.27	82	IM	Mordano	0.32	0.33	0.33
5	PC	Caorso	0.09	0.15	0.12	31	MO	Sassuolo	0.27	0.22	0.23	57	RA	Russi	0.32	0.24	0.28	83	PR	Langhirano	0.33	0.34	0.33
6	PR	Collecchio	0.13	0.14	0.14	32	PR	Roccabianca	0.25	0.21	0.23	58	PC	Ponte dell'Olio	0.31	0.26	0.28	84	BO	Granarolo dell'Emilia	0.38	0.29	0.33
7	PR	Felino	0.17	0.10	0.15	33	BO	Baricella	0.24	0.23	0.23	59	BO	San Lazzaro di Savena	0.26	0.31	0.28	85	IM	Borgo Tossignano	0.38	0.29	0.33
8	MO	Cavezzo	0.15		0.15	34	BO	Castel Maggiore	0.22	0.24	0.23	60	BO	Sant'Agata Bolognese	0.27	0.29	0.28	86	CE	Longiano	0.38	0.29	0.33
9	MO	Finale Emilia	0.15		0.15	35	BO	Malalbergo	0.23	0.24	0.23	61	RA	Massa Lombarda	0.31	0.26	0.28	87	PC	Podenzano	0.33	0.36	0.34
10	BO	Anzola dell'Emilia	0.12	0.18	0.15	36	IM	Imola		0.23	0.23	62	PC	Fiorenzuola d'Arda	0.32	0.25	0.28	88	PR	Soragna	0.40	0.28	0.34
11	PR	Fidenza	0.22	0.11	0.16	37	BO	San Giovanni in Persiceto	0.25	0.22	0.23	63	RN	Montescudo	0.30	0.28	0.29	89	RA	Castel Bolognese	0.30	0.38	0.34
12	BO	Calderara di Reno	0.11	0.23	0.17	38	MO	Fiorano Modenese	0.28	0.21	0.23	64	PR	San Secondo Parmense	0.35	0.23	0.29	90	PC	Cadeo	0.50	0.26	0.34
13	IM	Casalfiumanese		0.18	0.18	39	RA	Bagnacavallo	0.26	0.22	0.24	65	PC	Carpaneto Piacentino	0.30	0.28	0.29	91	MO	Campogalliano	0.43	0.22	0.35
14	MO	San Prospero	0.19		0.19	40	MO	Camposanto	0.29		0.24	66	IM	Medicina	0.36	0.21	0.30	92	PC	Alseno	0.38	0.30	0.35
15	RA	Lugo	0.22	0.17	0.19	41	BO	Argelato	0.29	0.20	0.25	67	PR	Varano de' Melegari	0.29	0.31	0.30	93	PR	Noceto	0.33	0.38	0.35
16	RA	Sant'Agata sul Santerno	0.28	0.12	0.20	42	BO	San Giorgio di Piano	0.22	0.27	0.25	68	BO	Crevalcore	0.26	0.34	0.30	94	MO	Nonantola	0.23	0.47	0.35
17	PR	Medesano	0.20		0.20	43	BO	Pianoro	0.25	0.25	0.25	69	BO	Pieve di Cento	0.24	0.39	0.30	95	PC	San Giorgio Piacentino	0.41	0.30	0.35
18	PR	Fontevivo	0.19	0.21	0.20	44	FO	Predappio	0.27	0.33	0.25	70	PR	Fontanellato	0.23	0.52	0.30	96	BO	Bentivoglio	0.30	0.41	0.35
19	BO	Budrio	0.25	0.15	0.20	45	MO	San Felice sul Panaro	0.25		0.25	71	IM	Castel San Pietro Terme	0.26	0.34	0.30	97	RA	Solarolo	0.30	0.42	0.36
20	MO	Carpi	0.23	0.18	0.20	46	IM	Dozza	0.30	0.21	0.26	72	RA	Faenza	0.39	0.22	0.30	98	PC	Rottofreno	0.39	0.33	0.36
21	RE	Reggiolo		0.20	0.20	47	RA	Alfonsine	0.31	0.20	0.26	73	PC	Castell'Arquato	0.31		0.31	99	BO	Sasso Marconi	0.56	0.16	0.36
22	PR	Torrile	0.21	0.21	0.21	48	BO	Minerbio	0.24	0.28	0.26	74	MO	Castelnuovo Rangone	0.43	0.23	0.31	100	BO	Crespellano	0.24	0.49	0.36
23	BO	Castenaso	0.18	0.23	0.21	49	FO	Bertinoro	0.19	0.21	0.26	75	PC	Monticelli d'Ongina	0.34	0.26	0.31	101	BO	Marzabotto		0.37	0.37
24	BO	Casalecchio di Reno	0.19	0.25	0.21	50	FO	Galeata	0.38	0.30	0.26	76	MO	Spilamberto	0.32	0.30	0.31	102	PC	Castel San Giovanni	0.37	0.37	0.37
25	RA	Cotignola	0.25	0.18	0.21	51	PC	Bobbio	0.44		0.27	77	MO	Medolla	0.31		0.31	103	BO	Monterenzio		0.37	0.37
26	RA	Fusignano	0.23	0.22	0.22	52	RA	Bagnara di Romagna	0.32	0.21	0.27	78	FE	Argenta	0.41	0.24	0.32	104	CE	Cesenatico	0.45	0.29	0.37

(**A**): 2009-2011 period; (**B**): 2013-2015 period; (**C**): 2009-2015 period, excluding 2012

Table 84. Expenditure incurred for single treated road drain, 259 municipalities. Progressive order and breakdown by deciles relative to the 2009-2015 period. Continue from the previous page

	LHAs	Municipalities (V decile)	A	B	C		LHAs	Municipalities (VI decile)	A	B	C		LHAs	Municipalities (VII decile)	A	B	C		LHAs	Municipalities (VIII decile)	A	B	C
105	CE	Savignano sul Rubicone	0.38	0.36	0.37	130	PR	Sala Baganza	0.48	0.29	0.41	156	MO	Vignola	0.64	0.44	0.48	182	RE	Rolo	0.55	0.65	0.59
106	PR	Sissa		0.37	0.37	131	FO	Premilcuore	0.46	0.43	0.41	157	RN	Cattolica	0.47	0.50	0.48	183	CE	Borghi	0.75	0.44	0.60
107	MO	Maranello	0.39	0.39	0.37	132	BO	Galliera	0.27	0.55	0.41	158	PR	Montechiarugolo	0.53	0.45	0.49	184	RE	Campagnola Emilia	0.56	0.65	0.60
108	MO	San Possidonio	0.37		0.37	133	CE	Sogliano al Rubicone	0.44	0.38	0.41	159	RN	San Clemente	0.50	0.48	0.49	185	RN	Torriana	0.68	0.39	0.61
109	MO	Formigine	0.41	0.34	0.37	134	PR	Trecasali	0.41		0.41	160	RN	Coriano	0.51	0.48	0.50	186	CE	Sarsina	0.27	0.99	0.63
110	PC	Borgonovo Val Tidone	0.38		0.38	135	IM	Castel Guelfo di Bologna	0.57	0.26	0.41	161	PC	Piacenza	0.59	0.41	0.50	187	FE	Poggio Renatico	0.63	0.66	0.64
111	RA	Ravenna	0.39	0.37	0.38	136	PC	Vigolzone	0.42		0.42	162	RN	San Giovanni in Marignano	0.51	0.50	0.50	188	RE	Boretto	0.70	0.57	0.65
112	RE	Canossa	0.27	0.48	0.38	137	MO	Modena	0.61	0.31	0.42	163	RN	Rimini	0.48	0.53	0.51	189	BO	Molinella	0.69	0.61	0.65
113	IM	Fontanelice		0.38	0.38	138	CE	Roncofreddo	0.47	0.38	0.42	164	RA	Riolo Terme	0.49	0.53	0.51	190	RE	Fabbrico	0.68	0.64	0.66
114	BO	Bologna	0.47	0.29	0.38	139	MO	Novi di Modena	0.50	0.36	0.43	165	RN	Riccione	0.38	0.64	0.51	191	RE	San Martino in Rio	0.77	0.57	0.67
115	RA	Cervia	0.35	0.41	0.38	140	PC	Cortemaggiore	0.42	0.46	0.43	166	CE	Bagno di Romagna	0.51	0.31	0.51	192	RN	Saludecio	0.80	0.56	0.68
116	FO	Castrocaro Terme e Terra del Sole	0.55	0.48	0.38	141	MO	Savignano sul Panaro	0.58	0.24	0.43	167	RE	Guastalla	0.46	0.56	0.51	193	FE	Migliarino	0.56	1.02	0.68
117	PC	San Pietro in Cerro	0.38		0.38	142	MO	Castelfranco Emilia	0.78	0.22	0.44	168	FE	Cento	0.54	0.49	0.52	194	RN	Montegridolfo	0.97	0.51	0.70
118	PC	Pontenure	0.36	0.41	0.38	143	FO	Rocca San Casciano	0.45	0.45	0.44	169	RE	Novellara	0.56	0.46	0.52	195	RN	Mondaino	0.81	0.55	0.71
119	PR	Fornovo di Taro	0.38		0.38	144	RN	Poggio Berni	0.46	0.37	0.44	170	PR	Calestano		0.52	0.52	196	RE	Brescello	0.72	0.69	0.71
120	MO	San Cesario sul Panaro	0.41	0.41	0.39	145	BO	Monte San Pietro	0.41	0.49	0.44	171	MO	Castelvetro di Modena	0.61	0.39	0.52	197	MO	Marano sul Panaro	0.88	0.54	0.71
121	RN	Bellaria-Igea Marina	0.33	0.45	0.39	146	BO	Castello d'Argile	0.44	0.45	0.44	172	FE	Vigarano Mainarda	0.53	0.52	0.52	198	CE	Mercato Saraceno	0.78	0.66	0.72
122	FO	Meldola	0.48	0.61	0.39	147	CE	Cesena	0.37	0.53	0.45	173	MO	Soliera	0.59	0.46	0.53	199	RE	Rio Saliceto	0.72	0.72	0.72
123	FE	Comacchio	0.50	0.28	0.39	148	RN	Misano Adriatico	0.36	0.56	0.46	174	FO	Modigliana	0.44	1.24	0.53	200	PC	Agazzano	0.69	0.79	0.74
124	CE	San Mauro Pascoli	0.39	0.39	0.39	149	FO	Santa Sofia	0.47	1.60	0.46	175	RA	Casola Valsenio	0.51	0.55	0.53	201	FE	Ferrara	0.89	0.59	0.74
125	PR	Traversetolo	0.57	0.22	0.39	150	FO	Forlì	0.47	0.23	0.46	176	PC	Gragnano Trebbiense	0.54		0.54	202	RN	Montefiore Conca	1.01	0.52	0.77
126	CE	Gatteo	0.38	0.41	0.40	151	FO	Civitella di Romagna	0.44	0.43	0.46	177	CE	Montiano	0.96	0.15	0.55	203	PR	Varsi	0.77		0.77
127	PC	Castelvetro Piacentino	0.40	0.40	0.40	152	RN	Morciano di Romagna	0.45	0.48	0.47	178	RE	Correggio	0.77	0.36	0.56	204	RE	Campegine	0.84	0.67	0.77
128	RN	Verucchio	0.44	0.35	0.40	153	FO	Dovadola	0.52	0.45	0.47	179	RE	Rubiera	0.85	0.29	0.57	205	RE	Gattatico	0.83	0.61	0.77
129	RA	Brisighella	0.42	0.39	0.40	154	PR	Busseto	0.63	0.24	0.48	180	FE	Bondeno	0.71	0.46	0.58	206	FE	Goro	0.53	1.05	0.79
						155	RN	Santarcangelo di Romagna	0.44	0.51	0.48	181	PC	Gossolengo	0.80	0.28	0.59	207	RE	Quattro Castella	0.94	0.66	0.80

(**A**): 2009-2011 period; (**B**): 2013-2015 period; (**C**): 2009-2015 period, excluding 2012

Table 84. Expenditure incurred for single treated road drain, 259 municipalities. Progressive order and breakdown by deciles relative to the 2009-2015 period. Continue from the previous page

	LHAs	*Municipalities (IX decile)*	*A*	*B*	*C*		*LHAs*	*Municipalities (X decile)*	*A*	*B*	*C*
208	RE	Cadelbosco di Sopra	0.75	0.93	0.80	234	FE	Masi Torello	0.88	1.01	0.94
209	PC	Besenzone	0.51	1.11	0.81	235	FE	Voghiera	0.81	1.04	0.95
210	RE	Cavriago	0.95	0.67	0.81	236	FE	Migliaro	0.95	1.02	0.97
211	PC	Nibbiano	0.81		0.81	237	FE	Mesola	0.98	1.04	1.01
212	PC	Sarmato	1.35	0.52	0.85	238	FE	Codigoro	1.03	0.99	1.01
213	BO	Monzuno		0.85	0.85	239	PC	Gropparello	0.86	1.16	1.01
214	RE	Poviglio	0.91	0.77	0.86	240	PR	Lesignano de' Bagni	1.32	0.08	1.01
215	RE	Sant'Ilario d'Enza	0.91	0.79	0.86	241	FE	Mirabello	1.25	0.79	1.02
216	FE	Sant'Agostino	1.03	0.70	0.87	242	FE	Berra	0.96	1.08	1.03
217	RE	Casalgrande	0.90	0.83	0.87	243	PR	Salsomaggiore Terme	1.53	0.12	1.06
218	FE	Lagosanto	0.71	1.04	0.87	244	FE	Ro	1.10	1.04	1.06
219	RE	Castellarano	0.94	0.81	0.87	245	RE	Reggio nell'Emilia	1.14	1.04	1.09
220	RE	Bagnolo in Piano	0.85	0.94	0.87	246	FO	Portico e San Benedetto	1.00	0.24	1.12
221	RE	San Polo d'Enza	0.96	0.80	0.88	247	PC	Travo	0.69	1.56	1.12
222	PC	Pianello Val Tidone	0.92	0.82	0.89	248	RE	Bibbiano	1.29	0.73	1.15
223	FE	Tresigallo	0.72	1.06	0.89	249	RE	Luzzara	1.82	0.59	1.20
224	FE	Jolanda di Savoia	0.74	1.04	0.89	250	RE	Scandiano	1.46	0.51	1.22
225	RN	Gemmano	1.24	0.57	0.90	251	PC	Bettola	1.50	1.08	1.29
226	FE	Ostellato	0.85	0.97	0.91	252	RE	Vezzano sul Crostolo	1.34		1.34
227	IM	Castel del Rio	0.92	0.92	0.92	253	BO	Vergato	2.24	0.50	1.37
228	RE	Montecchio Emilia	1.25	0.59	0.92	254	FO	Tredozio	1.20	0.51	1.40
229	RE	Castelnovo di Sotto	0.94	0.87	0.92	255	PC	Ziano Piacentino	1.26	2.11	1.69
230	FE	Copparo	0.84	1.03	0.93	256	PC	Piozzano	2.13		2.13
231	RE	Albinea	1.22	0.65	0.94	257	BO	Bazzano	3.43	0.42	2.68
232	FE	Formignana	0.84	1.04	0.94	258	PR	Parma	0.20	4.65	2.87
233	FE	Portomaggiore	0.84	1.04	0.94	259	FE	Massa Fiscaglia	0.44	6.10	3.27

(**A**): 2009-2011 period; (**B**): 2013-2015 period; (**C**): 2009-2015 period, excluding 2012.

Source: Own elaboration on ERR data

5.2.4.3. Depending on the demographic dimension of municipalities

The assessment of the expenditures incurred for a single treated road drain in relation to the dimension of municipalities (i.e., the number of residents), showed similar trends for all the considered periods, although with differences regarding the absolute values. As we may see in Table 85, the mean expenditure has been higher in smaller municipalities, with less than 5,000 residents, and larger municipalities, above 100,000 residents, while below the ERR means in medium size municipalities. In 2009-2011 the group with the highest expenditure has been that of very small towns, with less than 3,000 residents, followed by big cities of more than 100,000 residents and by municipalities in the range between 3,000 and 5,000 residents. The lower mean is that registered among municipalities of medium size, in the range between 50,000 and 100,000 residents. Although the regional mean expenditure was lower in 2013-2015, based on demographic dimension the higher mean values has been registered in this period, specifically in big cities with more than 100,000 residents (€ 0.94 per road drain). As in 2009-2011, the other groups with higher values are that of small towns with less than 3,000 residents and in the range between 3,000 and 10,000, while the lower values are relative to medium size municipalities in the range between 50,000 and 100,000 residents.

The different weight of the groups in terms of population, and the higher number of small towns, explain the higher values of expenditure calculated as the mean of municipality values, compared to that calculated with at the level of LHAs or at the ERR level.

Table 85. Expenditure incurred for single treated road drain. Distribution of municipalities based on their demographic dimensions, 2009-2011, 2013-2015 and 2009-2015

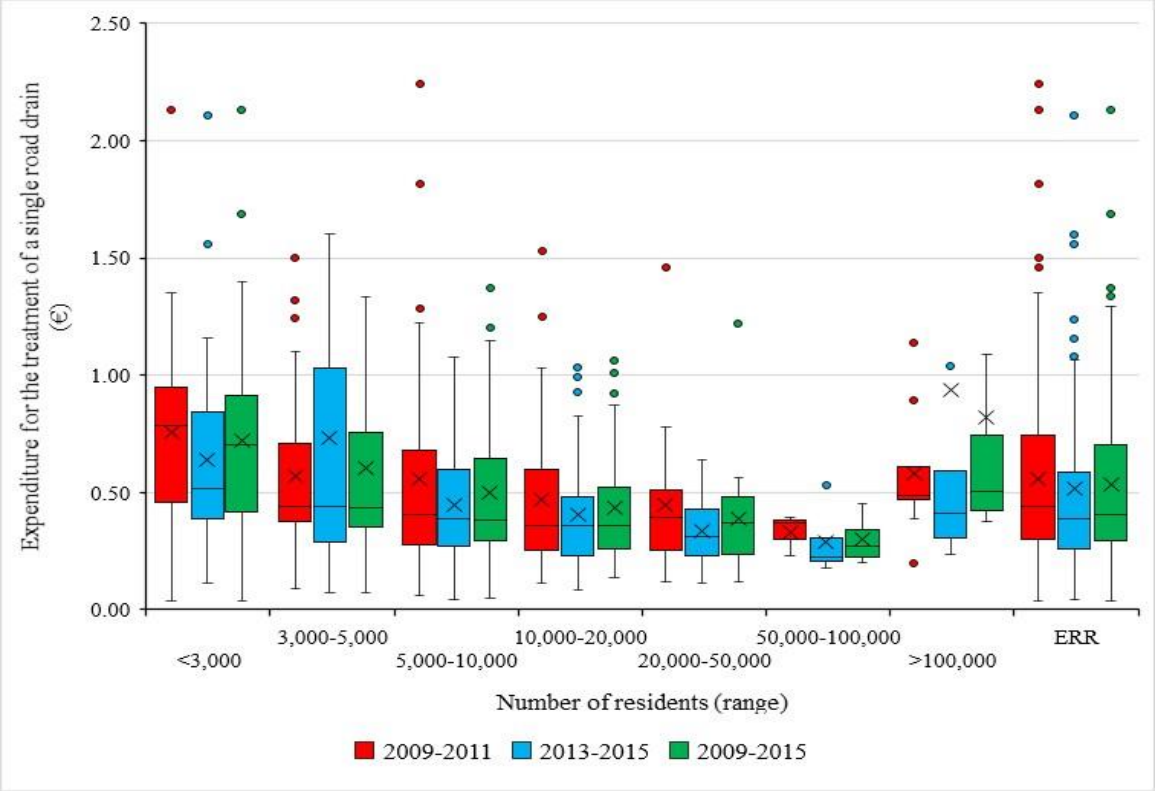
Residents (range)	***Municipalities included***			***Residents as a % of included population***			***Expenditure for a single treated road drain (mean €, Index: ERR=100)***					
	A	***B***	***C***	***A***	***B***	***C***	***A***	***A***	***B***	***B***	***C***	***C***
	n	***n***	***n***	***%***	***%***	***%***	***€***	***Index***	***€***	***Index***	***€***	***Index***
<3,000	36	32	38	1.8	1.7	1.9	0.76	136	0.64	124	0.72	134
3,000-5,000	43	38	46	4.5	4.0	4.6	0.57	102	0.73	142	0.60	112
5,000-10,000	81	79	85	15.2	14.9	15.4	0.55	100	0.45	86	0.50	93
10,000-20,000	56	54	57	19.4	19.0	19.2	0.47	84	0.41	79	0.44	81
20,000-50,000	20	19	20	14.2	13.7	13.8	0.44	80	0.33	65	0.39	73
50,000-100,000	3	4	4	5.6	7.3	7.1	0.33	59	0.29	56	0.30	55
>100,000	9	9	9	39.3	39.5	38.1	0.58	105	0.94	181	0.82	152
ERR	**248**	**235**	**259**	**100.0**	**100.0**	**100.0**	**0.56**	**100**	**0.52**	**100**	**0.54**	**100**

(**A**): 2009-2011 period; (**B**): 2013-2015 period; (**C**): 2009-2015 period, excluding 2012

Source: Own elaboration on ERR data

The mean values of expenditure relative to each municipality are graphically showed in the Figure 17 with the aid of a box and whiskers chart, which highlights the higher mean values of smaller and larger municipalities.

Figure 17. Box and whiskers chart with the expenditures incurred for single treated road drain, based on demographic dimension of municipalities. 2009-2011, 2013-2015, 2009-2015



The boxes and whiskers represent the distribution of the expenditures incurred for single treated road drain in each municipality, for the considered periods, based on demographic dimension of municipalities. The bottom end of the whiskers represents the minimum values; the upper end represents the maximum values. The values in between the end of the bottom whiskers and the bottom of the boxes are the lower quarter (25%) of the values. The range between the bottom of the boxes and the horizontal line inside the boxes (that represents the median value) represents the second quartile of the values; the range from the median line to the top of the box represents the values in the third quartile, and lastly, the upper whiskers, from the top of the boxes to the end of the whiskers, represents the fourth quartile, i.e. the higher 25% of the values. The "X" markers indicates the mean of the values represented in the chart. The isolated dots represent the outliers, according to the Tukey industry standard, which states that the values are considered outliers if they lie beyond 1.5 times the length of the interquartile range (the box with second and third quartile) from either end of the box.

5.3. The per capita expenditures incurred for one round of treatments

5.3.1. In the Local Health Authorities and at the regional level

Given the great variability of the data studied so far, and especially of those related to the expenditures incurred for single treated road drain, it is appropriate to further analyse the dataset by using another parameter: The per capita expenditures incurred for one round of treatments.

As we will see, the expenditures incurred for one round of treatments presents a lower variability and rely on more reliable data, thanks to the exclusion of the number of road drains in urbanized areas, which is often not known or partially known by local administrations.

The assessment of this parameter imply the use of data on the population, which is yearly updated and constantly available, and on the number of rounds of treatments, included in the yearly reports of the activities carried out. Furthermore, the use of the expenditures incurred for one round of treatments, instead of the total expenditures incurred for larvicidal treatments, allows to overcome the problem of the variability in the number of rounds realized, that would have reduced the comparability among municipalities.

Nonetheless there are some possible bias to not forget in the assessment. On one hand, the information on the population do not tell us anything on the amplitude of the urban areas, and consequently on the distances to be covered to reach the road drains treat; and on another hand neither the information on the population nor on the rounds of treatments tell us something on the density of the road drains and on their number, another variable which should influence the costs of the larvicidal treatments.

The use of these parameter has nevertheless the advantage of highlighting the differences that exists among municipalities in the costs of the delivery of the same kind of service, immediately recalling issues related to the efficiency in the implementation of public health policies, stimulating further investigations and offering tools to improve the

performance of the administrations in implementing the E-R Plan and the fight against the Asian Tiger Mosquito.

For this assessment I used the same municipalities selected to investigate the expenditures incurred for a single treated road drain, i.e., the municipalities that year by year indicated the number of road drains and of rounds of larvicidal treatments realized in their territories.

Table 86. Per capita expenditures incurred for one round of larvicidal treatments, 2009-2011

LHAs of the ERR	***Municipalities included***	***Population included***		***Expenditures for larvicidal treatments (€, mean)***		
		Absolute values	***As a % of the population residing in the LHAs***	***For one round of treatments, absolute values***	***Per capita for one round of treatments (LHAs values)***	***Per capita for one round of treatments (municipality values)***
Piacenza	34	269,389	93.6	28,476.08	0.11	0.10
Parma	25	378,862	86.6	24,909.07	0.07	0.07
Reggio Emilia	33	474,435	90.4	86,797.04	0.18	0.18
Modena	26	610,191	87.8	68,143.75	0.11	0.10
Bologna	32	757,966	88.8	89,161.44	0.12	0.13
Imola	7	56,890	43.5	7,532.55	0.13	0.15
Ferrara	24	358,980	100.0	78,467.17	0.22	0.26
Ravenna	18	389,232	100.0	59,171.15	0.15	0.14
Forlì	15	186,474	100.0	24,947.95	0.13	0.12
Cesena	15	203,486	99.0	23,517.14	0.12	0.13
Rimini	19	307,179	96.2	51,060.28	0.17	0.16
ERR	**248**	**3,993,084**	**91.0**	**542,183.61**	**0.14**	**0.14**

Source: Own elaboration on ERR data

Table 86 and Table 87 show the expenditures incurred for one round of larvicidal treatments in the included municipalities, and the related per capita expenditure at LHA level, calculated using (6):

$$ExpL1R_{LHA} = \frac{\sum_{k=1}^{n_{c\_LHA}} \frac{\sum_{i=1}^{n_y} \frac{ExpLmun}{n_{rt}}}{N_y}}{\sum_{k=1}^{n_{c\_LHA}} \frac{\sum_{i=1}^{n_y} n_{pop}}{N_y}} \quad (6)$$

where $\boldsymbol{ExpL1R_{LHA}}$ is the per capita expenditures incurred for one round of treatments in a considered LHA, and $\boldsymbol{n_{pop}}$ is the population residing in the considered municipality, in the considered year.

In the same tables (Table 86 and Table 87) are also included the per capita expenditures incurred for a round of larvicidal treatments as a mean of the municipality values, obtained for each LHA using (7):

$$ExpL1R_{LHA\_mun} = \frac{\sum_{k=1}^{n_{c\_LHA}} \frac{\sum_{i=1}^{n_y} \frac{\left(ExpLmun / n_{rt}\right)}{n_{pop}}}{N_y}}{N_{c\_LHA}} \quad (7)$$

where $\boldsymbol{ExpL1R_{LHA\_mun}}$ is the per capita expenditures incurred for one round of treatments in a considered LHA, as a mean of municipality values.

The values related to the whole ERR are the result of (8) and (9):

$$ExpL1R_{ERR} = \frac{\sum_{k=1}^{n_c} \frac{\sum_{i=1}^{n_y} \frac{ExpLmun}{n_{rt}}}{N_y}}{\sum_{k=1}^{n_c} \frac{\sum_{i=1}^{n_y} n_{pop}}{N_y}} \quad (8)$$

$$ExpL1R_{ERR\_mun} = \frac{\sum_{k=1}^{n_c} \frac{\sum_{i=1}^{n_y} \frac{\left({ExpLmun}/{n_{rt}}\right)}{n_{pop}}}{N_y}}{N_{c\_LHA}} \quad (9)$$

where $\boldsymbol{ExpL1R_{ERR}}$ is the per capita expenditures incurred for one round of treatments at ERR level, and $\boldsymbol{ExpL1R_{ERR\_mun}}$ is the same measure but calculated as a mean of the municipality values.

Table 87. Per capita expenditures incurred for one round of larvicidal treatments, 2013-2015

LHAs of the ERR	Municipalities included	Population included		Expenditures for larvicidal treatments (€, mean)		
		Absolute values	As a % of the population residing in the LHAs	For one round of treatments, absolute values	Per capita for one round of treatments (LHAs values)	Per capita for one round of treatments (municipality values)
Piacenza	25	240,498	83.1	20,406.19	0.09	0.10
Parma	23	372,480	83.6	10,943.53	0.03	0.06
Reggio Emilia	32	493,342	92.2	82,509.69	0.17	0.17
Modena	17	533,440	75.8	39,788.98	0.08	0.08
Bologna	35	813,048	93.4	80,701.00	0.10	0.13
Imola	9	133,195	100.0	10,770.94	0.08	0.12
Ferrara	26	356,103	100.0	73,604.94	0.21	0.31
Ravenna	18	393,805	100.0	54,419.59	0.14	0.12
Forlì	15	187,848	100.0	26,285.83	0.14	0.13
Cesena	15	207,469	99.1	29,557.34	0.15	0.12
Rimini	18	314,175	93.6	58,294.07	0.19	0.15
ERR	**235**	**4,045,403**	**90.7**	**487,282.11**	**0.12**	**0.14**

Source: Own elaboration on ERR data

At the regional level the expenditures incurred for one round of larvicidal treatments has been a mean of € 542,183.61 in 2009-2011, and a mean of 487,282.11 in 2013-2015, declined by 10.1%. Considering the ERR as a whole, these values result in a per capita expenditure of € 0.14 in the first period, and € 0.12 in the second, € 0.14 for both periods when considering the mean values for municipalities.

At the LHA level, if considering the territory as it would be a single entity – using (6) – the same LHAs had the lower and upper values for both periods: Parma, with a mean

per capita expenditure for one round of larvicidal treatments of € 0.07 in 2009-2013, and 0.03 in 2013-2015, and Ferrara, € 0.22 in 2009-2011 and € 0.21 in 2013-2015. The same LHAs had the extreme values if using (7) to account for the values of each municipality: € 0.07 and € 0.06 in the LHA of Parma and € 0.26 and € 0.31 in the LHA of Ferrara.

If we compare the data of the LHAs with the ERR values, we may see that in 2009-2011 – using (6) – the LHAs of Parma, Piacenza, Modena, Bologna and Cesena had values below the ERR, the LHAs of Imola and Forlì had values very close to the ERR, and the LHAs of Ravenna, Rimini, Reggio Emilia and Ferrara had higher values. If calculated using the municipality values – (7) – the result is similar: In the LHAs of Parma, Piacenza, Modena, Bologna, Forlì and Cesena the mean values are lower compared to the that of the ERR, in the LHA of Ravenna it is very similar to the ERR, and in the territories of the LHAs of Reggio Emilia, Imola and Ferrara the municipality mean are higher than the regional value.

For 2013-2015, and using (6), the LHAs of Parma, Modena, Piacenza, Imola and Bologna had lower values compared to the ERR, the LHAs of Ravenna, Forlì and Cesena, had values only a little higher, and the LHAs of Reggio Emilia, Rimini and Ferrara had mean per capita expenditures well above the ERR value in 2013-2015. If using the municipality mean values – (7) – in the territory of 8 LHAs the mean per capita expenditure for one round of treatments was lower than the ERR value, in the LHA of Rimini was only a little higher, € 0.03 higher in the LHA of Reggio Emilia, and more than doubled in the LHA of Ferrara.

In the following table are listed the standard deviation and the coefficient of variation relative to the municipality mean values, in the LHA and in the ERR as a whole, for both considered periods, which are lower than those calculated in relation to the expenditures incurred for single treated road drain.

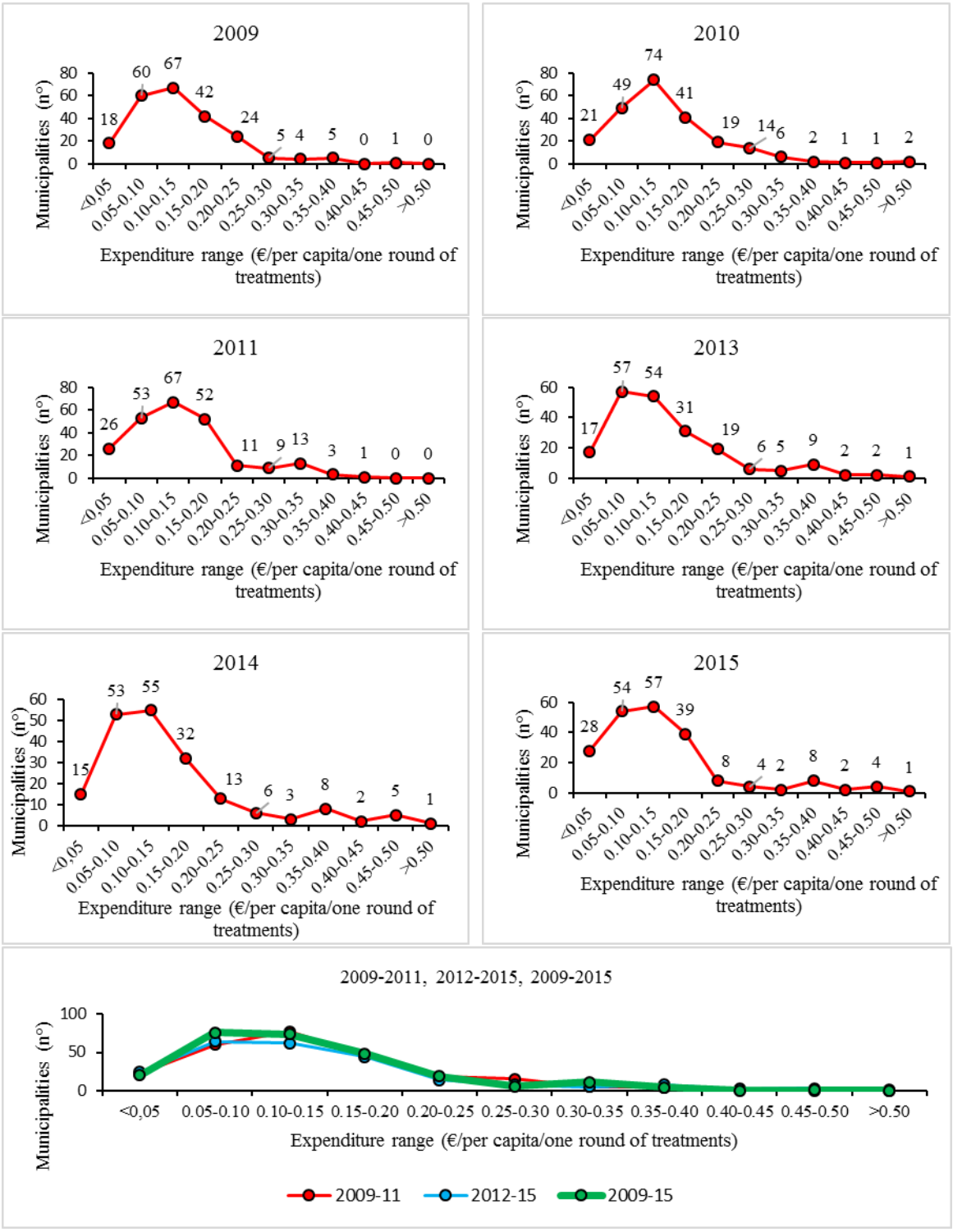
Table 88. Per capita expenditures incurred for the for one round of treatments, and variability of the municipality values, 2009-2011 and 2013-2015 periods

LHAs of the ERR	***Per capita expenditures incurred for one round of treatments***							
	LHAs values - Formulas (6) and (8)		***Municipality values***					
			Formulas (7) and (9)		***Standard deviation***		***Coefficient of variation***	
	2009-2011	***2013-2015***	***2009-2011***	***2013-2015***	***2009-2011***	***2013-2015***	***2009-2011***	***2013-2015***
Piacenza	0.11	0.09	0.10	0.10	0.07	0.05	66.5	56.7
Parma	0.07	0.03	0.07	0.06	0.04	0.04	61.6	63.0
Reggio Emilia	0.18	0.17	0.18	0.17	0.04	0.07	22.8	40.6
Modena	0.11	0.08	0.10	0.08	0.04	0.03	43.3	41.4
Bologna	0.12	0.10	0.13	0.13	0.06	0.06	46.9	43.1
Imola	0.13	0.08	0.15	0.12	0.10	0.05	65.3	39.4
Ferrara	0.22	0.21	0.26	0.31	0.07	0.13	28.1	42.5
Ravenna	0.15	0.14	0.14	0.12	0.05	0.04	34.5	36.0
Forlì	0.13	0.14	0.12	0.13	0.06	0.09	47.7	68.5
Cesena	0.12	0.15	0.13	0.12	0.06	0.04	45.0	35.5
Rimini	0.17	0.19	0.16	0.15	0.06	0.06	35.2	41.2
ERR	**0.14**	**0.12**	**0.14**	**0.14**	**0.07**	**0.10**	**54.0**	**67.9**

Source: Own elaboration on ERR data

In Figure 18 we can see the distribution of municipalities since 2009, and for 2009-2011, 2013-2015 and 2009-2015 periods, on the base of their per capita expenditure for one round of treatments. Although similar, the distribution presents some differences among the years. Looking at the range among € 0.10 and € 0.20, in the first considered period we find respectively 48.2%, 50.0% and 50.6% of the municipalities, while in the years since 2013 these percentages are reduced to 41.9%, 45.1% and 46.4%. In the range between € 0.20 and € 0.30 there were a mean of 33 municipalities in the first period, and 22 in 2013-2015. More than the 70% of municipalities had per capita expenditures for one round of treatments concentrated in the range among € 0.05 and € 0.20 for all the years since 2009.

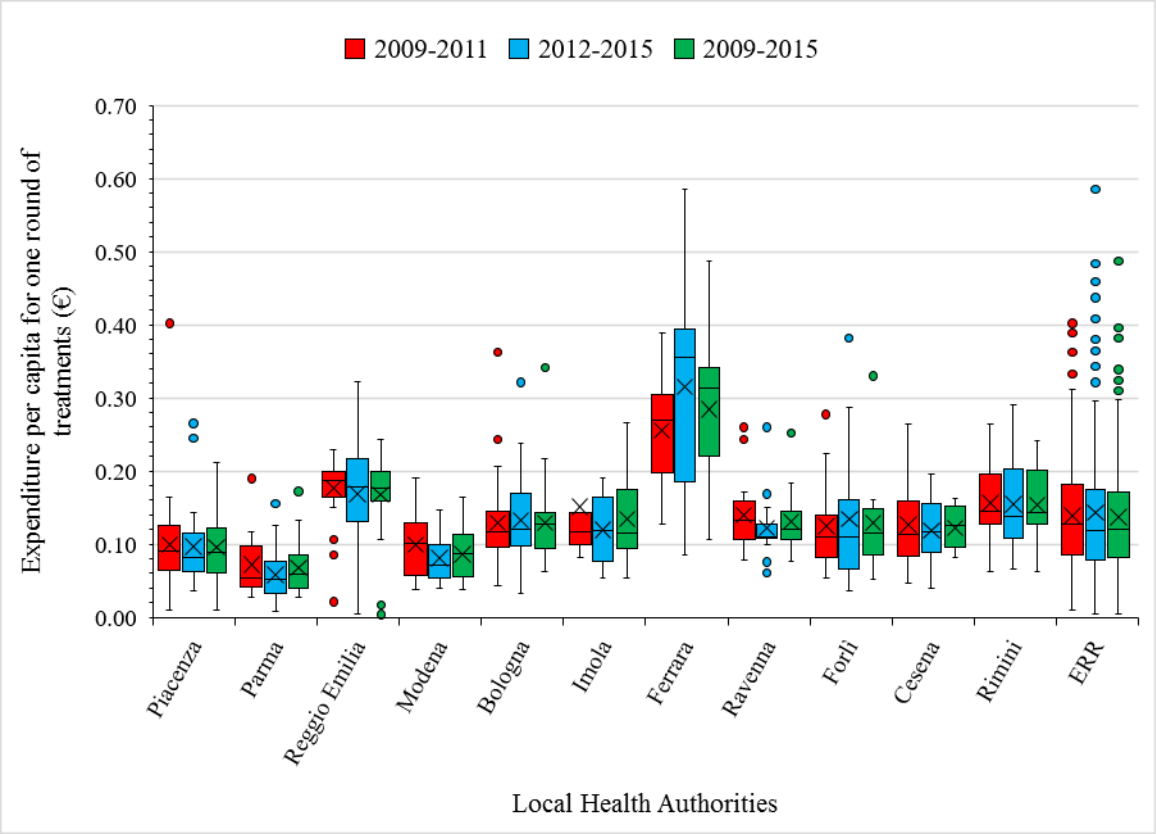
Figure 18. Per capita expenditure for one round of treatments. Distribution of municipalities by expenditure range. 2009-2015



Source: Own elaboration on ERR data

Figure 19 reproduces the same municipality values but grouped by LHA and showed in box and whiskers chart, where the higher values of the LHAs of Ferrara and Reggio Emilia, and the lower values of the LHA of Parma are well highlighted.

Figure 19. Box and whiskers chart of the per capita expenditures incurred by Municipalities for one round of larvicidal treatments, in the territories of the LHAs. 2009-2011, 2013-2015 and 2009-2015 periods



The boxes and whiskers represent the distribution of the mean per capita expenditures incurred for one round of treatments in each municipality of the LHAs, for the considered periods. The bottom end of the whiskers represents the minimum values; the upper end represents the maximum values. The values in between the end of the bottom whiskers and the bottom of the boxes are the lower quarter (25%) of the values. The range between the bottom of the boxes and the horizontal line inside the boxes (that represents the median value) represents the second quartile of the values; the range from the median line to the top of the box represents the values in the third quartile, and lastly, the upper whiskers, from the top of the boxes to the end of the whiskers, represents the fourth quartile, i.e. the higher 25% of the values. The "X" markers indicates the mean of the values represented in the chart. The isolated dots represent the outliers, according to the Tukey industry standard, which states that the values are considered outliers if they lie beyond 1.5 times the length of the interquartile range (the box with second and third quartile) from either end of the box.

To limit the influence of the outliers, I proceeded, as in the case of the expenditures incurred for single treated road drain, to a reduction of the sample of municipalities included for the estimation, by progressively eliminating groups of extreme values (Table 89) that reached the following rules:

- Values that exceed the mean value (μ) by more or less two times the standard deviation (δ) calculated on the entire sample;
- Values that exceed the mean value (μ) by more or less one time the standard deviation (δ) calculated on the entire sample;
- Values that exceed the mean value (μ) by more or less 0.75 times the standard deviation (δ) calculated on the entire sample.

Excluding the values that exceed the mean value by more or less two times the standard deviation the sample still represent a high proportion of the population in both periods (88.9% in 2009-2011 and 88.5% in 2013-2015), as well as a high proportion of the expenditures incurred for larvicidal treatments, 89.6% ion 2009-2011 and 86.9% in 2013-2015. The mean of municipality values of the per capita expenditure for one round of larvicidal treatments result in € 0.13 in 2009-2011 and € 0.12 in 2013-2015, but still with a considerable coefficient of variation, respectively the 47.4% and 51.7%. If we exclude the municipalities which values exceed the mean by more or less 0.75 times the standard deviation, the variation in the sample is much smaller, respectively the 22.8% and 29.0%, but also its representability declines, respectively to the 61.4% and 65.4% of the population, and to the 66.2% and 71.5% of the expenditures incurred for the larvicidal treatments.

Table 89. Per capita expenditures incurred for one round of treatments, reduced sample without the extreme values, 2009-2011, 2013-2015 and 2009-2015

Variables and indicators	*Entire sample*	*Excluding the extreme values 2009-2011*			*Entire sample*	*Excluding the extreme values 2013-2015*			*Entire sample*	*Excluding the extreme values 2009-2015 (excluding 2012)*		
Included values	-	*μ ± 2δ*	*μ ± 1δ*	*μ ± 0.75δ*	-	*μ ± 2δ*	*μ ± 1δ*	*μ ± 0.75δ*	-	*μ ± 2δ*	*μ ± 1δ*	*μ ± 0.75δ*
Number of excluded municipalities	-	12	69	108	-	21	49	84	-	17	66	105
- As a % of the entire sample	-	4.8	27.8	43.5	-	8.9	20.9	35.7	-	6.6	25.5	40.5
Number of included municipalities	248	236	179	140	235	214	186	151	259	242	193	154
- Range of per capita expenditure for 1 round of treatments	0.01	0.01	0.06	0.08	0.004	0.004	0.05	0.07	0.004	0.004	0.06	0.08
	0.40	0.29	0.21	0.19	0.58	0.32	0.2375	0.21	0.49	0.27	0.21	0.20
Population	3,993,084	3,901,867	3,186,471	2,694,648	4,045,403	3,948,311	3,342,887	2,918,504	4,158,246	4,047,775	3,300,458	2,935,107
- As a % of the population in the ERR	91.0	88.9	72.6	61.4	90.7	88.5	74.9	65.4	94.0	91.5	74.6	66.3
Expenditure for larvicidal treatments	3,131,972	2,940,624	2,578,682	2,172,053	1,999,570	1,822,557	1,634,243	1,498,470	2,565,771	2,361,654	2,063,478	1,896,523
- As a % of the exp. In the ERR for this activity	95.4	89.6	78.6	66.2	95.3	86.9	77.9	71.5	95.4	87.8	76.7	70.5
Mean of municipality values	**0.14**	**0.13**	**0.13**	**0.13**	**0.14**	**0.12**	**0.12**	**0.13**	**0.14**	**0.12**	**0.12**	**0.13**
δ of municipality values	0.07	0.06	0.04	0.03	0.10	0.06	0.05	0.04	0.08	0.06	0.04	0.03
Coefficient of variation (%)	54.0	47.4	30.4	22.8	67.9	51.7	38.2	29.0	58.2	46.7	33.3	25.4

(**μ±2δ**): Values that exceed the mean of the per capita expenditure for one round of treatments by more or less than two times the standard deviation relative to the entire sample has been excluded; (**μ±1δ**): Values that exceed the mean of the per capita expenditure for one round of treatments by more or less than one time the standard deviation relative to the entire sample has been excluded; (**μ±0.75δ**): Values that exceed the mean of the per capita expenditure for one round of treatments by more or less than 0.75 times the standard deviation relative to the entire sample has been excluded. Source: Own elaboration on ERR data.

The more reliable sample seems to be that included in the range built by the values that exceed the mean by more or less than one time the standard deviation. The samples built with these parameters still represent respectively the 72.6% and 74.9% of the population, and the 78.6% and 77.9% of the expenditures incurred for larvicidal treatments in 2009-2011 and 2013-2015, with coefficient of variation relative to the municipality values respectively of 30.4% and 38.2%. The mean of municipality values of the per capita expenditure for one round of larvicidal treatments in result in € 0.13 in 2009-2011 and € 0.12 in 2013-2015.

5.3.2. Assessed by deciles

The following tables present the municipalities ordered by deciles on the base of the per capita expenditures incurred for on round of treatments: Table 90, where is synthetically showed the distribution of municipalities among the deciles for the periods 2009-2011, 2013-2015 and 2009-2015, and Table 91, which is a detailed table listing all the included municipalities, ordered by deciles on the base of the mean values relatives to the longer among the considered periods, 2009-2015.

In Table 90 we may see that in both 2009-2011 and 2013-2015 the 40% of the municipalities, grouped from the 4th to the 7th decile, had a range of expenditure from up to € 0.11 to € 0.16.

In the territory of the LHA of Piacenza, in 2009-2011, were included in this range 12 of 34 municipalities, 20 had lower, while only 2 had higher values. The municipalities were distributed in all the deciles except for the 9th (€ 0.19 to € 0.25), although the concentration of 20 municipalities in the first three deciles. In 2013-2015 the municipalities included in the range between the 4th to the 7th deciles were 8, there were municipalities in all the deciles except the 9th, and 15 municipalities were in the first 3 deciles.

In the territory of the LHA of Parma there were a high concentration of municipalities in the first 3 deciles for both periods, 18 of 24 in 2009-2011 and 19 of 22 in 2013-2015. In the first period there were also 4 municipalities in the range between the 4th to the 7th decile,

and 2 with higher values, while in the second period there were any municipality with values in the higher 3 deciles.

Table 90. Distribution of municipalities per LHA and deciles of per capita expenditure for one round of larvicidal treatments, 2009-2011, 2013-2015 and 2009 2015

LHAs of the ERR	***Deciles relative to the per capita expenditure for one round of treatments***														
	I			***II***			***III***			***IV***			***V***		
Period	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***
Until €	***0.05***	***0.05***	***0.05***	***0.08***	***0.07***	***0.07***	***0.10***	***0.09***	***0.09***	***0.11***	***0.11***	***0.11***	***0.13***	***0.12***	***0.12***
PC	6	2	6	7	6	6	7	7	7	2	3	3	4	2	4
PR	11	11	10	5	5	7	2	3	3	3	-	3	1	1	1
RE	1	3	3	-	-	-	1	-	-	1	1	-	-	2	2
MO	5	3	6	6	5	5	2	4	4	2	3	3	4	-	4
BO	1	2	-	2	2	4	5	1	3	5	9	7	6	2	3
IM	-	-	-	-	1	1	1	3	1	1	-	1	2	1	3
FE	-	-	-	-	-	-	-	1	-	-	-	1	-	1	-
RA	-	-	-	-	1	-	3	1	2	2	1	2	3	10	5
FO	-	2	1	2	2	1	2	-	3	3	3	2	3	1	2
CE	1	1	-	1	-	-	2	2	2	3	2	3	1	2	1
RN	-	-	-	2	1	2	-	2	1	2	1	1	1	1	-
Total	**25**	**24**	**26**	**25**	**23**	**26**	**25**	**24**	**26**	**24**	**23**	**26**	**25**	**23**	**25**

LHAs of the ERR	***Deciles relative to the per capita expenditure for one round of treatments***														
	VI			***VII***			***VIII***			***IX***			***X***		
Period	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***	***A***	***B***	***C***
Until €	***0.14***	***0.14***	***0.14***	***0.16***	***0.16***	***0.16***	***0.19***	***0.19***	***0.19***	***0.25***	***0.26***	***0.24***	***0.40***	***0.58***	***0.49***
PC	3	1	2	3	2	2	1	-	1	-	1	3	1	1	-
PR	-	1	1	-	1	-	2	-	1	-	-	-	-	-	-
RE	-	3	-	5	5	3	11	7	13	13	11	12	-	1	1
MO	4	-	3	2	3	1	2	-	1	-	-	-	-	-	-
BO	4	6	4	3	3	9	1	6	1	3	3	3	1	1	1
IM	1	1	-	1	2	1	-	2	1	-	-	1	1	-	1
FE	3	2	1	1	1	1	2	1	3	3	3	1	17	17	19
RA	4	1	3	3	1	3	1	2	2	1	1	-	1	-	1
FO	1	2	2	2	2	1	-	1	1	1	-	-	1	2	2
CE	1	3	4	2	1	3	1	2	1	1	1	-	1	-	-
RN	4	4	6	2	2	2	4	3	1	3	3	6	2	2	1
Total	**25**	**24**	**26**	**24**	**23**	**26**	**25**	**24**	**26**	**25**	**23**	**26**	**25**	**24**	**26**

(**A**): 2009-2011 period; (**B**): 2013-2015 period; (**C**): 2009-2015 period, excluding 2012;

Source: Own elaboration on ERR data

An opposite trend has been registered in the territory of the LHA of Reggio Emilia, where in both periods the majority of municipalities had values concentrated in the higher three deciles, 24 of 32 in 2009-2011, and 19 of 33 in 2013-2015. 6 municipalities had mean expenditures included in the 4th to 7th deciles range in 2009-2011, which 11 in 2013-2015.

As in the case of the LHA of Parma, in the territory of the LHA of Modena there is a concentration of municipalities in the first deciles, although less pronounced. I)n 2009-2011 there were 13 of 27 municipalities in the first 3 deciles, and 12 in the range between the 4th and the 7th decile, while in the 2013-2015 there were 12 municipalities in the first 3 deciles and 6 in the following range between the 4th and the 7th.

The municipalities in the territory of the LHA of Bologna were concentrated in central deciles, from the 4th to the 7th, for both periods, with respectively 18 of 31 and 20 of 35 municipalities in that range. Nonetheless, in both periods there are municipalities in all the deciles of the distribution, respectively 8 in the first and 5 in the last deciles of the distribution in 2009-2011, and 5 in the first and 10 in the last deciles of the distribution in 2013-2015.

In the territory of the LHA of Imola 5 of 7 and 4 of 10 municipalities were included in the 4th to 7th deciles range, 1 and 4 in the lower deciles, and 1 and 2 in the upper deciles, respectively in 2009-2011 and 2013-29015 periods.

In the territory of the LHA of Ferrara, which municipalities, has we have already seen, had the higher mean values in both periods, 22 and 21 of 26 municipalities were concentrated in the upper decile of the distribution respectively in 2009-2011 and 2013-2015. In 2009-2011 any of the municipalities were in the lower deciles, and 4 in the 4th to 7th deciles range, while in the second period 1 municipalities had mean values of per capita expenditures for one round of treatments in the lower deciles, and 4 in the central range from the 4th to the 7th.

The values in the territory of the LHA of Ravenna were concentrated for both periods in the 4th to 7th deciles range, which have respectively 12 and 13 of 18 municipalities. The rest of the municipalities were distributed in similar proportions among the lower and upper deciles in both periods.

A similar trend is that of the territory of the LHA of Forlì, where in the considered periods respectively 9 and 8 of 15 municipalities were concentrated in the range between

the 4th and the 7th decile, 4 in both periods were in the lower deciles, and respectively 2 and 3 municipalities were in the upper deciles.

In the territory of the LHA of Cesena 7 and 8 of 14 municipalities were concentrated in the 4th to 7th deciles range respectively in 2009-2011 and 2013-2015 periods, 4 and 3 had mean values in the lower deciles and 3, for both periods, in higher ones.

Finally, in the territory of the LHA of Rimini 9 of 20 municipalities were in the 4th to 7th deciles range in 2009-2011, 2 in the lower deciles and 9 in the upper deciles, while in the 2013-2015 period 8 of 19 municipalities were in the 4th to 7th deciles range, 3 in the lower deciles, and 8 on the higher deciles of the distribution.

Table 91. Per capita expenditures incurred for one round of treatments, 259 municipalities. Progressive order and breakdown by deciles relative to the 2009-2015 period

z	*LHAs*	*Municipalities (I decile)*	*A*	*B*	*C*		*LHAs*	*Municipalities (II decile)*	*A*	*B*	*C*		*LHAs*	*Municipalities (III decile)*	*A*	*B*	*C*		*LHAs*	*Municipalities (IV decile)*	*A*	*B*	*C*
1	RE	Viano		0.004	0.004	27	PR	Busseto	0.05	0.05	0.05	53	MO	Spilamberto	0.07	0.08	0.07	79	CE	Gambettola	0.08	0.11	0.09
2	PC	Calendasco	0.01		0.01	28	IM	Imola		0.05	0.05	54	PC	Cadeo	0.10	0.07	0.08	80	MO	Castelfranco Emilia	0.13	0.05	0.09
3	RE	Gualtieri	0.02	0.01	0.02	29	PR	Fidenza	0.07	0.04	0.05	55	IM	Dozza	0.08	0.07	0.08	81	BO	Monzuno		0.09	0.09
4	PC	Bobbio	0.03		0.02	30	PR	Varano de' Melegari	0.05	0.06	0.06	56	PC	Rivergaro	0.07	0.08	0.08	82	FO	Forlimpopoli	0.08	0.11	0.09
5	PR	Parma	0.05	0.01	0.03	31	PC	Rottofreno	0.06	0.05	0.06	57	RA	Brisighella	0.08	0.08	0.08	83	BO	San Lazzaro di Savena	0.09	0.10	0.09
6	RE	Reggiolo		0.03	0.03	32	PC	Monticelli d'Ongina	0.06	0.05	0.06	58	FO	Bertinoro	0.05	0.09	0.08	84	PC	Fiorenzuola d'Arda	0.11	0.08	0.09
7	PR	Noceto	0.03	0.03	0.03	33	MO	Fiorano Modenese	0.07	0.05	0.06	59	PC	Castel San Giovanni	0.08	0.08	0.08	85	BO	Zola Predosa		0.09	0.09
8	PR	Langhirano	0.03	0.03	0.03	34	MO	San Prospero	0.06		0.06	60	PR	Sissa		0.08	0.08	86	RA	Casola Valsenio	0.09	0.10	0.09
9	PR	Colorno	0.03	0.04	0.03	35	FO	Predappio	0.06	0.06	0.06	61	BO	Vergato	0.08	0.08	0.08	87	BO	Sant'Agata Bolognese	0.09	0.10	0.10
10	PC	Castell'Arquato	0.04		0.04	36	PC	Ponte dell'Olio	0.06	0.06	0.06	62	BO	Monte San Pietro	0.07	0.09	0.08	88	MO	Savignano sul Panaro	0.12	0.05	0.10
11	MO	Mirandola	0.04		0.04	37	PR	Fornovo di Taro	0.06		0.06	63	PR	Lesignano de' Bagni	0.09	0.05	0.08	89	CE	Sogliano al Rubicone	0.10	0.09	0.10
12	PR	Collecchio	0.04	0.04	0.04	38	BO	Budrio	0.08	0.04	0.06	64	PR	Trecasali	0.08		0.08	90	MO	Castelnuovo Rangone	0.12	0.07	0.10
13	PR	Fontevivo	0.04	0.03	0.04	39	RN	Monte Colombo	0.06		0.06	65	CE	Bagno di Romagna	0.08	0.09	0.08	91	RN	Saludecio	0.11	0.08	0.10
14	PR	Medesano	0.04		0.04	40	PR	San Secondo Parmense	0.07	0.06	0.06	66	CE	Savignano sul Rubicone	0.08	0.08	0.08	92	PR	Roccabianca	0.10	0.09	0.10
15	PR	Felino	0.05	0.03	0.04	41	BO	Pianoro	0.06	0.06	0.06	67	FO	Meldola	0.10	0.07	0.08	93	FO	Santa Sofia	0.10	0.10	0.10
16	PC	Bettola	0.05	0.04	0.04	42	PC	Podenzano	0.06	0.06	0.06	68	FO	Castrocaro Terme e Terra del Sole	0.12	0.05	0.08	94	BO	Monterenzio		0.10	0.10
17	PC	Caorso	0.03	0.06	0.04	43	RN	Montescudo	0.06	0.07	0.06	69	PC	San Pietro in Cerro	0.08		0.08	95	CE	Borghi	0.12	0.08	0.10
18	MO	Sassuolo	0.05	0.04	0.05	44	BO	Casalecchio di Reno	0.04	0.10	0.07	70	RN	Montefiore Conca	0.10	0.07	0.09	96	PC	Pontenure	0.09	0.11	0.10
19	MO	Carpi	0.05	0.04	0.05	45	BO	Sasso Marconi	0.10	0.03	0.07	71	MO	Campogalliano	0.10	0.07	0.09	97	IM	Borgo Tossignano	0.11	0.09	0.10
20	MO	Concordia sulla Secchia	0.05		0.05	46	MO	Vignola	0.08	0.06	0.07	72	RA	Faenza	0.11	0.06	0.09	98	PC	Castelvetro Piacentino	0.10	0.10	0.10
21	PR	Torrile	0.05	0.05	0.05	47	PR	Traversetolo	0.10	0.04	0.07	73	PC	Alseno	0.10	0.08	0.09	99	PR	Varsi	0.10		0.10
22	MO	Finale Emilia	0.05		0.05	48	PR	Fontanellato	0.05	0.13	0.07	74	PC	Gossolengo	0.09	0.08	0.09	100	PR	Sala Baganza	0.12	0.08	0.10
23	PC	Gropparello	0.04	0.06	0.05	49	PC	Borgonovo Val Tidone	0.07		0.07	75	PC	San Giorgio Piacentino	0.09	0.09	0.09	101	BO	San Giovanni in Persiceto	0.10	0.10	0.10
24	MO	Cavezzo	0.05		0.05	50	MO	Medolla	0.07		0.07	76	MO	Formigine	0.10	0.07	0.09	102	RA	Castel Bolognese	0.09	0.12	0.10
25	FO	Galeata	0.08	0.04	0.05	51	PC	Carpaneto Piacentino	0.07	0.07	0.07	77	MO	Maranello	0.09	0.09	0.09	103	BO	Marzabotto		0.10	0.10
26	PR	Soragna	0.04	0.07	0.05	52	MO	San Felice sul Panaro	0.07		0.07	78	BO	Bologna	0.11	0.07	0.09	104	FE	Argenta	0.13	0.09	0.11

Table 91. Per capita expenditures incurred for one round of treatments, 259 municipalities. Progressive order and breakdown by deciles relative to the 2009-2015 period. Continue from the previous page

	LHAs	***Municipalities (V decile)***	***A***	***B***	***C***		***LHAs***	***Municipalities (VI decile)***	***A***	***B***	***C***		***LHAs***	***Municipalities (VII decile)***	***A***	***B***	***C***		***LHAs***	***Municipalities (VIII decile)***	***A***	***B***	***C***
105	IM	Castel San Pietro Terme	0.10	0.11	0.11	130	CE	Sarsina	0.05	0.20	0.12	156	BO	Malalbergo	0.15	0.14	0.14	182	FE	Poggio Renatico	0.17	0.15	0.16
106	RE	Canossa	0.08	0.13	0.11	131	RA	Lugo	0.13	0.11	0.12	157	RE	Rubiera	0.16	0.12	0.14	183	RE	Sant'Ilario d'Enza	0.15	0.18	0.16
107	RA	Conselice	0.11	0.11	0.11	132	MO	Camposanto	0.12		0.12	158	BO	Castenaso	0.14	0.14	0.14	184	FO	Forlì	0.16	0.16	0.16
108	RA	Fusignano	0.11	0.11	0.11	133	FE	Cento	0.13	0.12	0.12	159	RA	Russi	0.16	0.12	0.14	185	RE	Scandiano	0.18	0.10	0.16
109	CE	San Mauro Pascoli	0.11	0.11	0.11	134	PC	Gragnano Trebbiense	0.12		0.12	160	BO	Bazzano	0.15	0.12	0.14	186	CE	Mercato Saraceno	0.17	0.15	0.16
110	MO	San Possidonio	0.11		0.11	135	BO	Minerbio	0.11	0.14	0.13	161	PC	Pianello Val Tidone	0.14	0.14	0.14	187	PC	Piozzano	0.16		0.16
111	BO	Pieve di Cento	0.10	0.13	0.11	136	RN	Mondaino	0.14	0.11	0.13	162	RA	Riolo Terme	0.13	0.15	0.14	188	MO	Nonantola	0.19	0.14	0.16
112	PC	Piacenza	0.14	0.09	0.11	137	RN	Coriano	0.13	0.12	0.13	163	BO	San Pietro in Casale	0.12	0.17	0.14	189	FE	Vigarano Mainarda	0.16	0.17	0.16
113	IM	Medicina	0.14	0.08	0.11	138	RN	Verucchio	0.13	0.13	0.13	164	BO	Calderara di Reno	0.15	0.14	0.14	190	RE	Gattatico	0.18	0.13	0.16
114	MO	Marano sul Panaro	0.16	0.07	0.11	139	MO	Modena	0.17	0.09	0.13	165	BO	Castel Maggiore	0.13	0.15	0.14	191	RE	Novellara	0.18	0.14	0.17
115	PC	Vigolzone	0.11		0.11	140	RA	Cotignola	0.15	0.11	0.13	166	FE	Bondeno	0.17	0.12	0.14	192	FE	Ferrara	0.21	0.13	0.17
116	BO	Baricella	0.11	0.12	0.11	141	RN	Morciano di Romagna	0.13	0.12	0.13	167	BO	Argelato	0.17	0.12	0.15	193	RN	Rimini	0.17	0.17	0.17
117	PC	Ziano Piacentino	0.11	0.12	0.11	142	CE	Roncofreddo	0.13	0.13	0.13	168	BO	Crevalcore	0.12	0.17	0.15	194	RA	Ravenna	0.17	0.17	0.17
118	RA	Bagnacavallo	0.12	0.11	0.12	143	BO	Ozzano dell'Emilia	0.13	0.13	0.13	169	FO	Premilcuore	0.14	0.16	0.15	195	IM	Fontanelice		0.17	0.17
119	FO	Civitella di Romagna	0.11	0.12	0.12	144	PR	Salsomaggiore Terme	0.19	0.02	0.13	170	IM	Mordano	0.14	0.15	0.15	196	RE	Albinea	0.18	0.16	0.17
120	PR	Calestano		0.12	0.12	145	RA	Bagnara di Romagna	0.16	0.11	0.13	171	RN	Gemmano	0.20	0.10	0.15	197	PR	Montechiarugolo	0.19	0.15	0.17
121	MO	Castelvetro di Modena	0.13	0.10	0.12	146	FO	Modigliana	0.11	0.16	0.13	172	CE	Montiano	0.26	0.04	0.15	198	RE	Campagnola Emilia	0.16	0.18	0.17
122	MO	Novi di Modena	0.13	0.11	0.12	147	RN	Poggio Berni	0.13	0.14	0.13	173	RE	Correggio	0.19	0.11	0.15	199	RE	Vezzano sul Crostolo	0.17		0.17
123	IM	Castel del Rio	0.12	0.12	0.12	148	FO	Rocca San Casciano	0.14	0.13	0.13	174	RA	Solarolo	0.13	0.18	0.15	200	RE	Montecchio Emilia	0.17	0.18	0.17
124	RA	Massa Lombarda	0.13	0.11	0.12	149	PC	Agazzano	0.13	0.14	0.13	175	MO	Soliera	0.16	0.15	0.15	201	RE	Castellarano	0.16	0.19	0.18
125	FO	Dovadola	0.13	0.11	0.12	150	RN	San Clemente	0.15	0.12	0.13	176	PC	Nibbiano	0.16		0.16	202	RE	Cavriago	0.21	0.15	0.18
126	RE	Guastalla	0.11	0.13	0.12	151	CE	Cesena	0.10	0.17	0.14	177	CE	Gatteo	0.15	0.16	0.16	203	RE	Bibbiano	0.19	0.16	0.18
127	BO	Anzola dell'Emilia	0.12	0.12	0.12	152	MO	San Cesario sul Panaro	0.13	0.14	0.14	178	BO	San Giorgio di Piano	0.14	0.17	0.16	204	BO	Crespellano	0.13	0.24	0.18
128	RA	Alfonsine	0.13	0.11	0.12	153	BO	Galliera	0.10	0.18	0.14	179	RE	Quattro Castella	0.16	0.16	0.16	205	RA	Sant'Agata sul Santerno	0.26	0.11	0.18
129	PC	Cortemaggiore	0.12	0.12	0.12	154	BO	Sala Bolognese	0.11	0.17	0.14	180	RN	Bellaria-Igea Marina	0.13	0.18	0.16	206	RE	Reggio nell'Emilia	0.19	0.18	0.19
						155	CE	Longiano	0.15	0.12	0.14	181	CE	Cesenatico	0.19	0.12	0.16	207	RE	Casalgrande	0.20	0.17	0.19

Table 91. Per capita expenditures incurred for one round of treatments, 259 municipalities. Progressive order and breakdown by deciles relative to the 2009-2015 period. Continue from the previous page

	LHAs	***Municipalities (IX decile)***	***A***	***B***	***C***		***LHAs***	***Municipalities (X decile)***	***A***	***B***	***C***
208	IM	Casalfiumanese		0.19	0.19	234	RN	Torriana	0.26	0.18	0.24
209	RE	Luzzara	0.21	0.18	0.19	235	RE	Rolo	0.19	0.32	0.24
210	PC	Besenzone	0.14	0.24	0.19	236	FE	Sant'Agostino	0.29	0.21	0.25
211	RN	Montegridolfo	0.26	0.15	0.19	237	FE	Comacchio	0.30	0.19	0.25
212	BO	Bentivoglio	0.21	0.19	0.20	238	RA	Cervia	0.24	0.26	0.25
213	RE	Cadelbosco di Sopra	0.19	0.23	0.20	239	FO	Portico e San Benedetto	0.22	0.29	0.25
214	RE	Fabbrico	0.18	0.21	0.20	240	FE	Migliaro	0.25	0.30	0.26
215	PC	Travo	0.13	0.26	0.20	241	FE	Mirabello	0.31	0.21	0.26
216	RE	San Polo d'Enza	0.20	0.20	0.20	242	IM	Castel Guelfo di Bologna	0.37	0.16	0.27
217	RN	Santarcangelo di Romagna	0.18	0.22	0.20	243	FE	Migliarino	0.27	0.37	0.30
218	RE	Campegine	0.21	0.19	0.20	244	FE	Copparo	0.25	0.37	0.31
219	RE	Poviglio	0.21	0.19	0.20	245	FE	Mesola	0.29	0.34	0.32
220	RN	Cattolica	0.20	0.20	0.20	246	FE	Codigoro	0.30	0.35	0.32
221	RE	San Martino in Rio	0.20	0.22	0.21	247	FE	Berra	0.26	0.36	0.32
222	RN	San Giovanni in Marignano	0.21	0.20	0.21	248	FE	Formignana	0.27	0.38	0.33
223	RE	Boretto	0.20	0.22	0.21	249	FE	Jolanda di Savoia	0.27	0.39	0.33
224	RE	Rio Saliceto	0.20	0.22	0.21	250	FO	Tredozio	0.28	0.38	0.33
225	PC	Sarmato	0.40	0.09	0.21	251	FE	Portomaggiore	0.25	0.41	0.33
226	BO	Castello d'Argile	0.20	0.22	0.21	252	FE	Voghiera	0.28	0.38	0.34
227	BO	Granarolo dell'Emilia	0.24	0.19	0.22	253	BO	Molinella	0.36	0.32	0.34
228	RE	Castelnovo di Sotto	0.21	0.25	0.22	254	FE	Goro	0.23	0.46	0.35
229	RE	Brescello	0.20	0.26	0.22	255	FE	Lagosanto	0.30	0.46	0.38
230	RN	Riccione	0.18	0.28	0.23	256	FE	Ro	0.37	0.39	0.38
231	RE	Bagnolo in Piano	0.23	0.24	0.23	257	FE	Ostellato	0.33	0.44	0.38
232	RN	Misano Adriatico	0.18	0.29	0.24	258	FE	Tresigallo	0.31	0.48	0.40
233	FE	Massa Fiscaglia	0.13	0.34	0.24	259	FE	Masi Torello	0.39	0.58	0.49

5.3.3. Depending on demographic dimensions of municipalities

In Table 92 it is shown the distribution, on the base of their demographic dimensions, of the municipalities, their population, their mean expenditures incurred for one round of larvicidal treatments and the relative per capita values.

Table 92. Per capita Expenditure incurred for one round of treatments. Distribution of municipalities based on their demographic dimensions, 2009-2011 and 2013-2015.

Residents (range)	***Municipalities included***		***Residents as a % of included population***		***Exp. for 1 round of treatments as a % relative to the included municipalities***		***Per capita expenditure for one round of larvicidal treatments (mean €, Index: ERR=100)***			
	A	***B***	***A***	***B***	***A***	***B***	***A***	***A***	***B***	***B***
	n	***n***	***%***	***%***	***%***	***%***	***€***	***Index***	***€***	***Index***
<3,000	36	32	1.8	1.7	2.09	2.05	0.16	115	0.16	111
3,000-5,000	43	38	4.5	4.0	4.88	5.79	0.15	108	0.18	127
5,000-10,000	81	79	15.2	14.9	14.5	16.4	0.13	93	0.13	94
10,000-20,000	56	54	19.4	19.0	19.3	21.1	0.13	96	0.14	95
20,000-50,000	20	19	14.2	13.7	13.6	13.4	0.13	96	0.12	84
50,000-100,000	3	4	5.6	7.3	3.6	5.5	0.09	63	0.08	57
>100,000	9	9	39.3	39.5	42.0	35.6	0.15	110	0.12	83
ERR	**248**	**235**	**100.0**	**100.0**	**100.0**	**100.0**	**0.14**	**100**	**0.14**	**100**

(**A**): 2009-2011 period; (**B**): 2013-2015 period.

Source: Own elaboration on ERR data

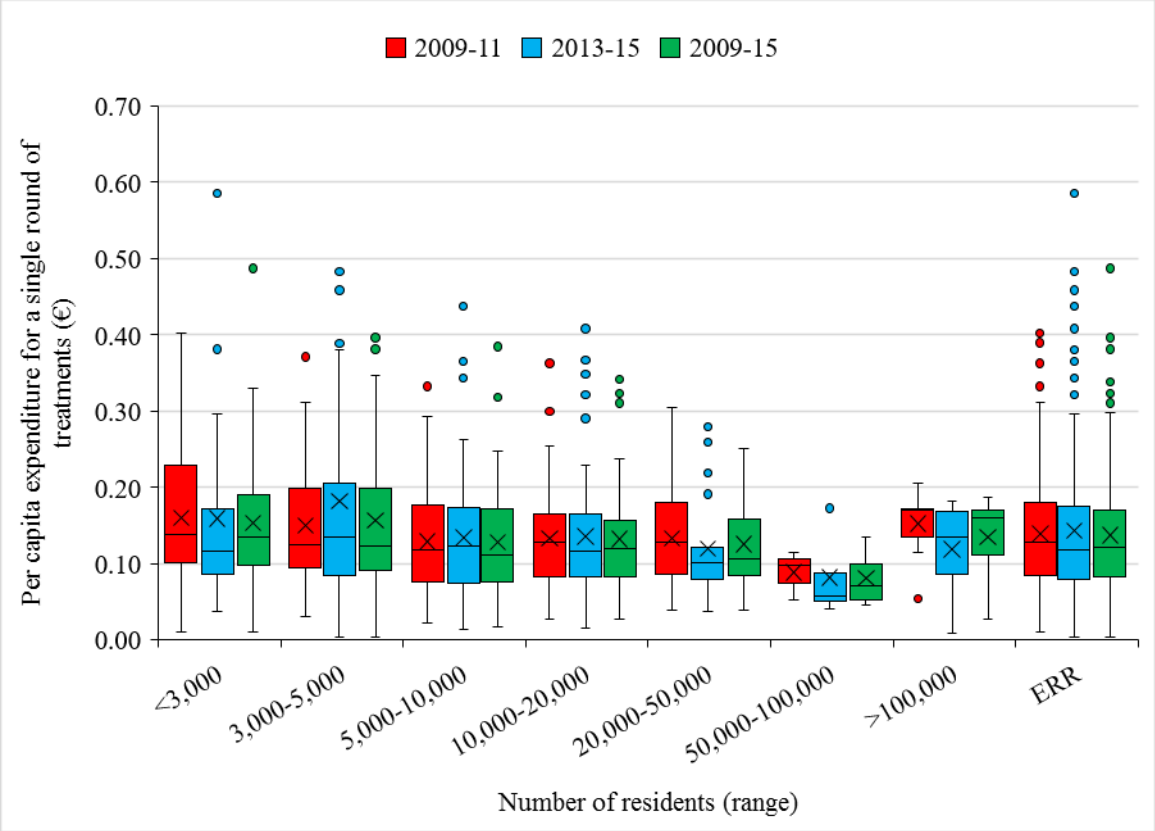
The relation between the demographic dimensions of the municipalities and their expenditures for one round of larvicidal treatments is highlighted in the table by the proximity of the columns regarding the percentage of the population and the percentage of the expenditures for each of the groups. At the same time these columns reflect the differences that exists among the groups in terms of per capita expenditure for one round of treatments, which are shown in the columns on the right side of the table, with the average values for each of the groups, and with an index that allows comparisons with the ERR mean values for both 2009-2011 and 2013-2015.

The distribution of the per capita values is showed also in Figure 20, represented through a box and whiskers chart. What we may see both in the table, with the values, and in the chart, graphically represented, is that there is a progressive decline in the per capita expenditures as the municipalities get larger, which is interrupted, as in the case of the expenditures incurred for single treated road drain, by the group of larger municipalities. In 2009-2011 they had mean per capita expenditures for one round of larvicidal treatments higher the ERR mean, while in 2013-2015 this value, although higher than that of the smaller groups (except for less than 5,000 residents) is below the ERR mean. The reasons for this high expenditures in larger municipalities should be further investigated, because we might expect the existence of economies of scale, which apparently do not or partially work in larges municipalities.

The high values registered in larger municipalities are even more apparent if we consider that the municipality of Parma had very low values for both periods, € 0.05 in 2009-2011 and € 0.01 in 2013-2015. Excluding Parma, the mean values for larger municipalities increase to € 0.16 in 2009-2011 and € 0.13 in 2013-2015.

The smaller mean values were registered for both periods in the of municipalities with a population in the range from 50,000 to 100,000 residents, respectively € 0.09 in 2009-2011 and € 0.08 in 2013-2015.

Figure 20. Box and whiskers chart with the per capita expenditures incurred for one round of treatments, based on demographic dimension of municipalities. 2009-2011, 2013-2015, 2009-2015



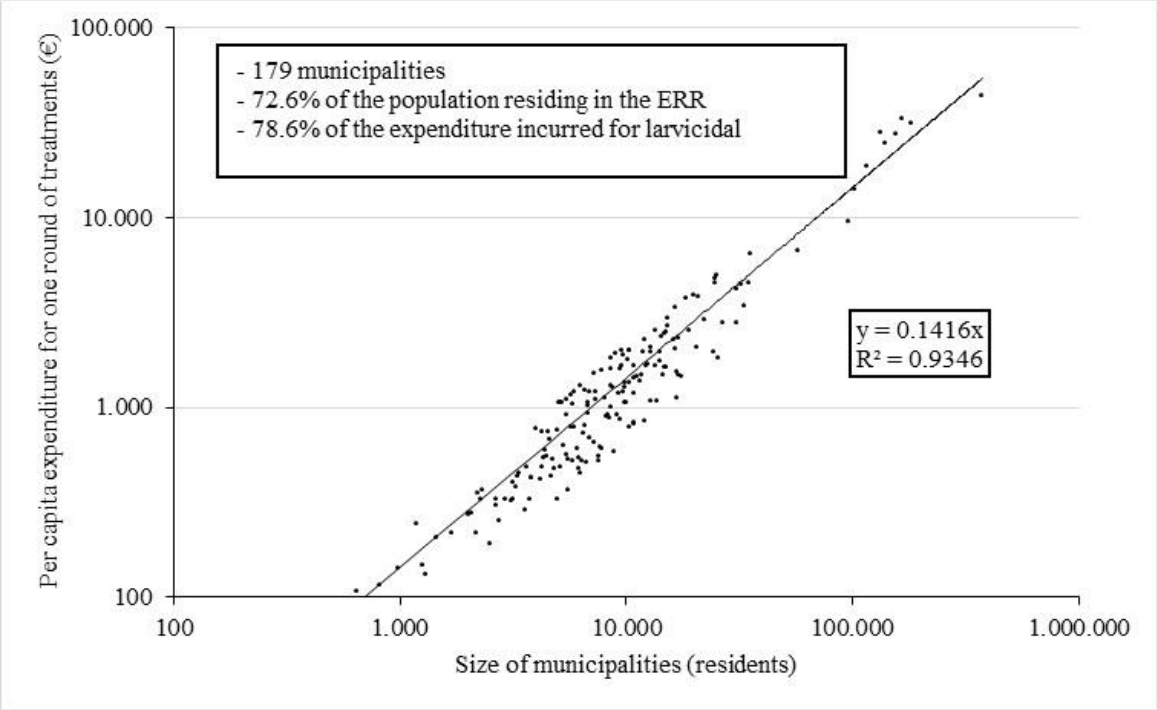
The boxes and whiskers represent the distribution of the per capita expenditures incurred for one round of treatments in each municipality, for the considered periods, based on demographic dimension of municipalities. The bottom end of the whiskers represents the minimum values; the upper end represents the maximum values. The values in between the end of the bottom whiskers and the bottom of the boxes are the lower quarter (25%) of the values. The range between the bottom of the boxes and the horizontal line inside the boxes (that represents the median value) represents the second quartile of the values; the range from the median line to the top of the box represents the values in the third quartile, and lastly, the upper whiskers, from the top of the boxes to the end of the whiskers, represents the fourth quartile, i.e. the higher 25% of the values. The "X" markers indicates the mean of the values represented in the chart. The isolated dots represent the outliers, according to the Tukey industry standard, which states that the values are considered outliers if they lie beyond 1.5 times the length of the interquartile range (the box with second and third quartile) from either end of the box.

5.4. The correlation between the demographic size of municipalities and the expenditures incurred for one round of larvicidal treatments

The correlation between the number of residents and the expenditures incurred for one round of larvicidal activities can be expressed by linear regression. The expected expenditure for one round of treatments during the period 2009-2011, referring to the mean values of 248 municipalities covering 91.0% of the regional population, amounts to € 0.13 per capita ($R^2 = 0.88$).

The linear regression (Figure 21) for municipalities with mean values within one standard deviation from the ERR mean (€ 0.14), gave us an expected per capita expenditure of € 0.14 with an $R^2 = 0.93$ (179 municipalities representing 72.6% of the regional population).

Figure 21. Linear regression expressing the relation between the municipal expenditures incurred for one round of larvicidal treatments and the demographic size of municipalities. 2009-2011

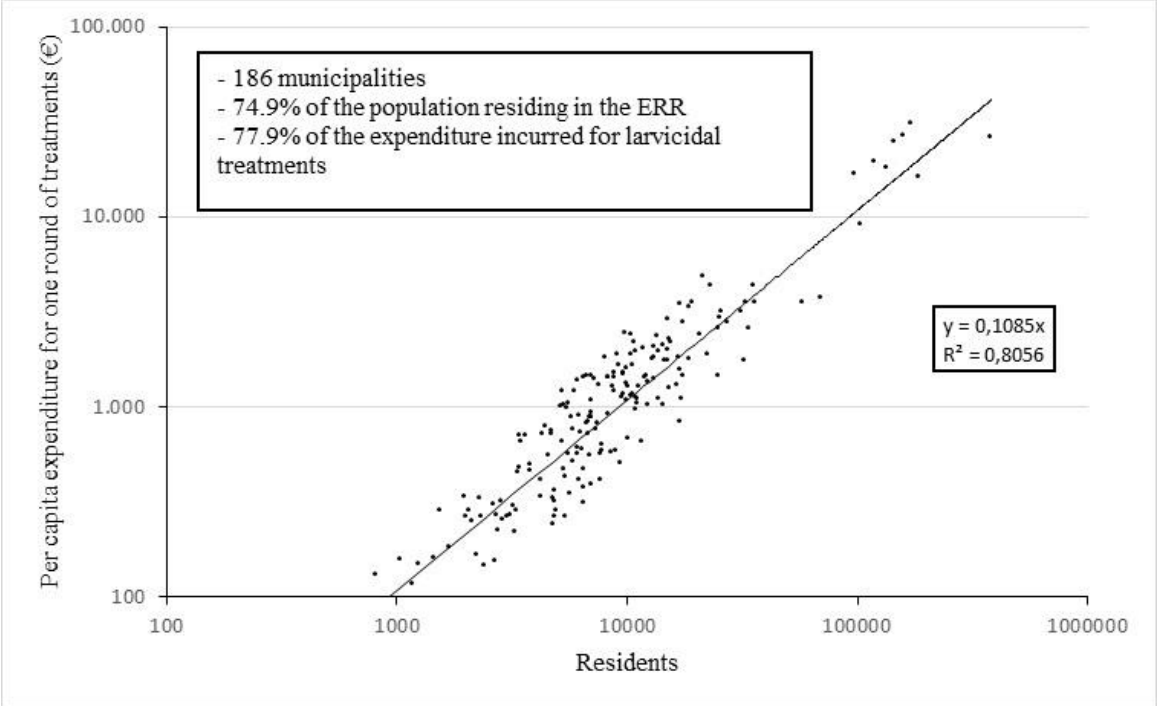


Source: Own elaboration on ERR data

The expected expenditure for one round of treatments during the period 2013-2015, referring to the mean values of 235 municipalities covering 90.7% of the regional population, amounts to € 0.13 per capita ($R^2 = 0.88$).

The linear regression (Figure 22) for municipalities with mean values within one standard deviation from the ERR mean (€ 0.14), gave us an expected per capita expenditure of € 0.10 with an $R^2 = 0.81$ (186 municipalities representing 7.9% of the regional population).

Figure 22. Linear regression expressing the relation between the municipal expenditures incurred for one round of larvicidal treatments and the demographic size of municipalities. 2013-2015



Source: Own elaboration on ERR data

6. Pilot phase of the COSFA-T Project: A survey on the costs incurred by private households due to the Asian Tiger Mosquito presence in the Emilia-Romagna Region

6.1. Introduction to the COSFA-T Project

As we have seen, the specific nature of the Asian Tiger Mosquito problem gives great importance to coordinate and integrated pest management activities, because also the strongest efforts may by in vain if the mosquito is left free to reproduce and proliferate even in small areas (the weakest link problem). Based on existent literature (Halasa et al., 2012; Shepard et al., 2014; von Hirsch & Becker, 2009) we also know that households are willing to pay large sums of money to reduce the discomfort caused by the Asian Tiger Mosquito bites, and that although the existence of public programs to control the mosquito population households actually spend money to purchase a number of insecticide products with the aim of protect themselves from bites. The aim of the COSFA-T Project (Italian acronym of "Indagine sui costi sostenuti dalle famiglie a causa della presenza della Zanzara Tigre"; translated as "Survey on the costs incurred by private households due to the Asian Tiger Mosquito presence") is to realize a realistic estimate of the expenditure incurred by the residents of the ERR for the prevention against mosquito bites.

To project is based on structured phone interviews, directed at capture information around the type of products purchased and the frequency of their use, as well as the relative expenditure incurred.

In the pilot phase of the project, concluded in 2015, 57 interviews have been realized using our questionnaire, and the results assessed here are useful to better define the next

phase of the project, in which a greater number of interviews will give us more quantitative data for statistically stronger estimations.

6.2. Methodology of the COSFA-T Project

A questionnaire was developed with the collaboration of the RTCG, structured in five separated sections prepared to collect different types of information:

1. Dwelling features
    - Kind of dwelling; dwelling environments; presence of a garden and/or of children younger than 6, and number of people habitually residing in the dwelling;
2. Presence of insect pests
    - Kind of insects, also if other than mosquitoes, infesting the dwelling or the dwelling environments; level of nuisance; type of purchased products, if any; and expenditures incurred;
3. The Asian Tiger Mosquito
    - Level of nuisance, negative influence in the use of open spaces; fear for infectious diseases transmission; type of purchased products, if any; expenditures incurred;
4. Apartment building activities for mosquito control
    - Kind of activities, if any; expenditures incurred by households
5. Final questions
    - Socioeconomic status of respondent; family role (“are you, in the family, the one who is responsible for the purchase of the insecticidal products to protect from mosquitoes?”)

In section 3, dedicated to the Asian Tiger Mosquito, a specific request concerns the presence in the apartment of mosquito nets, the year in which they were purchased and their cost. Although the presence of this question in the section dedicated to tiger mosquito, it is

not specified if the nets has been bought for tiger mosquitoes or for other mosquito species infesting parts of the regional territory. This was taken into account in the data assessment.

Respondents were randomly chosen from the health civic registers of the LHAs among the population over 20 years of age, according to a stratification based on demographic size of municipalities and on their geographic location among the territories of the LHAs:

- 3 groups of municipalities based on their demographic size: until 10,000 inhabitants; in the range between 10,000 and 50,000; over 50,000 inhabitants (Data on municipalities' demographic size refer to January 1, 2014, and were downloaded from ERR website dedicated to regional statistics http://statistica.regione.emilia-romagna.it/);
- 11 groups of municipalities based on their location in the territories of the 11 LHAs of the ERR (the territory of the LHA of Romagna was split based on the territories of the four LHAs which composed it: Ravenna; Cesena; Forlì and Rimini)

The random selection of the profiles based on the above described stratification was entrusted to the LHAs, and we asked for the following personal details:

- Name and surname
- Telephone number (or numbers, when available)
- Address and town of residence

Considering a total number of 2,000 selected profiles, we asked to each LHA to select a number of profiles proportionally to its population, following the (10)

$$n_{s\_LHA} = \frac{R_{LHA} \times n_{s\_ERR}}{R_{ERR}} \qquad (10)$$

Where $\boldsymbol{n_{s\_LHA}}$ is the number of selected profiles in an LHA; $\boldsymbol{R_{LHA}}$ is the number of residents in that LHA, $\boldsymbol{n_{s\_ERR}}$ is the total number of profiles to select, which has been fixed on 2,000; and $\boldsymbol{R_{ERR}}$ is the number of residents in the whole ERR.

In the pilot phase of the COSFA-T the objective was to reach 102 interviews. The number of 2,000 selected profiles may appear unjustifiably high, but this choice was done thinking also to next phase of the project and the interviews to realize for it, because the process of contacting the LHAs to ask for the profiles is quite long and tortuous. We have therefore thought to retain a reserve of profiles for future interviews, without involving the LHAs again for the selection of profiles.

Three LHAs of 11 did not send the requested data, so the respondents belong to only 8 of 11 LHAs. To each selected profile we assigned a unique identification code to allow processing the data ensuring the anonymity of the respondents. The alphanumeric codes (e.g. CE-B007) are built by two parts:

- The first with two letters indicating the LHA of residence;
- The second by a letter followed by three numbers;
    - The letter indicates the demographic size range of the municipality of residence: "A" for less than 10,000 inhabitants; "B" if in the range between 10,000 and 50,000; and "C" for more than 50,000 inhabitants;
    - The numbers indicate the progressive order of selection of the profiles in the LHA.

The questionnaire was submitted to respondents by phone interviews realized by 5 operators of the LHA of Cesena and 1 operator of the CAA, previously formed on this purpose, and the interviews had an average duration of 9 minutes. During the pilot phase the objective was to realize 102 interviews, but due to time constraints we only realized 57 (Table 93).

Table 93. COSFA-T pilot phase: Interviews planned, realized and refused, for each of the LHAs

LHA of the ERR	*Realized interviews*	*Planned interviews*	*% of realized interviews*	*Refused the interview*	*Not found, or other**
Bologna	12	29	41%	4	22
Cesena	7	7	100%	4	4
Forlì	4	6	67%	3	6
Imola	4	4	100%	0	4
Parma	5	15	33%	2	17
Ravenna	7	13	54%	9	7
Reggio Emilia	8	17	47%	4	7
Rimini	10	11	91%	5	5
Total	**57**	**102**	**56%**	**27**	**50**

***** includes: never answered; did not answered after having scheduled the interview in a precedent call; died; do not speak Italian; do not live in Italy; wrong phone number; impossible to answer for any other reason.

Source: Own elaboration

Four weeks before the beginning of the interviews the RHA, through the LHA of Cesena, sent to the first 250 selected profiles, distributed proportionally to the demographic size of the LHAs, an official letter to announce the selection to participate in the COSFA-T project by a telephonic interview, and the scope and characteristics of the research. Due to a mere compilation error, not due to the LHAs operators, the letters were not send all to the correct addresses, and this has probably affected the number of those who refused the interview, not being previously informed by the official letter.

The phone calls were done following the selection numbers, with three attempts for each profile before moving to the next in case of not answer. Also refusals and any other reason which prevented the interview led to following profile.

The interviews were realized during the month of June and July 2015, during the period of activity of the Asian Tiger Mosquito in the ERR, but the questions refer to the year 2014, in order to consider a complete season of activity of the insects.

6.3. Results of the pilot phase

6.3.1. The sample of the pilot phase

In Table 94 are listed the number of respondents for each sample group, based on the chosen stratification per LHA and municipality demographic size. As we may see, having realized 57 of 102 planned interviews, some of the sample groups are not represented. Nonetheless, there are respondents for each of the 8 LHAs in the sample.

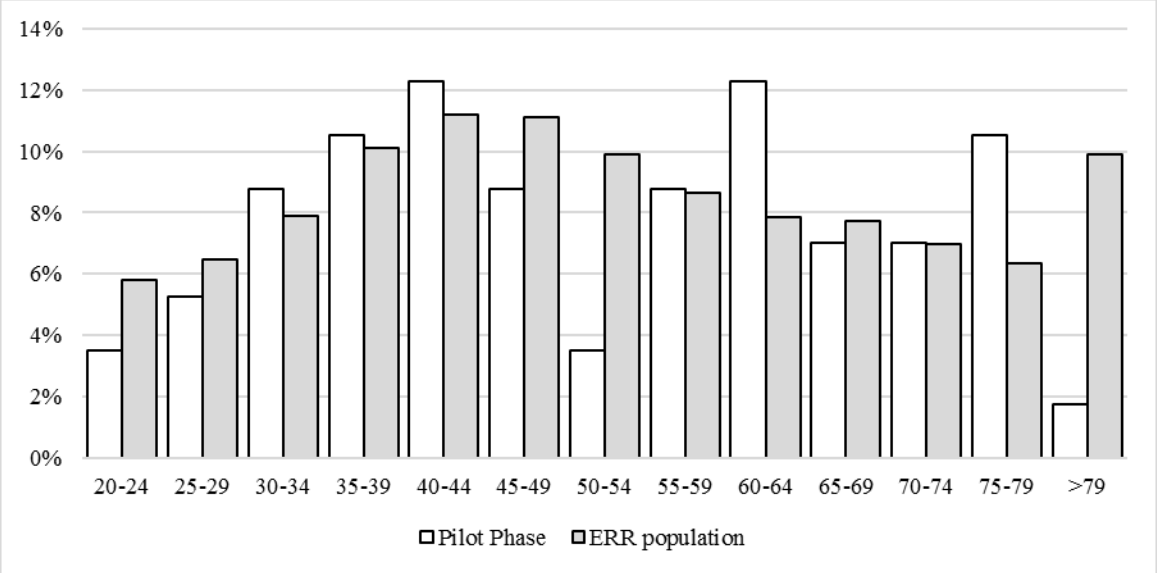
Figure 23 shows the age of the respondents compared to the real age of the ERR population. As we may see, 2 age groups are particularly underrepresented: that in the range between 50 and 54 years old and that of the over 79. On the other hand, the age groups in the ranges between 60 to 64 years old, and between 75 to 79 years old are overrepresented, while the other cohorts are proportionally close to the real values of the ERR.

Table 94. COSFA-T pilot phase: Interviews realized per group, based on demographic size of municipalities

LHAs of the ERR	***Realized interviews***						***% of the ERR population residing in the LHA***
	Group (A)	***Group (B)***	***Group (C)***	***Total***	***%***	***Cumulative %***	
Bologna	3	4	5	12	21.1	21.1	20
Cesena	2	2	3	7	12.3	33.3	5
Forlì	0	1	3	4	7.0	40.4	4
Imola	1	1	2	4	7.0	47.4	3
Parma	2	2	1	5	8.8	56.1	10
Ravenna	1	3	3	7	12.3	68.4	9
Reggio Emilia	2	3	3	8	14.0	82.5	12
Rimini	2	4	4	10	17.5	100.0	8
Total	**13**	**20**	**24**	**57**	**100**		**100**

Source: Own elaboration

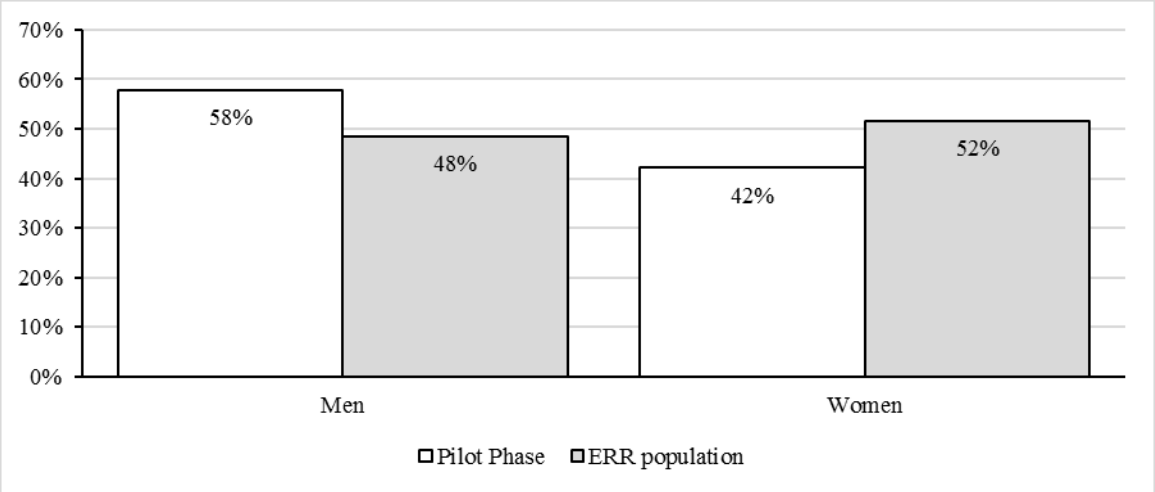
Figure 23. COSFA-T pilot phase: Age of respondents



Source: Own elaboration

In Figure 24 it is showed the distribution of sex among respondents, compared to the distribution of sex among the ERR population. Men are overrepresented in the sample, and the relation between sexes is the opposite in the ERR population.

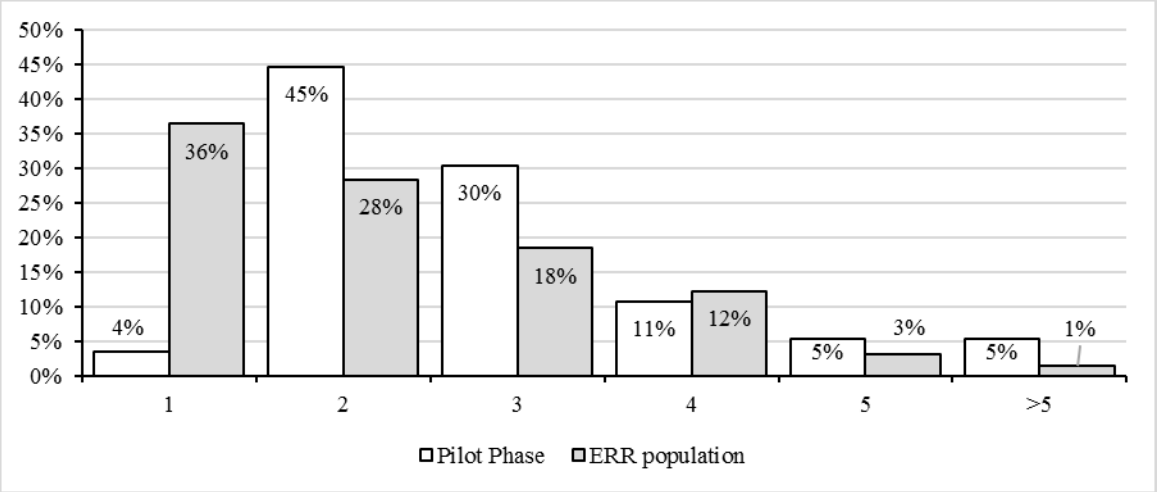
Figure 24. COSFA-T pilot phase: Sex of the respondents



Source: Own elaboration

On what regards the number of people living in the dwellings of the respondents, the question of the questionnaire says: “How many people live in your house”, and therefore it is not strictly referred to the number of household members, but to the number of those living there, although without family links with the respondent. In figure xxx the data related to the respondents are compared with the data on family members in the ERR, referred to January 1, 2014. The group with the higher representation in the sample is that of dwellings with 2 or 3 people (together more than the 70% of the sample), while families composed by a unique member result underrepresented.

Figure 25. COSFA-T pilot phase: Number of people living in the dwellings of respondents and family members in the ERR: Distribution as a % of the total respondents and as a % of the ERR families



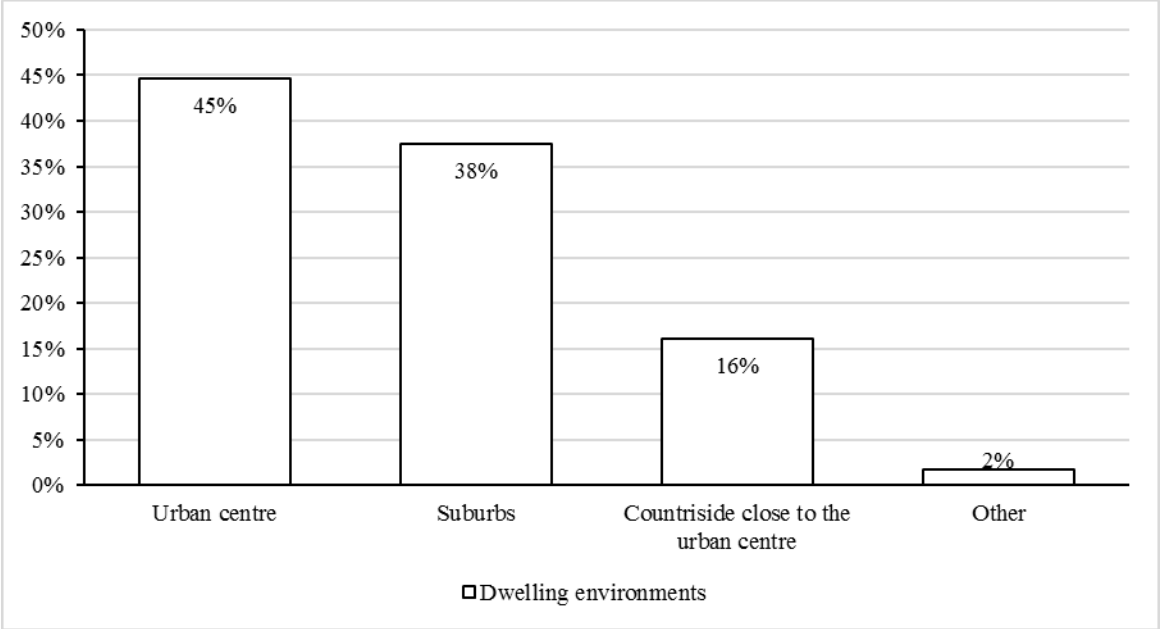
Source: Own elaboration.

21% of respondents declared the presence of a children aged under six. This question was included on the base of the hypothesis, to verify in the next phase of the research, that the presence of small children may influence the consumer behaviour of families by increasing the attention to the Asian Tiger Mosquito invasion, and therefore pushing to the purchase of more products to prevent bites. The presence of children may have an influence also on the frequency of the use of gardens and parks for recreational activities, and this may increase the exposition to mosquito bites.

6.3.2. Dwelling environments

As we have seen the Asian Tiger Mosquito adapted very well to the urban environment, characterized by the presence of many potential breeding sites. The pregnant female may lay her eggs in the presence of very reduced water containers, which are very easy to find in urban environments, characterized also by a higher human density, which offers to the females many possibilities for blood meals needed to complete the reproduction cycle.

Figure 26. COSFA-T pilot phase: Dwelling environments

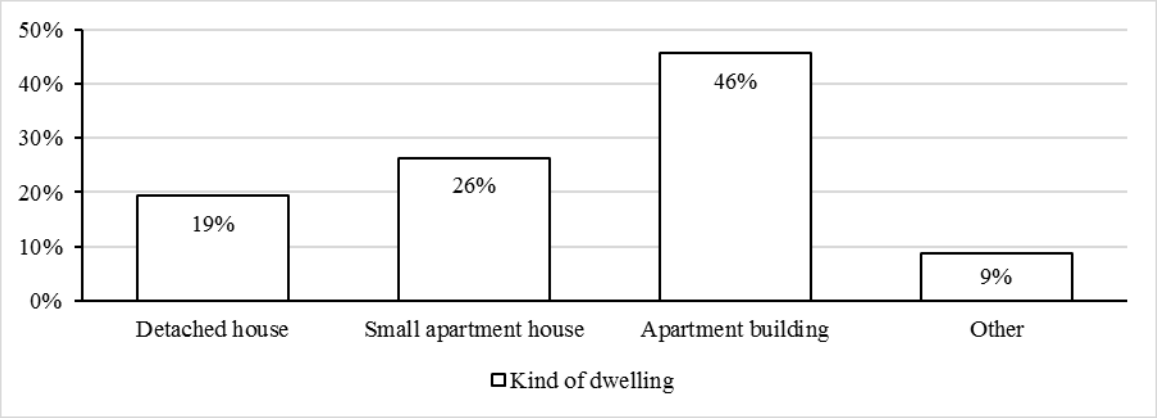


Source: Own elaboration

In Figure 26 we can see that the 45% of respondents live in an urban centre, and the 38% in the suburbs. This means that the 83% of the respondent live in the areas where it is supposed to be concentrated the population of *Aedes albopictus*, to which are concentrated the efforts of the E-R Plan.

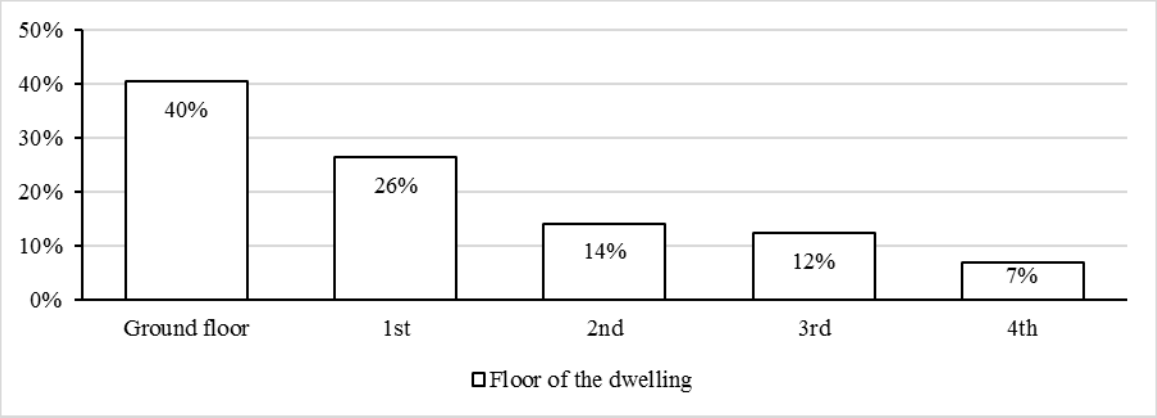
Another variable which may influence the presence of mosquitoes is the floor in which the dwelling is located, especially for those living higher floors of apartment buildings. Although the habit of the Asian Tiger Mosquito of flying at low elevations, it may reach higher floors by using elevators, or moving from a green balcony to another. In the following figures are showed the kind of dwelling of the respondents and the floors where they are located. Processing the data about this latter variable, I considered as living in the ground floor both who declared it, and who declared to live in a detached house.

Figure 27. COSFA-T pilot phase: Kind of dwelling



Source: Own elaboration

Figure 28. COSFA-T Pilot phase: Floor of the dwelling

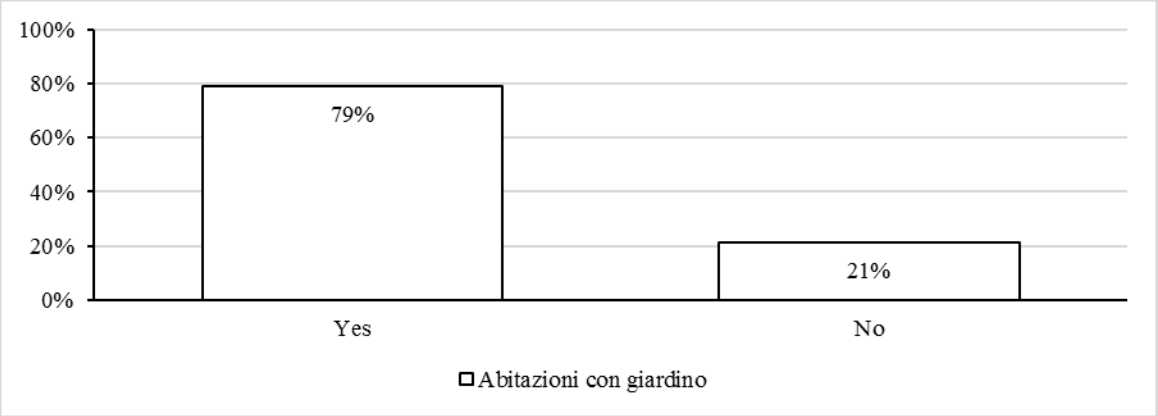


Source: Own elaboration

According to literature, one of the aspects that makes the *Aedes albopictus* particularly annoying is its biting behaviour during the day, while other mosquito species historically present in the ERR territory use to bite mostly during the night hours. To investigate how specifics households behaviours may influence the expenditures for protection measures against the Asian Tiger Mosquito, we asked about the presence of a garden, courtyard, or any green space in the proximity of the dwelling, and about the frequency in the use of that areas. The results are showed in Figure 29and in Figure 30. The

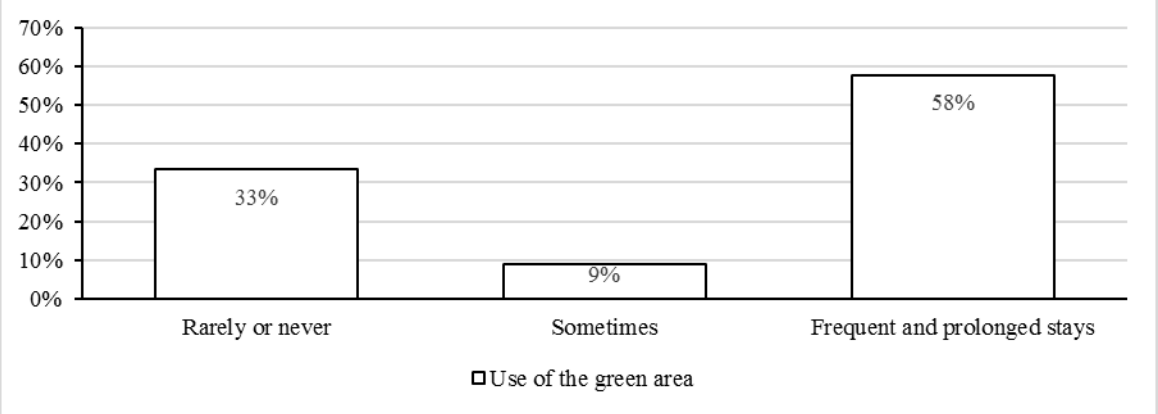
79% of the respondent declared “yes” to the question about the presence of a green area, and the 58% of them declared to use it frequently with prolonged stays.

Figure 29. COSFA-T pilot phase: Number of respondent that declared a green area in the proximity of their dwelling



Source: Own elaboration

Figure 30. COSFA-T pilot phase: Frequency in the use of the green areas among the respondents that declared to have it in the proximity of their dwelling



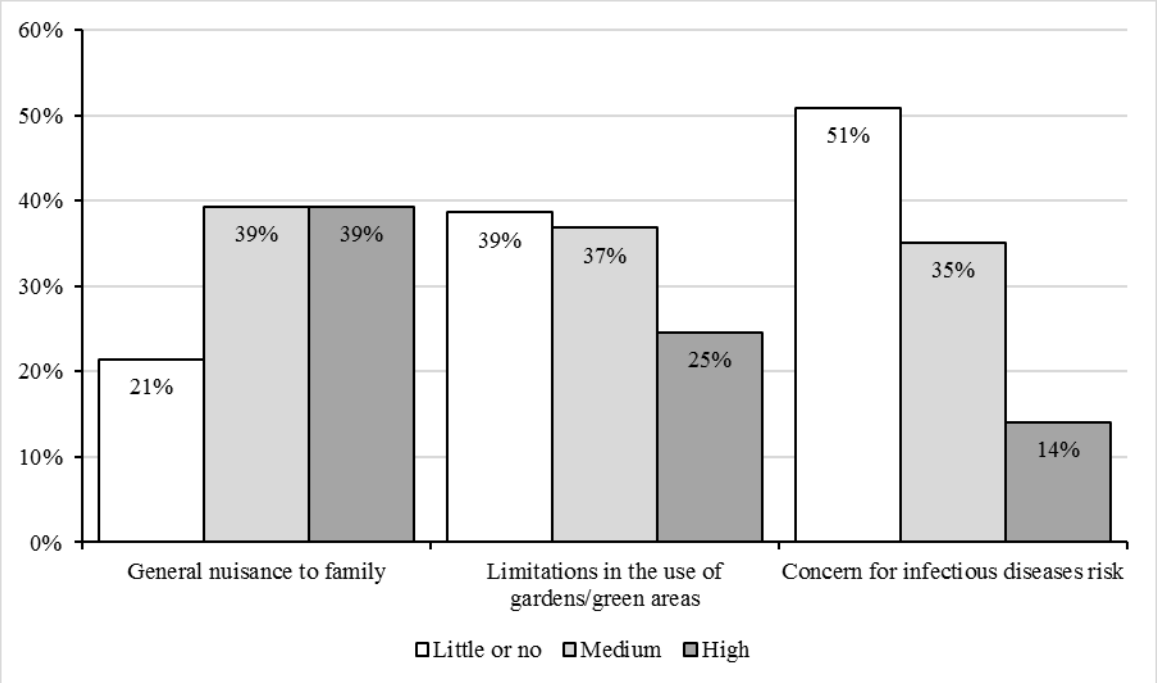
Source: Own elaboration

6.3.3. The discomfort caused by the presence of *Aedes albopictus*

To further investigate the effects of the *Ae. albopictus* bites, a battery of three questions queried respondents on the general discomfort may have caused to their families;

on any limitation may occurred in the use of gardens and green areas; and on the concern about the ability of the insect to be a vector of infectious diseases. The results are showed in Figure 31. The 78% of the respondents valued as “medium” or “high” the discomfort caused by Ae. albopictus presence, 62% declared to have suffered a medium or high level of limitations in the use of outdoor areas, such as courtyards, gardens, vegetable gardens or parks, and 49% declared to be medium or highly concerned about the vector abilities of the *Ae. albopictus.*

Figure 31.COSFA-T pilot phase: Consequences of the presence of Ae. albopictus (General discomfort; limitations in the use of gardens or green areas; concern for infectious diseases risk)

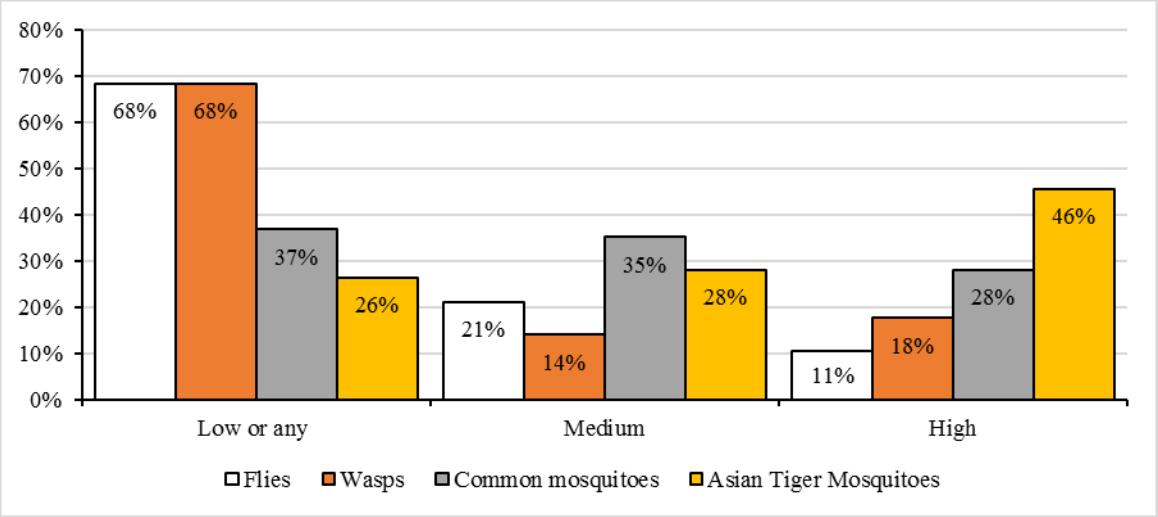


Source: Own elaboration

We asked also the general level of discomfort caused by the presence of flies, wasps, mosquitoes of other species and/or other insects, as well as by *Ae. albopictus.* The results are showed in Figure 32. The 39% of the respondents (22) declared that other insects generate discomfort. There was the possibility for open answers, indicating which species are responsible for the discomfort, and the answers are quite various. Bedbugs (greens or

browns) were cited the higher number of times, six; cockroaches were cited 4 times, spiders and hornets 2 times, and a number of other insects were cited once: snails; pine processionaries; crickets; bees; moths; butterflies; midges and sand-flies. One respondent cited generically “moisture insects”.

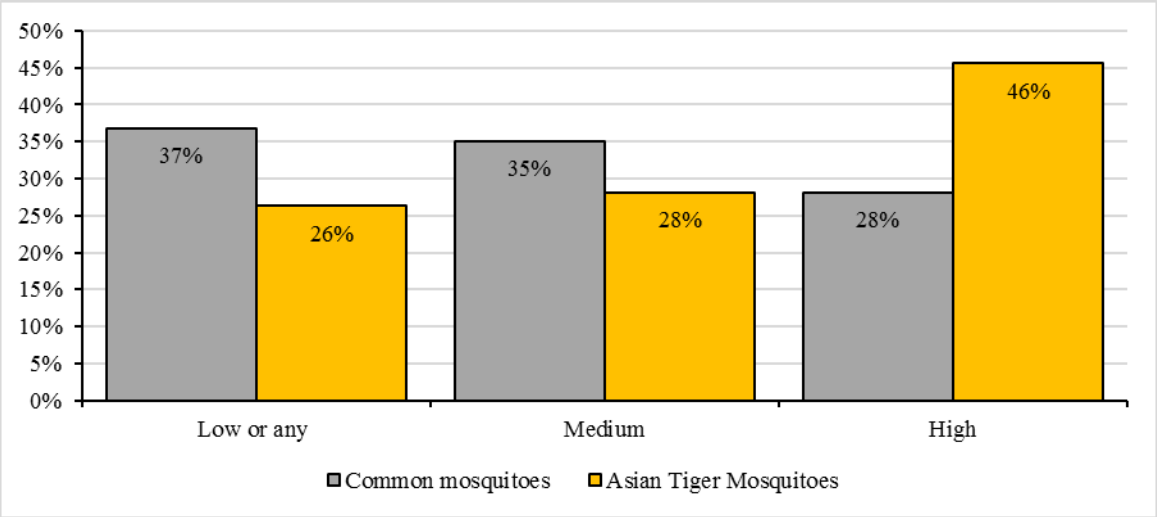
Figure 32. COSFA-T pilot phase: Level of discomfort caused by the presence of other insects (not Ae. albopictus)



Source: Own elaboration

In Figure 33 it is presented the same information than in the Figure 32, but highlighting only the level of discomfort caused by the *Ae. albopictus* and by the other mosquito species.

Figure 33. COSFA-T pilot phase: Level of discomfort caused by the presence of Aedes albopictus and other mosquito species



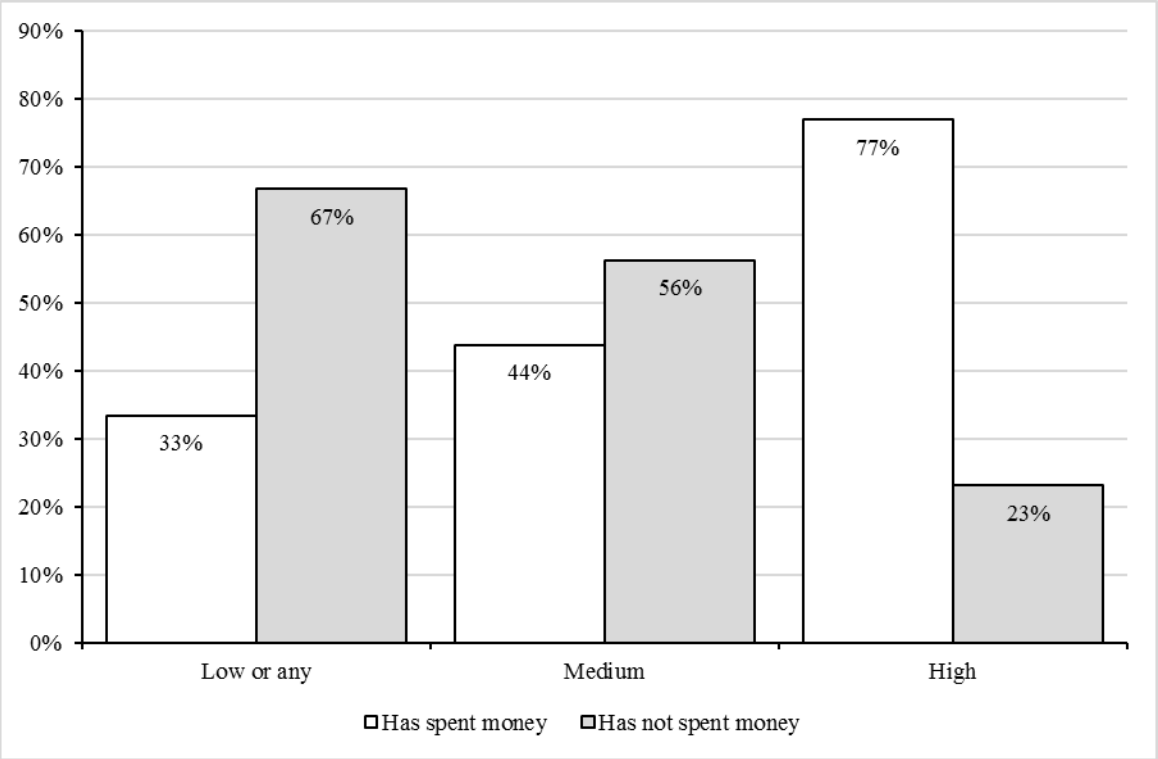
Source: Own elaboration

Regarding at Figure 32 and Figure 33 it is possible to note how the only species for which "high discomfort" has a higher frequency than "little or no discomfort" and "medium discomfort" is the Asian Tiger Mosquito. Moreover, it was judged by far the most annoying insect, declared by 74% of the respondents responsible for a medium to high discomfort (the other mosquito species are responsible for a medium to high discomfort for the 63% of the respondents).

6.3.4. The expenditures incurred for prevention and the products purchased

Enquired with the generic question: *Does your family, in 2014, spent money for the protection against Asian Tiger Mosquito bites* (in the original questionnaire: *"nell'anno 2014 la sua famiglia ha sostenuto delle spese per proteggersi da questo insetto [la zanzara tigre]?"*), 56% of respondents (32) declared "yes", with some non-startling variation related to the perceived discomfort level declared (Figure 34):

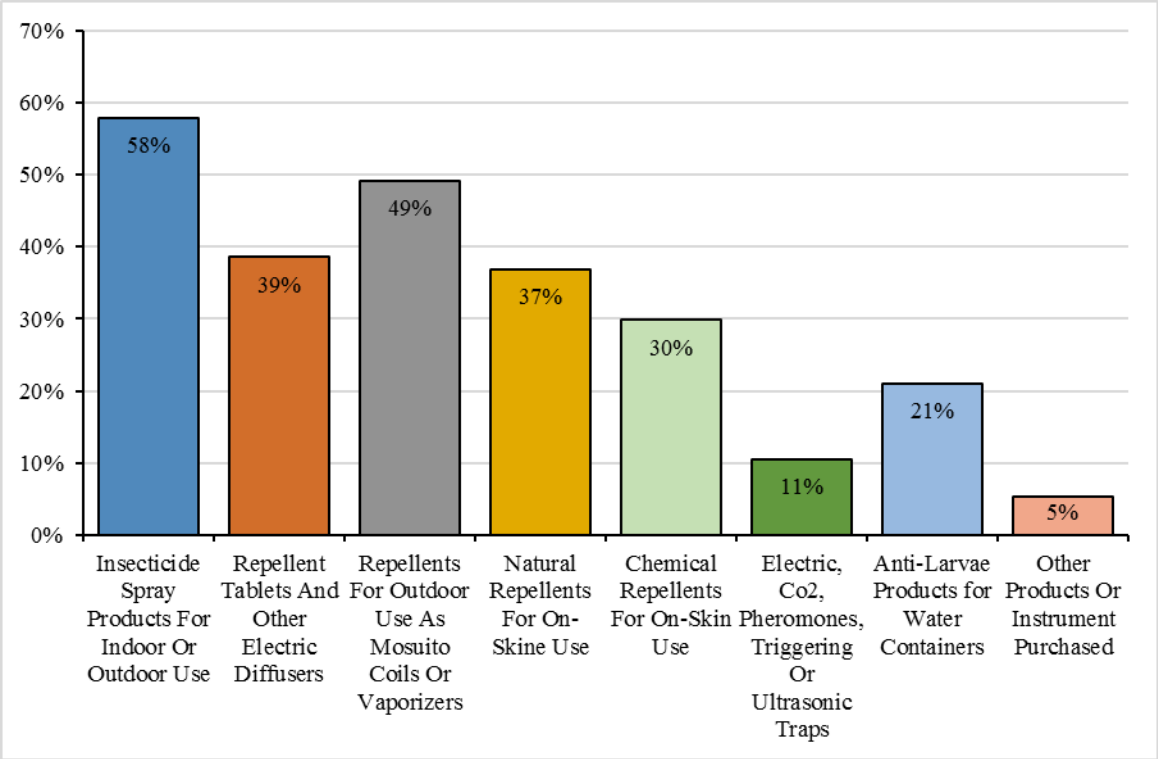
Figure 34. COSFA-T pilot phase: respondent that declared to spent money because of Ae. albopictus in 2014, in relation to the level of discomfort due to Ae. albopictus declared



Source: Own elaboration

In the following question we asked specifically about the purchase of products to protect themselves by Asian Tiger Mosquito bites. For a list of products, we asked if they were purchased, in which quantity, and how much it was spent for them. Figure 35 describes the purchasing frequencies for a list of specified products, as a percentage of all respondents.

Figure 35. COSFA-T pilot phase: Purchasing frequencies for a list of specified products – Products purchased for all mosquito species

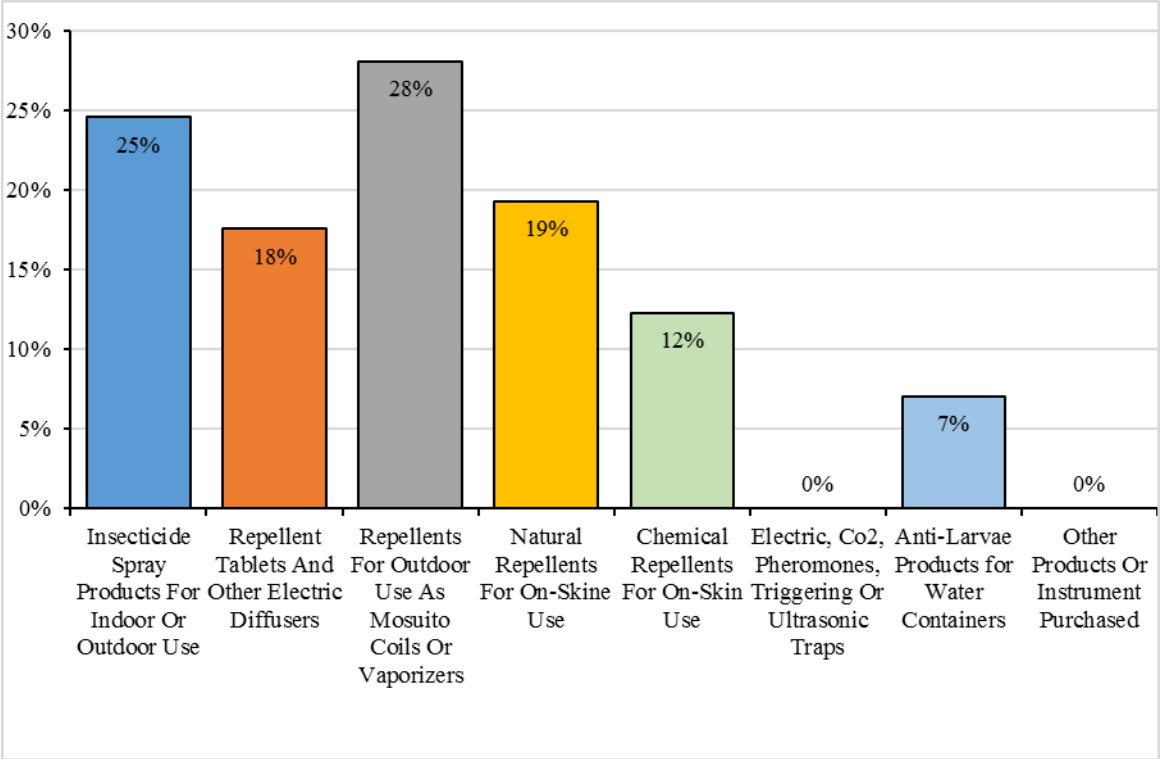


Source: Own elaboration

For each of the products we than asked if they were purchased "only" for *Ae. albopictus* species, or if they were purchased also to protect from other mosquito species.

describes the purchasing frequencies for the products for which respondents declared that the purchase occurred exclusively to protect from *Ae. albopictus*. Clearly these values do not represent the totality of the products purchased for the Ae. albopictus, because it not includes the products that although bought "not only" for Asian Tiger mosquito, may be used also for it.

Figure 36. COSFA-T pilot phase: Purchasing frequencies for a list of specified products – Products purchased exclusively for Ae. albopictus



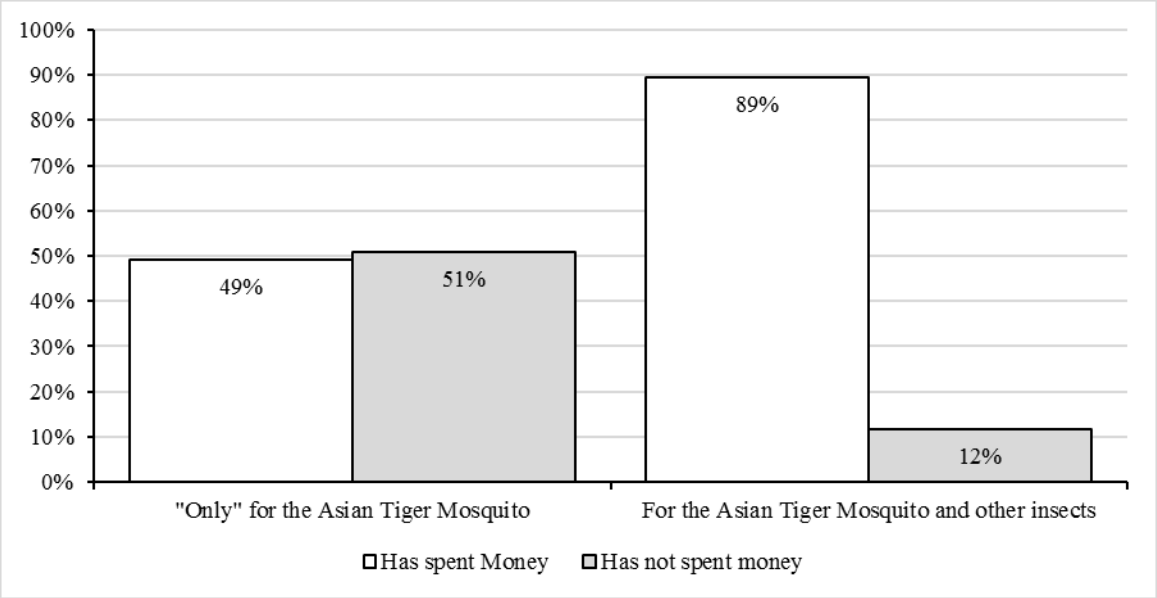
Source: Own elaboration

Respondents than answered on the purchase of products for Asian Tiger Mosquito in different ways. To the general question, when simply enquired about any expenditure incurred for the protection against Asian Tiger Mosquito bites, 56% of the respondents declared "yes", that they had expenditures in 2014. If we check for how many respondents declared to have purchased at least one of the products in the list – or not included, but indicated in the "other" item – and that the product has been bought exclusively to protect from the *Ae. albopictus*, the result is slightly different, and the percentage drops to 49%. If we look at those who have bought at least one of the products, but not exclusively for *Ae. albopictus*, the percentage rises to 89%.

These differences are not contradictory, because the questions, although similar, do not overlap. To know how many respondents effectively bought some product to protect from the *Ae. albopictus*, probably the best estimate is the first, 56%. The 49% reported in the following figure accounts only for the products purchased exclusively for the *Ae.*

albopictus, and therefore it is obviously an underestimation, while the 89% regards the purchase of products for mosquitoes and other insects, and is therefore obviously an overrepresentation. Interestingly, almost the 90% of respondents spent money to purchase some kind of product for the defence against insect pests.

Figure 37. COSFA-T pilot phase: Percentage of respondents that declared the purchase of at least one of the products listed in the questionnaire, or a different one indicated in the "other" item, "only" for the Ae. albopictus or also for other insects



Source: own elaboration

Not all the respondents that declared the purchase of at least one product during 2014 were also able to indicate the expenditures incurred, or the number of packages purchased. In some cases, the expenditures incurred were indicated for some products and not for others, or the respondents indicated a range of expenditure in the place of a unique value. In the latter cases I considered the central value of the ranges for the processing of data.

In one case the respondent indicated weekly and monthly values of expenditure, which have been multiplied considering the period of activity of *Ae. albopictus*, namely the same period in which are realized the pest management activities of the E-R Plan, i.e. from the 21th to the 40th week of the year, corresponding approximately to the period from about

mid-May to late September. The weekly expenditures were then multiplied by 20, whilst those indicated as monthly were multiplied by 4.5.

The 77% of the respondents – (44) – declared to have mosquito nets at home, but only the half – 22 – was able to indicate the expenditure incurred for them. Among those who indicated the expenditure, the average cost was € 922.86, while considering the whole group of respondents the average cost was € 356.19. Based on the experience gained by the RTCG, and in the absence of references in the literature to suggest a different time, we assumed the average life span of mosquito nets to be 20 years, that means an average annual quota of € 17.81 per respondent for the mosquito nets.

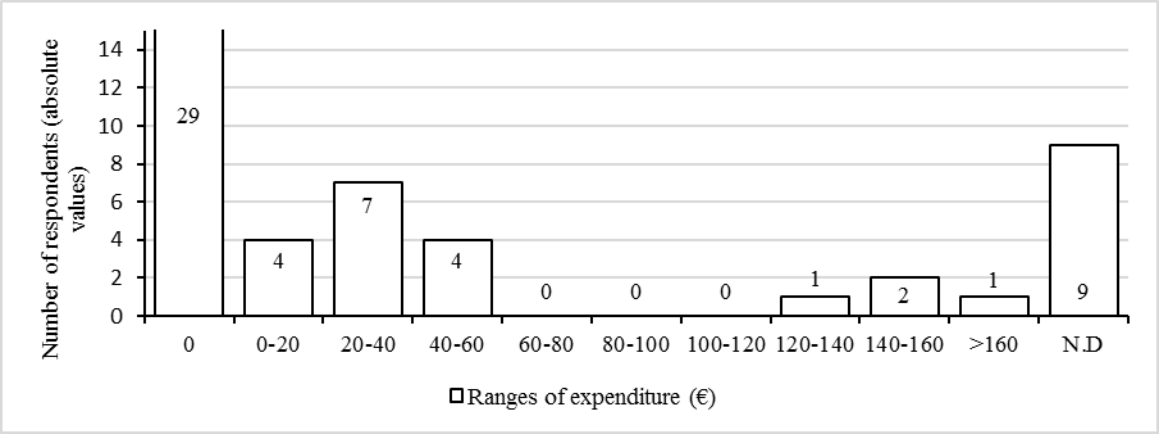
Among the respondents living in apartment buildings, 7 of 26 (27%) remember that some control activity was carried out in the condominium in 2014, in the common areas of the building. In 3 cases the activity carried out was the periodical larvicidal treatment of the road drains, while in 2 cases it was the case of periodically scheduled adulticidal treatments. In two condominiums both activities have been carried out, but in one the adulticidal intervention was periodically scheduled, while in the other it was done only once. Only 4 of this 7 respondents were able to indicate the costs of these treatments, and the mean expenditure incurred was € 45.38.

6.3.5. The per capita expenditures incurred for prevention activities

Considering the expenditure incurred for the purchase of products exclusively for the Asian Tiger Mosquito, the mean expenditure per respondent is € 18.25. For a more realistic estimate, this value should be added to the proportion of expenditure due to the Asian Tiger Mosquito presence, of those products purchased also for other insect species, including the mosquito nets. Unfortunately, we do not have data to define this proportion.

Figure 38 shows the distribution of the respondents among ranges of expenditure, only relative to the expenditures incurred for the purchase of products “only” because of the Ae. albopictus presence.

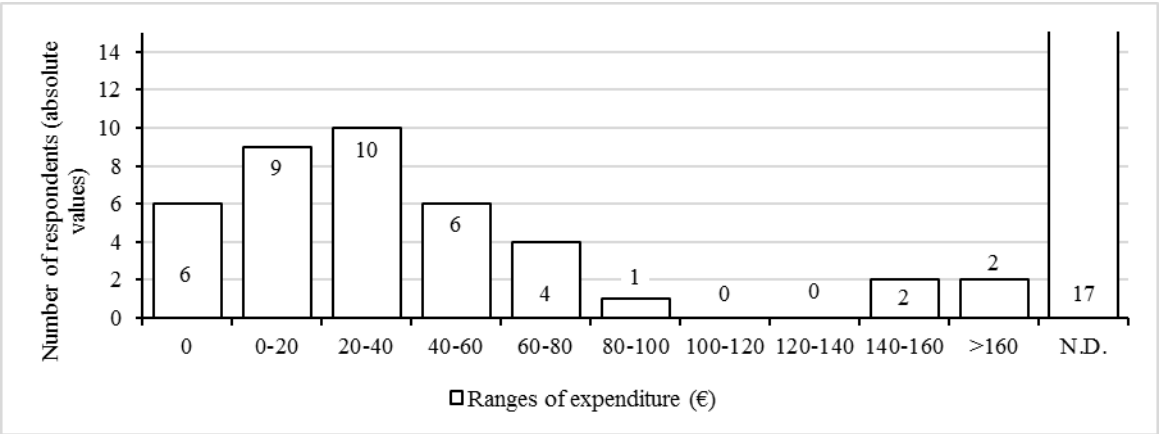
Figure 38. COSFA-T pilot phase: Ranges of expenditures incurred for the purchase of products used "only" to prevent from Ae. albopictus bites



N.D.: Declared expenditures but did not indicated the amounts. Source: Own elaboration

If we add to € 18.25 the expenditures incurred for the purchase of products used also for other insects, the mean expenditure per respondent increase to € 28.84. In Figure 39 is showed the distribution of the respondents among ranges of expenditure.

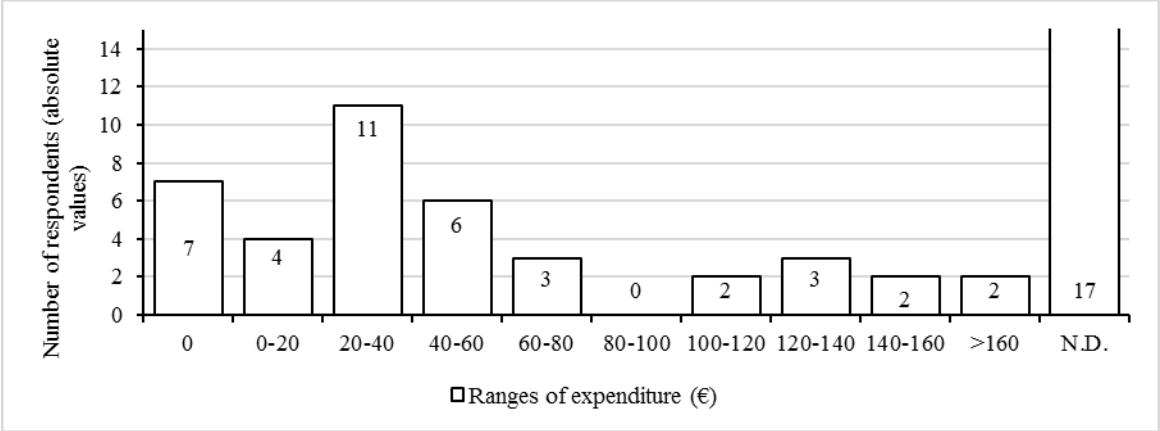
Figure 39. COSFA-T pilot phase: Ranges of expenditures incurred for the purchase of products used "only" to prevent from Ae. albopictus bites, plus the products used for other insects



N.D.: Declared expenditures but did not indicated the amounts. Source: Own elaboration

If we add to the expenditure incurred for the purchase of products used "only" for the *Ae. albopictus*, the expenditure incurred for the mosquito nets – assuming 20 years average life span – the mean expenditure per respondent result in € 36.06. Figure 40 shows the distribution of the respondents among ranges of expenditure.

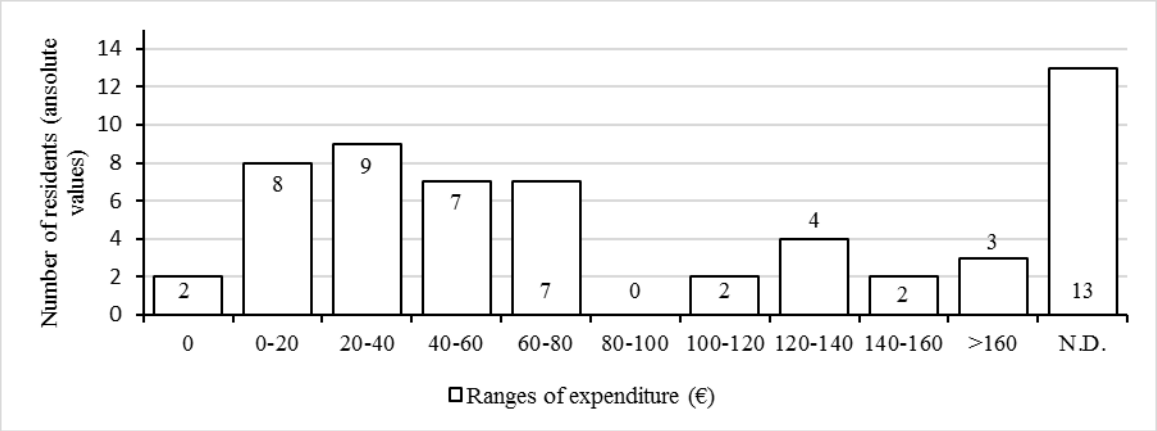
Figure 40. COSFA-T pilot phase: Ranges of expenditures incurred for the purchase of products used "only" to prevent from Ae. albopictus bites, plus the mosquito nets



N.D.: Declared expenditures but did not indicated the amounts. Source: Own elaboration

Considering the three above described expenditures the result is a mean expenditure per respondent of € 46.65. Figure 41 shows the distribution of the respondents among ranges of expenditure.

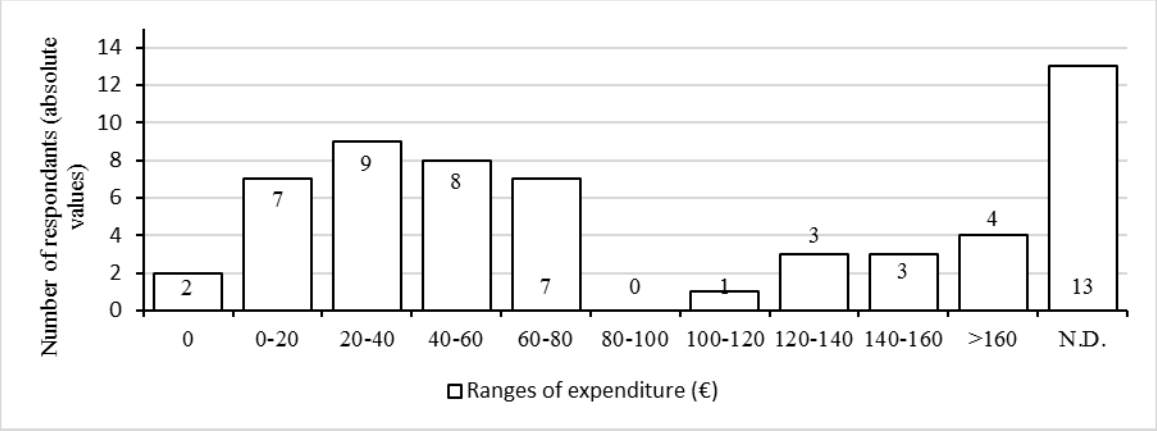
Figure 41. COSFA-T pilot phase: Ranges of expenditures incurred for the purchase of products used "only" to prevent from Ae. albopictus bites, plus the products used for other insects, plus the mosquito nets



N.D.: Declared expenditures but did not indicated the amounts. Source: Own elaboration

Considering all the typologies of expenditure included in the questionnaire, and therefore adding to the three above described the expenditures incurred for the condominium activities in the common areas, the mean expenditure per respondent result in € 49.83 shows the distribution of the respondents among ranges of expenditure.

Figure 42. COSFA-T pilot phase: Ranges of expenditures incurred for the purchase of products used "only" to prevent from Ae. albopictus bites, plus the products used for other insects, plus the mosquito nets and the condominium activities



N.D.: Declared expenditures but did not indicated the amounts. Source: Own elaboration

At this point of the research we cannot draw statistically relevant conclusions, but the data collected allows to determine an adequate size of the sample for the next phase of the research, in order to estimate the expenditure incurred in the ERR because of the *Ae. albopictus* presence, with the following formula:

$$n_s = \frac{\delta^2_{exp} \times Z^2_{(\frac{\alpha}{2})}}{\varepsilon^2} \qquad (11)$$

where $\boldsymbol{n_s}$ is the sample size for the next phase of the research; $\boldsymbol{\delta^2_{exp}}$ is the variance of the variable under observation, namely the expenditures of households to prevent *Ae. albopictus* bites. Not knowing yet this variance, we will replace it with the estimate obtained by this pilot survey; $\boldsymbol{Z_{(\alpha/2)}}$ represents the value of the normal distribution variable Z, such that the probability that Z assumes values higher than $Z_{(\alpha/2)}$ is equal to α/2. In other words, the value of $Z_{(\alpha/2)}$ guarantees a 95% (1- α) confidence level for the results; $\boldsymbol{\alpha}$ is a fixed value equal to 5%; and $\boldsymbol{\varepsilon}$ represents our uncertainty, or the error we are willing to accept.

Changing the error that we are willing to accept, influences the minimum sample size. For the ERR case study, it is appropriate to use the data related to the expenditures that we know to be incurred for the purchase of products exclusively dedicated to protect from *Ae. albopictus*. These expenditures are those indicated in Table 95, item (A): "Products bought exclusively to protect from Asian Tiger Mosquito", and are equal to € 18.25, with a variance of € 1687.71, and a coefficient of variation at 225%.

Table 95. COSFA-T pilot phase: Expenditures incurred per respondent, relative to all the typologies of purchased products

Kind of prevention activities and product bought	***Absolute frequencies***	***Relative frequencies***	***Mean expenditure per respondent***
Products bought exclusively to protect from Asian Tiger Mosquito (A)	28	49%	€ 18,25
(A) + Products bought to protect from Asian Tiger Mosquito and other insect species (B)	51	89%	€ 28,84
(A) + mosquito nets (C)	50	88%	€ 36,06
(A) + (B) + (C)	55	96%	€ 46,65
(A) + (B) + (C) + condominium activities (D)	55	96%	€ 49,83

Source: Own elaboration

In Table 96 are showed the various sample sizes depending on the amplitude of the accepted error.

Table 96. COSFA-T pilot phase: sample sizes and accepted errors

Accepted error (€)	3	3.5	4	4.5	5
Sample size	720	529	405	320	259

Source: Own elaboration

The choice of the accepted error, and consequently of the sample size, has to be made taking into account both the reliability of the results and the budget and organizational constraints of the next research. In my opinion an error of € ± 3.5, that is below the 20% of the mean expenditures per respondent found in this pilot phase, may be accepted for the next phase of the research, in which therefore the sample should be of at least 529 respondents.

7. Conclusions

7.1. On the public expenditures

For this dissertation, I analysed the costs of the E-R Plan, i.e. an AW-IPM plan for the *Ae. albopictus* in the Emilia Romagna region – northern Italy – which has mostly temperate sub-continental climatic conditions, except along the Adriatic coast, where the climate is more Mediterranean. These climatic characteristics can be found elsewhere in Europe, thus making the health risk due to the presence of the *Ae. albopictus*, which become apparent by the 2007 CHIV outbreak, an important challenge for the European Union. Furthermore, the presence of this vector has been established in an increasing number of countries, and projections based on scenarios of climate change predict that they will further increase.

This bio-invasion has consequences on public goods, ranging from public health to the restriction on the use of parks and green areas. Therefore, the associated costs to society relate not only to pest management, human health and the public health system, but also to the reduction in recreational goods due to discomfort. This may weigh heavily on economic activities related to these goods (Krishnamoorthy et al., 2009; Mavalankar et al., 2009). If we consider the absence of the *Ae. albopictus* – or the reduction of its population density below an epidemic risk threshold, a tolerance threshold, or a combination of both – as a natural resource, we can better understand the complex inter causal relations that should influence public policies of mosquito control.

For *Ae. albopictus*, the control of the invasion could be intended as a "weakest-link" public good (Hirshleifer, 1983; Perrings et al., 2002). This means that efforts made by each actor involved to contain the invasion influence each other, and the least effective actor will

determine the overall level of protection. A situation that encourage maverick behaviours and enhance the importance of the public sector and of multi-level territorial coordination.

The study is not an assessment of the total costs of the *Ae. albopictus* invasion, for which a number of other costs should be included. Among them, we can enumerate: the expenditures incurred by private households (e.g. mosquito nets and repellents), for which an attempt of estimation is described in chapter 6 through the pilot phase of the COSFA-T project; the damages to economic activities such as those linked to the tourism; and the productivity loss due to absence from work in case of illness (Halasa et al., 2012; Seyler et al., 2010; Shepard et al., 2014; Soumahoro et al., 2011; Thuilliez et al., 2014). Moreover, also some of the control activities carried out by public authorities are excluded from the study, since they are not communicated to the Regional Health Authorities by the yearly report of activities. As we have seen, this is due to the reimbursement system of the E-R Plan, which do not includes activities, such as the adulticidal treatments – except in case of suspected or proven case of infectious disease – that are still realized in some municipalities (Canali & Rivas Morales, 2012).

Nevertheless, I assessed the costs of a Plan that might need replication, entirely or partially, in some other (European) areas in the near future. The globalization and the consequent increase in the movement of people and goods are not going to stop, as well as the progressive concentration of the population in urban areas, which facilitate contacts and the circulation of viruses like those vectored by the *Ae. albopictus*. Following the principle that the larger the area with control activities, the higher its effectiveness, the organization of control activities and their costs may need to be dealt with at the European level to ensure a higher level of effectiveness.

For what concerns the ERR, the assessment revealed three different periods in terms of the total expenditures incurred for the activities included in the E-R Plan: 2008, the year following the CHIV outbreak, which is the year with higher expenditures; a three-years period, starting in 2009; and a four-year period since 2012 until 2015. The total expenditures were ≈ € 7.6 million in 2008, between ≈ € 5.9 million and ≈ € 5.3 million per year in 2009-2011, and between ≈ € 3.5 million and ≈ € 3.1 million per year in 2012-2015.

The higher expenditure in 2008 was common to all the activities included in the E-R Plan, and if compared to later years, particularly relevant for the Door-to-Door

interventions (up to € 1.1 million in 2008, between ≈ € 0.66 million and ≈ € 0.45 million per year in 2009-2011, and between ≈ € 0.25 million and ≈ € 0.23 million in 2012-2015), for the management of reported activities (≈ € 0.65 million in 2008, ≈ € 0.12 million in 2009, and further declined in later years, until ≈ € 8,000 in 2011 (Table 13), this expenditure increased again since 2013, remaining between ≈ € 0.12 million and ≈ € 0.15 million for the years 2013, 2014 and 2015), and for the item that includes various activities judged reimbursable case by case (the "other" item). In this latter case the expenditures were ≈ € 1.1 million in 2008, and below € 0.4 million in 2009-2011. Since 2012 any activity was reimbursed under this voice.

The decline of the expenditures incurred for the management of reported cases (emergency interventions), which went together with the decline in the number of municipalities that declared the presence of suspected or proven cases of infectious diseases, did not follow the fluctuations of the effective number of proven cases, which compared to later years were very low in 2008 and 2009. Nonetheless, when the number of proven cases increased again since 2013, the number of municipalities declaring suspected (and confirmed) cases and the related expenditures also increased. These fluctuations, described in § 4.2.1., suggest the importance of the perceived risk of a new epidemic outbreak in the first years following 2007, as a factor influencing the level of expenditures in the E-R Plan. In other words, the CHIKV outbreak of 2007 may have had indirect costs in later years, increasing the sensitivity with which suspected cases of infectious disease were reported, and therefore the level of expenditures incurred for the realization of the emergency activities foreseen in these cases. Since 2013, when the number of imported CHIKV or DENV cases really increased (Figure 8), the level of expenditures for their management remained well below the expenditures of 2008, like the number of municipalities where cases were reported.

A part of the reduction of the expenditures has been possible thanks to the technical improvement of the ovitraps, which since 2010 are checked only every two weeks (it was every week in 2008 and 2009). For the later period (2012-2015) the number of rounds of larvicidal treatments, although in absence of technical changes or larvicidal products improvement, shifted from a mean of 5.5 rounds to a mean of 4.5 rounds, allowing savings in the order of one million euros per year.

Taking into account the above described trends and as a general observation, comparing 2008 and the following years, I suggest that the higher expenditures in 2008 may be mostly explained by:

- Organizational reasons, due to the lack of experience on the Ae. albopictus control activities among the institutional operators;
- The higher perception of the risk of a new epidemic, probably influenced by the lack of knowledge around the possibility of vertical transmission of the CHIKV among mosquito generations, which was excluded by an article published only some years later (Bellini et al., 2012);
- The lack of knowledge on the *Ae. albopictus* behaviour, health risks and biology among the population, and the consequent need of greater efforts for its involvement.

For any of the three periods, 2008, 2009-2011 or 2012-2015, there was a high variability among municipalities in terms of the expenditures incurred for the E-R Plan, both considering the absolute values and considering indicators such as the per capita expenditures for a specific activity. Although the variability regards the territories of all the LHAs, a particular trend was registered in parts of the areas with a developed touristic sector. The higher expenditures in coastal towns suggest an importance attached to safeguarding an outdoor touristic appeal, by reducing nuisance and the risk of an infectious disease outbreak, and its potential harm not only to public health, but also to public image. Another reason for this higher expenditure is probably the major ratio between urban areas and resident population, because of holiday second homes and tourist accommodations, but we did not have access to reliable data on demographic density of urbanized areas to confirm this hypothesis. Moreover, a more in-depth analysis between the E-R Plan expenditures and *Ae. albopictus* population density should better clarify if the expenditure variation is linked to it.

On the side of the efficiency improvement of the E-R Plan, we note that despite the strong commitment in technical and managerial support developed by the RHA, and the broad participation of local governments, there is still a large margin for improvement in

the rational use of expenditures dedicated to the implementation of the activities, including focusing on the following:

- To which subject are the control activities entrusted? The technical coordination of the operations, its quality controls, and the proper anti-larvae activity, can be carried out by the local administration, or entrusted to external entities, by calls for tender or by direct procurement procedures, and the same subject can do all of these, clearly making more difficult the realization of control activities by local administrations. In addition, many municipalities do not have a reliable census of manholes and road drains in urbanized public areas, needed to calculate the costs of treatments with an objective basis, as well as for the rationalization of operations. Since 2013, the regional administration has been committed in helping the local authorities in acquiring these data, ensuring a partial reimbursement for manholes and road drain census and georeferenciation. In addition, the urbanized area of municipalities should be better defined, because with the lack of clear standard indications, personnel from technical offices use discretional parameters to define and indicate these areas, on which are built the anti-larvae activities;
- The number of rounds of anti-larvae treatments is highly differentiated among municipalities. The Regional guidelines elaborated by health authorities indicate the standard seasonal control activity in 5 rounds of treatments, and variation from this number should be justifiable through adverse climatic conditions, or particular local situations. Moreover, there is a clear differentiation among the considered periods, since the mean number of rounds was up to 6 in 2008, 5.50 in 2009-2011, and 4.50 in 2013-2015, in the absence of a mechanism to push the municipalities to the alignment at 5 rounds;
- Organizational and management costs by internal personnel of municipalities, for instance in preparing calls for and assigning tenders, should be added (after appropriate assessment) to the management cost for operating activities.

In this way, the possible benefits from merging the activities of neighbouring municipalities could be assessed appropriately;

- The measures should be accompanied by mechanisms to reward good practices during the distribution of subsidies by the regional administration. For example, the indication of a standard costs for the anti-larvae activities – the activity that receives the larger part of the economic resources dedicated to the E-R Plan – should be used to indicate an acceptable range of expenditures to receive the Regional contribution. In this respect one could use the correlation between the number of residents and the expenditures incurred for the larvicidal treatments, which seems to be the more feasible approach, that can be consistently used.

With regard to the control of this mosquito in public areas, the E-R Plan has nevertheless obtained good technical results, indicated also by a reduction of its costs. Major possibilities for further improvement seems to be in private sites, from where most infestations originate. Therefore, it would be useful to intensify the efforts to raise public awareness through appropriate communication strategies, as well as coordinating AW-IPM plans on a national and European level.

7.2. On the private expenditures, the COSFA-T project

The objectives of the pilot phase of the COSFA-T project were three:

- To verify the quality of the questionnaires for the collection of data
- To identify the data necessary to define the sample size of the next phase of the research
- To determine preliminary values relative to the expenditures incurred by the households to prevent Asian Tiger Mosquito bites

It has been possible to identify some weaknesses in the questionnaire, especially on the way the data were collected, for which I realized a few changes for the next phase of the research:

- In the first section
    - Ask the age of all the people living in the dwelling of the respondents
- In the third section
    - For every listed product, add ranges of expenditure to read during the interviews, with the aim of reducing the number of those who, although declaring to have bought some of the listed products, do not remember the expenditure incurred
    - Add ranges of expenditures relative to the mosquito nets
    - Ask if the mosquito nets have been installed once or multiple times, and after how long

For the definition of the sample size needed for the next phase of the research I used the mean value of the expenditures incurred for “Products bought exclusively to protect from Asian Tiger Mosquito”, which is equal to € 18.25, with a variance of € 1687.71, and a coefficient of variation at 225%. With an accepted error of € ± 3.5, the consequent minimum number of interviewed for the next phase is 529.

If the results of the pilot phase were confirmed by future research, the expenditures incurred by the households to protect their families from *Ae. albopictus* bites would be up to 30 million (almost 2 million of households), or in other words thirty times the public expenditures. This possibility strengthens the importance of further research in this area, and shed light on the effective economic impact of the mosquito presence, although in the absence of ongoing epidemic outbreaks.

Moreover, giving the weakest link problem that characterize the effectiveness of the *Ae. albopictus* control, a so high expenditure supported by households suggests that, if a better use of the economic resources is ensured by the public central coordination of the control activities, the families may be willing to increase their economic contribution to the integrated pest management plan carried out by public institutions.

The 2007 CHIKV outbreak in the Emilia-Romagna region of Italy proved the possibility of infectious disease transmission vectored by mosquitoes of the *Aedes* species. Of this genus, at present days only the *Aedes albopictus* has an important and widespread presence in the European mainland territory, although projection based on climate change do not exclude the possibility that other species, e.g. the close related *Aedes aegypti*, will be able to colonize our countries in the future. The alarm represented by the 2007 epidemic prompted the set-up of the area-wide control plan described in these pages, and should not be ignored even at the highest levels of the European institutions, which are responsible for the ensuring of the coordination of the activities at the larger scale, both to prevent the entry and establishment of new species, to control those already present in the European territory, and to coordinate the adequate reaction in case of new epidemic outbreaks.

The shocking news around the Zika Virus and its alleged link with the cases of microcephaly registered in South America and Caribbean since 2015 (Mlakar et al., 2016; Rasmussen et al., 2016), it is only the last, in terms of time, of the challenges for human health posed by mosquitoes, for which, without spilling over into unjustified alarmism, it is necessary to respond as widespread and coordinated as possible. The vector competence of the Asian Tiger Mosquito for the Zika Virus is not clear (Chouin-Carneiro et al., 2016; Diagne et al., 2015; Wong et al., 2013) but, given the high probability of the introduction of the virus in the European territory through individuals returning from South America

and Caribbean during the season of activity of the *Ae. albopictus*, the European Union should be prepared also to this eventuality.

The assessment of the costs of the E-R Plan presented in this study may have a role in the planning of control plans in other territories of the European Union, giving an indication of the costs of the activities to be carried out. Also the preliminary results of the COSFA-T project, although not statistically relevant, may be useful to give an idea of the overall economic impact of the mosquito presence, although in the absence of epidemic outbreaks.

Annex 1. E-R Plan Dataset

In the following tables are listed the data used in this study, indicated with the cods listed in a dedicated legend in the next page. In the dataset are included all the municipalities and the higher institutions (i.e., LHAs, Provinces and Union of municipalities) which declared expenditures for at least one time since 2008.

For the LHA and Provinces I do not have information on where the activities for which they declared expenditures were carried out. E.g., an indication of € 1,000 spent by the LHA of Piacenza in 2010 do not includes information on the municipalities where the activity has been carried out, or if it has been carried out in all the municipalities of the LHAs or in one ore some of them. For this reason, and in order to avoid misleading information, the population has not been reported in the in the rows of LHAs and Provinces. Expenditures declared by these institutions has been considered for calculations when not implied the use of data on the population, on the number of road drains or on the number of rounds of larvicidal treatments relative to municipalities separately, as in the case of the expenditure incurred for a single treated road drain, or the per capita expenditure for one round of treatments.

Table 97. Legend of the E-R Plan dataset

Variable	***Mean***
Municipality	Name of the municipality
ISTAT code	A unique code for municipalities, which refers to Italian National Institute of Statistics
Population	Population residing in the municipality. Source: Emilia-Romagna Statistica - http://statistica.regione.emilia-romagna.it/
LHA	Local health Authority. For the acronym of the LHAs see the general glossary at the beginning of the study
Reported in the year	The year in which the records in the row has been collected with the models distributed by the ERR, and the data to which they refer
Em1_Exp	Management of reported cases (emergency): Expenditure for extraordinary adulticidal interventions
Em2_Exp	Management of reported cases (emergency): Expenditure for extraordinary DtD interventions
Ovi_n	Number of ovitraps located in the territory of the municipality
Ovi_ch	Number of checks of the ovitraps in current year
Ovi_Exp	Expenditures incurred for the monitoring system in the current year
CG_Exp	Expenditures incurred for the census and georeferencing of the road drains located in the urban area
RD_n	Number of road drains in the urban area
R_n	Number of rounds of larvicidal treatments carried out in the current year
L_Exp	Expenditure incurred for larvicidal treatments carried out in the current year
DtD_n	Number of dwellings in which DtD intervention has been carried out in the current year
DtD_R	Number of rounds of DtD interventions carried out in the current year
DtD_Exp	Expenditure incurred for the DtD interventions in the current year
QC_Exp	Expenditure incurred for the quality controls on the efficacy of larvicidal treatments carried out in the current year
SI_Exp	Expenditure incurred for the site inspections realized in the current year
LK_Exp	Expenditure incurred for the purchase and distribution of larvicidal kits in the current year
Edu_Exp	Expenditure incurred for the education in primary schools. Until 2011 referred to the activities to be carried out in the next year, since 2013 referred to the activities carried out in the current year
O_Exp	Expenditure incurred for the "other" activities undertaken by municipalities
Tot_Exp	Total expenditures incurred for the realization of the activities included in the E-R Plan in the current year
Sorbara Union	Union of municipalities: Bastiglia; Bomporto and Ravarino
SM Union	Union of municipalities: Mezzani and Sorbolo
UCMAN	Union of municipalities: Camposanto; Cavezzo; Concordia; Finale Emilia; Medolla; Mirandola; San Felice; San Possidonio and San Prospero
BR Union	Union of municipalities: Alfonsine; Bagnacavallo; Bagnara di Romagna; Conselice; Cotignola; Fusignano; Lugo; Massa Lombarda; Sant'Agata sul Santerno
TdM Union	Union of municipalities: Bagnolo in Piano, Cadelbosco di Sopra, Castelnovo di Sotto

Table 98. E-R Plan Expenditures Dataset - 2008

					Reported activity and relative expenditures incurred for its realization																	
Municipality	***ISTAT code***	***Population***	***LHA***	***Reported in the year***	***Management of reported cases (emergency)***		***Monitoring of Ae. albopictus population***			***CG_Exp***	***Larvicidal treatments***			***DtD interventions***			***QC_Exp***	***SI_Exp***	***LK_Exp***	***Edu_Exp***	***O_Exp***	***Tot_Exp***
					Em1_Exp	***Em2_Exp***	***Ovi_n***	***Ovi_ch***	***Ovi_Exp***		***RD_n***	***R_n***	***L_Exp***	***DtD_n***	***DtD_R***	***DtD_Exp***						
Anzola dell'Emilia	37001	11,584	BO	2008	357.17	-	-	-	2,002.00	-	-	-	7,399.13	-	-	7,399.13	-	-	2,576.82	-	26,672.03	46,406.28
Argelato	37002	9,461	BO	2008	974.62	-	-	-	546.00	-	-	-	5,938.50	-	-	-	-	-	1,575.00	-	4,262.72	13,296.84
Baricella	37003	6,239	BO	2008	522.27	-	-	-	546.00	-	-	-	2,967.57	-	-	-	-	-	1,200.00	-	4,131.40	9,367.24
Bazzano	37004	6,584	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bentivoglio	37005	4,906	BO	2008	479.55	-	-	-	546.00	-	-	-	4,039.57	-	-	-	-	-	1,050.00	-	2,541.60	8,656.72
Bologna	37006	372,255	BO	2008	9,125.35	-	-	-	23,114.00	-	-	-	293,475.36	-	-	-	-	-	14,155.00	-	64,228.56	404,098.27
Budrio	37008	17,128	BO	2008	4,560.00	-	-	-	2,548.00	-	-	-	7,200.00	-	-	4,035.60	-	-	12,200.00	-	7,220.00	37,763.60
Calderara di Reno	37009	12,754	BO	2008	76.13	-	-	-	2,002.00	-	-	-	9,185.15	-	-	10,978.32	-	-	2,272.28	-	14,235.94	38,749.82
Camugnano	37010	2,092	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalecchio di Reno	37011	34,829	BO	2008	-	-	-	-	9,100.00	-	-	-	24,072.00	-	-	-	-	-	6,960.00	-	288.00	40,420.00
Castel d'Aiano	37013	1,989	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel di Casio	37015	3,389	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Maggiore	37019	16,883	BO	2008	-	-	-	-	3,640.00	-	-	-	7,676.78	-	-	-	-	-	5,669.04	-	8,474.76	25,460.58
Castello d'Argile	37017	6,197	BO	2008	411.93	-	-	-	1,820.00	-	-	-	2,541.58	-	-	-	-	-	1,125.00	-	3,273.32	9,171.83
Castello di Serravalle	37018	4,638	BO	2008	-	-	-	-	1,092.00	-	-	-	3,864.00	-	-	-	-	-	1,524.00	-	200.00	6,680.00
Castenaso	37021	13,980	BO	2008	-	-	-	-	2,548.00	-	-	-	7,811.17	-	-	6,473.10	-	-	3,000.00	-	5,261.48	25,093.75
Castiglione dei Pepoli	37022	5,958	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crespellano	37023	9,178	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crevalcore	37024	13,127	BO	2008	520.32	-	-	-	2,002.00	-	-	-	6,139.16	-	-	-	-	-	4,658.52	-	11,799.84	25,119.84
Gaggio Montano	37027	5,100	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galliera	37028	5,645	BO	2008	558.18	-	-	-	546.00	-	-	-	1,890.66	-	-	-	-	-	900.00	-	1,345.04	5,239.88
Granaglione	37029	2,261	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granarolo dell'Emilia	37030	9,873	BO	2008	300.00	-	-	-	1,820.00	-	-	-	18,727.00	-	-	-	-	-	3,432.00	-	2,574.00	26,853.00
Grizzana Morandi	37031	4,106	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Bologna	-	-	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lizzano in Belvedere	37033	2,370	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Loiano	37034	4,428	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malalbergo	37035	8,347	BO	2008	846.35	-	-	-	1,638.00	-	-	-	3,617.07	-	-	2,162.75	-	-	3,332.96	-	4,153.80	15,750.93
Marzabotto	37036	6,654	BO	2008	-	-	-	-	-	-	-	-	3,900.00	-	-	-	-	-	1,560.00	-	360.00	5,820.00
Minerbio	37038	8,588	BO	2008	750.04	-	-	-	728.00	-	-	-	3,852.24	-	-	-	-	-	1,386.00	-	1,503.28	8,219.56
Molinella	37039	15,401	BO	2008	5,596.75	-	-	-	-	-	-	-	43,267.52	-	-	5,240.32	-	-	4,442.80	-	6,063.03	64,610.42
Monghidoro	37040	3,914	BO	2008	720.00	-	-	-	-	-	-	-	900.00	-	-	-	-	-	-	-	-	1,620.00
Monte San Pietro	37042	10,946	BO	2008	-	-	-	-	-	-	-	-	5,760.00	-	-	-	-	-	2,400.00	-	240.00	8,400.00
Monterenzio	37041	5,697	BO	2008	-	-	-	-	-	-	-	-	3,000.00	-	-	-	-	-	528.00	-	120.00	3,648.00
Monteveglio	37043	5,173	BO	2008	-	-	-	-	1,092.00	-	-	-	3,466.67	-	-	-	-	-	607.20	-	180.00	5,345.87
Monzuno	37044	6,333	BO	2008	-	-	-	-	-	-	-	-	6,000.00	-	-	410.40	-	-	790.40	-	-	7,200.80
Ozzano dell'Emilia	37046	12,145	BO	2008	-	-	-	-	1,092.00	-	-	-	7,500.00	-	-	-	-	-	7,500.00	-	1,650.00	17,742.00
Pianoro	37047	16,957	BO	2008	-	-	-	-	-	-	-	-	7,560.00	-	-	-	-	-	3,600.00	-	600.00	11,760.00
Pieve di Cento	37048	6,968	BO	2008	662.80	-	-	-	-	-	-	-	7,897.28	-	-	-	-	-	1,200.00	-	420.00	10,180.08
Porretta Terme	37049	4,786	BO	2008	-	-	-	-	1,092.00	-	-	-	3,102.00	-	-	-	-	-	830.00	-	-	5,024.00
Province of Bologna	-	-	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sala Bolognese	37050	7,910	BO	2008	582.38	-	-	-	2,002.00	-	-	-	3,032.26	-	-	-	-	-	2,489.18	-	8,341.90	16,447.72
San Benedetto Val di Sambro	37051	4,570	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Giorgio di Piano	37052	7,758	BO	2008	780.00	-	-	-	1,092.00	-	-	-	5,708.09	-	-	1,957.28	-	-	2,918.24	-	7,056.08	19,511.69
San Giovanni in Persiceto	37053	26,264	BO	2008	920.41	-	-	-	4,004.00	-	-	-	10,229.95	-	-	-	-	-	3,332.10	-	20,386.78	38,873.24
San Lazzaro di Savena	37054	30,448	BO	2008	-	-	-	-	-	-	-	-	9,997.94	-	-	-	-	-	16,508.12	-	10,168.78	36,674.84
San Pietro in Casale	37055	11,287	BO	2008	1,110.66	-	-	-	1,092.00	-	-	-	5,543.50	-	-	-	-	-	3,823.00	-	7,199.22	18,768.38
Sant'Agata Bolognese	37056	7,004	BO	2008	325.17	-	-	-	1,820.00	-	-	-	2,266.04	-	-	-	-	-	1,031.28	-	2,131.58	7,574.07
Sasso Marconi	37057	14,629	BO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Savigno	37058	2,793	BO	2008	-	-	-	-	-	-	-	-	3,850.00	-	-	-	-	-	120.00	-	198.00	4,168.00
Vergato	37059	7,603	BO	2008	-	-	-	-	1,092.00	-	-	-	4,740.00	-	-	-	-	-	5,400.00	-	100.00	11,332.00
Zola Predosa	37060	17,382	BO	2008	-	-	-	-	2,548.00	-	-	-	12,700.00	-	-	-	-	-	4,100.00	-	-	19,348.00
Bagno di Romagna	40001	6,134	CE	2008	-	-	-	-	1,274.00	-	-	-	2,394.00	-	-	-	-	-	-	-	-	3,668.00
Borghi	40004	2,390	CE	2008	-	-	-	-	1,092.00	-	-	-	927.36	-	-	5,400.00	-	-	-	-	504.00	7,923.36
Cesena	40007	94,904	CE	2008	34,136.40	-	-	-	-	-	-	-	75,708.00	-	-	-	-	-	8,930.18	-	38,439.00	157,213.58
Cesenatico	40008	24,432	CE	2008	-	-	-	-	7,280.00	-	-	-	41,485.50	-	-	85,396.35	-	-	27,050.00	-	13,162.00	174,373.85
Gambettola	40015	10,099	CE	2008	-	-	-	-	1,638.00	-	-	-	8,889.41	-	-	31,272.00	-	-	-	-	220.00	42,019.41
Gatteo	40016	8,147	CE	2008	-	-	-	-	1,820.00	-	-	-	4,714.80	-	-	15,742.00	-	-	3,600.00	-	672.00	26,548.80

LHA of Cesena	-	-	CE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Longiano	40018	6,551	CE	2008	-	-	-	-	2,002.00	-	-	-	5,904.00	-	-	12,528.00	-	-	3,972.00	-	4,840.00	29,246.00
Mercato Saraceno	40020	6,711	CE	2008	-	-	-	-	2,002.00	-	-	-	4,657.50	-	-	4,872.00	-	-	-	-	2,016.00	13,547.50
Montiano	40028	1,657	CE	2008	-	-	-	-	1,092.00	-	-	-	1,085.76	-	-	-	-	-	216.00	-	-	2,393.76
Province of Cesena	-	-	CE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roncofreddo	40037	3,271	CE	2008	-	-	-	-	1,274.00	-	-	-	1,166.40	-	-	11,590.00	-	-	3,619.55	-	1,680.00	19,329.95
San Mauro Pascoli	40041	10,626	CE	2008	-	-	-	-	1,820.00	-	-	-	7,643.52	-	-	10,718.40	-	-	576.00	-	3,010.00	23,767.92
Sarsina	40044	3,682	CE	2008	-	-	-	-	910.00	-	-	-	2,160.00	-	-	2,495.00	-	-	1,200.00	-	1,570.00	8,335.00
Savignano sul Rubicone	40045	16,697	CE	2008	-	-	-	-	2,184.00	-	-	-	9,811.32	-	-	31,920.00	-	-	720.00	-	718.20	45,353.52
Sogliano al Rubicone	40046	3,089	CE	2008	-	-	-	-	1,820.00	-	-	-	1,569.60	-	-	-	-	-	-	-	2,100.00	5,489.60
Verghereto	40050	1,974	CE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argenta	38001	22,385	FE	2008	3,600.00	-	-	-	1,820.00	-	-	-	17,760.00	-	-	-	-	-	13,440.00	-	960.00	37,580.00
Berra	38002	5,520	FE	2008	1,000.00	-	-	-	182.00	-	-	-	-	-	-	-	-	-	1,206.40	-	20,300.00	22,688.40
Bondeno	38003	15,460	FE	2008	5,640.00	-	-	-	1,638.00	-	-	-	15,264.00	-	-	-	-	-	3,976.00	-	432.00	26,950.00
Cento	38004	33,780	FE	2008	3,840.00	-	-	-	2,366.00	-	-	-	25,920.00	-	-	-	-	-	4,064.00	-	6,132.00	42,322.00
Codigoro	38005	12,799	FE	2008	936.00	-	-	-	1,456.00	-	-	-	23,400.00	-	-	-	-	-	360.00	-	23,184.00	49,336.00
Comacchio	38006	23,128	FE	2008	9,806.98	-	-	-	5,642.00	-	-	-	37,022.61	-	-	5,890.00	-	-	6,850.00	-	12,627.00	77,838.59
Copparo	38007	17,584	FE	2008	1,880.00	-	-	-	1,456.00	-	-	-	-	-	-	-	-	-	4,110.00	-	13,400.00	20,846.00
Ferrara	38008	133,591	FE	2008	30,000.00	-	-	-	11,830.00	-	-	-	174,000.00	-	-	-	-	-	5,900.00	-	120,000.00	341,730.00
Formignana	38009	2,845	FE	2008	432.00	-	-	-	182.00	-	-	-	1,368.00	-	-	-	-	-	4,723.20	-	5,904.00	12,609.20
Goro	38025	3,965	FE	2008	360.00	-	-	-	546.00	-	-	-	8,640.00	-	-	-	-	-	-	-	11,064.00	20,610.00
Jolanda di Savoia	38010	3,187	FE	2008	3,264.00	-	-	-	182.00	-	-	-	-	-	-	-	-	-	3,600.00	-	2,808.00	9,854.00
Lagosanto	38011	4,718	FE	2008	324.00	-	-	-	364.00	-	-	-	-	-	-	-	-	-	2,332.80	-	20,268.00	23,288.80
LHA of Ferrara	-	-	FE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Masi Torello	38012	2,406	FE	2008	504.00	-	-	-	364.00	-	-	-	6,776.00	-	-	-	-	-	894.00	-	2,310.00	10,848.00
Massa Fiscaglia	38013	3,772	FE	2008	410.00	-	-	-	182.00	-	-	-	4,400.00	-	-	-	-	-	2,013.60	-	4,100.00	11,105.60
Mesola	38014	7,283	FE	2008	588.00	-	-	-	182.00	-	-	-	-	-	-	-	-	-	1,555.20	-	16,704.00	19,029.20
Migliarino	38015	3,703	FE	2008	2,724.00	-	-	-	364.00	-	-	-	5,400.00	-	-	-	-	-	2,212.56	-	8,868.00	19,568.56
Migliaro	38026	2,314	FE	2008	276.00	-	-	-	182.00	-	-	-	3,059.00	-	-	-	-	-	2,920.08	-	4,864.50	11,301.58
Mirabello	38016	3,426	FE	2008	1,200.00	-	-	-	182.00	-	-	-	6,304.20	-	-	-	-	-	2,596.00	-	926.00	11,208.20
Ostellato	38017	6,581	FE	2008	3,936.00	-	-	-	1,092.00	-	-	-	9,216.00	-	-	-	-	-	2,479.68	-	4,704.00	21,427.68
Poggio Renatico	38018	8,992	FE	2008	2,640.00	-	-	-	1,456.00	-	-	-	9,014.40	-	-	-	-	-	2,430.00	-	267.84	15,808.24
Portomaggiore	38019	12,272	FE	2008	3,564.00	-	-	-	1,456.00	-	-	-	12,408.00	-	-	-	-	-	3,330.72	-	5,748.00	26,506.72
Province of Ferrara	-	-	FE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ro	38020	3,514	FE	2008	1,236.00	-	-	-	182.00	-	-	-	-	-	-	-	-	-	-	-	8,988.00	10,406.00

Sant'Agostino	38021	6,916	FE	2008	2,640.00	-	-	-	364.00	-	-	-	8,899.20	-	-	-	-	-	2,930.00	-	2,856.00	17,689.20
Tresigallo	38024	4,626	FE	2008	8,844.00	-	-	-	546.00	-	-	-	15,504.00	-	-	-	-	-	4,248.00	-	9,828.00	38,970.00
Vigarano Mainarda	38022	7,084	FE	2008	1,620.00	-	-	-	1,274.00	-	-	-	6,912.00	-	-	-	-	-	5,322.95	-	3,220.50	18,349.45
Voghiera	38023	3,958	FE	2008	4,950.00	-	-	-	728.00	-	-	-	10,560.00	-	-	-	-	-	3,575.00	-	9,372.00	29,185.00
Bertinoro	40003	10,267	FO	2008	-	-	-	-	2,912.00	-	-	-	3,697.50	-	-	-	-	-	-	-	528.00	7,137.50
Castrocaro Terme e Terra del Sole	40005	6,504	FO	2008	-	-	-	-	1,638.00	-	-	-	4,035.72	-	-	-	-	-	2,819.18	-	1,043.46	9,536.36
Civitella di Romagna	40009	3,792	FO	2008	-	-	-	-	1,456.00	-	-	-	2,395.00	-	-	-	-	-	100.00	-	708.90	4,659.90
Dovadola	40011	1,709	FO	2008	-	-	-	-	1,092.00	-	-	-	1,380.00	-	-	312.00	-	-	-	-	-	2,784.00
Forlì	40012	114,683	FO	2008	-	-	-	-	-	-	-	-	112,320.00	-	-	-	-	-	1,620.00	-	5,040.00	118,980.00
Forlimpopoli	40013	12,749	FO	2008	-	-	-	-	2,548.00	-	-	-	6,935.00	-	-	-	-	-	-	-	2,842.08	12,325.08
Galeata	40014	2,502	FO	2008	-	-	-	-	1,274.00	-	-	-	834.32	-	-	-	-	-	-	-	951.99	3,060.31
LHA of Forlì	-	-	FO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meldola	40019	9,931	FO	2008	-	-	-	-	2,002.00	-	-	-	5,102.40	-	-	-	-	-	-	-	-	7,104.40
Modigliana	40022	4,829	FO	2008	-	-	-	-	1,274.00	-	-	-	3,500.00	-	-	-	-	-	2,000.00	-	2,000.00	8,774.00
Portico e San Benedetto	40031	802	FO	2008	-	-	-	-	1,092.00	-	-	-	1,080.00	-	-	-	-	-	150.00	-	288.00	2,610.00
Predappio	40032	6,440	FO	2008	-	-	-	-	1,820.00	-	-	-	3,662.40	-	-	-	-	-	-	-	-	5,482.40
Premilcuore	40033	832	FO	2008	-	-	-	-	1,092.00	-	-	-	323.04	-	-	-	-	-	-	-	-	1,415.04
Province of Forlì	-	-	FO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocca San Casciano	40036	2,095	FO	2008	-	-	-	-	1,274.00	-	-	-	1,285.20	-	-	-	-	-	439.20	-	1,285.20	4,283.60
Santa Sofia	40043	4,238	FO	2008	-	-	-	-	1,274.00	-	-	-	2,620.00	-	-	-	-	-	-	-	2,112.00	6,006.00
Tredozio	40049	1,309	FO	2008	-	-	-	-	1,092.00	-	-	-	2,906.66	-	-	-	-	-	900.00	-	2,000.00	6,898.66
Borgo Tossignano	37007	3,290	IM	2008	-	-	-	-	-	-	-	-	2,520.00	-	-	-	-	-	720.00	-	1,320.00	4,560.00
Casalfiumanese	37012	3,353	IM	2008	-	-	-	-	-	-	-	-	1,800.00	-	-	-	-	-	3,048.00	-	-	4,848.00
Castel del Rio	37014	1,233	IM	2008	-	-	-	-	-	-	-	-	183.84	-	-	-	-	-	449.28	-	1,067.12	1,700.24
Castel Guelfo di Bologna	37016	3,972	IM	2008	540.00	-	-	-	-	-	-	-	13,260.00	-	-	-	-	-	2,780.00	-	-	16,580.00
Castel San Pietro Terme	37020	20,086	IM	2008	-	-	-	-	-	-	-	-	19,067.51	-	-	-	-	-	-	-	9,180.60	28,248.11
Dozza	37025	6,158	IM	2008	-	-	-	-	-	-	-	-	4,569.26	-	-	-	-	-	1,425.00	-	513.82	6,508.08
Fontanelice	37026	1,908	IM	2008	-	-	-	-	-	-	-	-	1,920.00	-	-	-	-	-	600.00	-	-	2,520.00
Imola	37032	67,301	IM	2008	1,440.00	-	-	-	9,100.00	-	-	-	62,400.00	-	-	-	-	-	-	-	360.00	73,300.00
LHA of Imola	-	-	IM	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medicina	37037	15,788	IM	2008	5,140.16	-	-	-	-	-	-	-	16,055.10	-	-	-	-	-	3,720.00	-	2,076.71	26,991.97
Mordano	37045	4,465	IM	2008	-	-	-	-	-	-	-	-	7,200.00	-	-	-	-	-	960.00	-	360.00	8,520.00
Province of Imola	-	-	IM	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bastiglia	36001	3,863	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bomporto	36002	9,150	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campogalliano	36003	8,256	MO	2008	1,600.00	-	-	-	1,274.00	-	-	-	8,000.00	-	-	-	-	-	-	-	600.00	11,474.00
Camposanto	36004	3,163	MO	2008	756.00	-	-	-	546.00	-	-	-	2,999.76	-	-	-	-	-	-	-	-	4,301.76
Carpi	36005	65,837	MO	2008	3,924.00	-	-	-	9,100.00	-	-	-	34,262.00	-	-	-	-	-	9,695.00	-	1,758.00	58,739.00
Castelfranco Emilia	36006	29,476	MO	2008	-	-	-	-	1,820.00	-	-	-	28,044.00	-	-	-	-	-	-	-	20,000.00	49,864.00
Castelnuovo Rangone	36007	13,563	MO	2008	-	-	-	-	-	-	-	-	13,680.00	-	-	-	-	-	3,120.00	-	4,040.00	20,840.00
Castelvetro di Modena	36008	10,698	MO	2008	-	-	-	-	1,820.00	-	-	-	565.00	-	-	-	-	-	413.90	-	1,214.00	4,012.90
Cavezzo	36009	7,139	MO	2008	1,944.00	-	-	-	546.00	-	-	-	5,732.46	-	-	-	-	-	-	-	63.25	8,285.71
Concordia sulla Secchia	36010	8,947	MO	2008	7,965.00	-	-	-	546.00	-	-	-	3,971.50	-	-	-	-	-	840.00	-	772.47	14,094.97
Fanano	36011	3,094	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finale Emilia	36012	15,616	MO	2008	5,600.00	-	-	-	546.00	-	-	-	9,484.20	-	-	-	-	-	2,640.00	-	800.00	19,070.20
Fiorano Modenese	36013	16,667	MO	2008	-	-	-	-	728.00	-	-	-	7,140.00	-	-	-	-	-	14,600.00	-	5,000.00	27,468.00
Fiumalbo	36014	1,296	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formigine	36015	32,441	MO	2008	-	-	-	-	4,550.00	-	-	-	19,468.80	-	-	6,028.80	-	-	553.15	-	1,023.84	31,624.59
Frassinoro	36016	2,084	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiglia	36017	4,110	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lama Mocogno	36018	2,957	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Modena	-	-	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maranello	36019	16,621	MO	2008	-	-	-	-	910.00	-	-	-	10,913.00	-	-	-	-	-	3,300.00	-	24,164.74	39,287.74
Marano sul Panaro	36020	4,363	MO	2008	-	-	-	-	182.00	-	-	-	2,016.00	-	-	-	-	-	860.00	-	-	3,058.00
Medolla	36021	6,154	MO	2008	4,266.00	-	-	-	546.00	-	-	-	6,899.14	-	-	-	-	-	2,040.00	-	-	13,751.14
Mirandola	36022	23,571	MO	2008	12,978.00	-	-	-	9,100.00	-	-	-	12,955.00	-	-	-	-	-	2,122.00	-	67,426.00	104,581.00
Modena	36023	179,937	MO	2008	-	-	-	-	10,920.00	-	-	-	170,282.88	-	-	-	-	-	20,484.40	-	33,050.41	234,737.69
Montecreto	36024	943	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiorino	36025	2,300	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montese	36026	3,380	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonantola	36027	14,727	MO	2008	2,500.00	-	-	-	1,820.00	-	-	-	13,800.00	-	-	-	-	-	6,000.00	-	1,200.00	25,320.00
Novi di Modena	36028	11,128	MO	2008	1,680.00	-	-	-	1,092.00	-	-	-	8,560.00	-	-	-	-	-	550.00	-	-	11,882.00
Palagano	36029	2,431	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavullo nel Frignano	36030	16,808	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pievepelago	36031	2,276	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polinago	36032	1,806	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prignano sulla Secchia	36033	3,690	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Province of Modena	-	-	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ravarino	36034	6,221	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riolunato	36035	747	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Cesario sul Panaro	36036	5,790	MO	2008	-	-	-	-	1,092.00	-	-	-	5,640.00	-	-	-	-	-	1,426.00	-	700.00	8,858.00
San Felice sul Panaro	36037	10,801	MO	2008	3,780.00	-	-	-	546.00	-	-	-	-	-	-	-	-	-	569.76	-	2,722.00	7,617.76
San Possidonio	36038	3,841	MO	2008	2,376.00	-	-	-	546.00	-	-	-	2,597.00	-	-	-	-	-	-	-	-	5,519.00
San Prospero	36039	5,476	MO	2008	7,528.20	-	-	-	546.00	-	-	-	4,493.60	-	-	-	-	-	700.00	-	14,696.60	27,964.40
Sassuolo	36040	41,521	MO	2008	-	-	-	-	1,274.00	-	-	-	16,070.40	-	-	-	-	-	3,907.20	-	-	21,251.60
Savignano sul Panaro	36041	9,197	MO	2008	-	-	-	-	1,820.00	-	-	-	12,600.00	-	-	-	-	-	3,160.00	-	3,680.00	21,260.00
Serramazzoni	36042	8,066	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sestola	36043	2,645	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soliera	36044	14,870	MO	2008	4,968.87	-	-	-	1,092.00	-	-	-	11,658.00	-	-	-	-	-	1,012.50	-	6,399.53	25,130.90
Sorbara Union	-	19,234	MO	2008	1320	-	-	-	2366	-	-	-	15241	-	-	-	-	-	5540	-	800	25267
Spilamberto	36045	11,644	MO	2008	-	-	-	-	1,456.00	-	-	-	9,103.75	-	-	-	-	-	3,057.40	-	585.40	14,202.55
UCMAN	-	64,960	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vignola	36046	23,419	MO	2008	-	-	-	-	1,820.00	-	-	-	16,430.40	-	-	-	-	-	2,943.60	-	322.80	21,516.80
Zocca	36047	4,942	MO	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albareto	34001	2,226	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bardi	34002	2,437	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedonia	34003	3,724	PR	2008	-	-	-	-	546.00	-	-	-	-	-	-	-	-	-	-	-	-	546.00
Berceto	34004	2,292	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bore	34005	821	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borgo Val di Taro	34006	7,177	PR	2008	-	-	-	-	546.00	-	-	-	-	-	-	-	-	-	-	-	-	546.00
Busseto	34007	6,904	PR	2008	540.00	-	-	-	546.00	-	-	-	2,520.00	-	-	-	-	-	-	-	2,040.00	5,646.00
Calestano	34008	2,003	PR	2008	-	-	-	-	546.00	-	-	-	1,835.00	-	-	-	-	-	-	-	360.00	2,741.00
Collecchio	34009	13,300	PR	2008	-	-	-	-	728.00	-	-	-	7,224.00	-	-	360.00	-	-	3,540.00	-	-	11,852.00
Colorno	34010	8,788	PR	2008	-	-	-	-	546.00	-	-	-	3,468.00	-	-	-	-	-	2,370.00	-	100.00	6,484.00
Compiano	34011	1,105	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corniglio	34012	2,104	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Felino	34013	8,075	PR	2008	-	-	-	-	546.00	-	-	-	4,884.00	-	-	-	-	-	216.00	-	480.00	6,126.00
Fidenza	34014	24,776	PR	2008	-	-	-	-	1,092.00	-	-	-	19,800.00	-	-	-	-	-	11,700.00	-	37,320.00	69,912.00
Fontanellato	34015	6,650	PR	2008	-	-	-	-	546.00	-	-	-	4,104.00	-	-	-	-	-	1,250.00	-	2,340.00	8,240.00
Fontevivo	34016	5,479	PR	2008	-	-	-	-	728.00	-	-	-	3,120.00	-	-	-	-	-	1,488.00	-	1,200.00	6,536.00
Fornovo di Taro	34017	6,146	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Langhirano	34018	9,341	PR	2008	-	-	-	-	728.00	-	-	-	2,419.20	-	-	-	-	-	-	-	265.32	3,412.52
Lesignano de' Bagni	34019	4,485	PR	2008	-	-	-	-	546.00	-	-	-	4,000.00	-	-	-	-	-	-	-	-	4,546.00
LHA of Parma	-	-	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medesano	34020	10,432	PR	2008	-	-	-	-	910.00	-	-	-	6,507.00	-	-	-	-	-	2,718.54	-	2,879.81	13,015.35
Mezzani	34021	3,120	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monchio Delle Corti	34022	1,078	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montechiarugolo	34023	10,145	PR	2008	7,200.00	-	-	-	728.00	-	-	-	36,000.00	-	-	-	-	-	-	-	-	43,928.00
Neviano Degli Arduini	34024	3,748	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Noceto	34025	11,715	PR	2008	-	-	-	-	728.00	-	-	-	4,368.00	-	-	-	-	-	4,320.00	-	4,680.00	14,096.00
Palanzano	34026	1,245	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parma	34027	178,718	PR	2008	-	-	-	-	16,380.00	-	-	-	150,000.00	-	-	-	-	-	300.00	-	16,400.00	183,080.00
Pellegrino Parmense	34028	1,179	PR	2008	-	-	-	-	546.00	-	-	-	-	-	-	-	-	-	-	-	-	546.00
Polesine Parmense	34029	1,481	PR	2008	-	-	-	-	546.00	-	-	-	1,848.00	-	-	-	-	-	-	-	1,200.00	3,594.00
Province of Parma	-	-	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roccabianca	34030	3,117	PR	2008	-	-	-	-	546.00	-	-	-	3,840.00	-	-	-	-	-	1,350.00	-	120.00	5,856.00
Sala Baganza	34031	5,205	PR	2008	-	-	-	-	546.00	-	-	-	5,920.00	-	-	-	-	-	-	-	-	6,466.00
Salsomaggiore Terme	34032	19,937	PR	2008	-	-	-	-	910.00	-	-	-	6,120.00	-	-	-	-	-	1,200.00	-	10,240.00	18,470.00
San Secondo Parmense	34033	5,453	PR	2008	-	-	-	-	546.00	-	-	-	1,203.60	-	-	-	-	-	1,622.90	-	-	3,372.50
Sissa	34034	4,191	PR	2008	-	-	-	-	546.00	-	-	-	3,600.00	-	-	-	-	-	1,008.00	-	2,040.00	7,194.00
SM Union	-	12,541	PR	2008	-	-	-	-	1092	-	-	-	14508	-	-	-	-	-	-	-	-	15600
Solignano	34035	1,864	PR	2008	-	-	-	-	546.00	-	-	-	-	-	-	-	-	-	150.00	-	-	696.00
Soragna	34036	4,717	PR	2008	-	-	-	-	546.00	-	-	-	2,496.00	-	-	-	-	-	1,176.00	-	693.00	4,911.00
Sorbolo	34037	9,421	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terenzo	34038	1,217	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tizzano Val Parma	34039	2,116	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tornolo	34040	1,195	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torrile	34041	7,547	PR	2008	-	-	-	-	546.00	-	-	-	5,376.00	-	-	-	-	-	1,680.00	-	2,340.00	9,942.00
Traversetolo	34042	9,012	PR	2008	-	-	-	-	546.00	-	-	-	5,460.00	-	-	-	-	-	-	-	252.00	6,258.00
Trecasali	34043	3,437	PR	2008	-	-	-	-	546.00	-	-	-	-	-	-	-	-	-	720.00	-	3,504.00	4,770.00
Valmozzola	34044	631	PR	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varano de' Melegari	34045	2,625	PR	2008	-	-	-	-	546.00	-	-	-	1,680.00	-	-	-	-	-	1,020.00	-	-	3,246.00
Varsi	34046	1,364	PR	2008	-	-	-	-	546.00	-	-	-	165.36	-	-	-	-	-	431.70	-	165.36	1,308.42

Zibello	34048	1,947	PR	2008	-	-	-	-	546.00	-	-	-	2,016.00	-	-	-	-	-	-	-	1,440.00	4,002.00
Agazzano	33001	2,034	PC	2008	-	-	-	-	364.00	-	-	-	2,406.00	-	-	-	-	-	739.00	-	3,540.00	7,049.00
Alseno	33002	4,830	PC	2008	-	-	-	-	546.00	-	-	-	3,833.76	-	-	-	-	-	1,684.00	-	-	6,063.76
Besenzone	33003	983	PC	2008	-	-	-	-	182.00	-	-	-	375.00	-	-	-	-	-	-	-	60.00	617.00
Bettola	33004	3,131	PC	2008	-	-	-	-	182.00	-	-	-	1,000.00	-	-	-	-	-	749.04	-	150.00	2,081.04
Bobbio	33005	3,725	PC	2008	-	-	-	-	182.00	-	-	-	-	-	-	-	-	-	-	-	-	182.00
Borgonovo Val Tidone	33006	7,377	PC	2008	-	-	-	-	910.00	-	-	-	2,580.00	-	-	-	-	-	2,880.00	-	2,480.00	8,850.00
Cadeo	33007	5,917	PC	2008	-	-	-	-	728.00	-	-	-	2,916.00	-	-	-	-	-	1,188.00	-	600.00	5,432.00
Calendasco	33008	2,436	PC	2008	-	-	-	-	364.00	-	-	-	654.00	-	-	-	-	-	3,120.00	-	150.48	4,288.48
Caminata	33009	315	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caorso	33010	4,843	PC	2008	-	-	-	-	728.00	-	-	-	1,656.00	-	-	1,000.00	-	-	5,220.00	-	2,435.80	11,039.80
Carpaneto Piacentino	33011	7,403	PC	2008	-	-	-	-	728.00	-	-	-	4,368.00	-	-	-	-	-	4,200.00	-	624.00	9,920.00
Castel San Giovanni	33013	13,341	PC	2008	-	-	-	-	1,274.00	-	-	-	6,115.00	-	-	-	-	-	3,074.00	-	916.00	11,379.00
Castell'Arquato	33012	4,683	PC	2008	-	-	-	-	546.00	-	-	-	200.00	-	-	-	-	-	450.00	-	1,264.55	2,460.55
Castelvetro Piacentino	33014	5,395	PC	2008	-	-	-	-	546.00	-	-	-	4,032.00	-	-	-	-	-	3,234.00	-	480.00	8,292.00
Cerignale	33015	179	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coli	33016	1,029	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corte Brugnatella	33017	730	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cortemaggiore	33018	4,458	PC	2008	-	-	-	-	546.00	-	-	-	4,032.00	-	-	-	-	-	3,000.00	-	240.00	7,818.00
Farini	33019	1,589	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferriere	33020	1,684	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorenzuola d'Arda	33021	14,470	PC	2008	-	-	-	-	1,274.00	-	-	-	10,140.00	-	-	-	-	-	1,400.00	-	4,300.00	17,114.00
Gazzola	33022	1,966	PC	2008	-	-	-	-	546.00	-	-	-	1,080.00	-	-	-	-	-	-	-	-	1,626.00
Gossolengo	33023	4,820	PC	2008	-	-	-	-	728.00	-	-	-	3,192.00	-	-	-	-	-	720.00	-	1,080.00	5,720.00
Gragnano Trebbiense	33024	4,172	PC	2008	-	-	-	-	728.00	-	-	-	700.00	-	-	600.00	-	-	4,240.00	-	2,606.00	8,874.00
Gropparello	33025	2,371	PC	2008	-	-	-	-	364.00	-	-	-	852.00	-	-	-	-	-	-	-	-	1,216.00
LHA of Piacenza	-	-	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lugagnano Val d'Arda	33026	4,298	PC	2008	-	-	-	-	546.00	-	-	-	800.00	-	-	-	-	-	2,856.00	-	1,188.00	5,390.00
Monticelli d'Ongina	33027	5,419	PC	2008	-	-	-	-	546.00	-	-	-	4,000.00	-	-	-	-	-	-	-	792.00	5,338.00
Morfasso	33028	1,208	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nibbiano	33029	2,372	PC	2008	-	-	-	-	364.00	-	-	-	2,520.00	-	-	-	-	-	720.00	-	-	3,604.00
Ottone	33030	613	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecorara	33031	824	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Piacenza	33032	100,286	PC	2008	-	-	-	-	9,464.00	-	-	-	60,757.20	-	-	-	-	-	3,288.00	-	8,664.00	82,173.20
Pianello Val Tidone	33033	2,284	PC	2008	-	-	-	-	182.00	-	-	-	-	-	-	-	-	-	-	-	-	182.00
Piozzano	33034	694	PC	2008	-	-	-	-	182.00	-	-	-	100.00	-	-	-	-	-	540.00	-	200.00	1,022.00
Podenzano	33035	8,652	PC	2008	-	-	-	-	910.00	-	-	-	4,032.00	-	-	4,400.00	-	-	9,750.00	-	1,500.00	20,592.00
Ponte dell'Olio	33036	4,943	PC	2008	-	-	-	-	546.00	-	-	-	3,088.80	-	-	-	-	-	-	-	855.00	4,489.80
Pontenure	33037	5,964	PC	2008	-	-	-	-	728.00	-	-	-	3,780.00	-	-	-	-	-	3,918.00	-	1,384.00	9,810.00
Province of Piacenza	-	-	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rivergaro	33038	6,551	PC	2008	-	-	-	-	728.00	-	-	-	3,780.00	-	-	-	-	-	1,200.00	-	1,008.00	6,716.00
Rottofreno	33039	10,865	PC	2008	-	-	-	-	910.00	-	-	-	5,184.00	-	-	-	-	-	2,600.00	-	1,596.00	10,290.00
San Giorgio Piacentino	33040	5,742	PC	2008	-	-	-	-	728.00	-	-	-	3,024.00	-	-	-	-	-	-	-	480.00	4,232.00
San Pietro in Cerro	33041	958	PC	2008	-	-	-	-	182.00	-	-	-	960.00	-	-	600.00	-	-	201.60	-	40.00	1,983.60
Sarmato	33042	2,815	PC	2008	-	-	-	-	364.00	-	-	-	1,567.75	-	-	-	-	-	3,380.00	-	8,016.00	13,327.75
Travo	33043	2,051	PC	2008	-	-	-	-	364.00	-	-	-	1,440.00	-	-	-	-	-	1,200.00	-	-	3,004.00
Vernasca	33044	2,356	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vigolzone	33045	4,145	PC	2008	-	-	-	-	728.00	-	-	-	2,880.00	-	-	-	-	-	1,800.00	-	360.00	5,768.00
Villanova sull'Arda	33046	1,907	PC	2008	-	-	-	-	546.00	-	-	-	944.00	-	-	-	-	-	465.24	-	204.00	2,159.24
Zerba	33047	106	PC	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ziano Piacentino	33048	2,679	PC	2008	-	-	-	-	364.00	-	-	-	600.00	-	-	-	-	-	2,496.00	-	-	3,460.00
Alfonsine	39001	12,236	RA	2008	2,760.00	-	-	-	-	-	-	-	10,080.00	-	-	-	-	-	3,552.00	-	-	16,392.00
Bagnacavallo	39002	16,354	RA	2008	5,000.00	-	-	-	-	-	-	-	11,995.20	-	-	-	-	-	7,209.00	-	4,048.99	28,253.19
Bagnara di Romagna	39003	2,021	RA	2008	-	-	-	-	-	-	-	-	1,800.00	-	-	1,000.00	-	-	720.00	-	480.00	4,000.00
BR Union	-	100,688	RA	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brisighella	39004	7,749	RA	2008	-	-	-	-	-	-	-	-	3,681.72	-	-	756.00	-	-	2,205.00	-	792.00	7,434.72
Casola Valsenio	39005	2,766	RA	2008	-	-	-	-	-	-	-	-	1,228.80	-	-	-	-	-	810.00	-	320.00	2,358.80
Castel Bolognese	39006	9,186	RA	2008	-	-	-	-	-	-	-	-	3,036.96	-	-	-	-	-	6,600.00	-	600.00	10,236.96
Cervia	39007	28,057	RA	2008	100,176.00	-	-	-	-	-	-	-	54,288.00	-	-	8,342.00	-	-	19,245.00	-	9,976.00	192,027.00
Conselice	39008	9,608	RA	2008	2,100.00	-	-	-	-	-	-	-	6,100.00	-	-	1,056.00	-	-	13,082.40	-	877.06	23,215.46
Cotignola	39009	7,201	RA	2008	240.00	-	-	-	-	-	-	-	6,256.80	-	-	-	-	-	4,258.80	-	1,085.42	11,841.02
Faenza	39010	56,131	RA	2008	240.00	-	-	-	-	-	-	-	24,000.00	-	-	-	-	-	17,985.80	-	7,648.00	49,873.80
Fusignano	39011	8,252	RA	2008	1,860.00	-	-	-	-	-	-	-	6,300.00	-	-	-	-	-	2,984.00	-	801.00	11,945.00
LHA of Ravenna	-	-	RA	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lugo	39012	32,370	RA	2008	4,680.00	-	-	-	-	-	-	-	16,800.00	-	-	-	-	-	4,298.73	-	3,972.00	29,750.73
Massa Lombarda	39013	10,076	RA	2008	1,980.00	-	-	-	-	-	-	-	7,140.00	-	-	-	-	-	4,386.00	-	3,684.62	17,190.62

Province of Ravenna	-	-	RA	2008	-	-	-	-	49686	-	-	-	-	-	-	-	-	-	-	-	-	49686
Ravenna	39014	153,388	RA	2008	86,030.11	-	-	-	-	-	-	-	220,980.96	-	-	-	-	-	84,819.96	-	27,697.92	419,528.95
Riolo Terme	39015	5,672	RA	2008	-	-	-	-	-	-	-	-	4,560.00	-	-	-	-	-	4,596.00	-	1,650.95	10,806.95
Russi	39016	11,446	RA	2008	600.00	-	-	-	-	-	-	-	11,460.00	-	-	-	-	-	3,259.20	-	2,880.00	18,199.20
Sant'Agata sul Santerno	39017	2,570	RA	2008	720.00	-	-	-	-	-	-	-	4,199.18	-	-	-	-	-	1,216.80	-	636.00	6,771.98
Solarolo	39018	4,384	RA	2008	187.20	-	-	-	-	-	-	-	3,444.00	-	-	-	-	-	1,206.00	-	480.00	5,317.20
Albinea	35001	8,350	RE	2008	-	-	-	-	-	-	-	-	9,548.39	-	-	1,815.00	-	-	18.00	-	-	11,381.39
Bagnolo in Piano	35002	9,192	RE	2008	-	-	-	-	1,092.00	-	-	-	11,360.16	-	-	1,980.00	-	-	-	-	674.40	15,106.56
Baiso	35003	3,389	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bibbiano	35004	9,356	RE	2008	-	-	-	-	-	-	-	-	11,437.02	-	-	1,980.00	-	-	-	-	337.20	13,754.22
Boretto	35005	5,049	RE	2008	-	-	-	-	-	-	-	-	6,289.92	-	-	1,980.00	-	-	-	-	-	8,269.92
Brescello	35006	5,352	RE	2008	-	-	-	-	-	-	-	-	6,490.26	-	-	1,980.00	-	-	-	-	276.60	8,746.86
Busana	35007	1,293	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadelbosco di Sopra	35008	10,397	RE	2008	-	-	-	-	1,092.00	-	-	-	11,463.38	-	-	1,980.00	-	-	-	-	-	14,535.38
Campagnola Emilia	35009	5,379	RE	2008	-	-	-	-	-	-	-	-	5,370.00	-	-	-	-	-	500.00	-	-	5,870.00
Campegine	35010	4,885	RE	2008	-	-	-	-	-	-	-	-	6,090.84	-	-	-	-	-	-	-	-	6,090.84
Canossa	35018	3,677	RE	2008	-	-	-	-	364.00	-	-	-	4,855.32	-	-	-	-	-	1,400.00	-	-	6,619.32
Carpineti	35011	4,216	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalgrande	35012	17,970	RE	2008	-	-	-	-	910.00	-	-	-	22,983.78	-	-	5,940.00	-	-	120.00	-	448.80	30,402.58
Casina	35013	4,453	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castellarano	35014	14,557	RE	2008	-	-	-	-	1,820.00	-	-	-	17,437.31	-	-	5,445.00	-	-	610.00	-	-	25,312.31
Castelnovo di Sotto	35015	8,602	RE	2008	-	-	-	-	-	-	-	-	10,749.06	-	-	1,980.00	-	-	-	-	634.50	13,363.56
Castelnovo ne' Monti	35016	10,537	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cavriago	35017	9,536	RE	2008	-	-	-	-	910.00	-	-	-	11,888.10	-	-	1,980.00	-	-	50.00	-	270.60	15,098.70
Collagna	35019	996	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Correggio	35020	23,735	RE	2008	-	-	-	-	9,100.00	-	-	-	30,058.08	-	-	5,940.00	-	-	1,646.00	-	12,000.00	58,744.08
Fabbrico	35021	6,402	RE	2008	-	-	-	-	-	-	-	-	7,847.28	-	-	1,980.00	-	-	-	-	-	9,827.28
Gattatico	35022	5,667	RE	2008	-	-	-	-	-	-	-	-	6,515.36	-	-	1,815.00	-	-	-	-	361.50	8,691.86
Gualtieri	35023	6,632	RE	2008	-	-	-	-	364.00	-	-	-	8,196.30	-	-	1,980.00	-	-	-	-	452.96	10,993.26
Guastalla	35024	14,760	RE	2008	-	-	-	-	3,640.00	-	-	-	12,900.00	-	-	-	-	-	572.00	-	2,224.88	19,336.88
LHA of Reggio Emilia	-	-	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ligonchio	35025	940	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzzara	35026	8,956	RE	2008	-	-	-	-	-	-	-	-	11,094.30	-	-	1,980.00	-	-	1,800.00	-	988.50	15,862.80

Montecchio Emilia	35027	10,021	RE	2008	-	-	-	-	1,456.00	-	-	-	12,474.00	-	-	3,288.00	-	-	204.00	-	533.70	17,955.70
Novellara	35028	13,384	RE	2008	-	-	-	-	1,092.00	-	-	-	16,603.02	-	-	5,940.00	-	-	-	-	-	23,635.02
Poviglio	35029	7,087	RE	2008	-	-	-	-	364.00	-	-	-	8,716.68	-	-	1,980.00	-	-	530.40	-	359.10	11,950.18
Province of Reggio Emilia	-	-	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quattro Castella	35030	12,662	RE	2008	-	-	-	-	1,456.00	-	-	-	14,342.79	-	-	5,445.00	-	-	-	-	4,160.00	25,403.79
Ramiseto	35031	1,370	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reggio nell'Emilia	35033	162,290	RE	2008	-	-	-	-	10,192.00	-	-	-	186,727.40	-	-	18,150.00	-	-	-	-	3,717.60	218,787.00
Reggiolo	35032	9,140	RE	2008	-	-	-	-	910.00	-	-	-	-	-	-	-	-	-	1,000.00	-	347.76	2,257.76
Rio Saliceto	35034	5,785	RE	2008	-	-	-	-	-	-	-	-	7,192.08	-	-	1,980.00	-	-	-	-	150.00	9,322.08
Rolo	35035	3,984	RE	2008	-	-	-	-	-	-	-	-	4,946.76	-	-	1,980.00	-	-	-	-	109.20	7,035.96
Rubiera	35036	14,088	RE	2008	-	-	-	-	1,820.00	-	-	-	15,822.35	-	-	5,445.00	-	-	-	-	2,011.70	25,099.05
San Martino in Rio	35037	7,528	RE	2008	-	-	-	-	910.00	-	-	-	11,327.94	-	-	1,980.00	-	-	-	-	385.80	14,603.74
San Polo d'Enza	35038	5,617	RE	2008	-	-	-	-	728.00	-	-	-	6,953.94	-	-	1,980.00	-	-	-	-	-	9,661.94
Sant'Ilario d'Enza	35039	10,605	RE	2008	-	-	-	-	910.00	-	-	-	12,035.10	-	-	5,445.00	-	-	100.00	-	-	18,490.10
Scandiano	35040	24,173	RE	2008	-	-	-	-	1,820.00	-	-	-	32,214.96	-	-	5,940.00	-	-	-	-	-	39,974.96
TdM Union	-	18,999	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toano	35041	4,450	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vetto	35042	2,005	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vezzano sul Crostolo	35043	4,227	RE	2008	-	-	-	-	1,092.00	-	-	-	4,812.89	-	-	1,815.00	-	-	-	-	-	7,719.89
Viano	35044	3,411	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Villa Minozzo	35045	4,043	RE	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bellaria-Igea Marina	99001	18,322	RN	2008	-	-	-	-	-	-	-	-	14,156.64	-	-	21,234.96	-	-	-	-	-	35,391.60
Cattolica	99002	16,404	RN	2008	-	-	-	-	-	-	-	-	14,400.00	-	-	21,600.00	-	-	-	-	-	36,000.00
Coriano	99003	9,534	RN	2008	-	-	-	-	-	-	-	-	13,020.00	-	-	5,591.10	-	-	-	-	-	18,611.10
Gemmano	99004	1,228	RN	2008	-	-	-	-	-	-	-	-	1,218.60	-	-	549.00	-	-	-	-	-	1,767.60
LHA of Rimini	-	-	RN	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misano Adriatico	99005	11,485	RN	2008	-	-	-	-	-	-	-	-	21,600.00	-	-	26,400.00	-	-	10,800.00	-	21,600.00	80,400.00
Mondaino	99006	1,467	RN	2008	-	-	-	-	-	-	-	-	1,281.60	-	-	549.00	-	-	-	-	183.00	2,013.60
Monte Colombo	99007	2,802	RN	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiore Conca	99008	2,087	RN	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montegridolfo	99009	1,014	RN	2008	-	-	-	-	-	-	-	-	1,095.36	-	-	469.19	-	-	-	-	157.00	1,721.55
Montescudo	99010	2,964	RN	2008	-	-	-	-	-	-	-	-	2,029.06	-	-	869.40	-	-	-	-	327.00	3,225.46
Morciano di Romagna	99011	6,539	RN	2008	-	-	-	-	-	-	-	-	10,582.32	-	-	4,536.00	-	-	-	-	330.00	15,448.32
Poggio Berni	99012	3,241	RN	2008	-	-	-	-	-	-	-	-	2,135.88	-	-	915.12	-	-	-	-	-	3,051.00

Province of Rimini	-	-	RN	2008	201960	-	-	-	27118	-	-	-	-	-	-	242040	-	-	-	-	-	471118
Riccione	99013	34,881	RN	2008	-	-	-	-	-	-	-	-	43,200.00	-	-	96,000.00	-	-	6,000.00	-	12,800.00	158,000.00
Rimini	99014	138,472	RN	2008	-	-	-	-	-	-	-	-	162,718.81	-	-	244,069.92	-	-	-	-	132.00	406,920.73
Saludecio	99015	2,814	RN	2008	-	-	-	-	-	-	-	-	2,391.48	-	-	1,025.64	-	-	-	-	-	3,417.12
San Clemente	99016	4,467	RN	2008	-	-	-	-	-	-	-	-	7,260.96	-	-	3,112.44	-	-	-	-	264.00	10,637.40
San Giovanni in Marignano	99017	8,740	RN	2008	-	-	-	-	-	-	-	-	18,744.96	-	-	28,118.40	-	-	-	-	396.00	47,259.36
Santarcangelo di Romagna	99018	20,664	RN	2008	-	-	-	-	-	-	-	-	30,944.40	-	-	46,416.00	-	-	-	-	-	77,360.40
Torriana	99019	1,422	RN	2008	-	-	-	-	-	-	-	-	2,135.88	-	-	915.12	-	-	-	-	-	3,051.00
Verucchio	99020	9,786	RN	2008	-	-	-	-	-	-	-	-	2,490.60	-	-	1,068.08	-	-	-	-	-	3,558.68

Table 99. E-R Plan Expenditures dataset - 2009

					Reported activity and relative expenditures incurred for its realization																
Municipality	***ISTAT code***	***Population***	***LHA***	***Reported in the year***	*Management of reported cases (emergency)*		*Monitoring of Ae. albopictus population*			*CG_Exp*	*Larvicidal treatments*			*DtD interventions*			*QC_Exp*	*SI_Exp*	*LK_Exp*	*Edu_Exp*	*O_Exp*	*Tot_Exp*
					Em1_Exp	*Em2_Exp*	*Ovi_n*	*Ovi_ch*	*Ovi_Exp*		*RD_n*	*R_n*	*L_Exp*	*DtD_n*	*DtD_R*	*DtD_Exp*						
Anzola dell'Emilia	37001	11,784	BO	2009	-	-	-	-	1,617.00	-	11,000	4	6,051.90	843	-	6,445.86	2,836.50	14,379.54	1,091.40	-	393.96	32,816.16
Argelato	37002	9,579	BO	2009	-	-	-	-	441.00	-	6,600	4	5,678.83	-	-	-	945.50	3,466.85	596.16	-	-	11,128.34
Baricella	37003	6,428	BO	2009	-	-	-	-	441.00	-	2,700	4	2,791.07	-	-	-	695.47	1,227.30	1,533.00	-	-	6,687.84
Bazzano	37004	6,820	BO	2009	-	-	-	-	1,064.00	-	2,000	9	9,696.00	-	-	-	-	-	1,320.00	-	-	12,080.00
Bentivoglio	37005	5,032	BO	2009	-	-	-	-	441.00	-	5,100	4	4,519.91	-	-	-	709.13	1,575.84	1,490.40	3,150.00	-	11,886.28
Bologna	37006	374,944	BO	2009	452.23	415.96	-	-	17,080.00	-	92,250	7	290,142.42	-	-	-	41,114.18	2,227.20	-	11,629.20	61,343.71	424,404.90
Budrio	37008	17,498	BO	2009	-	-	-	-	2,058.00	-	5,816	5	7,200.00	-	-	-	1,299.20	4,640.00	15,000.00	2,800.00	4,315.20	37,312.40
Calderara di Reno	37009	12,888	BO	2009	-	-	-	-	1,617.00	-	14,000	4	7,733.00	1,049	-	10,436.30	3,309.26	8,903.50	1,201.56	1,750.00	1,152.54	36,103.16
Camugnano	37010	2,074	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalecchio di Reno	37011	35,287	BO	2009	-	-	-	-	4,900.00	-	7,600	9	13,680.00	-	-	-	-	4,000.00	2,500.00	-	800.00	25,880.00
Castel d'Aiano	37013	2,011	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel di Casio	37015	3,489	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Maggiore	37019	17,100	BO	2009	-	-	-	-	2,940.00	-	10,000	4	9,055.01	-	-	-	1,624.00	5,104.00	5,616.00	3,150.00	-	27,489.01
Castello d'Argile	37017	6,266	BO	2009	-	-	-	-	1,470.00	-	-	-	-	-	-	-	-	-	-	-	-	1,470.00
Castello di Serravalle	37018	4,789	BO	2009	-	-	-	-	882.00	-	-	9	3,972.00	-	-	-	-	-	1,127.88	-	200.00	6,181.88
Castenaso	37021	14,088	BO	2009	-	-	-	-	2,058.00	-	14,900	4	8,016.61	3,000	-	6,638.65	1,718.22	3,272.80	3,942.00	-	-	25,646.27
Castiglione dei Pepoli	37022	5,986	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crespellano	37023	9,572	BO	2009	-	-	-	-	-	-	5,000	6	7,200.00	-	-	-	-	-	9,960.00	-	-	17,160.00
Crevalcore	37024	13,456	BO	2009	-	-	-	-	1,617.00	-	4,500	4	5,481.86	-	-	-	1,260.67	8,824.70	2,062.44	1,400.00	2,648.79	23,295.46
Gaggio Montano	37027	5,137	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galliera	37028	5,563	BO	2009	-	-	-	-	441.00	-	1,950	4	1,708.44	-	-	-	669.73	393.96	904.30	2,100.00	-	6,217.44
Granaglione	37029	2,257	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granarolo dell'Emilia	37030	10,043	BO	2009	-	-	-	-	1,470.00	-	6,500	5	17,394.00	-	-	-	-	696.00	3,050.00	-	-	22,610.00
Grizzana Morandi	37031	4,067	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Bologna	-	-	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lizzano in Belvedere	37033	2,406	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Loiano	37034	4,493	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malalbergo	37035	8,634	BO	2009	-	-	-	-	1,323.00	-	5,300	4	5,601.00	-	-	1,620.16	859.11	4,091.00	3,504.00	-	-	16,998.27
Marzabotto	37036	6,744	BO	2009	-	-	-	-	-	-	-	7	6,720.00	-	-	-	-	-	587.16	-	-	7,307.16
Minerbio	37038	8,616	BO	2009	-	-	-	-	588.00	-	3,950	4	4,128.37	-	-	-	900.02	409.10	1,533.00	-	-	7,558.49
Molinella	37039	15,618	BO	2009	-	-	-	-	-	-	7,079	8	45,022.52	1,232	-	7,350.15	5,880.00	-	4,500.00	-	3,880.40	66,633.07
Monghidoro	37040	3,921	BO	2009	-	-	-	-	-	-	-	3	400.00	-	-	-	-	-	126.00	-	-	526.00
Monte San Pietro	37042	10,976	BO	2009	-	-	-	-	-	-	2,000	7	5,760.00	-	-	-	-	-	1,998.36	-	-	7,758.36
Monterenzio	37041	5,831	BO	2009	-	-	-	-	-	-	-	5	3,000.00	-	-	-	-	-	556.92	-	-	3,556.92
Monteveglio	37043	5,261	BO	2009	-	-	-	-	882.00	-	-	9	3,972.00	-	-	-	300.00	-	660.00	-	180.00	5,994.00
Monzuno	37044	6,408	BO	2009	-	-	-	-	-	-	-	-	8,439.20	190	-	600.00	-	-	579.60	-	-	9,618.80
Ozzano dell'Emilia	37046	12,410	BO	2009	-	-	-	-	1,176.00	-	4,500	6	7,776.00	-	-	-	1,880.00	-	4,999.20	600.00	-	16,431.20
Pianoro	37047	17,096	BO	2009	-	-	-	-	-	-	4,328	7	7,560.00	-	-	-	-	600.00	3,600.00	3,360.00	-	15,120.00
Pieve di Cento	37048	7,019	BO	2009	-	-	-	-	-	-	2,850	4	2,490.57	-	-	-	669.73	1,575.84	1,987.20	2,450.00	-	9,173.34
Porretta Terme	37049	4,792	BO	2009	-	-	-	-	882.00	-	-	-	3,102.00	-	-	-	2,200.00	-	-	1,750.00	-	7,934.00
Province of Bologna	-	-	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sala Bolognese	37050	8,196	BO	2009	-	-	-	-	1,617.00	-	3,000	4	3,329.36	-	-	-	945.50	7,682.22	2,482.68	1,050.00	3,172.01	20,278.77
San Benedetto Val di Sambro	37051	4,566	BO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Giorgio di Piano	37052	7,987	BO	2009	-	-	-	-	882.00	-	-	-	5,021.40	-	-	1,673.80	866.71	4,727.52	4,968.00	-	1,181.88	19,321.31
San Giovanni in Persiceto	37053	26,679	BO	2009	-	-	-	-	3,234.00	-	9,000	4	9,850.16	-	-	-	3,427.45	16,152.36	4,469.64	4,200.00	593.96	41,927.57
San Lazzaro di Savena	37054	31,036	BO	2009	-	-	-	-	-	-	10,700	4	10,815.84	-	-	-	2,521.34	9,455.04	11,786.40	-	-	34,578.62
San Pietro in Casale	37055	11,479	BO	2009	-	-	-	-	882.00	-	5,400	4	5,137.90	-	-	-	1,181.88	5,751.82	3,974.40	3,150.00	1,451.10	21,529.10
Sant'Agata Bolognese	37056	7,253	BO	2009	-	-	-	-	1,470.00	-	2,000	4	2,260.59	-	-	-	787.92	1,418.26	448.80	-	2,564.38	8,949.95
Sasso Marconi	37057	14,587	BO	2009	-	-	-	-	1,470.00	-	-	-	-	-	-	-	-	-	-	-	-	1,470.00
Savigno	37058	2,860	BO	2009	-	-	-	-	-	-	-	8	4,260.00	-	-	-	-	-	-	-	-	4,260.00
Vergato	37059	7,797	BO	2009	-	-	-	-	882.00	-	220	8	4,740.00	-	-	-	420.00	120.00	681.00	1,488.00	-	8,331.00
Zola Predosa	37060	17,760	BO	2009	-	-	-	-	2,058.00	-	-	-	-	-	-	-	-	-	-	-	-	2,058.00
Bagno di Romagna	40001	6,186	CE	2009	-	-	-	-	1,029.00	-	920	5	2,340.00	-	-	-	480.00	-	-	-	-	3,849.00
Borghi	40004	2,578	CE	2009	-	-	-	-	882.00	-	322	7	927.36	454	-	5,448.00	480.00	-	-	330.00	-	8,067.36
Cesena	40007	95,525	CE	2009	-	-	-	-	11,025.00	-	24,000	7	58,464.00	-	-	-	4,608.00	-	-	2,619.05	17,040.00	93,756.05
Cesenatico	40008	24,956	CE	2009	-	-	-	-	5,880.00	-	10,975	9	43,856.10	-	-	-	2,304.00	9,233.90	10,080.00	5,500.00	2,760.00	79,614.00
Gambettola	40015	10,275	CE	2009	-	-	-	-	1,323.00	-	3,190	5	3,674.88	2,511	-	9,642.24	624.00	-	691.20	-	1,059.84	17,015.16
Gatteo	40016	8,397	CE	2009	-	-	-	-	1,470.00	-	3,332	7	7,377.00	2,011	-	9,652.00	648.00	1,549.00	1,080.00	-	-	21,776.00

LHA of Cesena	-	-	CE	2009	-	-	-	-	910	-	-	-	-	-	-	-	-	-	-	-	-	910
Longiano	40018	6,772	CE	2009	-	-	-	-	1,617.00	-	2,720	7	6,854.40	-	-	-	528.00	-	-	-	2,100.00	11,099.40
Mercato Saraceno	40020	6,883	CE	2009	-	-	-	-	1,617.00	-	1,496	6	5,695.50	931	-	3,351.60	480.00	-	3,000.00	-	-	14,144.10
Montiano	40028	1,677	CE	2009	-	-	-	-	882.00	-	450	8	1,296.00	-	-	-	480.00	1,260.00	-	-	-	3,918.00
Province of Cesena	-	-	CE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roncofreddo	40037	3,315	CE	2009	-	-	-	-	1,029.00	-	750	7	1,890.00	966	-	11,592.00	480.00	924.00	1,656.00	-	-	17,571.00
San Mauro Pascoli	40041	10,714	CE	2009	-	-	-	-	1,470.00	-	2,812	7	7,086.00	2,898	-	12,171.60	528.00	2,100.00	-	1,650.00	216.00	25,221.60
Sarsina	40044	3,696	CE	2009	-	-	-	-	735.00	-	800	8	1,094.00	436	-	2,180.00	480.00	-	1,200.00	-	-	5,689.00
Savignano sul Rubicone	40045	16,970	CE	2009	-	-	-	-	1,764.00	-	3,867	7	8,584.90	2,607	-	31,920.00	744.00	2,394.00	-	-	-	45,406.90
Sogliano al Rubicone	40046	3,116	CE	2009	-	-	-	-	1,617.00	-	644	7	2,065.98	742	-	3,600.00	480.00	1,512.00	-	1,227.20	-	10,502.18
Verghereto	40050	1,982	CE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argenta	38001	22,509	FE	2009	2,180.00	-	-	-	1,470.00	-	6,900	6	17,940.00	-	-	-	-	-	10,584.00	-	1,319.00	33,493.00
Berra	38002	5,438	FE	2009	6,000.00	-	-	-	147.00	-	-	-	504.00	-	-	-	-	-	-	1,000.00	-	7,651.00
Bondeno	38003	15,471	FE	2009	3,741.60	-	-	-	1,323.00	-	3,758	6	15,570.00	-	-	-	-	-	1,248.00	500.00	-	22,382.60
Cento	38004	34,585	FE	2009	1,860.00	-	-	-	1,911.00	-	8,391	6	26,460.00	-	-	-	-	-	2,341.20	1,500.00	-	34,072.20
Codigoro	38005	12,733	FE	2009	9,376.00	-	-	-	1,176.00	-	3,500	6	24,480.00	-	-	-	-	-	-	-	-	35,032.00
Comacchio	38006	23,168	FE	2009	-	-	-	-	4,557.00	-	14,000	5	37,671.00	-	-	-	7,200.00	2,880.00	396.00	2,500.00	1,560.00	56,764.00
Copparo	38007	17,474	FE	2009	1,320.00	-	-	-	1,176.00	-	5,000	4	11,760.00	-	-	-	-	-	-	1,000.00	-	15,256.00
Ferrara	38008	134,464	FE	2009	24,000.00	-	-	-	14,525.00	-	31,000	8	188,664.00	-	-	-	5,000.00	-	-	9,250.00	9,800.00	251,239.00
Formignana	38009	2,819	FE	2009	3,696.00	-	-	-	147.00	-	1,000	8	4,800.00	-	-	-	-	-	-	-	-	8,643.00
Goro	38025	3,979	FE	2009	7,200.00	-	-	-	441.00	-	1,700	8	12,000.00	-	-	-	-	-	-	-	840.00	20,481.00
Jolanda di Savoia	38010	3,174	FE	2009	4,842.00	-	-	-	147.00	-	1,200	5	2,800.00	-	-	-	-	-	-	500.00	-	8,289.00
Lagosanto	38011	4,783	FE	2009	7,584.00	-	-	-	294.00	-	1,800	8	13,488.00	-	-	-	-	-	2,332.80	-	-	23,698.80
LHA of Ferrara	-	-	FE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Masi Torello	38012	2,447	FE	2009	5,247.00	-	-	-	294.00	-	1,000	8	7,040.00	-	-	-	-	-	660.00	-	-	13,241.00
Massa Fiscaglia	38013	3,731	FE	2009	-	-	-	-	147.00	-	-	-	4,080.00	-	-	-	-	-	-	-	-	4,227.00
Mesola	38014	7,260	FE	2009	840.00	-	-	-	147.00	-	1,900	5	9,600.00	-	-	-	-	-	1,728.00	1,000.00	-	13,315.00
Migliarino	38015	3,709	FE	2009	3,444.00	-	-	-	294.00	-	1,800	9	6,264.00	-	-	-	-	-	864.00	-	-	10,866.00
Migliaro	38026	2,299	FE	2009	1,260.00	-	-	-	147.00	-	570	8	4,224.00	-	-	-	-	-	-	-	-	5,631.00
Mirabello	38016	3,478	FE	2009	510.00	-	-	-	147.00	-	996	6	6,435.00	-	-	-	-	-	1,560.00	-	-	8,652.00
Ostellato	38017	6,570	FE	2009	852.00	-	-	-	882.00	-	2,800	7	12,096.00	-	-	-	-	-	-	-	-	13,830.00
Poggio Renatico	38018	9,253	FE	2009	816.00	-	-	-	1,176.00	-	2,453	6	9,194.40	-	-	-	-	-	2,184.00	-	299.00	13,669.40
Portomaggiore	38019	12,310	FE	2009	6,900.00	-	-	-	1,176.00	-	3,670	6	11,700.00	-	-	-	-	-	2,304.00	-	-	22,080.00
Province of Ferrara	-	-	FE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ro	38020	3,465	FE	2009	3,456.00	-	-	-	147.00	-	1,150	7	9,660.00	-	-	-	-	-	-	-	-	13,263.00

Sant'Agostino	38021	7,023	FE	2009	636.00	-	-	-	294.00	-	1,969	6	11,952.00	-	-	-	-	-	936.00	-	-	13,818.00
Tresigallo	38024	4,676	FE	2009	10,360.00	-	-	-	441.00	-	2,000	14	14,280.00	-	-	-	-	-	-	1,000.00	1,460.00	27,541.00
Vigarano Mainarda	38022	7,253	FE	2009	1,620.00	-	-	-	1,029.00	-	2,261	6	7,084.80	-	-	-	-	-	936.00	1,000.00	1,554.00	13,223.80
Voghiera	38023	3,908	FE	2009	3,300.00	-	-	-	588.00	-	1,300	10	8,640.00	-	-	-	-	-	1,296.00	-	4,800.00	18,624.00
Bertinoro	40003	10,651	FO	2009	-	-	-	-	2,352.00	-	-	-	-	-	-	-	-	-	-	-	-	2,352.00
Castrocaro Terme e Terra del Sole	40005	6,572	FO	2009	-	-	-	-	1,071.00	-	1,450	7	5,785.52	-	-	-	1,799.83	385.12	864.00	-	-	9,905.47
Civitella di Romagna	40009	3,790	FO	2009	-	-	-	-	1,176.00	-	950	10	4,000.00	-	-	-	-	-	-	-	200.00	5,376.00
Dovadola	40011	1,706	FO	2009	-	-	-	-	882.00	-	421	8	1,932.00	-	-	-	-	-	180.00	-	-	2,994.00
Forlì	40012	116,208	FO	2009	-	-	-	-	8,820.00	-	39,000	6	107,546.40	-	-	-	23,040.00	-	-	-	-	139,406.40
Forlimpopoli	40013	12,837	FO	2009	-	-	-	-	2,058.00	-	4,736	6	5,455.86	-	-	-	1,515.64	-	-	-	-	9,029.50
Galeata	40014	2,505	FO	2009	-	-	-	-	1,029.00	-	500	4	762.00	-	-	-	-	-	-	-	-	1,791.00
LHA of Forlì	-	-	FO	2009	-	-	-	-	770	-	-	-	-	-	-	-	-	-	-	11000	-	11770
Meldola	40019	10,142	FO	2009	-	-	-	-	1,617.00	-	2,177	5	6,650.30	-	-	-	-	-	-	-	-	8,267.30
Modigliana	40022	4,823	FO	2009	-	-	-	-	980.00	-	1,200	6	3,100.00	-	-	-	-	-	-	-	-	4,080.00
Portico e San Benedetto	40031	814	FO	2009	-	-	-	-	882.00	-	180	6	1,080.00	-	-	-	180.00	300.00	-	-	-	2,442.00
Predappio	40032	6,491	FO	2009	-	-	-	-	1,470.00	-	1,369	7	3,040.80	-	-	-	-	-	-	-	-	4,510.80
Premilcuore	40033	829	FO	2009	-	-	-	-	882.00	-	250	3	352.80	-	-	-	-	-	-	-	-	1,234.80
Province of Forlì	-	-	FO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocca San Casciano	40036	2,062	FO	2009	-	-	-	-	1,029.00	-	615	7	2,080.80	-	-	-	-	-	84.00	-	-	3,193.80
Santa Sofia	40043	4,243	FO	2009	-	-	-	-	1,029.00	-	862	7	3,400.00	-	-	-	-	-	200.00	-	-	4,629.00
Tredozio	40049	1,304	FO	2009	-	-	-	-	882.00	-	300	4	1,440.00	-	-	-	-	-	-	-	-	2,322.00
Borgo Tossignano	37007	3,300	IM	2009	-	-	-	-	-	-	1,000	7	2,520.00	-	-	-	-	-	720.00	-	-	3,240.00
Casalfiumanese	37012	3,439	IM	2009	-	-	-	-	-	-	-	6	2,160.00	-	-	-	-	-	2,970.00	-	-	5,130.00
Castel del Rio	37014	1,260	IM	2009	-	-	-	-	-	-	160	5	735.26	-	-	-	-	-	532.00	-	-	1,267.26
Castel Guelfo di Bologna	37016	4,082	IM	2009	-	-	-	-	-	-	2,728	7	13,260.00	-	-	-	-	-	2,280.00	-	-	15,540.00
Castel San Pietro Terme	37020	20,432	IM	2009	-	-	-	-	-	-	6,792	7	12,609.00	-	-	-	1,570.00	300.00	2,353.68	-	-	16,832.68
Dozza	37025	6,313	IM	2009	-	-	-	-	-	-	1,500	6	3,173.26	-	-	-	-	180.00	1,498.46	-	-	4,851.72
Fontanelice	37026	1,899	IM	2009	-	-	-	-	-	-	-	-	1,920.00	-	-	-	-	-	648.00	-	-	2,568.00
Imola	37032	68,019	IM	2009	81.60	-	-	-	7,000.00	-	-	6	37,080.00	-	-	-	-	-	10,080.00	-	-	54,241.60
LHA of Imola	-	-	IM	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5610	-	5610
Medicina	37037	16,292	IM	2009	1,886.04	653.94	-	-	-	-	6,268	5	12,877.74	45	-	561.41	-	-	4,487.62	-	-	20,466.75
Mordano	37045	4,551	IM	2009	-	-	-	-	-	-	-	8	4,277.00	-	-	-	-	-	1,028.40	-	-	5,305.40
Province of Imola	-	-	IM	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bastiglia	36001	4,010	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bomporto	36002	9,416	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campogalliano	36003	8,377	MO	2009	-	-	-	-	1,470.00	-	2,000	5	3,780.00	-	-	-	-	-	-	-	5,250.00
Camposanto	36004	3,210	MO	2009	-	-	-	-	441.00	-	1,361	6	2,868.72	-	-	-	-	-	-	-	3,309.72
Carpi	36005	67,203	MO	2009	-	-	-	-	6,055.00	-	15,237	10	32,278.00	-	-	-	52.00	308.00	-	9,272.00	11,573.00	59,538.00
Castelfranco Emilia	36006	30,527	MO	2009	-	-	-	-	1,190.00	-	-	-	30,800.00	-	-	-	-	-	-	-	31,990.00
Castelnuovo Rangone	36007	13,951	MO	2009	-	-	-	-	1,470.00	-	3,987	7	13,680.00	-	-	-	-	-	2,700.00	400.00	-	18,250.00
Castelvetro di Modena	36008	10,823	MO	2009	-	-	-	-	1,400.00	-	1,308	6	4,818.96	-	-	-	-	150.00	1,724.72	-	-	8,093.68
Cavezzo	36009	7,231	MO	2009	183.00	-	-	-	441.00	-	2,500	7	3,223.02	-	-	-	-	-	-	-	-	3,847.02
Concordia sulla Secchia	36010	8,992	MO	2009	-	-	-	-	378.00	-	1,900	8	3,216.53	-	-	-	-	-	-	-	-	3,594.53
Fanano	36011	3,121	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finale Emilia	36012	15,861	MO	2009	-	-	-	-	2,205.00	-	-	-	1,800.00	-	-	-	-	-	-	-	-	4,005.00
Fiorano Modenese	36013	16,848	MO	2009	-	-	-	-	1,470.00	-	3,914	7	7,800.00	-	-	-	-	-	1,497.00	4,420.00	-	15,187.00
Fiumalbo	36014	1,303	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formigine	36015	33,091	MO	2009	113.76	-	-	-	3,675.00	-	8,240	4	15,859.00	-	-	-	-	1,310.40	840.00	480.00	732.78	23,010.94
Frassinoro	36016	2,060	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiglia	36017	4,110	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lama Mocogno	36018	2,946	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Modena	-	-	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maranello	36019	16,789	MO	2009	-	-	-	-	1,470.00	-	3,800	7	11,704.61	6,067	-	-	-	517.50	-	-	-	13,692.11
Marano sul Panaro	36020	4,417	MO	2009	-	-	-	-	140.00	-	-	-	3,220.80	-	-	-	-	-	-	-	-	3,360.80
Medolla	36021	6,248	MO	2009	-	-	-	-	315.00	-	1,600	6	2,981.00	-	-	-	-	-	275.69	1,440.00	-	5,011.69
Mirandola	36022	24,163	MO	2009	489.60	-	-	-	6,300.00	-	6,950	7	7,867.00	14,505	-	-	-	234.87	1,020.00	-	2,924.00	18,835.47
Modena	36023	181,807	MO	2009	-	-	-	-	8,820.00	-	50,000	6	172,656.00	-	-	4,634.26	7,639.20	15,278.00	8,640.00	3,600.00	22,727.03	243,994.49
Montecreto	36024	972	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiorino	36025	2,290	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montese	36026	3,403	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonantola	36027	15,111	MO	2009	-	-	-	-	1,400.00	-	12,530	6	16,300.00	3,800	-	4,000.00	-	1,180.00	1,500.00	-	1,053.00	25,433.00
Novi di Modena	36028	11,247	MO	2009	-	-	-	-	882.00	-	2,890	6	8,650.15	-	-	-	-	300.00	-	-	-	9,832.15
Palagano	36029	2,457	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavullo nel Frignano	36030	17,137	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pievepelago	36031	2,314	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polinago	36032	1,790	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prignano sulla Secchia	36033	3,732	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Province of Modena	-	-	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ravarino	36034	6,305	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riolunato	36035	769	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Cesario sul Panaro	36036	5,846	MO	2009	-	-	-	-	840.00	-	1,910	5	3,900.00	-	-	-	-	-	-	-	-	4,740.00
San Felice sul Panaro	36037	10,923	MO	2009	-	-	-	-	1,400.00	-	3,600	6	3,287.30	-	-	-	-	-	-	1,620.00	4,270.84	10,578.14
San Possidonio	36038	3,841	MO	2009	-	-	-	-	378.00	-	1,127	6	2,949.93	-	-	-	-	-	-	-	-	3,327.93
San Prospero	36039	5,652	MO	2009	519.34	-	-	-	399.00	-	1,650	7	2,221.54	-	-	-	-	-	97.60	-	-	3,237.48
Sassuolo	36040	41,506	MO	2009	-	-	-	-	1,400.00	-	7,200	6	14,757.12	-	-	-	-	-	3,528.00	1,106.56	972.00	21,763.68
Savignano sul Panaro	36041	9,423	MO	2009	-	-	-	-	1,400.00	-	2,000	1	2,000.00	-	-	-	-	-	-	-	-	3,400.00
Serramazzoni	36042	8,292	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sestola	36043	2,636	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soliera	36044	15,103	MO	2009	-	-	-	-	882.00	-	4,200	5	8,050.20	-	-	-	174.00	174.00	-	-	-	9,280.20
Sorbara Union	-	19,731	MO	2009	1680	-	-	-	1722	-	-	-	5470	-	-	-	-	-	3528	2640	7215	22255
Spilamberto	36045	11,954	MO	2009	-	-	-	-	1,120.00	-	2,550	5	4,957.20	-	-	-	-	89.60	1,440.00	-	876.00	8,482.80
UCMAN	-	66,206	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vignola	36046	24,109	MO	2009	3,048.00	-	-	-	1,470.00	-	3,000	5	12,384.00	-	-	-	2,610.00	432.00	2,520.00	-	-	22,464.00
Zocca	36047	4,970	MO	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albareto	34001	2,226	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bardi	34002	2,424	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedonia	34003	3,714	PR	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Berceto	34004	2,256	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bore	34005	791	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borgo Val di Taro	34006	7,194	PR	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Busseto	34007	6,946	PR	2009	-	-	-	-	441.00	-	250	6	2,160.00	-	-	-	350.00	-	-	-	-	2,951.00
Calestano	34008	2,067	PR	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Collecchio	34009	13,627	PR	2009	-	-	-	-	588.00	-	4,100	11	5,935.20	-	-	-	-	-	-	-	1,464.00	7,987.20
Colorno	34010	8,942	PR	2009	-	-	-	-	441.00	-	800	14	3,696.00	-	-	-	1,200.00	-	1,440.00	-	200.00	6,977.00
Compiano	34011	1,125	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corniglio	34012	2,075	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Felino	34013	8,227	PR	2009	-	-	-	-	588.00	-	2,000	10	4,440.00	26	-	-	-	-	-	-	-	5,028.00
Fidenza	34014	25,318	PR	2009	-	-	-	-	840.00	-	7,500	9	18,972.00	-	-	-	1,000.00	-	-	2,000.00	76,472.00	99,284.00
Fontanellato	34015	6,902	PR	2009	-	-	-	-	441.00	-	1,500	12	4,104.00	-	-	-	-	-	1,200.00	-	-	5,745.00
Fontevivo	34016	5,521	PR	2009	-	-	-	-	588.00	-	-	13	3,120.00	-	-	-	-	-	-	-	-	3,708.00
Fornovo di Taro	34017	6,258	PR	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Langhirano	34018	9,611	PR	2009	-	-	-	-	588.00	-	900	7	2,104.80	-	-	-	-	-	-	-	-	2,692.80
Lesignano de' Bagni	34019	4,570	PR	2009	-	-	-	-	441.00	-	300	5	4,000.00	-	-	-	-	-	-	-	-	4,441.00

LHA of Parma	-	-	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medesano	34020	10,620	PR	2009	-	-	-	-	735.00	-	2,200	9	3,888.00	-	-	-	270.00	-	-	-	380.00	5,273.00
Mezzani	34021	3,257	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monchio Delle Corti	34022	1,055	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montechiarugolo	34023	10,343	PR	2009	-	-	-	-	588.00	-	3,500	14	36,000.00	-	-	-	-	-	-	-	-	36,588.00
Neviano Degli Arduini	34024	3,731	PR	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Noceto	34025	12,088	PR	2009	-	-	-	-	588.00	-	1,000	12	4,032.00	-	-	-	-	-	384.00	-	-	5,004.00
Palanzano	34026	1,242	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parma	34027	182,389	PR	2009	4,080.00	-	-	-	12,880.00	-	48,984	5	74,259.75	-	-	-	-	-	-	-	-	91,219.75
Pellegrino Parmense	34028	1,165	PR	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Polesine Parmense	34029	1,494	PR	2009	-	-	-	-	399.00	-	-	5	1,320.00	-	-	-	-	-	-	-	-	1,719.00
Province of Parma	-	-	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roccabianca	34030	3,151	PR	2009	-	-	-	-	420.00	-	1,298	12	3,840.00	-	-	-	1,568.60	-	840.00	-	-	6,668.60
Sala Baganza	34031	5,308	PR	2009	-	-	-	-	441.00	-	1,300	10	5,928.00	-	-	-	-	-	-	-	-	6,369.00
Salsomaggiore Terme	34032	20,111	PR	2009	-	-	-	-	735.00	-	2,500	8	3,840.00	-	-	-	2,016.00	-	1,200.00	-	888.00	8,679.00
San Secondo Parmense	34033	5,512	PR	2009	-	-	-	-	-	-	500	7	1,638.00	-	-	-	-	-	660.00	1,040.00	1,594.10	4,932.10
Sissa	34034	4,280	PR	2009	-	-	-	-	-	-	-	8	2,400.00	30	-	-	1,000.00	-	1,200.00	-	-	4,600.00
SM Union	-	12,730	PR	2009	-	-	-	-	882	-	-	-	14508	-	-	-	-	-	-	-	-	15390
Solignano	34035	1,850	PR	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Soragna	34036	4,805	PR	2009	-	-	-	-	378.00	-	440	13	2,496.00	-	-	-	-	-	528.00	-	-	3,402.00
Sorbolo	34037	9,473	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terenzo	34038	1,241	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tizzano Val Parma	34039	2,138	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tornolo	34040	1,173	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torrile	34041	7,672	PR	2009	-	-	-	-	441.00	-	1,826	14	5,376.00	-	-	-	-	-	-	890.00	-	6,707.00
Traversetolo	34042	9,172	PR	2009	-	-	-	-	441.00	-	1,600	6	6,552.00	-	-	-	1,500.00	1,500.00	500.00	-	-	10,493.00
Trecasali	34043	3,500	PR	2009	-	-	-	-	-	-	700	9	2,592.00	-	-	-	-	-	480.00	-	-	3,072.00
Valmozzola	34044	614	PR	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varano de' Melegari	34045	2,672	PR	2009	-	-	-	-	441.00	-	500	12	1,680.00	-	-	-	300.00	-	-	-	-	2,421.00
Varsi	34046	1,335	PR	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Zibello	34048	1,911	PR	2009	-	-	-	-	441.00	-	-	5	1,440.00	-	-	-	-	-	-	-	-	1,881.00
Agazzano	33001	2,054	PC	2009	-	-	-	-	294.00	-	400	6	1,656.00	-	-	-	-	-	1,053.00	700.00	864.80	4,567.80
Alseno	33002	4,891	PC	2009	-	-	-	-	441.00	-	1,300	5	2,580.00	-	-	-	-	-	1,932.00	-	-	4,953.00

Besenzone	33003	992	PC	2009	-	-	-	-	147.00	-	250	6	540.00	-	-	-	-	-	-	145.60	-	832.60
Bettola	33004	3,077	PC	2009	-	-	-	-	294.00	-	100	2	500.00	-	-	-	-	-	-	-	-	794.00
Bobbio	33005	3,723	PC	2009	-	-	-	-	294.00	-	250	7	788.00	-	-	-	-	-	-	-	-	1,082.00
Borgonovo Val Tidone	33006	7,484	PC	2009	-	-	-	-	-	-	1,371	5	2,580.00	-	-	-	-	-	-	-	-	2,580.00
Cadeo	33007	6,057	PC	2009	-	-	-	-	588.00	-	-	-	-	-	-	-	-	-	-	-	-	588.00
Calendasco	33008	2,460	PC	2009	-	-	-	-	294.00	-	700	18	456.00	456	-	-	-	-	2,400.00	-	-	3,150.00
Caminata	33009	297	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caorso	33010	4,944	PC	2009	-	-	-	-	588.00	-	1,600	10	1,000.00	2,000	-	-	-	-	4,800.00	-	1,000.00	7,388.00
Carpaneto Piacentino	33011	7,528	PC	2009	-	-	-	-	588.00	-	1,813	6	3,312.00	-	-	-	-	-	2,880.00	960.00	750.00	8,490.00
Castel San Giovanni	33013	13,696	PC	2009	-	-	-	-	1,568.00	-	3,000	5	5,300.00	-	-	-	-	-	170.00	936.00	-	7,974.00
Castell'Arquato	33012	4,699	PC	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Castelvetro Piacentino	33014	5,495	PC	2009	-	-	-	-	441.00	-	1,400	6	3,312.00	-	-	-	-	-	1,200.00	-	-	4,953.00
Cerignale	33015	170	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coli	33016	1,007	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corte Brugnatella	33017	712	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cortemaggiore	33018	4,511	PC	2009	-	-	-	-	441.00	-	1,300	7	3,864.00	-	-	-	-	600.00	1,440.00	-	-	6,345.00
Farini	33019	1,548	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferriere	33020	1,605	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorenzuola d'Arda	33021	14,807	PC	2009	-	-	-	-	1,029.00	-	5,000	5	8,250.00	-	-	-	-	-	5,000.00	435.00	-	14,714.00
Gazzola	33022	1,984	PC	2009	-	-	-	-	399.00	-	-	4	1,260.00	-	-	-	-	-	480.00	-	-	2,139.00
Gossolengo	33023	5,022	PC	2009	-	-	-	-	588.00	-	600	7	2,688.00	-	-	-	-	-	720.00	-	-	3,996.00
Gragnano Trebbiense	33024	4,326	PC	2009	-	-	-	-	504.00	-	-	-	-	-	-	-	-	-	-	-	-	504.00
Gropparello	33025	2,403	PC	2009	-	-	-	-	294.00	-	-	8	818.40	-	-	-	-	-	-	-	-	1,112.40
LHA of Piacenza	-	-	PC	2009	-	-	-	-	735	-	-	-	-	-	-	-	-	-	-	-	-	735
Lugagnano Val d'Arda	33026	4,319	PC	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Monticelli d'Ongina	33027	5,520	PC	2009	-	-	-	-	441.00	-	1,000	8	3,400.00	-	-	-	-	-	-	-	-	3,841.00
Morfasso	33028	1,202	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nibbiano	33029	2,345	PC	2009	-	-	-	-	294.00	-	443	6	2,160.00	-	-	-	-	-	480.00	-	-	2,934.00
Ottone	33030	623	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecorara	33031	829	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piacenza	33032	101,778	PC	2009	-	-	-	-	7,644.00	-	22,615	6	78,562.80	-	-	-	5,049.00	-	-	3,900.00	5,216.00	100,371.80

Pianello Val Tidone	33033	2,284	PC	2009	-	-	-	-	196.00	-	370	5	1,620.00	-	-	-	-	-	-	-	-	1,816.00
Piozzano	33034	663	PC	2009	-	-	-	-	294.00	-	50	5	500.00	-	-	-	-	-	-	-	-	794.00
Podenzano	33035	8,849	PC	2009	-	-	-	-	735.00	-	1,600	7	4,032.00	1,000	-	-	-	-	3,300.00	-	-	8,067.00
Ponte dell'Olio	33036	4,996	PC	2009	-	-	-	-	441.00	-	1,000	8	2,745.60	-	-	-	-	-	988.00	-	-	4,174.60
Pontenure	33037	6,071	PC	2009	-	-	-	-	588.00	-	1,500	6	3,240.00	-	-	-	-	-	1,140.00	360.00	-	5,328.00
Province of Piacenza	-	-	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rivergaro	33038	6,714	PC	2009	-	-	-	-	588.00	-	-	7	3,780.00	-	-	-	-	-	1,278.00	-	-	5,646.00
Rottofreno	33039	11,179	PC	2009	-	-	-	-	700.00	-	1,600	6	4,000.00	-	-	-	-	500.00	2,500.00	-	-	7,700.00
San Giorgio Piacentino	33040	5,842	PC	2009	-	-	-	-	588.00	-	1,250	6	3,504.00	-	-	-	-	-	-	1,040.00	-	5,132.00
San Pietro in Cerro	33041	972	PC	2009	-	-	-	-	294.00	-	212	4	296.80	-	-	-	-	-	-	-	-	590.80
Sarmato	33042	2,852	PC	2009	-	-	-	-	280.00	-	340	2	-	-	-	-	-	-	-	-	-	280.00
Travo	33043	2,051	PC	2009	-	-	-	-	294.00	-	390	7	1,680.00	-	-	-	-	-	-	-	-	1,974.00
Vernasca	33044	2,358	PC	2009	-	-	-	-	147.00	-	-	-	-	-	-	-	-	-	-	-	-	147.00
Vigolzone	33045	4,234	PC	2009	-	-	-	-	588.00	-	1,140	6	2,880.00	-	-	-	-	-	1,200.00	-	-	4,668.00
Villanova sull'Arda	33046	1,942	PC	2009	-	-	-	-	441.00	-	-	-	-	-	-	-	-	-	-	-	-	441.00
Zerba	33047	105	PC	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ziano Piacentino	33048	2,717	PC	2009	-	-	-	-	294.00	-	197	2	600.00	-	-	-	-	-	-	-	-	894.00
Alfonsine	39001	12,390	RA	2009	-	-	-	-	-	-	3,696	6	8,640.00	-	-	-	776.00	-	3,834.00	-	-	13,250.00
Bagnacavallo	39002	16,588	RA	2009	-	-	-	-	-	-	7,797	6	12,235.20	-	-	-	1,034.00	-	5,040.00	-	692.20	19,001.40
Bagnara di Romagna	39003	2,144	RA	2009	-	-	-	-	-	-	1,046	6	2,412.00	267	-	-	324.00	-	-	-	-	2,736.00
BR Union	-	102,334	RA	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brisighella	39004	7,772	RA	2009	-	-	-	-	-	-	1,461	5	3,024.00	-	-	-	528.00	184.80	2,204.40	-	-	5,941.20
Casola Valsenio	39005	2,773	RA	2009	-	-	-	-	-	-	485	5	1,228.80	-	-	-	324.00	-	240.00	-	-	1,792.80
Castel Bolognese	39006	9,397	RA	2009	-	-	-	-	-	-	2,890	6	5,040.00	-	-	-	404.00	120.00	4,545.60	-	-	10,109.60
Cervia	39007	28,542	RA	2009	-	-	-	-	-	-	21,815	8	55,373.00	13,000	-	76,182.94	2,818.00	1,556.00	3,243.00	-	5,000.00	144,172.94
Conselice	39008	9,770	RA	2009	-	-	-	-	-	-	4,192	6	6,242.00	-	-	-	550.00	528.00	13,640.40	-	42.60	21,003.00
Cotignola	39009	7,330	RA	2009	-	-	-	-	-	-	4,337	6	6,507.60	-	-	-	550.00	-	3,528.00	-	828.00	11,413.60
Faenza	39010	56,922	RA	2009	-	-	-	-	-	-	16,291	6	39,600.00	-	-	-	2,100.00	5,000.00	7,750.00	-	315.40	54,765.40
Fusignano	39011	8,365	RA	2009	-	-	-	-	-	-	3,951	7	6,300.00	-	-	-	468.00	-	3,332.40	-	200.00	10,300.40
LHA of Ravenna	-	-	RA	2009	-	-	-	-	910	-	-	-	-	-	-	-	-	-	-	-	-	910
Lugo	39012	32,684	RA	2009	-	-	-	-	-	-	19,752	5	21,000.00	-	-	-	2,554.00	-	4,320.00	-	4,000.00	31,874.00
Massa Lombarda	39013	10,339	RA	2009	-	-	-	-	-	-	4,430	7	7,642.80	-	-	-	516.00	-	1,230.00	-	-	9,388.80
Province of Ravenna	-	-	RA	2009	-	-	-	-	56966	-	-	-	-	-	-	-	-	-	-	30000	-	86966
Ravenna	39014	155,997	RA	2009	-	-	-	-	-	-	68,471	8	180,829.85	600	-	3,360.00	9,050.00	11,520.00	25,080.00	-	11,960.00	241,799.85

Riolo Terme	39015	5,749	RA	2009	-	-	-	-	-	-	1,665	6	4,560.00	3,600	-	3,600.00	324.00	-	1,048.00	-	420.00	9,952.00
Russi	39016	11,789	RA	2009	-	-	-	-	-	-	6,180	6	11,632.80	-	-	-	970.00	-	2,400.00	-	1,584.00	16,586.80
Sant'Agata sul Santerno	39017	2,724	RA	2009	-	-	-	-	-	-	2,593	6	4,284.00	-	-	-	340.00	-	374.40	-	198.00	5,196.40
Solarolo	39018	4,454	RA	2009	-	-	-	-	-	-	2,038	6	3,512.40	-	-	-	324.00	-	1,512.00	-	480.00	5,828.40
Albinea	35001	8,533	RE	2009	-	-	-	-	-	-	1,300	5	7,861.96	150	-	1,815.00	1,482.29	-	300.00	-	8,800.00	20,259.25
Bagnolo in Piano	35002	9,375	RE	2009	-	-	-	-	882.00	-	2,560	5	9,849.33	150	-	1,980.00	1,664.43	-	300.00	-	13,320.00	27,995.76
Baiso	35003	3,441	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bibbiano	35004	9,676	RE	2009	-	-	-	-	-	-	1,442	5	9,826.60	150	-	1,980.00	1,660.70	-	300.00	2,970.00	-	16,737.30
Boretto	35005	5,177	RE	2009	-	-	-	-	-	-	1,500	5	5,170.85	-	-	-	897.19	-	300.00	-	-	6,368.04
Brescello	35006	5,462	RE	2009	-	-	-	-	-	-	1,500	5	5,493.43	150	-	1,980.00	950.09	-	300.00	-	-	8,723.52
Busana	35007	1,294	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadelbosco di Sopra	35008	10,479	RE	2009	-	-	-	-	882.00	-	2,600	5	9,862.26	150	-	1,815.00	1,845.00	-	300.00	-	-	14,704.26
Campagnola Emilia	35009	5,485	RE	2009	-	-	-	-	-	-	1,600	4	3,098.72	-	-	-	954.88	-	950.00	-	-	5,003.60
Campegine	35010	5,035	RE	2009	-	-	-	-	-	-	1,250	5	4,308.05	-	-	-	923.25	-	307.75	-	615.50	6,154.55
Canossa	35018	3,754	RE	2009	-	-	-	-	294.00	-	1,200	5	428.36	160	-	1,980.00	168.64	-	300.00	810.00	-	3,981.00
Carpineti	35011	4,211	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalgrande	35012	18,284	RE	2009	-	-	-	-	735.00	-	4,150	5	18,544.16	450	-	5,940.00	3,180.04	-	2,100.00	-	-	30,499.20
Casina	35013	4,482	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castellarano	35014	14,863	RE	2009	-	-	-	-	1,470.00	-	2,600	5	12,126.24	450	-	5,445.00	2,583.63	-	2,100.00	-	-	23,724.87
Castelnovo di Sotto	35015	8,727	RE	2009	-	-	-	-	-	-	1,900	5	9,011.49	150	-	1,980.00	1,527.03	-	300.00	-	172.20	12,990.72
Castelnovo ne' Monti	35016	10,591	RE	2009	-	-	-	-	665.00	-	-	-	-	-	-	-	-	-	-	-	-	665.00
Cavriago	35017	9,646	RE	2009	-	-	-	-	735.00	-	2,100	5	10,022.53	150	-	1,980.00	1,692.83	-	300.00	-	-	14,730.36
Collagna	35019	976	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Correggio	35020	24,505	RE	2009	-	-	-	-	5,145.00	-	6,150	5	24,486.66	-	-	4,213.44	-	-	2,100.00	540.00	-	36,485.10
Fabbrico	35021	6,601	RE	2009	-	-	-	-	-	-	1,800	4	4,889.98	-	-	-	1,136.48	-	300.00	-	-	6,326.46
Gattatico	35022	5,779	RE	2009	-	-	-	-	-	-	1,250	5	5,239.38	150	-	1,815.00	1,006.01	-	300.00	810.00	-	9,170.39
Gualtieri	35023	6,680	RE	2009	-	-	-	-	294.00	-	-	-	6,004.44	-	-	-	-	-	-	-	-	6,298.44
Guastalla	35024	15,020	RE	2009	-	-	-	-	2,940.00	-	3,500	5	7,968.85	150	-	1,980.00	2,513.15	-	300.00	-	-	15,702.00
LHA of Reggio Emilia	-	-	RE	2009	-	-	-	-	770	-	-	-	-	-	-	-	-	-	-	-	-	770
Ligonchio	35025	914	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzzara	35026	9,106	RE	2009	-	-	-	-	-	-	1,045	5	9,231.23	450	-	5,940.00	1,563.07	-	300.00	810.00	2,781.20	20,625.50
Montecchio Emilia	35027	10,261	RE	2009	-	-	-	-	1,176.00	-	1,420	5	8,747.53	150	-	1,980.00	1,778.93	-	2,100.00	-	-	15,782.46

Novellara	35028	13,548	RE	2009	-	-	-	-	882.00	-	4,500	5	12,387.91	450	-	5,940.00	2,375.93	-	2,100.00	-	-	23,685.84
Poviglio	35029	7,241	RE	2009	-	-	-	-	294.00	-	1,650	5	7,371.53	-	-	-	1,258.09	-	300.00	1,620.00	-	10,843.62
Province of Reggio Emilia	-	-	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quattro Castella	35030	12,856	RE	2009	-	-	-	-	1,176.00	-	2,195	5	10,276.85	500	-	5,445.00	2,247.76	-	2,100.00	1,620.00	-	22,865.61
Ramiseto	35031	1,345	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reggio nell'Emilia	35033	165,503	RE	2009	-	-	-	-	8,232.00	-	28,630	5	156,301.19	1,800	-	18,150.00	28,809.76	-	4,500.00	540.00	-	216,532.95
Reggiolo	35032	9,213	RE	2009	-	-	-	-	735.00	-	-	14	3,236.00	-	-	-	-	-	648.00	-	-	4,619.00
Rio Saliceto	35034	5,883	RE	2009	-	-	-	-	-	-	1,650	5	5,962.15	150	-	1,980.00	1,026.95	-	300.00	-	150.00	9,419.10
Rolo	35035	3,993	RE	2009	-	-	-	-	-	-	1,400	5	4,012.60	150	-	1,980.00	707.24	-	300.00	-	-	6,999.84
Rubiera	35036	14,371	RE	2009	-	-	-	-	1,470.00	-	2,760	5	11,670.73	450	-	5,445.00	2,500.91	-	2,100.00	-	-	23,186.64
San Martino in Rio	35037	7,763	RE	2009	-	-	-	-	735.00	-	2,000	5	7,848.91	150	-	1,980.00	1,336.37	-	300.00	-	-	12,200.28
San Polo d'Enza	35038	5,755	RE	2009	-	-	-	-	588.00	-	1,200	5	5,780.29	150	-	1,980.00	997.13	-	300.00	-	-	9,645.42
Sant'Ilario d'Enza	35039	10,713	RE	2009	-	-	-	-	735.00	-	1,790	5	8,266.17	450	-	5,445.00	1,882.60	-	2,100.00	-	-	18,428.77
Scandiano	35040	24,730	RE	2009	-	-	-	-	1,470.00	-	1,950	5	26,277.13	450	-	5,940.00	4,287.65	-	2,100.00	-	-	40,074.78
TdM Union	-	19,206	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toano	35041	4,460	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vetto	35042	2,014	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vezzano sul Crostolo	35043	4,247	RE	2009	-	-	-	-	882.00	-	553	5	3,831.81	150	-	1,815.00	750.38	-	300.00	-	-	7,579.19
Viano	35044	3,449	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Villa Minozzo	35045	4,039	RE	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bellaria-Igea Marina	99001	18,744	RN	2009	-	-	-	-	-	-	10,045	5	9,500.00	3,215	-	8,500.00	2,000.00	2,000.00	4,500.00	-	2,900.00	29,400.00
Cattolica	99002	16,668	RN	2009	-	-	-	-	-	-	20,009	5	15,840.00	4,300	-	14,400.00	4,320.00	2,880.00	-	-	7,290.00	44,730.00
Coriano	99003	9,779	RN	2009	-	-	-	-	-	-	2,596	4	6,000.00	1,500	-	5,000.00	1,500.00	640.00	3,000.00	-	1,050.00	17,190.00
Gemmano	99004	1,212	RN	2009	-	-	-	-	-	-	200	4	750.00	-	-	-	150.00	100.00	100.00	-	900.00	2,000.00
LHA of Rimini	-	-	RN	2009	-	-	-	-	31563	-	-	-	-	-	-	-	-	-	-	-	-	31563
Misano Adriatico	99005	11,842	RN	2009	-	-	-	-	-	-	7,000	6	7,800.00	2,140	-	11,600.00	3,600.00	3,000.00	6,000.00	-	9,850.00	41,850.00
Mondaino	99006	1,462	RN	2009	-	-	-	-	-	-	250	5	1,250.00	-	-	-	150.00	400.00	200.00	-	2,250.00	4,250.00
Monte Colombo	99007	3,014	RN	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiore Conca	99008	2,134	RN	2009	-	-	-	-	-	-	213	5	1,380.00	-	-	-	-	-	-	-	-	1,380.00
Montegridolfo	99009	1,027	RN	2009	-	-	-	-	-	-	300	-	1,563.60	-	-	-	-	-	-	-	-	1,563.60
Montescudo	99010	3,106	RN	2009	-	-	-	-	-	-	700	5	800.00	-	-	-	100.00	-	100.00	-	150.00	1,150.00
Morciano di Romagna	99011	6,698	RN	2009	-	-	-	-	-	-	4,616	4	2,500.00	1,073	-	3,000.00	1,500.00	2,000.00	4,500.00	-	2,350.33	15,850.33
Poggio Berni	99012	3,334	RN	2009	-	-	-	-	-	-	916	5	2,100.00	-	-	-	100.00	200.00	300.00	-	160.00	2,860.00
Province of Rimini	-	-	RN	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18919.5	-	18919.5

Riccione	99013	35,232	RN	2009	-	-	-	-	-	-	31,000	10	42,000.00	7,827	-	96,000.00	12,852.00	-	1,200.00	-	10,800.00	162,852.00
Rimini	99014	140,158	RN	2009	-	-	-	-	-	-	124,000	4	91,200.00	19,500	-	174,600.00	50,000.00	35,000.00	4,199.60	-	25,000.00	379,999.60
Saludecio	99015	2,908	RN	2009	-	-	-	-	-	-	402	4	960.00	-	-	-	100.00	150.00	350.00	-	50.00	1,610.00
San Clemente	99016	4,762	RN	2009	-	-	-	-	-	-	3,045	4	2,800.00	700	-	6,000.00	350.00	200.00	50.00	-	450.00	9,850.00
San Giovanni in Marignano	99017	8,884	RN	2009	-	-	-	-	-	-	3,550	5	9,450.00	2,200	-	6,900.00	1,000.00	500.00	4,000.00	-	1,538.00	23,388.00
Santarcangelo di Romagna	99018	20,907	RN	2009	-	-	-	-	-	-	16,010	5	18,000.00	3,645	-	12,960.00	5,000.00	2,000.00	6,000.00	-	3,750.00	47,710.00
Torriana	99019	1,433	RN	2009	-	-	-	-	-	-	450	4	1,350.00	250	-	2,900.00	250.00	300.00	100.00	-	950.00	5,850.00
Verucchio	99020	9,966	RN	2009	-	-	-	-	-	-	2,722	4	2,669.07	-	-	-	360.00	360.00	300.00	-	-	3,689.07

Table 100. E-R Plan Expenditures dataset – 2010

					Reported activity and relative expenditures incurred for its realization																
Municipality	*ISTAT code*	*Population*	*LHA*	*Reported in the year*	*Management of reported cases (emergency)*		*Monitoring of Ae. albopictus population*			*CG_Exp*	*Larvicidal treatments*			*DtD interventions*			*QC_Exp*	*SI_Exp*	*LK_Exp*	*Edu_Exp*	*O_Exp*	*Tot_Exp*
					Em1_Exp	*Em2_Exp*	*Ovi_n*	*Ovi_ch*	*Ovi_Exp*		*RD_n*	*R_n*	*L_Exp*	*DtD_n*	*DtD_R*	*DtD_Exp*						
Anzola dell'Emilia	37001	11,851	BO	2010	-	-	-	-	990.00	-	12,250	4	5,957.27	1,015	-	8,935.90	3,939.60	13,000.68	991.22	-	-	33,814.67
Argelato	37002	9,676	BO	2010	-	-	-	-	270.00	-	5,350	4	6,155.97	-	-	-	1,181.88	4,963.90	1,740.62	-	-	14,312.37
Baricella	37003	6,596	BO	2010	-	-	-	-	270.00	-	3,050	4	2,954.87	-	-	-	672.52	1,186.80	1,533.00	-	-	6,617.19
Bazzano	37004	6,846	BO	2010	-	-	-	-	720.00	-	200	10	9,696.00	-	-	-	-	-	1,320.00	-	-	11,736.00
Bentivoglio	37005	5,152	BO	2010	-	-	-	-	270.00	-	3,000	4	4,020.06	-	-	-	1,575.84	5,909.40	1,733.40	-	-	13,508.70
Bologna	37006	377,220	BO	2010	1,908.80	1,193.87	-	-	10,950.00	-	92,000	7	285,395.88	-	-	-	24,064.75	2,472.96	-	9,900.00	72,463.09	408,349.35
Budrio	37008	17,769	BO	2010	-	-	-	-	1,260.00	-	5,816	5	7,200.00	-	-	-	1,299.20	3,712.00	15,602.40	1,250.00	7,323.18	37,646.78
Calderara di Reno	37009	13,035	BO	2010	-	-	-	-	990.00	-	19,300	4	7,344.38	1,055	-	11,016.58	4,727.52	9,455.04	1,077.72	1,530.00	919.36	37,060.60
Camugnano	37010	2,070	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalecchio di Reno	37011	35,513	BO	2010	8,400.00	-	-	-	4,500.00	-	8,400	9	14,000.00	-	-	-	5,500.00	1,000.00	2,500.00	400.00	-	36,300.00
Castel d'Aiano	37013	1,990	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel di Casio	37015	3,505	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Maggiore	37019	17,261	BO	2010	-	-	-	-	1,800.00	-	10,100	4	9,246.10	-	-	-	1,624.00	4,176.00	6,291.00	2,700.00	-	25,837.10
Castello d'Argile	37017	6,380	BO	2010	-	-	-	-	900.00	-	2,800	4	6,843.11	-	-	-	835.20	1,856.00	990.00	2,040.00	-	13,464.31
Castello di Serravalle	37018	4,902	BO	2010	-	-	-	-	540.00	-	-	8	3,972.00	-	-	-	-	-	792.00	-	510.00	5,814.00
Castenaso	37021	14,209	BO	2010	-	-	-	-	1,260.00	-	-	-	8,246.67	-	-	8,000.00	1,661.52	3,362.60	3,942.00	-	-	26,472.79
Castiglione dei Pepoli	37022	6,041	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crespellano	37023	9,834	BO	2010	-	-	-	-	720.00	-	-	-	-	-	-	-	-	-	-	-	-	720.00
Crevalcore	37024	13,580	BO	2010	-	-	-	-	990.00	-	7,500	4	7,213.44	-	-	-	2,757.72	7,879.20	2,812.32	1,530.00	2,467.10	25,649.78
Gaggio Montano	37027	5,154	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galliera	37028	5,578	BO	2010	-	-	-	-	270.00	-	1,950	4	2,318.58	-	-	-	984.90	1,969.80	743.64	765.00	-	7,051.92
Granaglione	37029	2,267	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granarolo dell'Emilia	37030	10,321	BO	2010	144.00	-	-	-	810.00	-	6,700	5	9,834.00	-	-	-	-	435.00	5,835.28	-	7,852.00	24,910.28
Grizzana Morandi	37031	4,024	BO	2010	-	-	-	-	-	-	-	28	120.00	7	-	-	-	-	-	-	-	120.00
LHA of Bologna	-	-	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lizzano in Belvedere	37033	2,410	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Loiano	37034	4,506	BO	2010	-	-	-	-	-	-	-	3	720.00	-	-	-	-	-	-	-	-	720.00
Malalbergo	37035	8,732	BO	2010	-	-	-	-	810.00	-	-	4	4,566.83	-	-	1,500.00	941.64	4,484.00	3,504.00	-	-	15,806.47
Marzabotto	37036	6,747	BO	2010	-	-	-	-	-	-	-	7	6,720.00	-	-	-	-	500.00	1,015.00	-	-	8,235.00
Minerbio	37038	8,651	BO	2010	-	-	-	-	360.00	-	4,000	4	4,196.68	-	-	-	870.32	395.60	1,533.00	-	-	7,355.60
Molinella	37039	15,756	BO	2010	-	-	-	-	-	-	9,044	8	48,993.34	1,676	-	8,970.12	5,880.00	-	4,300.00	-	2,895.12	71,038.58
Monghidoro	37040	3,903	BO	2010	-	-	-	-	-	-	-	3	400.00	-	-	-	-	-	-	-	-	400.00
Monte San Pietro	37042	11,020	BO	2010	-	-	-	-	-	-	2,000	7	5,760.00	-	-	-	-	-	1,998.36	-	-	7,758.36
Monterenzio	37041	5,970	BO	2010	-	-	-	-	-	-	-	5	3,000.00	-	-	-	-	-	252.00	-	-	3,252.00
Monteveglio	37043	5,274	BO	2010	-	-	-	-	540.00	-	-	8	3,972.00	-	-	-	300.00	-	756.00	-	149.97	5,717.97
Monzuno	37044	6,477	BO	2010	-	-	-	-	-	-	-	-	10,039.20	-	-	600.00	-	-	756.00	-	-	11,395.20
Ozzano dell'Emilia	37046	12,600	BO	2010	-	-	-	-	720.00	-	5,500	6	9,515.00	-	-	-	2,244.00	-	5,616.00	-	-	18,095.00
Pianoro	37047	17,231	BO	2010	-	-	-	-	-	-	4,328	7	7,560.00	-	-	-	-	-	3,600.00	-	-	11,160.00
Pieve di Cento	37048	7,025	BO	2010	-	-	-	-	-	-	2,850	5	3,813.88	-	-	-	670.00	1,580.00	2,000.00	918.00	-	8,981.88
Porretta Terme	37049	4,784	BO	2010	-	-	-	-	540.00	-	-	6	3,156.00	-	-	-	-	-	274.68	550.00	-	4,520.68
Province of Bologna	-	-	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sala Bolognese	37050	8,281	BO	2010	-	-	-	-	990.00	-	4,500	4	3,697.15	-	-	-	1,575.84	7,485.24	3,079.68	765.00	-	17,592.91
San Benedetto Val di Sambro	37051	4,512	BO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Giorgio di Piano	37052	8,150	BO	2010	-	-	-	-	540.00	-	5,170	4	4,882.79	250	-	2,000.00	879.65	4,798.08	816.00	1,020.00	3,536.86	18,473.38
San Giovanni in Persiceto	37053	26,915	BO	2010	-	-	-	-	1,980.00	-	12,500	4	12,077.02	-	-	-	4,333.56	15,758.40	4,650.00	3,060.00	430.00	42,288.98
San Lazzaro di Savena	37054	31,184	BO	2010	-	-	-	-	-	-	10,700	4	11,005.29	-	-	-	3,151.68	10,636.92	6,734.40	-	-	31,528.29
San Pietro in Casale	37055	11,625	BO	2010	-	-	-	-	540.00	-	4,800	4	5,245.10	-	-	-	1,199.52	5,837.66	1,735.44	765.00	-	15,322.72
Sant'Agata Bolognese	37056	7,336	BO	2010	-	-	-	-	900.00	-	2,560	4	2,798.16	-	-	-	1,575.84	1,772.82	549.91	675.00	1,820.03	10,091.76
Sasso Marconi	37057	14,711	BO	2010	-	-	-	-	900.00	-	2,606	6	8,770.00	1,000	-	5,819.00	-	400.00	1,512.00	-	-	17,401.00
Savigno	37058	2,811	BO	2010	-	-	-	-	-	-	-	7	4,302.00	-	-	-	-	-	-	-	-	4,302.00
Vergato	37059	7,846	BO	2010	-	-	-	-	540.00	-	275	8	4,740.00	-	-	-	660.00	180.00	830.40	1,488.00	-	8,438.40
Zola Predosa	37060	18,088	BO	2010	-	-	-	-	1,260.00	-	-	-	14,700.00	-	-	-	800.00	-	2,400.00	-	-	19,160.00
Bagno di Romagna	40001	6,191	CE	2010	-	-	-	-	630.00	-	920	6	2,808.00	-	-	-	600.00	-	-	-	-	4,038.00
Borghi	40004	2,703	CE	2010	-	-	-	-	540.00	-	461	8	3,407.00	518	-	3,276.00	600.00	-	-	-	-	7,823.00
Cesena	40007	96,171	CE	2010	-	-	-	-	7,800.00	-	24,000	6	53,568.00	-	-	-	5,760.00	-	3,240.00	-	31,068.00	101,436.00
Cesenatico	40008	25,375	CE	2010	-	-	-	-	3,600.00	-	10,975	8	38,961.60	-	-	-	3,290.00	4,870.40	4,368.00	-	1,800.00	56,890.00
Gambettola	40015	10,368	CE	2010	-	-	-	-	810.00	-	3,275	5	4,008.60	2,511	-	8,195.90	960.00	-	-	-	554.88	14,529.38
Gatteo	40016	8,649	CE	2010	-	-	-	-	900.00	-	3,373	7	9,516.24	2,097	-	8,807.40	1,200.00	1,512.00	-	-	-	21,935.64

LHA of Cesena	-	-	CE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9650	-	9650
Longiano	40018	6,862	CE	2010	-	-	-	-	990.00	-	2,798	7	7,521.36	-	-	-	820.00	-	-	-	370.00	9,701.36
Mercato Saraceno	40020	7,002	CE	2010	-	-	-	-	990.00	-	1,500	6	8,108.00	-	-	-	600.00	-	-	-	-	9,698.00
Montiano	40028	1,698	CE	2010	-	-	-	-	540.00	-	469	8	8,232.54	-	-	-	600.00	-	-	-	-	9,372.54
Province of Cesena	-	-	CE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roncofreddo	40037	3,365	CE	2010	-	-	-	-	630.00	-	966	7	3,547.01	-	-	-	600.00	-	-	-	-	4,777.01
San Mauro Pascoli	40041	10,959	CE	2010	-	-	-	-	900.00	-	2,812	7	8,031.07	-	-	-	1,008.00	-	-	-	420.00	10,359.07
Sarsina	40044	3,704	CE	2010	-	-	-	-	450.00	-	800	8	1,400.83	-	-	-	600.00	-	-	-	-	2,450.83
Savignano sul Rubicone	40045	17,329	CE	2010	-	-	-	-	1,080.00	-	3,911	7	11,169.84	2,650	-	32,340.00	1,392.00	2,520.00	-	-	-	48,501.84
Sogliano al Rubicone	40046	3,226	CE	2010	-	-	-	-	990.00	-	781	8	2,699.14	379	-	4,548.00	720.00	1,368.00	-	-	-	10,325.14
Verghereto	40050	1,980	CE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argenta	38001	22,570	FE	2010	-	-	-	-	1,350.00	-	7,200	6	17,940.00	-	-	-	-	-	10,350.00	-	688.80	30,328.80
Berra	38002	5,345	FE	2010	-	-	-	-	540.00	-	1,250	5	6,000.00	-	-	-	-	-	-	540.00	-	7,080.00
Bondeno	38003	15,447	FE	2010	-	-	-	-	1,350.00	-	3,622	6	15,840.00	-	-	-	-	-	1,747.00	-	1,260.00	20,197.00
Cento	38004	35,150	FE	2010	-	-	-	-	1,170.00	-	8,138	6	26,712.00	-	-	-	-	-	2,340.00	-	-	30,222.00
Codigoro	38005	12,615	FE	2010	-	-	-	-	720.00	-	3,600	6	20,736.00	-	-	-	-	-	1,785.60	-	-	23,241.60
Comacchio	38006	23,084	FE	2010	-	-	-	-	2,790.00	-	14,000	5	36,146.93	-	-	-	7,200.00	2,880.00	160.00	2,080.00	-	51,256.93
Copparo	38007	17,408	FE	2010	-	-	-	-	720.00	-	5,000	5	24,000.00	-	-	-	-	-	-	-	-	24,720.00
Ferrara	38008	134,962	FE	2010	-	-	-	-	9,600.00	-	31,000	6	192,285.00	-	-	-	-	4,000.00	-	9,775.00	3,000.00	218,660.00
Formignana	38009	2,817	FE	2010	-	-	-	-	90.00	-	850	7	5,712.00	-	-	-	-	-	-	-	-	5,802.00
Goro	38025	3,976	FE	2010	-	-	-	-	270.00	-	1,800	7	5,880.00	-	-	-	-	-	-	-	-	6,150.00
Jolanda di Savoia	38010	3,138	FE	2010	-	-	-	-	450.00	-	1,200	6	5,760.00	-	-	-	-	-	-	-	432.00	6,642.00
Lagosanto	38011	4,846	FE	2010	-	-	-	-	360.00	-	2,300	8	14,000.00	-	-	-	-	-	2,332.00	-	-	16,692.00
LHA of Ferrara	-	-	FE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Masi Torello	38012	2,402	FE	2010	-	-	-	-	180.00	-	1,100	9	8,712.00	-	-	-	-	-	164.00	-	-	9,056.00
Massa Fiscaglia	38013	3,682	FE	2010	-	-	-	-	90.00	-	-	6	2,880.00	-	-	-	-	-	-	-	-	2,970.00
Mesola	38014	7,187	FE	2010	-	-	-	-	540.00	-	2,300	5	11,040.00	-	-	-	-	-	-	-	-	11,580.00
Migliarino	38015	3,713	FE	2010	-	-	-	-	270.00	-	1,800	8	8,832.00	-	-	-	-	-	720.00	-	-	9,822.00
Migliaro	38026	2,259	FE	2010	-	-	-	-	180.00	-	600	8	4,608.00	-	-	-	-	-	-	-	-	4,788.00
Mirabello	38016	3,510	FE	2010	-	-	-	-	900.00	-	818	6	6,552.00	-	-	-	-	-	349.44	-	-	7,801.44
Ostellato	38017	6,592	FE	2010	-	-	-	-	540.00	-	2,400	7	16,128.00	-	-	-	-	-	357.12	1,080.00	-	18,105.12
Poggio Renatico	38018	9,446	FE	2010	-	-	-	-	720.00	-	2,520	6	9,432.00	-	-	-	-	260.00	1,716.00	-	-	12,128.00
Portomaggiore	38019	12,397	FE	2010	-	-	-	-	720.00	-	3,750	6	21,600.00	-	-	-	-	-	483.84	-	-	22,803.84
Province of Ferrara	-	-	FE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ro	38020	3,424	FE	2010	-	-	-	-	90.00	-	1,200	-	6,000.00	-	-	-	-	-	-	-	-	6,090.00

Sant'Agostino	38021	7,079	FE	2010	-	-	-	-	540.00	-	1,942	6	12,168.00	-	-	-	-	-	624.00	-	-	13,332.00
Tresigallo	38024	4,613	FE	2010	-	-	-	-	270.00	-	2,000	15	23,040.00	-	-	-	-	-	-	-	3,600.00	26,910.00
Vigarano Mainarda	38022	7,412	FE	2010	-	-	-	-	630.00	-	2,186	6	7,155.65	-	-	-	-	-	473.40	-	616.00	8,875.05
Voghiera	38023	3,892	FE	2010	-	-	-	-	360.00	-	-	-	10,368.00	-	-	-	-	-	-	-	-	10,728.00
Bertinoro	40003	10,901	FO	2010	-	-	-	-	1,440.00	-	3,076	6	3,543.00	-	-	-	-	-	-	-	-	4,983.00
Castrocaro Terme e Terra del Sole	40005	6,599	FO	2010	-	-	-	-	810.00	-	1,450	8	6,316.00	-	-	-	480.00	-	-	-	-	7,606.00
Civitella di Romagna	40009	3,840	FO	2010	-	-	-	-	720.00	-	950	6	2,400.00	-	-	-	-	-	-	-	250.00	3,370.00
Dovadola	40011	1,719	FO	2010	-	-	-	-	540.00	-	421	8	1,632.00	-	-	-	300.00	-	-	-	210.00	2,682.00
Forlì	40012	117,550	FO	2010	-	-	-	-	6,450.00	-	39,000	6	111,646.00	-	-	-	29,000.00	6,000.00	-	-	-	153,096.00
Forlimpopoli	40013	12,944	FO	2010	-	-	-	-	1,260.00	-	4,912	5	4,715.00	-	-	-	1,128.00	1,700.00	-	-	360.00	9,163.00
Galeata	40014	2,507	FO	2010	-	-	-	-	567.00	-	500	4	762.00	-	-	-	-	-	-	-	-	1,329.00
LHA of Forlì	-	-	FO	2010	201.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6050	-	6251.6
Meldola	40019	10,140	FO	2010	-	-	-	-	891.00	-	2,177	6	8,143.00	-	-	-	528.00	-	-	-	1,200.00	10,762.00
Modigliana	40022	4,814	FO	2010	-	-	-	-	567.00	-	1,200	6	3,148.00	-	-	-	-	-	-	-	400.00	4,115.00
Portico e San Benedetto	40031	803	FO	2010	-	-	-	-	540.00	-	180	6	1,080.00	-	-	-	180.00	300.00	-	-	-	2,100.00
Predappio	40032	6,484	FO	2010	2,280.00	-	-	-	900.00	-	1,369	-	3,219.00	-	-	-	-	-	-	-	-	6,399.00
Premilcuore	40033	827	FO	2010	-	-	-	-	486.00	-	250	2	227.00	-	-	-	-	-	-	-	-	713.00
Province of Forlì	-	-	FO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocca San Casciano	40036	2,047	FO	2010	-	-	-	-	630.00	-	615	9	2,448.00	-	-	-	-	-	-	-	-	3,078.00
Santa Sofia	40043	4,269	FO	2010	-	-	-	-	630.00	-	900	9	3,400.00	-	-	-	-	-	400.00	-	-	4,430.00
Tredozio	40049	1,304	FO	2010	-	-	-	-	540.00	-	300	4	1,440.00	-	-	-	-	-	-	-	-	1,980.00
Borgo Tossignano	37007	3,312	IM	2010	-	-	-	-	-	-	1,000	7	2,520.00	-	-	-	-	-	720.00	-	-	3,240.00
Casalfiumanese	37012	3,440	IM	2010	-	-	-	-	-	-	-	-	2,160.00	-	-	-	-	-	2,318.40	-	-	4,478.40
Castel del Rio	37014	1,268	IM	2010	-	-	-	-	-	-	160	5	736.80	-	-	-	-	-	864.00	-	300.00	1,900.80
Castel Guelfo di Bologna	37016	4,216	IM	2010	-	-	-	-	-	-	2,728	7	13,956.00	-	-	-	-	-	1,044.00	-	-	15,000.00
Castel San Pietro Terme	37020	20,634	IM	2010	-	-	-	-	1,080.00	-	7,985	6	10,445.40	-	-	-	2,040.00	300.00	2,785.44	-	-	16,650.84
Dozza	37025	6,434	IM	2010	-	-	-	-	-	-	1,772	6	3,084.22	-	-	-	-	-	777.60	-	-	3,861.82
Fontanelice	37026	1,911	IM	2010	-	-	-	-	-	-	-	8	1,920.00	-	-	-	-	-	450.00	-	-	2,370.00
Imola	37032	68,682	IM	2010	-	-	-	-	-	-	-	6	37,080.00	-	-	-	-	-	10,080.00	-	-	47,160.00
LHA of Imola	-	-	IM	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3575	-	3575
Medicina	37037	16,508	IM	2010	1,080.00	-	-	-	1,080.00	-	6,283	5	12,000.00	-	-	1,629.60	-	-	6,883.20	-	-	22,672.80
Mordano	37045	4,617	IM	2010	-	-	-	-	-	-	-	8	6,840.00	-	-	-	-	-	1,008.00	-	-	7,848.00
Province of Imola	-	-	IM	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bastiglia	36001	4,091	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bomporto	36002	9,506	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campogalliano	36003	8,468	MO	2010	-	-	-	-	900.00	-	2,000	6	5,520.00	-	-	-	-	-	-	-	6,420.00
Camposanto	36004	3,222	MO	2010	-	-	-	-	900.00	-	1,380	6	2,599.00	-	-	-	-	-	-	800.00	-	4,299.00
Carpi	36005	68,059	MO	2010	573.00	1,943.39	-	-	4,200.00	-	15,237	8	28,357.20	-	-	-	-	246.88	-	-	2,434.68	37,755.15
Castelfranco Emilia	36006	31,229	MO	2010	-	-	-	-	900.00	-	5,300	6	32,600.00	-	-	-	-	-	-	-	-	33,500.00
Castelnuovo Rangone	36007	14,196	MO	2010	-	-	-	-	900.00	-	4,030	6	12,000.00	-	-	-	-	-	-	238.00	-	13,138.00
Castelvetro di Modena	36008	10,933	MO	2010	-	-	-	-	900.00	-	2,844	4	7,516.68	-	-	-	-	-	544.90	2,200.00	-	11,161.58
Cavezzo	36009	7,284	MO	2010	-	-	-	-	900.00	-	2,500	8	2,784.00	-	-	-	-	104.19	-	-	-	3,788.19
Concordia sulla Secchia	36010	8,961	MO	2010	-	-	-	-	810.00	-	1,900	6	3,215.70	-	-	-	-	-	-	-	-	4,025.70
Fanano	36011	3,114	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finale Emilia	36012	15,954	MO	2010	-	-	-	-	1,215.00	-	-	-	-	-	-	-	-	-	-	-	-	1,215.00
Fiorano Modenese	36013	16,990	MO	2010	-	-	-	-	900.00	-	3,914	7	7,800.00	-	-	3,600.00	-	2,000.00	500.00	2,200.00	-	17,000.00
Fiumalbo	36014	1,307	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formigine	36015	33,440	MO	2010	-	-	-	-	2,250.00	-	8,285	4	11,250.00	-	-	1,000.00	1,800.00	500.00	960.00	4,125.00	-	21,885.00
Frassinoro	36016	2,052	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiglia	36017	4,115	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lama Mocogno	36018	2,938	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Modena	-	-	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maranello	36019	16,865	MO	2010	-	-	-	-	900.00	-	3,900	7	10,072.80	-	-	-	-	1,221.83	-	536.55	-	12,731.18
Marano sul Panaro	36020	4,588	MO	2010	-	-	-	-	900.00	-	841	7	5,467.20	-	-	-	-	-	-	-	-	6,367.20
Medolla	36021	6,315	MO	2010	-	-	-	-	900.00	-	1,335	10	6,446.15	-	-	-	-	-	-	-	-	7,346.15
Mirandola	36022	24,321	MO	2010	-	-	-	-	4,500.00	-	8,550	8	6,839.00	-	-	-	-	391.50	-	-	-	11,730.50
Modena	36023	183,114	MO	2010	-	-	-	-	5,400.00	-	50,000	6	187,632.60	-	-	4,680.00	7,740.00	26,556.00	10,415.76	1,300.00	-	243,724.36
Montecreto	36024	992	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiorino	36025	2,262	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montese	36026	3,420	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonantola	36027	15,361	MO	2010	-	-	-	-	900.00	-	12,560	6	16,300.00	-	-	4,000.00	-	1,480.00	1,500.00	-	-	24,180.00
Novi di Modena	36028	11,276	MO	2010	-	-	-	-	540.00	-	2,890	6	8,738.00	-	-	-	-	200.00	-	-	-	9,478.00
Palagano	36029	2,442	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavullo nel Frignano	36030	17,284	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pievepelago	36031	2,335	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polinago	36032	1,779	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prignano sulla Secchia	36033	3,796	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Province of Modena	-	-	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ravarino	36034	6,295	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riolunato	36035	760	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Cesario sul Panaro	36036	6,002	MO	2010	-	-	-	-	540.00	-	1,910	5	3,900.00	-	-	-	-	-	-	-	-	4,440.00
San Felice sul Panaro	36037	10,992	MO	2010	-	-	-	-	900.00	-	3,000	6	8,409.85	-	-	-	-	-	-	-	-	9,309.85
San Possidonio	36038	3,856	MO	2010	-	-	-	-	810.00	-	1,127	6	2,566.00	-	-	-	-	-	-	-	-	3,376.00
San Prospero	36039	5,800	MO	2010	-	-	-	-	900.00	-	1,650	9	2,952.00	-	-	-	-	-	-	-	-	3,852.00
Sassuolo	36040	41,587	MO	2010	-	-	-	-	810.00	-	7,600	5	8,664.00	-	-	-	-	-	-	-	663.94	10,137.94
Savignano sul Panaro	36041	9,403	MO	2010	-	-	-	-	900.00	-	2,000	5	3,783.00	-	-	-	-	540.00	-	-	-	5,223.00
Serramazzoni	36042	8,322	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sestola	36043	2,630	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soliera	36044	15,226	MO	2010	-	-	-	-	540.00	-	4,200	6	10,687.00	-	-	-	-	-	-	-	-	11,227.00
Sorbara Union	-	19,892	MO	2010	-	-	-	-	2430	-	-	-	5508.8	-	-	-	-	-	2016	2400	-	12354.8
Spilamberto	36045	12,190	MO	2010	-	-	-	-	720.00	-	2,635	5	3,781.00	-	-	-	-	280.14	-	-	-	4,781.14
UCMAN	-	66,752	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vignola	36046	24,509	MO	2010	-	-	-	-	900.00	-	-	-	8,132.55	-	-	-	1,740.00	648.00	1,224.00	-	-	12,644.55
Zocca	36047	4,999	MO	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albareto	34001	2,240	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bardi	34002	2,403	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedonia	34003	3,722	PR	2010	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Berceto	34004	2,215	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bore	34005	812	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borgo Val di Taro	34006	7,238	PR	2010	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Busseto	34007	6,978	PR	2010	-	-	-	-	-	-	1,600	7	2,520.00	-	-	-	-	-	-	-	-	2,520.00
Calestano	34008	2,075	PR	2010	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	300.00	570.00
Collecchio	34009	13,860	PR	2010	-	-	-	-	360.00	-	4,000	12	6,130.80	-	-	-	-	-	1,716.00	-	-	8,206.80
Colorno	34010	8,989	PR	2010	-	-	-	-	243.00	-	800	14	4,540.00	-	-	-	1,350.00	-	1,344.00	1,925.00	500.00	9,902.00
Compiano	34011	1,134	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corniglio	34012	2,069	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Felino	34013	8,339	PR	2010	-	-	-	-	450.00	-	2,000	10	3,552.00	-	-	-	-	-	-	-	-	4,002.00
Fidenza	34014	25,731	PR	2010	4,200.00	1,000.00	-	-	486.00	-	8,900	8	16,863.97	-	-	-	1,500.00	-	2,400.00	2,475.00	61,026.00	89,950.97
Fontanellato	34015	7,017	PR	2010	-	-	-	-	270.00	-	1,500	12	4,104.00	-	-	-	-	-	1,200.00	-	-	5,574.00
Fontevivo	34016	5,551	PR	2010	-	-	-	-	360.00	-	1,250	13	3,120.00	-	-	-	-	-	-	-	-	3,480.00
Fornovo di Taro	34017	6,252	PR	2010	-	-	-	-	270.00	-	1,000	6	2,304.00	-	-	-	-	-	-	-	-	2,574.00

Langhirano	34018	9,714	PR	2010	-	-	-	-	360.00	-	900	7	2,116.00	-	-	-	-	-	-	-	-	2,476.00
Lesignano de' Bagni	34019	4,693	PR	2010	-	-	-	-	216.00	-	300	5	1,536.00	-	-	-	-	-	-	-	-	1,752.00
LHA of Parma	-	-	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medesano	34020	10,704	PR	2010	-	-	-	-	540.00	-	2,200	9	3,888.00	-	-	-	297.00	-	-	-	320.01	5,045.01
Mezzani	34021	3,370	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monchio Delle Corti	34022	1,039	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montechiarugolo	34023	10,473	PR	2010	-	-	-	-	324.00	-	4,000	13	35,160.00	-	-	-	-	-	-	-	-	35,484.00
Neviano Degli Arduini	34024	3,740	PR	2010	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Noceto	34025	12,383	PR	2010	-	-	-	-	360.00	-	1,000	6	2,160.00	-	-	-	-	-	960.00	-	-	3,480.00
Palanzano	34026	1,219	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parma	34027	184,467	PR	2010	2,700.00	110.00	-	-	5,670.00	-	54,274	4	19,810.00	-	-	-	-	5,700.00	-	8,250.00	-	42,240.00
Pellegrino Parmense	34028	1,113	PR	2010	540.00	-	-	-	270.00	-	-	-	464.00	-	-	-	-	-	-	275.00	-	1,549.00
Polesine Parmense	34029	1,501	PR	2010	-	-	-	-	243.00	-	-	-	-	-	-	-	-	-	-	-	-	243.00
Province of Parma	-	-	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roccabianca	34030	3,141	PR	2010	-	-	-	-	216.00	-	1,298	12	3,840.00	-	-	-	-	-	-	-	-	4,056.00
Sala Baganza	34031	5,322	PR	2010	-	-	-	-	270.00	-	1,300	10	6,948.00	-	-	-	-	-	-	-	-	7,218.00
Salsomaggiore Terme	34032	20,146	PR	2010	-	-	-	-	450.00	-	-	-	-	-	-	-	-	-	-	-	-	450.00
San Secondo Parmense	34033	5,600	PR	2010	-	-	-	-	270.00	-	1,480	7	2,800.00	-	-	-	-	-	1,050.00	-	-	4,120.00
Sissa	34034	4,313	PR	2010	-	-	-	-	-	-	-	8	2,400.00	30	-	1,000.00	-	-	720.00	-	-	4,120.00
SM Union	-	12,879	PR	2010	-	-	-	-	540	-	-	-	12120	-	-	-	-	-	600	3025	-	16285
Solignano	34035	1,860	PR	2010	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Soragna	34036	4,793	PR	2010	-	-	-	-	270.00	-	500	13	2,496.00	-	-	-	-	-	-	-	-	2,766.00
Sorbolo	34037	9,509	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terenzo	34038	1,233	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tizzano Val Parma	34039	2,149	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tornolo	34040	1,154	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torrile	34041	7,719	PR	2010	-	-	-	-	216.00	-	1,826	14	5,376.00	-	-	-	-	-	480.00	-	-	6,072.00
Traversetolo	34042	9,243	PR	2010	-	-	-	-	270.00	-	1,600	6	6,942.00	-	-	-	1,500.00	1,000.00	-	-	-	9,712.00
Trecasali	34043	3,605	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	480.00	-	-	480.00
Valmozzola	34044	597	PR	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varano de' Melegari	34045	2,668	PR	2010	-	-	-	-	270.00	-	500	10	1,440.00	-	-	-	300.00	-	-	-	-	2,010.00
Varsi	34046	1,307	PR	2010	-	-	-	-	360.00	-	170	12	1,449.10	-	-	-	-	-	-	-	-	1,809.10
Zibello	34048	1,908	PR	2010	-	-	-	-	243.00	-	-	-	1,152.00	-	-	-	-	-	-	-	-	1,395.00

Agazzano	33001	2,083	PC	2010	-	-	-	-	243.00	-	400	5	1,380.00	-	-	-	-	-	207.00	-	450.00	2,280.00
Alseno	33002	4,852	PC	2010	-	-	-	-	360.00	-	1,300	7	3,612.00	-	-	-	-	-	-	582.40	-	4,554.40
Besenzone	33003	985	PC	2010	-	-	-	-	180.00	-	220	6	540.00	-	-	-	-	-	-	-	-	720.00
Bettola	33004	3,060	PC	2010	-	-	-	-	180.00	-	100	5	500.00	-	-	-	-	-	-	-	-	680.00
Bobbio	33005	3,755	PC	2010	-	-	-	-	270.00	-	250	7	1,012.00	-	-	-	-	-	1,440.00	437.00	-	3,159.00
Borgonovo Val Tidone	33006	7,602	PC	2010	-	-	-	-	450.00	-	1,371	7	3,612.00	-	-	-	-	-	-	-	-	4,062.00
Cadeo	33007	6,161	PC	2010	-	-	-	-	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Calendasco	33008	2,484	PC	2010	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Caminata	33009	287	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caorso	33010	4,893	PC	2010	-	-	-	-	360.00	-	1,600	7	1,296.00	-	-	-	-	-	6,270.00	-	1,500.00	9,426.00
Carpaneto Piacentino	33011	7,660	PC	2010	-	-	-	-	360.00	-	1,813	5	2,760.00	-	-	-	-	-	1,440.00	800.00	750.00	6,110.00
Castel San Giovanni	33013	13,826	PC	2010	-	-	-	-	630.00	-	3,000	5	5,400.00	-	-	-	-	-	3,132.00	-	675.40	9,837.40
Castell'Arquato	33012	4,728	PC	2010	-	-	-	-	270.00	-	580	8	1,339.60	-	-	-	-	-	-	-	-	1,609.60
Castelvetro Piacentino	33014	5,510	PC	2010	-	-	-	-	360.00	-	1,400	6	3,312.00	-	-	-	-	-	720.00	-	-	4,392.00
Cerignale	33015	166	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coli	33016	999	PC	2010	-	-	-	-	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Corte Brugnatella	33017	708	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cortemaggiore	33018	4,519	PC	2010	-	-	-	-	360.00	-	1,300	7	3,864.00	-	-	-	-	-	720.00	-	-	4,944.00
Farini	33019	1,523	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferriere	33020	1,595	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorenzuola d'Arda	33021	14,970	PC	2010	-	-	-	-	630.00	-	5,000	5	8,250.00	-	-	-	-	-	5,000.00	437.00	-	14,317.00
Gazzola	33022	2,019	PC	2010	-	-	-	-	360.00	-	-	5	900.00	-	-	-	-	-	-	-	-	1,260.00
Gossolengo	33023	5,186	PC	2010	-	-	-	-	360.00	-	600	3	1,728.00	-	-	-	-	-	-	-	-	2,088.00
Gragnano Trebbiense	33024	4,333	PC	2010	-	-	-	-	360.00	-	1,000	4	2,157.00	-	-	-	-	-	-	-	-	2,517.00
Gropparello	33025	2,409	PC	2010	-	-	-	-	180.00	-	120	8	821.20	-	-	-	-	-	-	-	-	1,001.20
LHA of Piacenza	-	-	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lugagnano Val d'Arda	33026	4,309	PC	2010	-	-	-	-	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Monticelli d'Ongina	33027	5,453	PC	2010	-	-	-	-	360.00	-	1,000	10	2,956.00	-	-	-	-	-	-	-	-	3,316.00
Morfasso	33028	1,158	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nibbiano	33029	2,342	PC	2010	-	-	-	-	180.00	-	443	4	1,440.00	-	-	-	-	-	-	-	-	1,620.00
Ottone	33030	601	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecorara	33031	820	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Piacenza	33032	102,687	PC	2010	-	-	-	-	5,730.00	-	23,200	5	69,445.20	-	-	-	5,049.00	-	-	3,025.00	3,680.00	86,929.20
Pianello Val Tidone	33033	2,291	PC	2010	-	-	-	-	108.00	-	334	4	1,296.00	-	-	-	-	-	-	-	-	1,404.00
Piozzano	33034	641	PC	2010	-	-	-	-	180.00	-	50	5	550.00	-	-	-	-	-	-	-	-	730.00
Podenzano	33035	8,968	PC	2010	-	-	-	-	450.00	-	1,700	7	4,032.00	-	-	-	-	-	3,648.00	-	-	8,130.00
Ponte dell'Olio	33036	5,063	PC	2010	-	-	-	-	270.00	-	1,100	8	2,745.60	-	-	-	-	-	-	-	-	3,015.60
Pontenure	33037	6,219	PC	2010	-	-	-	-	360.00	-	1,500	6	3,240.00	-	-	-	-	-	-	360.00	-	3,960.00
Province of Piacenza	-	-	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rivergaro	33038	6,777	PC	2010	-	-	-	-	360.00	-	1,730	8	3,720.00	-	-	-	-	-	2,400.00	-	-	6,480.00
Rottofreno	33039	11,325	PC	2010	-	-	-	-	450.00	-	1,700	5	3,250.00	-	-	-	-	-	2,400.00	-	300.00	6,400.00
San Giorgio Piacentino	33040	5,855	PC	2010	-	-	-	-	360.00	-	1,300	6	2,844.00	-	-	-	-	-	1,170.00	550.00	-	4,924.00
San Pietro in Cerro	33041	964	PC	2010	-	-	-	-	180.00	-	212	4	339.20	-	-	-	-	-	-	-	-	519.20
Sarmato	33042	2,860	PC	2010	-	-	-	-	270.00	-	850	3	5,400.00	-	-	-	-	-	-	-	-	5,670.00
Travo	33043	2,035	PC	2010	-	-	-	-	270.00	-	390	7	1,680.00	-	-	-	-	-	-	-	-	1,950.00
Vernasca	33044	2,314	PC	2010	-	-	-	-	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Vigolzone	33045	4,260	PC	2010	-	-	-	-	360.00	-	-	-	2,400.00	-	-	-	-	-	1,200.00	-	-	3,960.00
Villanova sull'Arda	33046	1,956	PC	2010	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Zerba	33047	98	PC	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ziano Piacentino	33048	2,702	PC	2010	-	-	-	-	270.00	-	-	-	600.00	-	-	-	-	-	-	-	-	870.00
Alfonsine	39001	12,373	RA	2010	-	-	-	-	-	-	6,396	6	10,368.00	-	-	-	840.32	-	4,680.00	-	-	15,888.32
Bagnacavallo	39002	16,676	RA	2010	-	-	-	-	-	-	7,994	6	12,283.20	-	-	-	1,018.08	-	5,280.00	-	867.00	19,448.28
Bagnara di Romagna	39003	2,250	RA	2010	-	-	-	-	-	-	1,046	6	1,944.00	400	-	1,320.00	323.00	-	-	-	-	3,587.00
BR Union	-	103,136	RA	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brisighella	39004	7,840	RA	2010	-	-	-	-	-	-	1,461	5	3,192.00	-	-	-	323.20	453.60	2,204.40	-	-	6,173.20
Casola Valsenio	39005	2,782	RA	2010	-	-	-	-	-	-	485	5	1,228.80	-	-	-	323.20	115.20	250.00	-	-	1,917.20
Castel Bolognese	39006	9,480	RA	2010	-	-	-	-	-	-	2,890	6	5,160.00	-	-	-	387.84	-	-	-	-	5,547.84
Cervia	39007	28,861	RA	2010	-	1,206.97	-	-	-	-	21,815	8	55,927.00	13,000	-	74,863.52	2,246.24	3,672.00	3,870.72	-	-	141,786.45
Conselice	39008	9,923	RA	2010	-	-	-	-	-	-	4,192	6	6,242.00	-	-	-	549.44	-	13,608.00	-	431.76	20,831.20
Cotignola	39009	7,435	RA	2010	-	-	-	-	-	-	4,337	6	6,507.60	-	-	-	550.00	-	3,528.00	-	792.00	11,377.60
Faenza	39010	57,664	RA	2010	-	-	-	-	-	-	16,291	6	38,640.00	-	-	-	1,971.52	-	10,580.00	-	42.00	51,233.52
Fusignano	39011	8,425	RA	2010	-	-	-	-	-	-	3,989	6	5,400.00	-	-	-	517.12	-	2,268.00	-	200.00	8,385.12
LHA of Ravenna	-	-	RA	2010	-	-	-	-	1050	-	-	-	-	-	-	-	-	-	-	-	-	1050
Lugo	39012	32,756	RA	2010	-	-	-	-	-	-	19,752	5	21,000.00	-	-	-	2,472.48	-	3,600.00	-	2,386.00	29,458.48
Massa Lombarda	39013	10,501	RA	2010	-	-	-	-	-	-	4,101	5	7,282.80	-	-	-	581.76	-	2,915.64	-	-	10,780.20
Province of Ravenna	-	-	RA	2010	-	-	-	-	34920	-	-	-	-	-	-	-	-	-	-	14575	-	49495

Ravenna	39014	157,459	RA	2010	716.47	1,217.98	-	-	-	-	69,520	8	229,370.74	-	-	-	8,856.00	3,600.00	18,240.00	-	-	262,001.19
Riolo Terme	39015	5,782	RA	2010	-	-	-	-	-	-	1,458	6	4,696.80	1,480	-	3,780.00	324.00	400.00	672.00	-	216.00	10,088.80
Russi	39016	12,048	RA	2010	-	-	-	-	-	-	6,180	6	11,721.60	-	-	-	808.00	-	2,520.00	-	624.00	15,673.60
Sant'Agata sul Santerno	39017	2,797	RA	2010	-	-	-	-	-	-	2,655	6	4,314.00	-	-	-	340.00	-	372.00	-	-	5,026.00
Solarolo	39018	4,456	RA	2010	-	-	-	-	-	-	2,038	6	3,512.40	-	-	-	323.20	-	1,512.00	-	-	5,347.60
Albinea	35001	8,673	RE	2010	-	-	-	-	-	-	1,300	5	8,085.08	150	-	1,815.00	1,470.53	-	300.00	-	-	11,670.61
Bagnolo in Piano	35002	9,519	RE	2010	-	-	-	-	540.00	-	2,560	5	12,000.00	150	-	1,980.00	1,647.00	-	-	1,650.00	13,320.00	31,137.00
Baiso	35003	3,442	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bibbiano	35004	9,893	RE	2010	-	-	-	-	-	-	1,442	4	8,252.97	-	-	-	647.03	-	100.00	1,100.00	-	10,100.00
Boretto	35005	5,246	RE	2010	-	-	-	-	-	-	1,500	4	4,265.66	-	-	-	941.14	-	300.00	-	-	5,506.80
Brescello	35006	5,487	RE	2010	-	-	-	-	-	-	1,500	5	5,464.52	150	-	1,980.00	1,117.60	-	300.00	550.00	-	9,412.12
Busana	35007	1,321	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadelbosco di Sopra	35008	10,437	RE	2010	-	-	-	-	540.00	-	2,600	5	9,920.97	150	-	1,815.00	1,882.28	-	300.00	1,650.00	-	16,108.25
Campagnola Emilia	35009	5,569	RE	2010	-	-	-	-	-	-	1,600	5	4,316.04	-	-	-	999.96	-	660.00	-	-	5,976.00
Campegine	35010	5,151	RE	2010	-	-	-	-	-	-	1,250	5	5,104.22	-	-	-	941.14	-	300.00	-	-	6,345.36
Canossa	35018	3,813	RE	2010	-	-	-	-	450.00	-	1,200	5	2,340.04	-	-	-	235.28	-	300.00	-	-	3,325.32
Carpineti	35011	4,177	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalgrande	35012	18,639	RE	2010	-	-	-	-	450.00	-	4,150	5	19,002.32	450	-	5,940.00	3,117.52	-	2,100.00	-	-	30,609.84
Casina	35013	4,541	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castellarano	35014	14,984	RE	2010	-	-	-	-	900.00	-	2,600	5	12,419.81	450	-	5,445.00	2,646.95	-	2,100.00	-	-	23,511.76
Castelnovo di Sotto	35015	8,691	RE	2010	-	-	-	-	-	-	1,900	5	9,166.67	150	-	1,980.00	1,529.35	-	300.00	825.00	-	13,801.02
Castelnovo ne' Monti	35016	10,698	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cavriago	35017	9,651	RE	2010	-	-	-	-	450.00	-	2,100	5	10,148.15	150	-	1,980.00	1,705.81	-	300.00	-	-	14,583.96
Collagna	35019	979	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Correggio	35020	24,991	RE	2010	-	-	-	-	3,150.00	-	6,150	5	25,553.78	-	-	-	4,117.48	-	2,100.00	-	-	34,921.26
Fabbrico	35021	6,705	RE	2010	-	-	-	-	-	-	1,800	5	6,147.73	-	-	-	1,176.42	-	300.00	-	-	7,624.15
Gattatico	35022	5,846	RE	2010	-	-	-	-	-	-	1,250	5	5,257.14	150	-	1,815.00	1,117.60	-	300.00	-	-	8,489.74
Gualtieri	35023	6,723	RE	2010	-	-	-	-	450.00	-	-	-	-	-	-	8,416.80	-	-	-	550.00	-	9,416.80
Guastalla	35024	15,135	RE	2010	-	-	-	-	1,800.00	-	3,500	5	8,011.51	150	-	1,980.00	2,470.49	-	300.00	275.00	500.00	15,337.00
LHA of Reggio Emilia	-	-	RE	2010	-	-	-	-	1232	-	-	-	-	-	-	-	-	-	-	-	-	1232
Ligonchio	35025	906	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzzara	35026	9,167	RE	2010	-	-	-	-	-	-	1,045	5	9,703.03	150	-	1,980.00	1,470.53	-	300.00	1,100.00	2,799.90	17,353.46
Montecchio Emilia	35027	10,376	RE	2010	-	-	-	-	720.00	-	1,420	5	9,123.05	150	-	1,980.00	1,705.81	-	2,100.00	2,200.00	-	17,828.86
Novellara	35028	13,625	RE	2010	-	-	-	-	540.00	-	4,500	5	12,617.63	450	-	5,940.00	2,352.85	-	2,100.00	1,375.00	-	24,925.48

Poviglio	35029	7,318	RE	2010	-	-	-	-	450.00	-	1,650	5	7,647.24	-	-	-	1,176.42	-	300.00	825.00	-	10,398.66
Province of Reggio Emilia	-	-	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quattro Castella	35030	12,986	RE	2010	-	-	-	-	720.00	-	2,195	5	10,454.65	450	-	5,445.00	2,294.03	-	2,100.00	1,650.00	-	22,663.68
Ramiseto	35031	1,330	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reggio nell'Emilia	35033	167,678	RE	2010	2,469.00	1,851.00	-	-	5,040.00	-	28,630	5	165,231.06	1,500	-	18,150.00	24,704.91	-	4,500.00	7,975.00	-	229,920.97
Reggiolo	35032	9,298	RE	2010	-	-	-	-	450.00	-	-	-	-	-	-	-	-	-	-	-	-	450.00
Rio Saliceto	35034	5,955	RE	2010	-	-	-	-	-	-	1,650	5	5,936.16	150	-	1,980.00	1,176.42	-	300.00	-	-	9,392.58
Rolo	35035	4,083	RE	2010	-	-	-	-	-	-	1,400	5	3,848.86	150	-	1,980.00	882.32	-	300.00	-	-	7,011.18
Rubiera	35036	14,527	RE	2010	-	-	-	-	900.00	-	-	-	-	-	-	-	-	-	-	-	-	900.00
San Martino in Rio	35037	7,932	RE	2010	-	-	-	-	450.00	-	2,000	5	8,010.85	150	-	1,980.00	1,470.53	-	300.00	825.00	-	13,036.38
San Polo d'Enza	35038	5,824	RE	2010	-	-	-	-	360.00	-	1,200	5	5,833.70	150	-	1,980.00	1,117.60	-	300.00	825.00	-	10,416.30
Sant'Ilario d'Enza	35039	10,869	RE	2010	-	-	-	-	450.00	-	1,790	5	8,332.42	450	-	5,445.00	1,941.10	-	2,100.00	550.00	-	18,818.52
Scandiano	35040	24,842	RE	2010	-	-	-	-	900.00	-	4,950	5	27,027.69	450	-	5,940.00	4,235.13	-	2,100.00	-	-	40,202.82
TdM Union	-	19,128	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toano	35041	4,532	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vetto	35042	1,991	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vezzano sul Crostolo	35043	4,294	RE	2010	-	-	-	-	540.00	-	553	5	3,722.97	150	-	1,815.00	882.32	-	300.00	-	-	7,260.29
Viano	35044	3,420	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Villa Minozzo	35045	4,033	RE	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bellaria-Igea Marina	99001	19,092	RN	2010	-	-	-	-	-	-	7,526	8	18,533.76	-	-	-	1,440.00	432.00	3,306.24	-	-	23,712.00
Casteldelci	99021	460	RN	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattolica	99002	16,679	RN	2010	-	-	-	-	-	-	5,300	4	14,000.00	4,300	-	10,000.00	4,000.00	2,880.00	5,000.00	-	2,366.00	38,246.00
Coriano	99003	9,961	RN	2010	-	-	-	-	-	-	2,648	4	4,467.00	-	-	-	500.00	-	675.00	-	1,000.00	6,642.00
Gemmano	99004	1,192	RN	2010	-	-	-	-	-	-	190	5	1,500.00	-	-	-	150.00	50.00	100.00	-	-	1,800.00
LHA of Rimini	-	-	RN	2010	-	-	-	-	23550	-	-	-	-	-	-	-	-	-	-	-	-	23550
Maiolo	99022	846	RN	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misano Adriatico	99005	12,157	RN	2010	-	-	-	-	-	-	6,400	4	7,200.00	-	-	-	3,600.00	3,000.00	1,200.00	-	7,000.00	22,000.00
Mondaino	99006	1,451	RN	2010	-	-	-	-	-	-	250	5	900.00	-	-	-	150.00	-	100.00	-	200.00	1,350.00
Monte Colombo	99007	3,125	RN	2010	-	-	-	-	-	-	710	5	970.00	-	-	-	150.00	-	200.00	-	-	1,320.00
Montefiore Conca	99008	2,196	RN	2010	-	-	-	-	-	-	215	5	1,100.00	-	-	-	150.00	-	131.20	-	60.00	1,441.20
Montegridolfo	99009	1,031	RN	2010	-	-	-	-	-	-	250	5	1,100.00	-	-	-	150.00	-	110.00	-	200.00	1,560.00
Montescudo	99010	3,242	RN	2010	-	-	-	-	-	-	689	5	1,100.00	-	-	-	120.00	-	100.00	-	-	1,320.00
Morciano di Romagna	99011	6,910	RN	2010	-	-	-	-	-	-	1,766	5	5,500.00	-	-	-	500.00	500.00	600.00	-	3,700.00	10,800.00

Novafeltria	99023	7,343	RN	2010	-	-	-	-	-	-	1,064	5	2,052.00	-	-	-	-	-	-	-	-	2,052.00
Pennabilli	99024	3,063	RN	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poggio Berni	99012	3,413	RN	2010	-	-	-	-	-	-	980	5	2,100.00	-	-	-	100.00	200.00	300.00	-	450.00	3,150.00
Province of Rimini	-	-	RN	2010	-	-	-	-	-	-	-	-	-	-	-	-	23912	-	-	5225	-	29137
Riccione	99013	35,545	RN	2010	1,000.00	1,016.00	-	-	-	-	15,000	10	43,200.00	7,827	-	96,000.00	12,852.00	-	1,400.00	-	3,400.00	158,868.00
Rimini	99014	141,501	RN	2010	-	-	-	-	-	-	39,000	4	99,000.00	19,483	-	170,000.00	30,000.00	30,000.00	10,000.00	-	35,000.00	374,000.00
Saludecio	99015	2,972	RN	2010	-	-	-	-	-	-	410	5	1,710.00	-	-	-	300.00	100.00	650.00	-	-	2,760.00
San Clemente	99016	5,007	RN	2010	-	-	-	-	-	-	1,147	5	3,600.00	650	-	5,000.00	350.00	200.00	630.00	-	900.00	10,680.00
San Giovanni in Marignano	99017	8,970	RN	2010	-	-	-	-	-	-	3,900	5	11,000.00	2,200	-	5,000.00	200.00	200.00	5,000.00	-	500.00	21,900.00
San Leo	99025	3,033	RN	2010	-	-	-	-	-	-	203	5	1,400.00	-	-	-	250.00	200.00	370.00	-	-	2,220.00
Sant'Agata Feltria	99026	2,293	RN	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santarcangelo di Romagna	99018	21,121	RN	2010	-	-	-	-	-	-	7,160	5	18,000.00	4,080	-	12,960.00	3,000.00	4,000.00	6,000.00	-	2,000.00	45,960.00
Talamello	99027	1,095	RN	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torriana	99019	1,544	RN	2010	-	-	-	-	-	-	650	5	2,150.00	215	-	1,600.00	150.00	100.00	50.00	-	150.00	4,200.00
Verucchio	99020	10,023	RN	2010	-	-	-	-	-	-	2,780	5	6,500.00	-	-	-	350.00	200.00	825.00	-	1,400.00	9,275.00

Table 101. E-R Plan Expenditures dataset - 2011

					Reported activity and relative expenditures incurred for its realization																	
Municipality	*ISTAT code*	*Population*	*LHA*	*Reported in the year*	*Management of reported cases (emergency)*		*Monitoring of Ae. albopictus population*			*CG_Exp*	*Larvicidal treatments*			*DtD interventions*			*QC_Exp*	*SI_Exp*	*LK_Exp*	*Edu_Exp*	*O_Exp*	*Tot_Exp*
					Em1_Exp	*Em2_Exp*	*Ovi_n*	*Ovi_ch*	*Ovi_Exp*		*RD_n*	*R_n*	*L_Exp*	*DtD_n*	*DtD_R*	*DtD_Exp*						
Anzola dell'Emilia	37001	11,988	BO	2011	-	-	-	-	990.00	-	12,520	5	6,948.18	1,015	-	10,422.27	5,204.16	12,409.92	907.20	-	-	36,881.73
Argelato	37002	9,744	BO	2011	-	-	-	-	270.00	-	5,350	4	7,976.34	-	-	-	1,801.44	4,443.55	1,532.16	-	-	16,023.49
Baricella	37003	6,739	BO	2011	-	-	-	-	270.00	-	3,350	5	3,573.83	-	-	-	786.45	1,195.40	1,474.20	-	-	7,299.88
Bazzano	37004	6,896	BO	2011	-	-	-	-	720.00	-	200	10	9,828.00	-	-	-	-	-	1,320.00	-	-	11,868.00
Bentivoglio	37005	5,283	BO	2011	-	-	-	-	270.00	-	3,000	4	4,158.24	-	-	-	2,001.60	6,805.44	2,016.00	-	-	15,251.28
Bologna	37006	380,181	BO	2011	807.00	212.00	-	-	10,390.00	-	91,794	7	286,585.00	-	-	-	16,413.00	1,802.00	7,686.00	9,540.00	68,608.48	402,043.48
Budrio	37008	17,994	BO	2011	-	-	-	-	1,260.00	-	5,816	5	7,200.00	-	-	-	1,008.00	1,800.00	-	1,855.00	2,208.00	15,331.00
Calderara di Reno	37009	13,163	BO	2011	-	-	-	-	990.00	-	19,300	5	10,371.42	-	-	5,608.50	6,004.80	5,404.32	766.08	1,855.00	-	31,000.12
Camugnano	37010	2,037	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalecchio di Reno	37011	35,761	BO	2011	4,356.00	-	-	-	4,500.00	-	8,450	8	12,550.00	-	-	-	5,500.00	800.00	2,500.00	-	-	30,206.00
Castel d'Aiano	37013	1,974	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel di Casio	37015	3,526	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Maggiore	37019	17,466	BO	2011	-	-	-	-	1,800.00	-	10,860	5	11,507.68	-	-	-	1,977.36	3,860.56	2,592.00	3,204.00	-	24,941.60
Castello d'Argile	37017	6,419	BO	2011	-	-	-	-	900.00	-	3,219	4	3,433.59	-	-	-	941.60	1,836.12	600.00	2,040.00	-	9,751.31
Castello di Serravalle	37018	4,917	BO	2011	-	-	-	-	540.00	-	-	7	2,679.60	-	-	-	-	-	544.32	-	170.00	3,933.92
Castenaso	37021	14,315	BO	2011	-	-	-	-	1,260.00	-	8,150	4	7,420.22	6,700	-	3,218.65	1,572.90	1,887.48	3,790.80	-	-	19,150.05
Castiglione dei Pepoli	37022	5,965	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crespellano	37023	9,982	BO	2011	-	-	-	-	720.00	-	5,000	-	14,582.40	3,000	-	15,408.00	-	-	-	-	-	30,710.40
Crevalcore	37024	13,686	BO	2011	-	-	-	-	990.00	-	7,500	5	8,580.66	-	-	-	4,003.20	6,204.96	1,229.76	1,060.00	2,865.00	24,933.58
Gaggio Montano	37027	5,131	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galliera	37028	5,555	BO	2011	-	-	-	-	270.00	-	1,950	5	2,901.06	-	-	-	1,401.12	1,401.12	1,020.00	795.00	-	7,788.30
Granaglione	37029	2,266	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granarolo dell'Emilia	37030	10,653	BO	2011	-	-	-	-	900.00	-	6,800	5	10,283.00	-	-	-	-	470.00	-	-	-	11,653.00
Grizzana Morandi	37031	4,060	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Bologna	-	-	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lizzano in Belvedere	37033	2,400	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Loiano	37034	4,511	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malalbergo	37035	8,810	BO	2011	-	-	-	-	810.00	-	5,700	4	4,550.25	130	-	1,550.48	951.60	2,858.81	2,948.40	-	-	13,669.54
Marzabotto	37036	6,832	BO	2011	-	-	-	-	-	-	-	6	6,495.43	-	-	-	-	360.00	1,260.00	550.00	-	8,665.43
Minerbio	37038	8,700	BO	2011	-	-	-	-	360.00	-	4,250	5	4,479.02	-	-	-	849.37	408.95	2,000.70	-	-	8,098.04
Molinella	37039	15,821	BO	2011	-	-	-	-	-	-	9,124	8	42,839.67	1,704	-	9,125.18	5,880.00	-	4,150.00	-	2,543.15	64,538.00
Monghidoro	37040	3,875	BO	2011	-	-	-	-	-	-	-	3	420.00	-	-	-	-	-	-	-	-	420.00
Monte San Pietro	37042	10,956	BO	2011	-	-	-	-	-	-	2,000	7	5,772.00	-	-	-	-	-	1,134.00	-	-	6,906.00
Monterenzio	37041	6,090	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monteveglio	37043	5,286	BO	2011	-	-	-	-	540.00	-	-	7	4,020.00	-	-	-	300.00	-	778.68	-	170.00	5,808.68
Monzuno	37044	6,511	BO	2011	-	-	-	-	-	-	-	-	-	-	-	10,915.20	-	-	756.00	-	-	11,671.20
Ozzano dell'Emilia	37046	12,850	BO	2011	-	-	-	-	720.00	-	5,400	4	8,514.00	-	-	-	2,268.00	-	5,400.00	-	-	16,902.00
Pianoro	37047	17,268	BO	2011	-	-	-	-	-	-	4,328	7	7,710.00	-	-	-	-	550.00	3,670.00	-	-	11,930.00
Pieve di Cento	37048	6,969	BO	2011	-	-	-	-	-	-	2,850	5	3,288.48	-	-	-	1,401.12	1,401.12	806.40	795.00	-	7,692.12
Porretta Terme	37049	4,778	BO	2011	-	-	-	-	432.00	-	-	-	-	-	-	-	-	-	-	-	-	432.00
Province of Bologna	-	-	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sala Bolognese	37050	8,286	BO	2011	-	-	-	-	990.00	-	4,500	5	4,543.86	-	-	-	2,001.60	7,405.92	1,753.92	795.00	2,192.48	19,682.78
San Benedetto Val di Sambro	37051	4,494	BO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Giorgio di Piano	37052	8,289	BO	2011	-	-	-	-	540.00	-	5,170	5	5,023.40	-	-	1,674.47	1,601.28	5,404.32	504.00	1,020.00	-	15,767.47
San Giovanni in Persiceto	37053	27,267	BO	2011	-	-	-	-	1,980.00	-	12,500	5	14,116.62	-	-	-	4,803.84	15,412.32	1,733.76	3,180.00	700.00	41,926.54
San Lazzaro di Savena	37054	31,457	BO	2011	-	-	-	-	-	-	10,700	5	13,900.00	-	-	-	4,003.20	10,008.00	-	-	-	27,911.20
San Pietro in Casale	37055	11,817	BO	2011	-	-	-	-	540.00	-	4,800	5	7,326.54	-	-	-	2,001.60	7,806.24	-	795.00	1,728.00	20,197.38
Sant'Agata Bolognese	37056	7,392	BO	2011	-	-	-	-	900.00	-	2,500	5	3,335.58	-	-	-	1,601.28	1,601.28	725.76	795.00	1,835.55	10,794.45
Sasso Marconi	37057	14,721	BO	2011	-	-	-	-	630.00	-	-	-	-	-	-	-	-	-	-	-	-	630.00
Savigno	37058	2,788	BO	2011	-	-	-	-	-	-	-	7	4,383.60	-	-	-	-	-	126.00	-	-	4,509.60
Vergato	37059	7,854	BO	2011	832.00	-	-	-	540.00	-	325	8	4,879.50	-	-	-	600.00	-	594.72	1,488.00	-	8,934.22
Zola Predosa	37060	18,314	BO	2011	-	-	-	-	1,260.00	-	-	7	14,700.00	-	-	-	800.00	-	2,400.00	-	-	19,160.00
Bagno di Romagna	40001	6,212	CE	2011	-	-	-	-	630.00	-	920	6	2,808.00	-	-	-	600.00	-	-	-	-	4,038.00
Borghi	40004	2,763	CE	2011	-	-	-	-	540.00	-	461	8	3,407.00	-	-	-	600.00	-	-	-	-	4,547.00
Cesena	40007	97,056	CE	2011	-	-	-	-	7,870.00	-	29,000	7	77,952.00	-	-	-	6,690.00	-	-	-	46,576.80	139,088.80
Cesenatico	40008	25,633	CE	2011	-	-	-	-	3,600.00	-	10,975	8	40,052.00	-	-	-	3,300.00	-	4,368.00	-	540.00	51,860.00
Gambettola	40015	10,431	CE	2011	-	-	-	-	810.00	-	3,275	6	4,904.64	2,511	-	8,436.96	960.00	-	-	-	660.24	15,771.84
Gatteo	40016	8,863	CE	2011	-	-	-	-	900.00	-	3,373	7	9,927.48	2,011	-	8,807.40	1,224.00	1,512.00	-	-	-	22,370.88

LHA of Cesena	-	-	CE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8112.98	-	8112.98
Longiano	40018	6,966	CE	2011	-	-	-	-	990.00	-	2,831	8	8,935.92	-	-	-	720.00	-	-	-	200.00	10,845.92
Mercato Saraceno	40020	7,087	CE	2011	-	-	-	-	990.00	-	1,627	7	9,207.60	-	-	-	600.00	-	-	-	-	10,797.60
Montiano	40028	1,710	CE	2011	-	-	-	-	540.00	-	469	6	905.00	-	-	-	600.00	-	-	-	-	2,045.00
Province of Cesena	-	-	CE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roncofreddo	40037	3,371	CE	2011	-	-	-	-	630.00	-	966	5	2,552.62	-	-	-	600.00	-	-	-	-	3,782.62
San Mauro Pascoli	40041	11,106	CE	2011	-	-	-	-	900.00	-	3,253	7	9,367.99	-	-	-	1,008.00	-	-	-	350.00	11,625.99
Sarsina	40044	3,652	CE	2011	-	-	-	-	450.00	-	483	8	1,589.65	-	-	-	600.00	-	-	-	-	2,639.65
Savignano sul Rubicone	40045	17,653	CE	2011	-	-	-	-	1,080.00	-	3,867	7	11,169.84	2,650	-	32,340.00	1,404.00	2,520.00	-	-	-	48,513.84
Sogliano al Rubicone	40046	3,293	CE	2011	-	-	-	-	990.00	-	781	8	2,699.14	378	-	5,685.00	720.00	-	-	-	-	10,094.14
Verghereto	40050	1,992	CE	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Argenta	38001	22,575	FE	2011	-	-	-	-	1,350.00	-	7,200	6	15,860.00	-	-	-	-	-	10,350.00	-	-	27,560.00
Berra	38002	5,308	FE	2011	-	-	-	-	540.00	-	1,650	5	7,986.00	-	-	-	-	-	-	549.60	-	9,075.60
Bondeno	38003	15,401	FE	2011	-	-	-	-	1,350.00	-	3,795	6	16,339.80	-	-	-	-	-	937.30	-	-	18,627.10
Cento	38004	35,582	FE	2011	-	-	-	-	1,170.00	-	8,374	6	27,807.90	-	-	-	-	-	2,501.20	-	-	31,479.10
Codigoro	38005	12,653	FE	2011	-	-	-	-	720.00	-	4,000	6	23,040.00	-	-	-	-	-	-	-	-	23,760.00
Comacchio	38006	23,122	FE	2011	-	-	-	-	2,790.00	-	14,500	5	31,673.00	223	-	3,630.00	9,650.00	3,024.00	200.00	2,000.00	-	52,967.00
Copparo	38007	17,245	FE	2011	-	-	-	-	720.00	-	5,700	5	27,360.00	-	-	-	-	-	-	-	-	28,080.00
Ferrara	38008	135,369	FE	2011	-	-	-	-	9,600.00	-	31,000	7	192,285.00	-	-	-	-	2,500.00	-	9,618.00	2,000.00	216,003.00
Formignana	38009	2,810	FE	2011	-	-	-	-	90.00	-	900	7	6,048.00	-	-	-	-	-	-	-	-	6,138.00
Goro	38025	3,945	FE	2011	-	-	-	-	270.00	-	1,800	4	1,694.00	-	-	-	-	-	-	-	-	1,964.00
Jolanda di Savoia	38010	3,089	FE	2011	-	-	-	-	450.00	-	1,050	6	6,048.00	-	-	-	-	-	-	-	432.00	6,930.00
Lagosanto	38011	4,921	FE	2011	-	-	-	-	360.00	-	2,300	7	6,818.35	-	-	-	-	-	-	-	-	7,178.35
LHA of Ferrara	-	-	FE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Masi Torello	38012	2,386	FE	2011	-	-	-	-	180.00	-	1,100	10	9,680.00	-	-	-	-	-	170.00	-	-	10,030.00
Massa Fiscaglia	38013	3,621	FE	2011	-	-	-	-	90.00	-	1,095	6	2,880.00	-	-	-	-	-	-	-	-	2,970.00
Mesola	38014	7,190	FE	2011	-	-	-	-	540.00	-	2,300	5	11,040.00	-	-	-	-	-	-	-	-	11,580.00
Migliarino	38015	3,739	FE	2011	-	-	-	-	270.00	-	1,800	8	9,984.00	-	-	-	-	-	-	-	-	10,254.00
Migliaro	38026	2,239	FE	2011	-	-	-	-	180.00	-	600	8	4,608.00	-	-	-	-	-	-	-	-	4,788.00
Mirabello	38016	3,541	FE	2011	-	-	-	-	900.00	-	842	6	6,687.75	-	-	-	-	-	468.00	549.60	-	8,605.35
Ostellato	38017	6,558	FE	2011	-	-	-	-	540.00	-	2,600	6	15,100.80	-	-	-	-	-	-	-	-	15,640.80
Poggio Renatico	38018	9,634	FE	2011	-	-	-	-	720.00	-	2,499	6	9,615.90	-	-	-	-	-	1,404.00	824.40	-	12,564.30
Portomaggiore	38019	12,445	FE	2011	-	-	-	-	720.00	-	3,750	6	23,232.00	-	-	-	-	-	1,210.00	-	-	25,162.00
Province of Ferrara	-	-	FE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ro	38020	3,460	FE	2011	-	-	-	-	90.00	-	1,200	5	6,000.00	-	-	-	-	-	-	-	-	6,090.00

Sant'Agostino	38021	7,106	FE	2011	-	-	-	-	540.00	-	1,996	6	12,363.30	-	-	-	-	-	1,253.20	-	-	14,156.50
Tresigallo	38024	4,617	FE	2011	-	-	-	-	270.00	-	2,000	10	17,424.00	-	-	-	-	-	-	-	1,815.00	19,509.00
Vigarano Mainarda	38022	7,520	FE	2011	-	-	-	-	630.00	-	2,354	6	7,323.43	-	-	-	-	-	804.00	-	-	8,757.43
Voghiera	38023	3,918	FE	2011	-	-	-	-	360.00	-	1,350	9	11,664.00	-	-	-	-	-	-	-	-	12,024.00
Bertinoro	40003	11,029	FO	2011	-	-	-	-	1,440.00	-	3,076	6	3,575.00	-	-	-	-	-	-	-	-	5,015.00
Castrocaro Terme e Terra del Sole	40005	6,600	FO	2011	-	-	-	-	810.00	-	1,450	6	4,671.00	-	-	-	480.00	-	-	-	-	5,961.00
Civitella di Romagna	40009	3,870	FO	2011	-	-	-	-	720.00	-	950	5	2,300.00	-	-	-	-	-	-	-	250.00	3,270.00
Dovadola	40011	1,708	FO	2011	-	-	-	-	540.00	-	421	9	1,846.00	-	-	-	-	-	-	-	-	2,386.00
Forlì	40012	118,167	FO	2011	-	-	-	-	6,520.00	-	39,000	6	111,360.00	-	-	-	29,568.00	-	-	-	-	147,448.00
Forlimpopoli	40013	13,063	FO	2011	-	-	-	-	1,260.00	-	5,110	6	8,000.00	-	-	-	1,210.00	-	-	-	-	10,470.00
Galeata	40014	2,532	FO	2011	-	-	-	-	504.00	-	500	-	762.00	-	-	-	-	-	-	-	-	1,266.00
LHA of Forlì	-	-	FO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6310.1	-	6310.1
Meldola	40019	10,190	FO	2011	-	-	-	-	990.00	-	2,262	6	2,605.00	-	-	-	3,432.00	-	-	-	-	7,027.00
Modigliana	40022	4,815	FO	2011	-	-	-	-	630.00	-	1,200	6	3,276.00	-	-	-	-	-	-	-	-	3,906.00
Portico e San Benedetto	40031	801	FO	2011	-	-	-	-	540.00	-	180	6	1,080.00	-	-	-	180.00	300.00	-	-	-	2,100.00
Predappio	40032	6,545	FO	2011	-	-	-	-	900.00	-	1,539	6	2,001.00	-	-	-	-	-	-	-	-	2,901.00
Premilcuore	40033	824	FO	2011	-	-	-	-	540.00	-	250	2	227.00	-	-	-	-	-	-	-	-	767.00
Province of Forlì	-	-	FO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocca San Casciano	40036	2,031	FO	2011	-	-	-	-	630.00	-	615	9	2,369.00	-	-	-	-	-	-	-	-	2,999.00
Santa Sofia	40043	4,240	FO	2011	-	-	-	-	630.00	-	900	9	3,500.00	-	-	-	-	-	-	-	-	4,130.00
Tredozio	40049	1,283	FO	2011	-	-	-	-	540.00	-	300	4	1,440.00	-	-	-	-	-	-	-	-	1,980.00
Borgo Tossignano	37007	3,323	IM	2011	-	-	-	-	-	-	1,000	6	2,520.00	-	-	-	-	-	720.00	-	-	3,240.00
Casalfiumanese	37012	3,477	IM	2011	-	-	-	-	-	-	-	-	2,160.00	-	-	-	-	-	2,268.00	-	-	4,428.00
Castel del Rio	37014	1,260	IM	2011	-	-	-	-	-	-	160	5	735.26	-	-	-	-	-	432.00	-	-	1,167.26
Castel Guelfo di Bologna	37016	4,279	IM	2011	-	-	-	-	-	-	2,728	6	4,505.04	-	-	-	-	-	573.60	-	-	5,078.64
Castel San Pietro Terme	37020	20,673	IM	2011	-	-	-	-	1,080.00	-	8,253	5	12,792.00	-	-	-	941.76	-	2,870.40	-	-	17,684.16
Dozza	37025	6,517	IM	2011	-	-	-	-	-	-	1,939	5	2,606.06	-	-	-	-	-	832.50	-	-	3,438.56
Fontanelice	37026	1,920	IM	2011	-	-	-	-	-	-	-	6	1,920.00	-	-	-	-	-	324.00	-	-	2,244.00
Imola	37032	69,112	IM	2011	-	-	-	-	-	-	-	6	37,080.00	-	-	-	-	-	10,080.00	-	-	47,160.00
LHA of Imola	-	-	IM	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3605.77	-	3605.77
Medicina	37037	16,675	IM	2011	-	-	-	-	1,080.00	-	6,300	5	8,599.47	60	-	2,063.87	-	965.14	3,336.32	-	-	16,044.80
Mordano	37045	4,725	IM	2011	-	-	-	-	-	-	2,117	6	4,034.40	-	-	-	-	-	1,008.00	-	-	5,042.40
Province of Imola	-	-	IM	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bastiglia	36001	4,137	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bomporto	36002	9,748	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campogalliano	36003	8,650	MO	2011	-	-	-	-	900.00	-	2,000	6	5,520.00	-	-	-	-	-	-	-	6,420.00
Camposanto	36004	3,218	MO	2011	-	-	-	-	900.00	-	1,500	6	1,708.48	-	-	-	-	-	-	-	2,608.48
Carpi	36005	69,021	MO	2011	-	-	-	-	4,270.00	-	15,237	7	24,553.00	-	-	-	-	12.50	-	2,261.85	31,097.35
Castelfranco Emilia	36006	32,102	MO	2011	-	-	-	-	900.00	-	5,300	9	25,685.00	-	-	-	-	-	-	3,240.00	-	29,825.00
Castelnuovo Rangone	36007	14,324	MO	2011	-	-	-	-	720.00	-	4,030	6	7,600.00	-	-	-	-	290.00	290.00	700.00	290.00	9,890.00
Castelvetro di Modena	36008	11,165	MO	2011	-	-	-	-	900.00	-	2,844	4	6,304.48	-	-	-	-	-	125.00	-	655.70	7,985.18
Cavezzo	36009	7,390	MO	2011	-	-	-	-	900.00	-	2,800	7	2,336.10	-	-	-	-	-	-	-	-	3,236.10
Concordia sulla Secchia	36010	9,059	MO	2011	-	-	-	-	900.00	-	2,000	9	3,270.70	-	-	-	-	-	-	-	-	4,170.70
Fanano	36011	3,121	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finale Emilia	36012	16,072	MO	2011	-	-	-	-	945.00	-	5,500	6	4,893.54	-	-	-	-	-	-	-	-	5,838.54
Fiorano Modenese	36013	17,041	MO	2011	-	-	-	-	900.00	-	3,914	7	7,800.00	-	-	2,808.00	-	500.00	-	2,475.00	-	14,483.00
Fiumalbo	36014	1,313	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formigine	36015	33,832	MO	2011	-	-	-	-	2,250.00	-	8,285	4	13,651.82	-	-	1,200.00	2,000.00	600.00	960.00	4,050.00	-	24,711.82
Frassinoro	36016	2,047	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiglia	36017	4,095	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lama Mocogno	36018	2,912	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Modena	-	-	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maranello	36019	16,969	MO	2011	-	-	-	-	900.00	-	4,021	7	10,314.00	-	-	-	-	1,682.00	-	-	-	12,896.00
Marano sul Panaro	36020	4,716	MO	2011	-	-	-	-	900.00	-	841	7	4,891.00	-	-	-	-	-	-	-	-	5,791.00
Medolla	36021	6,331	MO	2011	-	-	-	-	810.00	-	1,335	10	2,000.00	-	-	-	-	-	-	-	-	2,810.00
Mirandola	36022	24,602	MO	2011	-	-	-	-	4,500.00	-	8,800	7	5,813.00	-	-	-	-	317.40	-	-	-	10,630.40
Modena	36023	184,663	MO	2011	-	-	-	-	5,400.00	-	53,150	6	200,568.00	-	-	-	8,500.80	30,283.20	11,634.00	2,250.00	-	258,636.00
Montecreto	36024	995	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiorino	36025	2,258	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montese	36026	3,407	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonantola	36027	15,489	MO	2011	-	-	-	-	900.00	-	12,560	6	19,800.00	-	-	-	-	1,680.00	1,800.00	-	-	24,180.00
Novi di Modena	36028	11,476	MO	2011	-	-	-	-	540.00	-	2,890	6	8,740.00	-	-	-	-	160.00	-	-	-	9,440.00
Palagano	36029	2,417	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavullo nel Frignano	36030	17,350	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pievepelago	36031	2,304	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polinago	36032	1,775	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prignano sulla Secchia	36033	3,813	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Province of Modena	-	-	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ravarino	36034	6,318	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riolunato	36035	759	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Cesario sul Panaro	36036	6,057	MO	2011	-	-	-	-	540.00	-	1,950	5	3,900.00	-	-	-	-	-	-	-	-	4,440.00
San Felice sul Panaro	36037	11,135	MO	2011	-	-	-	-	810.00	-	3,400	7	3,368.00	-	-	-	-	-	-	-	-	4,178.00
San Possidonio	36038	3,828	MO	2011	-	-	-	-	900.00	-	1,127	7	2,418.00	-	-	-	-	-	-	-	-	3,318.00
San Prospero	36039	5,888	MO	2011	-	-	-	-	900.00	-	1,979	7	2,486.55	-	-	-	-	-	-	-	-	3,386.55
Sassuolo	36040	41,290	MO	2011	-	-	-	-	810.00	-	7,600	5	8,906.82	-	-	-	-	-	-	1,037.95	-	10,754.77
Savignano sul Panaro	36041	9,452	MO	2011	-	-	-	-	900.00	-	2,000	7	5,208.00	-	-	-	-	-	630.00	-	-	6,738.00
Serramazzoni	36042	8,300	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sestola	36043	2,642	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soliera	36044	15,289	MO	2011	-	-	-	-	540.00	-	4,200	3	12,198.22	-	-	-	-	-	-	-	-	12,738.22
Sorbara Union	-	20,203	MO	2011	-	-	-	-	2340	-	-	-	5641	-	-	-	-	-	2059	480	-	10520
Spilamberto	36045	12,318	MO	2011	-	-	-	-	720.00	-	2,635	5	3,781.25	-	-	-	-	127.50	-	-	-	4,628.75
UCMAN	-	67,329	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vignola	36046	24,802	MO	2011	-	-	-	-	900.00	-	3,048	6	8,334.93	-	-	-	2,610.00	432.00	-	-	-	12,276.93
Zocca	36047	5,024	MO	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albareto	34001	2,201	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bardi	34002	2,382	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedonia	34003	3,701	PR	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Berceto	34004	2,198	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bore	34005	800	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borgo Val di Taro	34006	7,319	PR	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Busseto	34007	7,052	PR	2011	-	-	-	-	-	-	1,600	7	2,520.00	-	-	-	-	-	-	1,096.00	-	3,616.00
Calestano	34008	2,126	PR	2011	-	-	-	-	270.00	-	-	5	1,000.00	-	-	-	-	-	-	-	-	1,270.00
Collecchio	34009	14,120	PR	2011	-	-	-	-	360.00	-	4,000	10	5,109.00	-	-	-	-	-	528.00	2,200.00	-	8,197.00
Colorno	34010	9,094	PR	2011	-	-	-	-	270.00	-	800	12	3,850.00	-	-	-	1,400.00	-	768.00	-	300.00	6,588.00
Compiano	34011	1,131	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corniglio	34012	2,070	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Felino	34013	8,546	PR	2011	270.00	-	-	-	450.00	-	3,000	9	3,240.00	-	-	-	-	-	-	550.00	-	4,510.00
Fidenza	34014	26,196	PR	2011	-	-	-	-	540.00	-	8,900	9	11,082.30	-	-	-	1,800.00	-	-	2,192.00	65,201.97	80,816.27
Fontanellato	34015	7,080	PR	2011	-	-	-	-	270.00	-	1,500	12	4,104.00	-	-	-	-	-	1,200.00	-	-	5,574.00
Fontevivo	34016	5,572	PR	2011	-	-	-	-	360.00	-	1,265	12	2,886.00	-	-	-	-	-	-	-	-	3,246.00
Fornovo di Taro	34017	6,294	PR	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00

Langhirano	34018	9,842	PR	2011	-	-	-	-	360.00	-	900	7	1,965.37	-	-	-	-	-	-	-	-	2,325.37
Lesignano de' Bagni	34019	4,793	PR	2011	-	-	-	-	162.00	-	700	8	1,536.00	-	-	-	-	-	-	-	-	1,698.00
LHA of Parma	-	-	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medesano	34020	10,749	PR	2011	-	-	-	-	540.00	-	2,230	9	3,921.00	-	-	-	378.00	-	-	-	-	4,839.00
Mezzani	34021	3,449	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monchio Delle Corti	34022	1,024	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montechiarugolo	34023	10,626	PR	2011	-	-	-	-	360.00	-	3,500	12	7,920.00	-	-	-	-	-	-	-	-	8,280.00
Neviano Degli Arduini	34024	3,749	PR	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Noceto	34025	12,724	PR	2011	-	-	-	-	360.00	-	1,000	14	4,200.00	-	-	-	-	-	800.00	2,200.00	-	7,560.00
Palanzano	34026	1,203	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parma	34027	186,690	PR	2011	-	-	-	-	8,100.00	-	-	3	5,142.22	-	-	-	-	-	-	5,225.00	-	18,467.22
Pellegrino Parmense	34028	1,096	PR	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Polesine Parmense	34029	1,522	PR	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Province of Parma	-	-	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roccabianca	34030	3,109	PR	2011	-	-	-	-	270.00	-	1,298	12	3,840.00	-	-	-	341.93	-	-	-	-	4,451.93
Sala Baganza	34031	5,395	PR	2011	-	-	-	-	270.00	-	1,300	10	5,928.00	-	-	-	-	-	-	-	-	6,198.00
Salsomaggiore Terme	34032	20,051	PR	2011	-	-	-	-	450.00	-	2,500	8	57,300.00	-	-	-	2,016.00	-	-	-	-	59,766.00
San Secondo Parmense	34033	5,648	PR	2011	-	-	-	-	-	-	1,480	8	3,736.80	-	-	-	-	-	750.00	-	-	4,486.80
Sissa	34034	4,311	PR	2011	-	-	-	-	-	-	-	9	2,995.00	30	-	1,000.00	-	-	677.60	-	-	4,672.60
SM Union	-	13,097	PR	2011	-	-	-	-	540	-	-	-	-	-	-	8040	-	-	-	1375	-	9955
Solignano	34035	1,857	PR	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Soragna	34036	4,883	PR	2011	-	-	-	-	270.00	-	500	13	2,496.00	-	-	-	-	-	-	-	-	2,766.00
Sorbolo	34037	9,648	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terenzo	34038	1,239	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tizzano Val Parma	34039	2,161	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tornolo	34040	1,145	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torrile	34041	7,804	PR	2011	-	-	-	-	270.00	-	1,826	14	5,376.00	-	-	-	-	-	504.00	-	-	6,150.00
Traversetolo	34042	9,339	PR	2011	-	-	-	-	270.00	-	1,600	10	4,824.00	-	-	-	1,500.00	1,000.00	-	-	-	7,594.00
Trecasali	34043	3,679	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Valmozzola	34044	585	PR	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varano de' Melegari	34045	2,704	PR	2011	-	-	-	-	270.00	-	500	10	1,440.00	-	-	-	300.00	-	-	-	-	2,010.00
Varsi	34046	1,300	PR	2011	-	-	-	-	360.00	-	170	10	1,415.40	-	-	-	-	-	-	-	-	1,775.40

Zibello	34048	1,863	PR	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Agazzano	33001	2,108	PC	2011	-	-	-	-	216.00	-	400	5	1,380.00	-	-	-	-	-	-	-	580.00	2,176.00
Alseno	33002	4,897	PC	2011	-	-	-	-	360.00	-	1,100	7	2,679.60	-	-	-	830.00	-	-	582.40	-	4,452.00
Besenzone	33003	989	PC	2011	-	-	-	-	180.00	-	320	4	960.00	-	-	-	-	-	-	-	-	1,140.00
Bettola	33004	3,032	PC	2011	-	-	-	-	180.00	-	100	5	500.00	-	-	-	-	-	-	-	-	680.00
Bobbio	33005	3,737	PC	2011	-	-	-	-	270.00	-	250	6	450.00	-	-	-	-	-	-	437.00	-	1,157.00
Borgonovo Val Tidone	33006	7,713	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadeo	33007	6,187	PC	2011	-	-	-	-	360.00	-	1,200	2	1,200.00	-	-	-	-	-	-	-	-	1,560.00
Calendasco	33008	2,507	PC	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Caminata	33009	283	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caorso	33010	4,896	PC	2011	-	-	-	-	360.00	-	1,800	8	1,420.00	-	-	-	-	-	-	-	-	1,780.00
Carpaneto Piacentino	33011	7,681	PC	2011	-	-	-	-	360.00	-	1,813	5	2,760.00	-	-	-	332.00	-	-	800.00	750.00	5,002.00
Castel San Giovanni	33013	13,943	PC	2011	-	-	-	-	630.00	-	2,800	4	4,360.00	-	-	-	-	-	1,940.00	874.00	-	7,804.00
Castell'Arquato	33012	4,773	PC	2011	-	-	-	-	270.00	-	580	6	1,127.52	-	-	-	-	-	-	-	-	1,397.52
Castelvetro Piacentino	33014	5,581	PC	2011	-	-	-	-	360.00	-	1,400	5	2,783.00	-	-	-	-	-	726.00	-	-	3,869.00
Cerignale	33015	170	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coli	33016	1,001	PC	2011	-	-	-	-	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Corte Brugnatella	33017	688	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cortemaggiore	33018	4,547	PC	2011	-	-	-	-	360.00	-	1,300	7	3,864.00	-	-	-	-	-	720.00	-	-	4,944.00
Farini	33019	1,489	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferriere	33020	1,551	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorenzuola d'Arda	33021	15,204	PC	2011	-	-	-	-	630.00	-	5,100	4	6,000.00	-	-	-	-	-	700.00	728.00	1,672.00	9,730.00
Gazzola	33022	2,025	PC	2011	-	-	-	-	-	-	-	4	720.00	-	-	-	-	-	-	-	-	720.00
Gossolengo	33023	5,332	PC	2011	-	-	-	-	360.00	-	600	4	1,900.00	-	-	-	-	-	720.00	-	-	2,980.00
Gragnano Trebbiense	33024	4,394	PC	2011	-	-	-	-	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Gropparello	33025	2,475	PC	2011	-	-	-	-	180.00	-	120	3	313.20	-	-	-	-	-	-	-	-	493.20
LHA of Piacenza	-	-	PC	2011	-	-	-	-	450	-	-	-	-	-	-	-	-	-	-	-	-	450
Lugagnano Val d'Arda	33026	4,292	PC	2011	-	-	-	-	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Monticelli d'Ongina	33027	5,471	PC	2011	-	-	-	-	360.00	-	1,000	10	2,955.64	-	-	-	-	-	-	-	-	3,315.64
Morfasso	33028	1,131	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nibbiano	33029	2,294	PC	2011	-	-	-	-	180.00	-	443	5	1,815.00	-	-	-	-	-	-	-	-	1,995.00

Ottone	33030	601	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecorara	33031	806	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piacenza	33032	103,206	PC	2011	-	-	-	-	5,800.00	-	24,233	5	73,057.66	-	-	-	5,116.15	-	-	5,290.00	2,000.00	91,263.81
Pianello Val Tidone	33033	2,296	PC	2011	-	-	-	-	216.00	-	-	-	-	-	-	-	-	-	-	-	-	216.00
Piozzano	33034	646	PC	2011	-	-	-	-	144.00	-	50	5	550.00	-	-	-	-	-	-	-	-	694.00
Podenzano	33035	9,080	PC	2011	-	-	-	-	450.00	-	1,980	7	4,032.00	-	-	-	-	-	3,840.00	-	-	8,322.00
Ponte dell'Olio	33036	5,053	PC	2011	-	-	-	-	270.00	-	1,100	7	2,049.74	-	-	-	-	-	-	-	-	2,319.74
Pontenure	33037	6,365	PC	2011	-	-	-	-	360.00	-	1,500	1	540.00	-	-	-	-	-	-	400.00	-	1,300.00
Province of Piacenza	-	-	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rivergaro	33038	6,878	PC	2011	-	-	-	-	360.00	-	1,730	6	3,267.00	-	-	-	-	-	2,400.00	-	-	6,027.00
Rottofreno	33039	11,524	PC	2011	-	-	-	-	450.00	-	1,800	6	3,900.00	-	-	-	-	-	2,100.00	-	200.00	6,650.00
San Giorgio Piacentino	33040	5,859	PC	2011	-	-	-	-	360.00	-	1,300	8	4,065.60	-	-	-	-	-	-	550.00	-	4,975.60
San Pietro in Cerro	33041	942	PC	2011	-	-	-	-	180.00	-	212	4	339.20	-	-	-	-	-	-	-	-	519.20
Sarmato	33042	2,868	PC	2011	-	-	-	-	270.00	-	850	3	1,500.00	-	-	-	-	-	-	-	-	1,770.00
Travo	33043	2,009	PC	2011	-	-	-	-	270.00	-	390	8	2,592.00	-	-	-	-	-	288.00	-	-	3,150.00
Vernasca	33044	2,313	PC	2011	-	-	-	-	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Vigolzone	33045	4,313	PC	2011	-	-	-	-	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Villanova sull'Arda	33046	1,969	PC	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Zerba	33047	94	PC	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ziano Piacentino	33048	2,674	PC	2011	-	-	-	-	270.00	-	300	2	600.00	-	-	-	-	-	-	-	-	870.00
Alfonsine	39001	12,411	RA	2011	-	-	-	-	-	-	6,396	6	10,368.00	-	-	-	836.19	-	4,680.00	-	-	15,884.19
Bagnacavallo	39002	16,665	RA	2011	-	-	-	-	-	-	7,994	6	11,995.20	-	-	-	1,022.97	-	-	-	584.00	13,602.17
Bagnara di Romagna	39003	2,330	RA	2011	-	-	-	-	-	-	1,202	6	1,944.00	430	-	1,320.00	328.00	-	-	-	-	3,592.00
BR Union	-	103,619	RA	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brisighella	39004	7,847	RA	2011	-	-	-	-	-	-	1,461	5	3,024.00	-	-	-	328.00	-	1,512.00	-	-	4,864.00
Casola Valsenio	39005	2,761	RA	2011	-	-	-	-	-	-	485	5	1,280.40	-	-	-	328.00	-	250.00	-	-	1,858.40
Castel Bolognese	39006	9,626	RA	2011	-	-	-	-	-	-	2,890	6	5,281.65	-	-	-	390.98	-	242.00	-	-	5,914.63
Cervia	39007	29,180	RA	2011	-	-	-	-	-	-	17,642	8	57,167.71	13,000	-	71,985.88	2,275.80	2,880.00	3,870.72	-	-	138,180.11
Conselice	39008	10,029	RA	2011	-	-	-	-	-	-	4,192	6	6,264.00	-	-	-	549.98	-	13,608.00	-	-	20,421.98
Cotignola	39009	7,414	RA	2011	-	-	-	-	-	-	4,337	6	6,655.00	-	-	-	550.38	-	3,557.00	-	1,216.82	11,979.20
Faenza	39010	58,150	RA	2011	-	-	-	-	-	-	18,000	5	33,480.00	-	-	-	1,988.07	-	6,529.60	-	-	41,997.67
Fusignano	39011	8,444	RA	2011	-	-	-	-	-	-	3,989	6	5,400.00	-	-	-	523.36	-	2,268.00	-	200.00	8,391.36
LHA of Ravenna	-	-	RA	2011	-	-	-	-	1120	-	-	-	-	-	-	-	-	-	-	-	-	1120
Lugo	39012	32,777	RA	2011	-	-	-	-	-	-	20,964	5	24,000.00	-	-	-	2,497.00	-	3,600.00	-	2,367.00	32,464.00
Massa Lombarda	39013	10,700	RA	2011	-	-	-	-	-	-	4,430	5	7,282.80	-	-	-	538.05	-	2,914.80	-	-	10,735.65

Province of Ravenna	-	-	RA	2011	-	-	-	-	34920	-	-	-	-	-	-	-	-	-	-	14014.8	-	48934.8
Ravenna	39014	158,739	RA	2011	-	-	-	-	-	-	71,502	8	238,583.94	-	-	-	9,196.24	3,630.00	20,691.00	-	5,687.00	277,788.18
Riolo Terme	39015	5,812	RA	2011	-	-	-	-	-	-	1,665	6	4,696.80	1,480	-	6,400.00	328.00	250.00	312.00	-	-	11,986.80
Russi	39016	12,286	RA	2011	-	-	-	-	-	-	6,180	6	11,721.60	-	-	-	810.82	-	-	-	-	12,532.42
Sant'Agata sul Santerno	39017	2,849	RA	2011	-	-	-	-	-	-	2,655	6	4,452.34	-	-	-	348.34	-	510.00	-	-	5,310.68
Solarolo	39018	4,438	RA	2011	-	-	-	-	-	-	1,891	6	3,528.00	-	-	-	328.00	-	1,512.00	-	480.00	5,848.00
Albinea	35001	8,766	RE	2011	-	-	-	-	-	-	1,300	5	7,872.93	150	-	1,815.00	1,484.39	360.00	300.00	-	-	11,832.32
Bagnolo in Piano	35002	9,536	RE	2011	-	-	-	-	540.00	-	2,560	3	6,511.89	-	-	-	1,270.00	240.00	200.00	550.00	-	9,311.89
Baiso	35003	3,440	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bibbiano	35004	10,021	RE	2011	-	-	-	-	-	-	1,442	4	6,126.86	-	-	-	653.14	120.00	100.00	550.00	-	7,550.00
Boretto	35005	5,335	RE	2011	-	-	-	-	-	-	1,500	4	4,146.53	-	-	-	950.01	240.00	300.00	550.00	-	6,186.54
Brescello	35006	5,604	RE	2011	-	-	-	-	-	-	1,500	5	5,303.10	150	-	1,996.50	1,128.14	240.00	300.00	550.00	-	9,517.74
Busana	35007	1,319	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadelbosco di Sopra	35008	10,542	RE	2011	-	-	-	-	540.00	-	2,600	5	9,614.72	150	-	1,815.00	1,900.02	240.00	300.00	550.00	-	14,959.74
Campagnola Emilia	35009	5,594	RE	2011	-	-	-	-	-	-	1,600	4	4,212.62	-	-	-	1,009.38	-	250.00	-	-	5,472.00
Campegine	35010	5,187	RE	2011	-	-	-	-	-	-	1,250	4	5,120.25	-	-	-	950.01	120.00	300.00	550.00	-	7,040.26
Canossa	35018	3,843	RE	2011	-	-	-	-	450.00	-	1,200	5	2,097.82	-	-	-	237.50	240.00	300.00	550.00	-	3,875.32
Carpineti	35011	4,223	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalgrande	35012	18,785	RE	2011	-	-	-	-	450.00	-	4,150	5	18,360.04	-	-	-	3,146.90	720.00	2,100.00	1,100.00	-	25,876.94
Casina	35013	4,538	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castellarano	35014	15,114	RE	2011	-	-	-	-	900.00	-	2,600	5	12,055.78	450	-	5,445.00	2,671.90	480.00	2,100.00	1,375.00	-	25,027.68
Castelnovo di Sotto	35015	8,673	RE	2011	-	-	-	-	-	-	1,900	3	5,160.66	-	-	-	1,270.00	480.00	200.00	550.00	-	7,660.66
Castelnovo ne' Monti	35016	10,761	RE	2011	-	-	-	-	-	-	-	-	125.00	-	-	-	-	840.00	300.00	-	-	1,265.00
Cavriago	35017	9,750	RE	2011	-	-	-	-	450.00	-	2,100	5	9,658.37	150	-	1,980.00	1,721.89	480.00	300.00	550.00	-	15,140.26
Collagna	35019	984	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Correggio	35020	25,396	RE	2011	-	-	-	-	3,150.00	-	6,150	5	20,735.31	-	-	-	4,156.29	480.00	1,800.00	1,650.00	-	31,971.60
Fabbrico	35021	6,750	RE	2011	-	-	-	-	-	-	1,800	5	6,016.76	-	-	-	1,187.51	240.00	300.00	-	-	7,744.27
Gattatico	35022	5,935	RE	2011	-	-	-	-	-	-	1,250	5	5,083.99	150	-	1,815.00	1,128.14	240.00	300.00	550.00	-	9,117.13
Gualtieri	35023	6,696	RE	2011	-	-	-	-	450.00	-	2,300	5	713.90	-	-	-	-	-	-	550.00	-	1,713.90
Guastalla	35024	15,191	RE	2011	-	-	-	-	1,800.00	-	3,500	5	8,096.23	150	-	1,980.00	2,493.77	-	300.00	825.00	-	15,495.00
LHA of Reggio Emilia	-	-	RE	2011	-	-	-	-	1536	-	-	-	-	-	-	-	-	-	-	-	-	1536
Ligonchio	35025	875	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzzara	35026	9,134	RE	2011	-	-	-	-	-	-	1,045	5	9,526.03	150	-	1,980.00	1,484.39	240.00	300.00	550.00	2,799.90	16,880.32

Montecchio Emilia	35027	10,416	RE	2011	-	-	-	-	720.00	-	1,420	5	8,771.87	300	-	3,960.00	1,721.89	480.00	2,100.00	550.00	-	18,303.76
Novellara	35028	13,858	RE	2011	-	-	-	-	540.00	-	4,500	5	12,746.06	300	-	3,960.00	2,375.02	240.00	2,100.00	1,375.00	-	23,336.08
Poviglio	35029	7,320	RE	2011	-	-	-	-	450.00	-	1,650	5	7,493.17	-	-	-	1,187.51	240.00	300.00	550.00	-	10,220.68
Province of Reggio Emilia	-	-	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quattro Castella	35030	13,139	RE	2011	-	-	-	-	720.00	-	2,195	5	10,103.18	450	-	5,445.00	2,315.65	480.00	2,100.00	-	-	21,163.83
Ramiseto	35031	1,307	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reggio nell'Emilia	35033	170,086	RE	2011	-	-	-	-	5,040.00	-	28,630	5	166,252.36	1,200	-	14,520.00	24,937.73	2,400.00	4,500.00	7,700.00	-	225,350.09
Reggiolo	35032	9,362	RE	2011	-	-	-	-	450.00	-	-	14	2,588.00	-	-	-	-	-	720.00	-	-	3,758.00
Rio Saliceto	35034	6,048	RE	2011	-	-	-	-	-	-	1,650	5	6,026.88	150	-	1,980.00	1,176.42	-	300.00	-	-	9,483.30
Rolo	35035	4,090	RE	2011	-	-	-	-	-	-	1,400	5	3,713.95	150	-	1,980.00	890.63	240.00	300.00	-	-	7,124.58
Rubiera	35036	14,559	RE	2011	-	-	-	-	900.00	-	-	-	-	-	-	-	-	-	-	-	-	900.00
San Martino in Rio	35037	8,010	RE	2011	-	-	-	-	450.00	-	2,000	4	5,801.62	-	-	-	1,484.39	240.00	250.00	550.00	-	8,776.01
San Polo d'Enza	35038	5,858	RE	2011	-	-	-	-	360.00	-	1,200	5	5,670.10	150	-	1,980.00	1,128.14	240.00	300.00	550.00	-	10,228.24
Sant'Ilario d'Enza	35039	11,021	RE	2011	-	-	-	-	450.00	-	1,790	5	7,895.55	450	-	5,445.00	2,078.14	480.00	2,100.00	550.00	-	18,998.69
Scandiano	35040	25,099	RE	2011	-	-	-	-	900.00	-	4,950	4	11,526.00	-	-	-	-	-	-	-	-	12,426.00
TdM Union	-	19,215	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toano	35041	4,541	RE	2011	-	-	-	-	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Vetto	35042	2,001	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vezzano sul Crostolo	35043	4,270	RE	2011	-	-	-	-	540.00	-	553	5	3,528.94	150	-	1,815.00	890.63	240.00	300.00	-	-	7,314.57
Viano	35044	3,423	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	550.00	-	550.00
Villa Minozzo	35045	3,988	RE	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bellaria-Igea Marina	99001	19,358	RN	2011	-	-	-	-	-	-	6,966	5	16,718.40	-	-	-	600.00	240.00	3,360.00	-	2,620.00	23,538.40
Casteldelci	99021	454	RN	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattolica	99002	16,897	RN	2011	-	-	-	-	-	-	5,549	6	19,976.00	-	-	-	600.00	480.00	-	-	6,000.00	27,056.00
Coriano	99003	10,197	RN	2011	-	-	-	-	-	-	2,581	4	5,481.60	-	-	-	-	-	-	-	-	5,481.60
Gemmano	99004	1,161	RN	2011	-	-	-	-	-	-	200	5	1,200.00	-	-	-	200.00	100.00	96.00	-	-	1,596.00
LHA of Rimini	-	-	RN	2011	-	-	-	-	23620	-	-	-	-	-	-	-	-	-	-	-	-	23620
Maiolo	99022	854	RN	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misano Adriatico	99005	12,349	RN	2011	-	-	-	-	-	-	6,000	4	14,400.00	-	-	-	1,800.00	288.00	240.00	-	3,600.00	20,328.00
Mondaino	99006	1,478	RN	2011	-	-	-	-	-	-	250	5	900.00	-	-	-	150.00	-	-	-	200.00	1,250.00
Monte Colombo	99007	3,305	RN	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiore Conca	99008	2,235	RN	2011	-	-	-	-	-	-	215	5	774.00	-	-	-	100.00	-	240.00	-	240.00	1,354.00

Montegridolfo	99009	1,044	RN	2011	-	-	-	-	-	-	300	5	1,584.96	-	-	-	-	-	-	-	-	1,584.96
Montescudo	99010	3,297	RN	2011	-	-	-	-	-	-	689	5	1,191.00	-	-	-	150.00	-	-	-	-	1,341.00
Morciano di Romagna	99011	6,988	RN	2011	-	-	-	-	-	-	1,739	5	5,217.00	-	-	-	600.00	240.00	960.00	-	3,600.00	10,617.00
Novafeltria	99023	7,380	RN	2011	-	-	-	-	-	-	1,197	5	1,560.00	-	-	-	120.00	-	180.00	-	223.20	2,083.20
Pennabilli	99024	3,002	RN	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poggio Berni	99012	3,412	RN	2011	-	-	-	-	-	-	998	5	2,495.00	-	-	-	200.00	-	380.00	-	200.00	3,275.00
Province of Rimini	-	-	RN	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12091.2	-	12091.2
Riccione	99013	35,780	RN	2011	-	-	-	-	-	-	15,000	5	53,300.00	7,827	-	40,600.00	7,200.00	2,100.00	8,760.00	-	12,240.00	124,200.00
Rimini	99014	143,310	RN	2011	1,000.00	320.00	-	-	-	-	39,000	4	99,000.00	19,500	-	120,000.00	30,000.00	30,000.00	6,000.00	-	89,000.00	375,320.00
Saludecio	99015	2,998	RN	2011	-	-	-	-	-	-	402	4	1,543.68	-	-	-	240.00	120.00	360.00	-	-	2,263.68
San Clemente	99016	5,164	RN	2011	-	-	-	-	-	-	1,300	5	4,200.00	-	-	-	360.00	-	180.00	-	300.00	5,040.00
San Giovanni in Marignano	99017	9,093	RN	2011	-	-	-	-	-	-	4,000	5	8,400.00	-	-	-	480.00	-	3,600.00	-	744.00	13,224.00
San Leo	99025	3,059	RN	2011	-	-	-	-	-	-	203	5	1,879.62	150	-	-	-	-	-	-	-	1,879.62
Sant'Agata Feltria	99026	2,279	RN	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santarcangelo di Romagna	99018	21,415	RN	2011	-	-	-	-	-	-	6,946	5	20,838.00	4,250	-	12,500.00	2,500.00	1,440.00	7,000.00	-	2,200.00	46,478.00
Talamello	99027	1,080	RN	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torriana	99019	1,577	RN	2011	-	-	-	-	-	-	680	5	2,184.40	190	-	1,625.60	152.40	101.60	50.80	-	350.00	4,464.80
Verucchio	99020	10,078	RN	2011	-	-	-	-	-	-	3,029	5	9,087.00	-	-	-	720.00	-	804.00	-	4,320.00	14,931.00

Table 102. E-R Plan Expenditures dataset - 2012

					Reported activity and relative expenditures incurred for its realization																
Municipality	***ISTAT code***	***Population***	***LHA***	***Reported in the year***	***Management of reported cases (emergency)***		***Monitoring of Ae. albopictus population***			***CG_Exp***	***Larvicidal treatments***			***DtD interventions***			***QC_Exp***	***SI_Exp***	***LK_Exp***	***Edu_Exp***	***O_Exp***	***Tot_Exp***
					Em1_Exp	***Em2_Exp***	***Ovi_n***	***Ovi_ch***	***Ovi_Exp***		***RD_n***	***R_n***	***L_Exp***	***DtD_n***	***DtD_R***	***DtD_Exp***						
Anzola dell'Emilia	37001	12,131	BO	2012	-	-	11	10	990.00	-	-	-	4,602.89	-	-	6,904.34	-	12,389.53	435.60	-	-	25,322.36
Argelato	37002	9,745	BO	2012	-	-	3	10	270.00	-	-	-	3,516.63	-	-	-	-	4,448.59	1,751.11	-	-	9,986.33
Baricella	37003	6,867	BO	2012	-	-	3	10	270.00	-	-	-	3,131.71	-	-	-	629.16	951.60	1,507.72	-	-	6,490.19
Bazzano	37004	6,910	BO	2012	-	-	8	9	648.00	-	-	-	-	-	-	-	-	-	-	-	-	648.00
Bentivoglio	37005	5,399	BO	2012	-	-	3	10	270.00	-	-	-	3,643.42	-	-	-	-	6,818.40	1,742.40	-	-	12,474.22
Bologna	37006	382,784	BO	2012	205.43	-	110	9	9,610.00	-	-	-	182,196.53	-	-	-	9,072.00	348.48	-	-	-	201,432.44
Budrio	37008	18,208	BO	2012	-	-	14	10	1,260.00	-	-	-	6,195.20	-	-	1,869.45	1,794.67	1,869.45	-	-	-	12,988.77
Calderara di Reno	37009	13,218	BO	2012	-	-	11	10	990.00	-	-	-	5,971.03	-	-	-	-	5,404.83	1,595.75	-	-	13,961.61
Camugnano	37010	2,011	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalecchio di Reno	37011	36,264	BO	2012	-	-	45	10	4,050.00	-	-	-	20,500.00	-	-	-	-	-	-	-	-	24,550.00
Castel d'Aiano	37013	1,957	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel di Casio	37015	3,527	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Maggiore	37019	17,770	BO	2012	-	-	20	10	1,800.00	-	-	-	12,297.41	-	-	-	-	1,869.45	2,613.60	-	-	18,580.46
Castello d'Argile	37017	6,527	BO	2012	-	-	10	10	900.00	-	-	-	4,083.75	-	-	-	-	338.80	892.37	-	-	6,214.92
Castello di Serravalle	37018	4,937	BO	2012	-	-	6	10	540.00	-	-	-	4,114.00	-	-	-	-	-	762.30	-	-	5,416.30
Castenaso	37021	14,461	BO	2012	-	-	14	10	1,260.00	-	-	-	5,673.04	-	-	4,601.38	1,258.32	1,586.01	3,864.86	-	-	18,243.61
Castiglione dei Pepoli	37022	5,987	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crespellano	37023	10,088	BO	2012	-	-	8	10	720.00	-	-	-	14,582.40	-	-	15,408.00	-	-	-	-	-	30,710.40
Crevalcore	37024	13,733	BO	2012	-	-	11	10	990.00	-	-	-	3,950.45	-	-	-	-	6,236.34	718.74	-	-	11,895.53
Gaggio Montano	37027	5,140	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galliera	37028	5,562	BO	2012	-	-	3	10	270.00	-	-	-	2,310.92	-	-	-	-	1,413.57	726.00	-	-	4,720.49
Granaglione	37029	2,267	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granarolo dell'Emilia	37030	10,884	BO	2012	-	-	10	10	900.00	-	-	-	10,285.00	-	-	-	-	-	-	-	-	11,185.00
Grizzana Morandi	37031	4,020	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Bologna	-	-	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lizzano in Belvedere	37033	2,356	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Loiano	37034	4,523	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malalbergo	37035	8,899	BO	2012	-	-	9	10	810.00	-	-	-	4,632.71	-	-	1,479.91	786.45	1,586.01	3,015.44	-	-	12,310.52
Marzabotto	37036	6,867	BO	2012	-	-	-	-	-	-	-	-	3,477.74	-	-	-	-	-	1,270.50	-	-	4,748.24
Minerbio	37038	8,736	BO	2012	-	-	4	10	360.00	-	-	-	3,921.21	-	-	-	-	317.20	1,795.37	-	-	6,393.78
Molinella	37039	15,895	BO	2012	-	-	-	-	-	-	-	-	28,618.56	-	-	10,692.48	-	-	-	-	-	39,311.04
Monghidoro	37040	3,887	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monte San Pietro	37042	10,975	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monterenzio	37041	6,110	BO	2012	-	-	-	-	-	-	-	-	3,025.00	-	-	-	-	-	-	-	-	3,025.00
Monteveglio	37043	5,356	BO	2012	-	-	6	10	540.00	-	-	-	3,570.88	-	-	-	-	-	762.30	-	-	4,873.18
Monzuno	37044	6,536	BO	2012	-	-	-	-	-	-	-	-	10,926.30	-	-	-	-	-	-	-	-	10,926.30
Ozzano dell'Emilia	37046	13,100	BO	2012	-	-	8	10	720.00	-	-	-	9,438.00	-	-	-	-	-	5,400.00	-	-	15,558.00
Pianoro	37047	17,303	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pieve di Cento	37048	7,014	BO	2012	-	-	-	-	-	-	-	-	2,864.46	-	-	-	-	1,413.57	1,887.60	-	-	6,165.63
Porretta Terme	37049	4,804	BO	2012	-	-	6	8	432.00	-	-	-	-	-	-	-	-	-	-	-	-	432.00
Province of Bologna	-	-	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sala Bolognese	37050	8,314	BO	2012	-	-	11	10	990.00	-	-	-	4,323.58	-	-	-	-	7,442.03	1,597.20	-	-	14,352.81
San Benedetto Val di Sambro	37051	4,453	BO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Giorgio di Piano	37052	8,385	BO	2012	-	-	6	10	540.00	-	-	-	4,809.62	-	-	1,568.17	-	5,404.83	1,742.40	-	-	14,065.02
San Giovanni in Persiceto	37053	27,454	BO	2012	-	-	22	10	1,980.00	-	-	-	7,748.99	-	-	9,441.63	-	15,382.97	2,105.40	-	-	36,658.99
San Lazzaro di Savena	37054	31,691	BO	2012	-	-	-	-	-	-	-	-	9,795.20	-	-	-	-	10,019.72	-	-	-	19,814.92
San Pietro in Casale	37055	11,936	BO	2012	-	-	6	10	540.00	-	-	-	6,582.06	-	-	-	-	7,899.36	2,032.80	-	-	17,054.22
Sant'Agata Bolognese	37056	7,400	BO	2012	-	-	10	10	900.00	-	-	-	5,038.49	-	-	-	-	1,621.45	508.20	-	-	8,068.14
Sasso Marconi	37057	14,778	BO	2012	-	-	10	10	900.00	-	-	-	-	-	-	-	-	-	-	-	-	900.00
Savigno	37058	2,806	BO	2012	-	-	-	-	-	-	-	-	2,210.07	-	-	-	-	-	-	-	-	2,210.07
Vergato	37059	7,807	BO	2012	-	-	6	10	540.00	-	-	-	4,879.50	-	-	-	-	-	635.25	-	-	6,054.75
Zola Predosa	37060	18,512	BO	2012	-	-	14	10	1,260.00	-	-	-	-	-	-	-	-	-	-	-	-	1,260.00
Bagno di Romagna	40001	6,201	CE	2012	-	-	7	10	630.00	-	-	-	1,960.20	-	-	-	604.75	-	-	-	-	3,194.95
Borghi	40004	2,814	CE	2012	-	-	6	10	540.00	-	-	-	1,896.72	-	-	-	604.75	-	-	-	-	3,041.47
Cesena	40007	97,484	CE	2012	-	-	65	10	5,850.00	-	-	-	82,378.24	-	-	-	6,743.05	-	2,178.00	-	-	97,149.29
Cesenatico	40008	25,944	CE	2012	-	-	35	10	3,150.00	-	-	-	36,198.46	-	-	-	3,326.17	6,267.80	2,613.60	-	-	51,556.03
Gambettola	40015	10,645	CE	2012	-	-	9	10	810.00	-	3,431	-	3,813.19	-	-	8,507.27	967.61	-	-	-	-	14,098.07
Gatteo	40016	9,107	CE	2012	-	-	10	10	900.00	-	-	-	7,158.36	-	-	8,520.00	1,028.00	610.00	-	-	-	18,216.36

LHA of Cesena	-	-	CE	2012	-	-	-	-	1050	-	-	-	-	-	-	-	-	-	-	-	-	1050
Longiano	40018	7,005	CE	2012	-	-	11	10	990.00	-	-	-	6,143.23	-	-	-	786.18	250.00	-	-	-	8,169.41
Mercato Saraceno	40020	7,076	CE	2012	-	-	11	10	990.00	-	-	-	6,210.85	-	-	-	604.75	-	-	-	-	7,805.60
Montiano	40028	1,714	CE	2012	-	-	6	10	540.00	-	-	-	384.00	-	-	-	604.75	-	-	-	-	1,528.75
Province of Cesena	-	-	CE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roncofreddo	40037	3,385	CE	2012	-	-	7	10	630.00	-	-	-	2,376.44	-	-	-	604.75	-	-	-	-	3,611.19
San Mauro Pascoli	40041	11,463	CE	2012	-	-	10	10	900.00	-	-	-	7,500.00	-	-	-	846.66	1,694.00	-	-	-	10,940.66
Sarsina	40044	3,665	CE	2012	-	-	5	10	450.00	-	-	-	2,020.51	-	-	-	604.76	-	3,327.50	-	-	6,402.77
Savignano sul Rubicone	40045	17,823	CE	2012	-	-	12	10	1,080.00	-	-	-	6,570.00	-	-	18,630.00	1,180.00	910.00	-	-	-	28,370.00
Sogliano al Rubicone	40046	3,325	CE	2012	-	-	11	10	990.00	-	-	-	1,360.00	-	-	4,590.00	604.75	618.00	-	-	-	8,162.75
Verghereto	40050	1,971	CE	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Argenta	38001	22,553	FE	2012	-	-	15	10	1,350.00	-	-	-	8,470.00	-	-	-	-	-	3,529.45	-	-	13,349.45
Berra	38002	5,216	FE	2012	-	-	3	10	270.00	-	-	-	6,746.96	-	-	-	-	-	-	-	-	7,016.96
Bondeno	38003	15,283	FE	2012	-	-	15	10	1,350.00	-	-	-	10,912.50	-	-	-	-	-	2,164.45	-	-	14,426.95
Cento	38004	35,770	FE	2012	-	-	13	10	1,170.00	-	-	-	18,725.00	-	-	-	-	-	1,849.85	-	-	21,744.85
Codigoro	38005	12,525	FE	2012	-	-	8	10	720.00	-	-	-	20,340.10	-	-	-	-	-	1,800.48	-	-	22,860.58
Comacchio	38006	23,132	FE	2012	-	-	31	10	2,790.00	-	-	-	24,920.14	-	-	-	10,000.00	2,142.00	435.60	-	-	40,287.74
Copparo	38007	17,163	FE	2012	-	-	8	10	720.00	-	-	-	23,415.92	-	-	-	-	-	-	-	-	24,135.92
Ferrara	38008	135,444	FE	2012	-	-	79	10	8,230.00	-	-	-	108,500.00	-	-	-	3,000.00	-	-	-	-	119,730.00
Formignana	38009	2,815	FE	2012	-	-	1	10	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Goro	38025	3,911	FE	2012	-	-	3	10	270.00	-	-	-	4,762.56	-	-	-	-	-	-	-	-	5,032.56
Jolanda di Savoia	38010	3,047	FE	2012	-	-	5	10	450.00	-	-	-	3,968.80	-	-	-	-	-	-	-	-	4,418.80
Lagosanto	38011	5,008	FE	2012	-	-	4	10	360.00	-	-	-	10,824.00	-	-	-	-	-	-	-	-	11,184.00
LHA of Ferrara	-	-	FE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Masi Torello	38012	2,381	FE	2012	-	-	2	10	180.00	-	-	-	8,659.20	-	-	-	-	-	-	-	-	8,839.20
Massa Fiscaglia	38013	3,615	FE	2012	-	-	1	10	90.00	-	-	-	2,904.00	-	-	-	-	-	-	-	-	2,994.00
Mesola	38014	7,133	FE	2012	-	-	6	10	540.00	-	-	-	9,128.24	-	-	-	-	-	-	-	-	9,668.24
Migliarino	38015	3,721	FE	2012	-	-	3	10	270.00	-	-	-	8,036.82	-	-	-	-	-	-	-	-	8,306.82
Migliaro	38026	2,241	FE	2012	-	-	2	10	180.00	-	-	-	4,514.00	-	-	-	-	-	-	-	-	4,694.00
Mirabello	38016	3,527	FE	2012	-	-	5	10	450.00	-	-	-	4,477.00	-	-	-	-	-	616.62	-	-	5,543.62
Ostellato	38017	6,487	FE	2012	-	-	6	10	540.00	-	-	-	11,112.64	-	-	-	-	-	-	-	-	11,652.64
Poggio Renatico	38018	9,743	FE	2012	-	-	8	10	720.00	-	-	-	6,558.20	-	-	-	-	-	1,510.08	-	-	8,788.28
Portomaggiore	38019	12,361	FE	2012	-	-	8	10	720.00	-	-	-	22,820.60	-	-	-	-	-	-	-	-	23,540.60
Province of Ferrara	-	-	FE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ro	38020	3,408	FE	2012	-	-	1	10	90.00	-	-	-	4,100.00	-	-	-	-	-	-	-	-	4,190.00

Sant'Agostino	38021	7,152	FE	2012	-	-	6	10	540.00	-	-	-	10,436.25	-	-	-	-	-	408.98	-	-	11,385.23
Tresigallo	38024	4,582	FE	2012	-	-	3	10	270.00	-	-	-	14,564.00	-	-	-	-	-	-	-	-	14,834.00
Vigarano Mainarda	38022	7,626	FE	2012	-	-	7	10	630.00	-	-	-	5,059.40	-	-	-	-	-	334.66	-	-	6,024.06
Voghiera	38023	3,842	FE	2012	-	-	4	10	360.00	-	-	-	6,945.40	-	-	-	-	-	-	-	-	7,305.40
Bertinoro	40003	11,193	FO	2012	-	-	16	10	1,440.00	-	-	-	2,878.43	-	-	-	-	407.10	-	-	-	4,725.53
Castrocaro Terme e Terra del Sole	40005	6,661	FO	2012	-	-	9	10	810.00	-	-	-	3,958.05	-	-	-	-	-	-	-	-	4,768.05
Civitella di Romagna	40009	3,835	FO	2012	-	-	8	10	720.00	-	-	-	2,300.00	-	-	-	-	-	-	-	-	3,020.00
Dovadola	40011	1,690	FO	2012	-	-	6	10	540.00	-	-	-	605.00	-	-	-	-	-	-	-	-	1,145.00
Forlì	40012	118,968	FO	2012	-	-	50	10	5,550.00	-	-	-	102,631.90	-	-	-	-	484.00	-	-	-	108,665.90
Forlimpopoli	40013	13,124	FO	2012	-	-	14	10	1,260.00	-	-	-	5,333.33	-	-	-	1,234.20	-	-	-	-	7,827.53
Galeata	40014	2,554	FO	2012	-	-	7	8	504.00	-	-	-	762.00	-	-	-	-	-	-	-	-	1,266.00
LHA of Forlì	-	-	FO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meldola	40019	10,245	FO	2012	-	-	11	10	990.00	-	-	-	1,532.72	-	-	-	-	-	-	-	-	2,522.72
Modigliana	40022	4,801	FO	2012	-	-	7	10	630.00	-	-	-	3,566.40	-	-	-	-	-	-	-	-	4,196.40
Portico e San Benedetto	40031	782	FO	2012	-	-	6	10	540.00	-	-	-	1,600.00	-	-	-	-	-	-	-	-	2,140.00
Predappio	40032	6,570	FO	2012	-	-	10	8	720.00	-	-	-	1,520.72	-	-	-	-	-	-	-	-	2,240.72
Premilcuore	40033	806	FO	2012	-	-	6	10	540.00	-	-	-	494.25	-	-	-	-	-	-	-	-	1,034.25
Province of Forlì	-	-	FO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocca San Casciano	40036	2,013	FO	2012	-	-	7	10	630.00	-	-	-	1,843.00	-	-	-	-	-	-	-	-	2,473.00
Santa Sofia	40043	4,190	FO	2012	-	-	7	10	630.00	-	-	-	2,350.00	-	-	-	-	-	-	-	-	2,980.00
Tredozio	40049	1,278	FO	2012	-	-	6	10	540.00	-	-	-	1,440.00	-	-	-	-	-	-	-	-	1,980.00
Borgo Tossignano	37007	3,347	IM	2012	-	-	-	-	-	-	-	-	1,694.00	-	-	-	-	-	726.00	-	-	2,420.00
Casalfiumanese	37012	3,490	IM	2012	-	-	-	-	-	-	-	-	2,299.00	-	-	-	-	-	2,032.80	-	-	4,331.80
Castel del Rio	37014	1,247	IM	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Guelfo di Bologna	37016	4,365	IM	2012	-	-	-	-	-	-	-	-	3,785.50	-	-	-	-	-	1,052.70	-	-	4,838.20
Castel San Pietro Terme	37020	20,827	IM	2012	-	-	12	10	1,080.00	-	-	-	6,534.91	-	-	-	1,075.98	-	2,800.81	-	-	11,491.70
Dozza	37025	6,543	IM	2012	-	-	-	-	-	-	-	-	1,801.93	-	-	-	-	-	997.25	-	-	2,799.18
Fontanelice	37026	1,966	IM	2012	-	-	-	-	-	-	-	-	1,663.75	-	-	-	-	-	326.70	-	-	1,990.45
Imola	37032	69,274	IM	2012	-	-	50	10	4,500.00	-	-	-	16,496.41	-	-	-	1,495.56	-	-	-	-	22,491.97
LHA of Imola	-	-	IM	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medicina	37037	16,854	IM	2012	-	-	12	10	1,080.00	-	-	-	5,252.76	-	-	849.71	-	-	2,549.13	-	-	9,731.60
Mordano	37045	4,724	IM	2012	-	-	-	-	-	-	-	-	3,490.85	-	-	-	-	-	-	-	-	3,490.85
Province of Imola	-	-	IM	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bastiglia	36001	4,167	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bomporto	36002	10,003	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campogalliano	36003	8,686	MO	2012	-	-	9	10	810.00	-	-	-	5,687.00	-	-	-	-	-	-	-	-	6,497.00
Camposanto	36004	3,260	MO	2012	-	-	10	3	270.00	-	1,500	7	1,298.16	-	-	-	-	-	-	-	-	1,568.16
Carpi	36005	69,943	MO	2012	-	-	30	10	3,820.00	-	16,000	7	21,428.57	-	-	-	1,500.00	-	-	-	-	26,748.57
Castelfranco Emilia	36006	32,174	MO	2012	-	-	10	10	900.00	-	7,915	4	5,872.32	-	-	-	-	-	-	-	-	6,772.32
Castelnuovo Rangone	36007	14,497	MO	2012	-	-	10	10	900.00	-	4,418	6	4,065.60	-	-	-	-	-	-	-	-	4,965.60
Castelvetro di Modena	36008	11,320	MO	2012	-	-	10	10	900.00	-	-	-	-	-	-	-	-	-	-	-	-	900.00
Cavezzo	36009	7,359	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Concordia sulla Secchia	36010	9,092	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fanano	36011	3,075	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finale Emilia	36012	16,111	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorano Modenese	36013	17,065	MO	2012	-	-	10	9	810.00	-	4,200	5	3,484.80	-	-	-	-	-	834.90	-	-	5,129.70
Fiumalbo	36014	1,310	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formigine	36015	34,145	MO	2012	-	-	22	9	1,782.00	-	8,500	5	13,975.50	-	-	326.70	-	600.00	508.20	-	-	17,192.40
Frassinoro	36016	1,997	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiglia	36017	4,018	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lama Mocogno	36018	2,877	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Modena	-	-	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maranello	36019	17,039	MO	2012	-	-	10	9	810.00	-	4,050	7	7,411.25	-	-	1,694.00	-	-	762.30	-	-	10,677.55
Marano sul Panaro	36020	4,875	MO	2012	-	-	10	10	900.00	-	-	-	1,972.80	-	-	-	-	-	-	-	-	2,872.80
Medolla	36021	6,362	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirandola	36022	24,681	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modena	36023	185,694	MO	2012	-	-	54	10	4,860.00	-	53,561	6	68,415.74	-	-	-	18,491.92	5,061.68	-	-	-	96,829.34
Montecreto	36024	995	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiorino	36025	2,273	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montese	36026	3,384	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonantola	36027	15,618	MO	2012	-	-	10	10	900.00	-	-	-	20,600.00	-	-	-	-	2,150.00	1,900.00	-	-	25,550.00
Novi di Modena	36028	11,504	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Palagano	36029	2,386	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavullo nel Frignano	36030	17,435	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pievepelago	36031	2,282	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polinago	36032	1,756	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prignano sulla Secchia	36033	3,822	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Province of Modena	-	-	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ravarino	36034	6,301	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riolunato	36035	766	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Cesario sul Panaro	36036	6,175	MO	2012	-	-	6	10	540.00	-	1,950	5	2,541.00	-	-	-	-	-	-	-	-	3,081.00
San Felice sul Panaro	36037	11,238	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Possidonio	36038	3,783	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Prospero	36039	6,026	MO	2012	-	-	10	-	-	-	-	-	380.00	-	-	-	-	-	-	-	-	380.00
Sassuolo	36040	41,313	MO	2012	-	-	10	9	810.00	-	7,800	5	5,379.66	-	-	-	-	-	-	-	-	6,189.66
Savignano sul Panaro	36041	9,460	MO	2012	-	-	10	10	900.00	-	2,000	6	4,356.00	-	-	-	-	-	275.00	-	-	5,531.00
Serramazzoni	36042	8,328	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sestola	36043	2,627	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soliera	36044	15,337	MO	2012	-	-	6	10	540.00	-	-	-	5,976.42	-	-	-	-	-	-	-	-	6,516.42
Sorbara Union	-	20,471	MO	2012	-	-	-	-	2214	-	-	-	4365.51	-	-	-	-	-	1397.55	-	-	7977.06
Spilamberto	36045	12,455	MO	2012	-	-	8	10	720.00	-	3,248	5	4,914.28	-	-	-	-	-	-	-	-	5,634.28
UCMAN	-	67,582	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vignola	36046	25,132	MO	2012	-	-	10	10	900.00	-	3,048	6	5,602.92	-	-	-	2,751.54	-	1,645.60	-	-	10,900.06
Zocca	36047	5,018	MO	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albareto	34001	2,187	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bardi	34002	2,355	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedonia	34003	3,698	PR	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Berceto	34004	2,203	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bore	34005	808	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borgo Val di Taro	34006	7,373	PR	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	1,700.00	-	-	1,970.00
Busseto	34007	7,095	PR	2012	-	-	-	-	-	-	-	-	2,323.00	-	-	-	-	-	-	-	-	2,323.00
Calestano	34008	2,119	PR	2012	-	-	3	10	270.00	-	-	-	460.00	-	-	237.00	-	-	-	-	-	967.00
Collecchio	34009	14,167	PR	2012	-	-	4	10	360.00	-	-	-	3,345.65	-	-	-	-	-	-	-	-	3,705.65
Colorno	34010	9,052	PR	2012	-	-	3	10	270.00	-	-	-	2,904.04	-	-	-	-	-	638.88	-	-	3,812.92
Compiano	34011	1,113	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corniglio	34012	2,041	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Felino	34013	8,736	PR	2012	-	-	5	10	450.00	-	-	-	1,754.50	-	-	-	-	-	-	-	-	2,204.50
Fidenza	34014	26,352	PR	2012	-	-	6	10	540.00	-	-	-	7,260.00	-	-	-	-	132.20	168.00	-	-	8,100.20
Fontanellato	34015	7,057	PR	2012	-	-	3	10	270.00	-	-	-	7,804.50	-	-	-	-	-	998.25	-	-	9,072.75
Fontevivo	34016	5,610	PR	2012	-	-	4	10	360.00	-	-	-	3,509.00	-	-	-	-	-	193.60	-	-	4,062.60
Fornovo di Taro	34017	6,295	PR	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00

Langhirano	34018	9,984	PR	2012	-	-	4	10	360.00	-	-	-	1,645.60	-	-	-	-	-	-	-	-	2,005.60
Lesignano de' Bagni	34019	4,842	PR	2012	-	-	3	10	270.00	-	-	-	800.00	-	-	-	-	-	-	-	-	1,070.00
LHA of Parma	-	-	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medesano	34020	10,846	PR	2012	-	-	6	10	540.00	-	-	-	2,178.00	-	-	-	-	285.00	-	-	-	3,003.00
Mezzani	34021	3,479	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monchio Delle Corti	34022	999	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montechiarugolo	34023	10,776	PR	2012	-	-	4	10	360.00	-	-	-	9,196.00	-	-	-	-	-	-	-	-	9,556.00
Neviano Degli Arduini	34024	3,767	PR	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Noceto	34025	12,894	PR	2012	-	-	4	10	360.00	-	-	-	2,656.00	-	-	-	-	-	484.00	-	-	3,500.00
Palanzano	34026	1,188	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parma	34027	188,695	PR	2012	907.50	-	70	10	6,300.00	-	-	-	4,122.83	-	-	-	-	-	-	-	-	11,330.33
Pellegrino Parmense	34028	1,085	PR	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Polesine Parmense	34029	1,521	PR	2012	-	-	3	10	270.00	-	-	-	1,415.70	-	-	-	-	-	-	-	-	1,685.70
Province of Parma	-	-	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roccabianca	34030	3,100	PR	2012	-	-	3	10	270.00	-	-	-	3,872.00	-	-	-	-	-	-	-	-	4,142.00
Sala Baganza	34031	5,521	PR	2012	-	-	3	10	270.00	-	-	-	4,940.00	-	-	-	-	-	-	-	-	5,210.00
Salsomaggiore Terme	34032	20,093	PR	2012	-	-	5	10	450.00	-	-	-	-	-	-	-	-	-	-	-	-	450.00
San Secondo Parmense	34033	5,705	PR	2012	-	-	-	-	-	-	-	-	2,904.00	-	-	-	-	-	1,277.76	-	-	4,181.76
Sissa	34034	4,265	PR	2012	-	-	-	-	-	-	-	-	1,663.75	-	-	-	-	-	381.15	-	-	2,044.90
SM Union	-	13,165	PR	2012	-	-	-	-	540	-	-	-	4411.35	-	-	-	-	-	-	-	-	4951.35
Solignano	34035	1,807	PR	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Soragna	34036	4,890	PR	2012	-	-	3	10	270.00	-	-	-	2,129.60	-	-	-	-	-	1,277.76	-	-	3,677.36
Sorbolo	34037	9,686	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terenzo	34038	1,213	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tizzano Val Parma	34039	2,136	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tornolo	34040	1,121	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torrile	34041	7,810	PR	2012	-	-	3	10	270.00	-	-	-	3,291.20	-	-	-	-	-	508.20	-	-	4,069.40
Traversetolo	34042	9,408	PR	2012	-	-	3	10	270.00	-	-	-	4,573.80	-	-	-	-	1,000.00	240.00	-	-	6,083.80
Trecasali	34043	3,764	PR	2012	-	-	-	-	-	-	-	-	1,911.80	-	-	-	-	-	-	-	-	1,911.80
Valmozzola	34044	579	PR	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varano de' Melegari	34045	2,710	PR	2012	-	-	3	10	270.00	-	-	-	875.00	-	-	-	-	-	-	-	-	1,145.00

Varsi	34046	1,288	PR	2012	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Zibello	34048	1,850	PR	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Agazzano	33001	2,105	PC	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	146.25	-	-	416.25
Alseno	33002	4,931	PC	2012	-	-	4	10	360.00	-	-	-	1,078.11	-	-	-	688.00	-	-	-	-	2,126.11
Besenzone	33003	977	PC	2012	-	-	2	10	180.00	-	-	-	726.00	-	-	-	-	-	-	-	-	906.00
Bettola	33004	3,006	PC	2012	-	-	2	10	180.00	-	-	-	500.00	-	-	-	-	-	-	-	-	680.00
Bobbio	33005	3,754	PC	2012	-	-	3	10	270.00	-	-	-	200.00	-	-	-	-	-	-	-	-	470.00
Borgonovo Val Tidone	33006	7,811	PC	2012	-	-	5	10	-	-	-	-	363.00	-	-	-	-	-	242.00	-	-	605.00
Cadeo	33007	6,226	PC	2012	-	-	4	10	360.00	-	-	-	900.00	-	-	-	-	-	900.00	-	-	2,160.00
Calendasco	33008	2,494	PC	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Caminata	33009	276	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caorso	33010	4,887	PC	2012	-	-	4	10	360.00	-	-	-	1,359.80	-	-	-	-	-	871.20	-	-	2,591.00
Carpaneto Piacentino	33011	7,676	PC	2012	-	-	4	10	360.00	-	-	-	1,113.20	-	-	-	516.00	-	-	-	-	1,989.20
Castel San Giovanni	33013	13,991	PC	2012	-	-	7	10	630.00	-	-	-	3,267.00	-	-	-	-	-	1,210.00	-	-	5,107.00
Castell'Arquato	33012	4,733	PC	2012	-	-	3	10	270.00	-	-	-	1,705.61	-	-	-	-	-	-	-	-	1,975.61
Castelvetro Piacentino	33014	5,610	PC	2012	-	-	4	10	360.00	-	-	-	1,669.80	-	-	-	-	-	484.00	-	-	2,513.80
Cerignale	33015	159	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coli	33016	979	PC	2012	-	-	1	10	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Corte Brugnatella	33017	668	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cortemaggiore	33018	4,595	PC	2012	-	-	4	10	360.00	-	-	-	2,783.00	-	-	-	-	-	726.00	-	-	3,869.00
Farini	33019	1,477	PC	2012	-	-	2	10	180.00	-	-	-	-	-	-	-	-	-	-	-	-	180.00
Ferriere	33020	1,515	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorenzuola d'Arda	33021	15,379	PC	2012	-	-	7	10	630.00	-	-	-	3,025.00	-	-	-	-	-	-	-	-	3,655.00
Gazzola	33022	2,030	PC	2012	-	-	4	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gossolengo	33023	5,459	PC	2012	-	-	4	10	360.00	-	-	-	919.60	-	-	-	-	-	-	-	-	1,279.60
Gragnano Trebbiense	33024	4,424	PC	2012	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Gropparello	33025	2,443	PC	2012	-	-	2	10	180.00	-	-	-	225.60	-	-	-	-	-	-	-	-	405.60
LHA of Piacenza	-	-	PC	2012	-	-	-	-	810	-	-	-	-	-	-	-	-	-	-	-	-	810
Lugagnano Val d'Arda	33026	4,273	PC	2012	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Monticelli d'Ongina	33027	5,449	PC	2012	-	-	4	10	360.00	-	-	-	2,253.29	-	-	-	-	-	-	-	-	2,613.29
Morfasso	33028	1,099	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nibbiano	33029	2,266	PC	2012	-	-	2	10	180.00	-	-	-	-	-	-	-	-	-	-	-	-	180.00
Ottone	33030	574	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Pecorara	33031	809	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piacenza	33032	103,838	PC	2012	-	-	46	10	5,260.00	-	-	-	47,776.58	-	-	-	-	-	-	-	-	53,036.58
Pianello Val Tidone	33033	2,311	PC	2012	-	-	3	8	216.00	-	-	-	-	-	-	-	-	-	-	-	-	216.00
Piozzano	33034	656	PC	2012	-	-	2	10	180.00	-	-	-	-	-	-	-	-	-	-	-	-	180.00
Podenzano	33035	9,153	PC	2012	-	-	5	10	450.00	-	-	-	2,299.00	-	-	-	-	-	3,388.00	-	-	6,137.00
Ponte dell'Olio	33036	4,980	PC	2012	-	-	3	10	270.00	-	-	-	1,464.10	-	-	-	-	-	-	-	-	1,734.10
Pontenure	33037	6,442	PC	2012	-	-	4	10	360.00	-	-	-	1,210.00	-	-	-	-	-	-	-	-	1,570.00
Province of Piacenza	-	-	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rivergaro	33038	6,907	PC	2012	-	-	4	10	360.00	-	-	-	2,178.00	-	-	-	-	-	484.00	-	-	3,022.00
Rottofreno	33039	11,851	PC	2012	-	-	5	10	450.00	-	-	-	2,616.00	-	-	-	-	-	1,200.00	-	-	4,266.00
San Giorgio Piacentino	33040	5,871	PC	2012	-	-	4	10	360.00	-	-	-	1,524.60	-	-	-	-	-	-	-	-	1,884.60
San Pietro in Cerro	33041	944	PC	2012	-	-	2	10	180.00	-	-	-	508.80	-	-	-	-	-	-	-	-	688.80
Sarmato	33042	2,944	PC	2012	-	-	3	10	270.00	-	-	-	726.00	-	-	-	-	-	-	-	-	996.00
Travo	33043	2,016	PC	2012	-	-	3	10	270.00	-	-	-	1,633.50	-	-	-	-	-	242.00	-	-	2,145.50
Vernasca	33044	2,275	PC	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Vigolzone	33045	4,322	PC	2012	-	-	4	10	360.00	-	-	-	2,480.00	-	-	-	-	-	-	-	-	2,840.00
Villanova sull'Arda	33046	1,971	PC	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Zerba	33047	92	PC	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ziano Piacentino	33048	2,654	PC	2012	-	-	3	10	270.00	-	-	-	605.00	-	-	-	-	-	-	-	-	875.00
Alfonsine	39001	12,433	RA	2012	-	-	10	10	-	-	-	4	6,195.20	-	-	-	858.84	-	3,630.00	-	-	10,684.04
Bagnacavallo	39002	16,850	RA	2012	-	-	10	10	-	-	-	4	7,744.00	-	-	-	1,044.08	-	-	-	-	8,788.08
Bagnara di Romagna	39003	2,397	RA	2012	-	-	5	10	-	-	-	5	1,694.00	-	-	-	336.80	-	1,089.00	-	-	3,119.80
BR Union	-	104,049	RA	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brisighella	39004	7,796	RA	2012	-	-	10	10	-	-	-	5	2,439.36	-	-	-	336.80	-	1,041.81	-	-	3,817.97
Casola Valsenio	39005	2,748	RA	2012	-	-	5	10	-	-	-	5	1,280.00	-	-	-	336.80	-	254.10	-	-	1,870.90
Castel Bolognese	39006	9,669	RA	2012	-	-	10	10	-	-	-	5	4,436.66	-	-	-	387.32	-	623.15	-	-	5,447.13
Cervia	39007	29,187	RA	2012	-	-	50	10	-	-	-	5	36,801.71	-	1	70,685.40	2,357.60	2,618.24	2,549.71	-	-	115,012.66
Conselice	39008	10,014	RA	2012	-	-	10	10	-	-	-	4	4,065.60	-	-	-	572.56	-	12,196.80	-	-	16,834.96
Cotignola	39009	7,426	RA	2012	-	-	10	10	-	-	-	4	4,065.60	-	-	-	572.56	-	3,388.00	-	-	8,026.16
Faenza	39010	58,618	RA	2012	-	-	50	10	-	-	-	4	14,520.00	-	-	-	2,121.84	-	5,662.80	-	-	22,304.64
Fusignano	39011	8,405	RA	2012	-	-	10	10	-	-	-	4	3,872.00	-	-	-	538.88	-	2,178.00	-	-	6,588.88
LHA of Ravenna	-	-	RA	2012	863.59	-	-	-	1120	-	-	-	-	-	-	-	-	-	-	-	-	1983.59
Lugo	39012	32,891	RA	2012	-	-	45	10	-	-	-	4	19,766.56	-	-	-	2,829.12	-	3,630.00	-	-	26,225.68
Massa Lombarda	39013	10,772	RA	2012	-	-	10	10	-	-		5	5,360.30	-	-	-	589.40	-	2,939.93	-	-	8,889.63

Province of Ravenna	-	-	RA	2012	-	-	-	-	31860	-	-	-	-	-	-	-	-	-	-	-	-	31860
Ravenna	39014	159,672	RA	2012	3,786.93	-	79	10	-	-	-	5	152,487.46	-	-	-	9,649.32	1,176.60	22,860.29	-	-	189,960.60
Riolo Terme	39015	5,843	RA	2012	-	-	10	10	-	-	-	5	3,946.61	-	-	4,000.00	336.80	-	1,455.63	-	-	9,739.04
Russi	39016	12,367	RA	2012	-	-	10	10	-	-	-	4	5,453.06	-	-	-	825.16	-	-	-	-	6,278.22
Sant'Agata sul Santerno	39017	2,861	RA	2012	-	-	10	10	-	-	-	4	2,904.00	-	-	-	353.64	-	-	-	-	3,257.64
Solarolo	39018	4,515	RA	2012	-	-	10	10	-	-	-	5	3,176.25	-	-	-	336.80	-	1,754.50	-	-	5,267.55
Albinea	35001	8,837	RE	2012	-	-	-	-	-	-	-	-	5,660.30	-	-	1,815.00	-	581.44	886.96	-	-	8,943.70
Bagnolo in Piano	35002	9,605	RE	2012	-	-	6	10	540.00	-	-	-	7,010.18	-	-	-	-	427.94	424.20	-	-	8,402.32
Baiso	35003	3,430	RE	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Bibbiano	35004	10,185	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boretto	35005	5,401	RE	2012	-	-	-	-	-	-	-	-	3,493.13	-	-	-	-	382.41	413.86	-	-	4,289.40
Brescello	35006	5,621	RE	2012	-	-	-	-	-	-	-	-	3,907.34	-	-	1,996.50	-	382.84	575.88	-	-	6,862.56
Busana	35007	1,320	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadelbosco di Sopra	35008	10,579	RE	2012	-	-	6	10	540.00	-	-	-	7,472.82	-	-	-	-	385.59	466.55	-	-	8,864.96
Campagnola Emilia	35009	5,609	RE	2012	-	-	-	-	-	-	-	-	1,339.65	-	-	-	-	-	-	-	-	1,339.65
Campegine	35010	5,225	RE	2012	-	-	-	-	-	-	-	-	4,481.25	-	-	-	-	158.16	632.65	-	-	5,272.06
Canossa	35018	3,883	RE	2012	-	-	5	10	450.00	-	-	-	1,537.54	-	-	-	-	191.20	285.46	-	-	2,464.20
Carpineti	35011	4,193	RE	2012	-	-	1	10	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Casalgrande	35012	19,004	RE	2012	-	-	5	10	450.00	-	-	-	14,726.36	-	-	-	-	2,651.39	895.21	-	-	18,722.96
Casina	35013	4,568	RE	2012	-	-	1	10	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Castellarano	35014	15,206	RE	2012	7,127.51	-	10	10	900.00	-	-	-	10,148.05	-	-	-	-	984.95	1,271.64	-	-	20,432.15
Castelnovo di Sotto	35015	8,744	RE	2012	-	-	-	-	-	-	-	-	6,507.76	-	-	-	-	427.94	424.20	-	-	7,359.90
Castelnovo ne' Monti	35016	10,744	RE	2012	-	-	1	10	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Cavriago	35017	9,769	RE	2012	-	-	5	10	450.00	-	-	-	7,295.57	-	-	1,996.50	-	590.38	715.50	-	-	11,047.95
Collagna	35019	990	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Correggio	35020	25,487	RE	2012	-	-	35	10	3,150.00	-	8,213	-	14,261.67	-	-	-	-	590.38	931.17	-	-	18,933.22
Fabbrico	35021	6,788	RE	2012	-	-	-	-	-	-	-	-	4,660.26	-	-	-	-	310.61	434.54	-	-	5,405.41
Gattatico	35022	5,978	RE	2012	-	-	-	-	-	-	-	-	2,714.34	-	-	1,815.00	-	523.12	770.02	-	-	5,822.48
Gualtieri	35023	6,667	RE	2012	-	-	5	10	450.00	-	-	-	-	-	-	-	-	-	-	-	-	450.00
Guastalla	35024	15,191	RE	2012	-	-	20	10	1,800.00	-	-	-	8,784.60	-	-	1,996.50	-	-	-	-	-	12,581.10
LHA of Reggio Emilia	-	-	RE	2012	-	-	-	-	1050	-	-	-	-	-	-	-	-	-	-	-	-	1050
Ligonchio	35025	868	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzzara	35026	9,223	RE	2012	-	-	-	-	-	-	-	-	7,183.60	-	-	1,996.50	-	590.38	702.41	-	-	10,472.89

Montecchio Emilia	35027	10,549	RE	2012	-	-	8	10	720.00	-	-	-	8,083.76	-	-	1,996.50	-	832.38	848.86	-	-	12,481.50
Novellara	35028	13,937	RE	2012	-	-	6	10	540.00	-	-	-	11,271.85	-	-	3,993.00	-	560.87	701.11	-	-	17,066.83
Poviglio	35029	7,270	RE	2012	-	-	5	10	450.00	-	-	-	3,983.57	-	-	-	-	305.26	564.90	-	-	5,303.73
Province of Reggio Emilia	-	-	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quattro Castella	35030	13,154	RE	2012	-	-	8	10	720.00	-	-	-	7,964.01	-	-	5,445.00	-	1,717.90	1,374.65	-	-	17,221.56
Ramiseto	35031	1,303	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reggio nell'Emilia	35033	171,688	RE	2012	-	-	46	10	4,140.00	-	-	-	122,503.12	-	-	14,520.00	-	11,893.17	4,909.77	-	-	157,966.06
Reggiolo	35032	9,403	RE	2012	-	-	5	10	450.00	-	-	-	-	-	-	-	-	-	-	-	-	450.00
Rio Saliceto	35034	6,121	RE	2012	-	-	-	-	-	-	-	-	4,632.23	-	-	-	-	469.63	412.82	-	-	5,514.68
Rolo	35035	4,122	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubiera	35036	14,707	RE	2012	-	-	10	10	900.00	-	-	-	-	-	-	-	-	-	-	-	-	900.00
San Martino in Rio	35037	8,087	RE	2012	-	-	5	10	450.00	-	-	-	4,606.82	-	-	-	-	402.54	393.15	-	-	5,852.51
San Polo d'Enza	35038	5,959	RE	2012	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Sant'Ilario d'Enza	35039	11,185	RE	2012	-	-	5	10	450.00	-	-	-	5,186.09	-	-	5,445.00	-	1,224.44	949.58	-	-	13,255.11
Scandiano	35040	25,258	RE	2012	-	-	10	10	900.00	-	-	-	5,263.50	-	-	-	1,361.25	-	-	-	-	7,524.75
TdM Union	-	19,323	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toano	35041	4,510	RE	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Vetto	35042	1,998	RE	2012	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Vezzano sul Crostolo	35043	4,246	RE	2012	-	-	6	10	540.00	-	-	-	540.00	-	-	-	-	-	-	-	-	1,080.00
Viano	35044	3,418	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Villa Minozzo	35045	3,984	RE	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bellaria-Igea Marina	99001	19,531	RN	2012	-	-	8	10	-	-	-	-	18,905.00	-	-	-	-	240.00	3,400.00	-	-	22,545.00
Casteldelci	99021	444	RN	2012	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattolica	99002	17,089	RN	2012	-	-	6	10	-	-	-	-	10,714.28	-	-	-	-	3,457.14	2,880.46	-	-	17,051.88
Coriano	99003	10,262	RN	2012	-	-	9	10	-	-	-	-	15,573.27	-	-	-	-	-	-	-	-	15,573.27
Gemmano	99004	1,174	RN	2012	-	-	3	10	-	-	-	-	1,250.00	-	-	-	-	150.00	180.00	-	-	1,580.00
LHA of Rimini	-	-	RN	2012	-	-	-	-	23620	-	-	-	-	-	-	-	-	-	-	-	-	23620
Maiolo	99022	845	RN	2012	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misano Adriatico	99005	12,598	RN	2012	-	-	11	10	-	-	-	-	13,040.00	-	-	-	-	500.00	232.00	-	-	13,772.00
Mondaino	99006	1,478	RN	2012	-	-	3	10	-	-	-	-	950.00	-	-	-	-	200.00	90.00	-	-	1,240.00
Monte Colombo	99007	3,443	RN	2012	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiore Conca	99008	2,253	RN	2012	-	-	3	10	-	-	-	-	744.00	-	-	-	-	121.00	190.00	-	-	1,055.00
Montegridolfo	99009	1,036	RN	2012	-	-	3	10	-	-	-	-	1,646.09	-	-	-	-	-	-	-	-	1,646.09
Montescudo	99010	3,357	RN	2012	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Morciano di Romagna	99011	7,058	RN	2012	-	-	6	10	-	-	-	-	6,900.00	-	-	-	-	500.00	960.00	-	-	8,360.00

Novafeltria	99023	7,374	RN	2012	-	-	11	10	-	-	-	-	1,200.00	-	-	-	-	150.00	180.00	-	-	1,530.00
Pennabilli	99024	3,006	RN	2012	-	-	7	10	-	-	-	-	1,936.00	-	-	-	-	-	-	-	-	1,936.00
Poggio Berni	99012	3,411	RN	2012	-	-	3	10	-	-	-	-	2,295.00	-	-	-	-	200.00	380.00	-	-	2,875.00
Province of Rimini	-	-	RN	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riccione	99013	35,862	RN	2012	-	-	50	10	-	-	-	-	49,500.00	-	-	45,700.00	5,000.00	3,055.00	10,000.00	-	-	113,255.00
Rimini	99014	144,545	RN	2012	1,694.00	-	60	10	-	-	-	-	174,000.00	-	-	116,000.00	-	22,000.00	16,100.00	-	-	329,794.00
Saludecio	99015	3,091	RN	2012	-	-	3	10	-	-	-	-	1,522.56	-	-	-	-	250.00	240.00	-	-	2,012.56
San Clemente	99016	5,403	RN	2012	-	-	4	10	-	-	-	-	2,790.00	-	-	-	-	250.00	363.00	-	-	3,403.00
San Giovanni in Marignano	99017	9,100	RN	2012	-	-	8	10	-	-	-	-	5,500.00	-	-	-	-	300.00	5,445.00	-	-	11,245.00
San Leo	99025	3,083	RN	2012	-	-	8	10	-	-	-	-	2,365.99	-	-	-	-	-	-	-	-	2,365.99
Sant'Agata Feltria	99026	2,277	RN	2012	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santarcangelo di Romagna	99018	21,548	RN	2012	-	-	12	10	-	-	-	-	19,000.00	-	-	-	-	3,000.00	6,534.00	-	-	28,534.00
Talamello	99027	1,069	RN	2012	-	-	4	10	-	-	-	-	625.00	-	-	-	-	-	500.00	-	-	1,125.00
Torriana	99019	1,601	RN	2012	-	-	3	10	-	-	-	-	1,354.00	-	-	1,600.00	-	100.00	150.00	-	-	3,204.00
Verucchio	99020	10,132	RN	2012	-	-	6	10	-	-	-	-	14,000.00	-	-	-	-	500.00	786.50	-	-	15,286.50

Table 103. E-R Plan Expenditures dataset - 2013

					Reported activity and relative expenditures incurred for its realization																
Municipality	*ISTAT code*	*Population*	*LHA*	*Reported in the year*	*Management of reported cases (emergency)*		*Monitoring of Ae. albopictus population*			*CG_Exp*	*Larvicidal treatments*			*DtD interventions*			*QC_Exp*	*SI_Exp*	*LK_Exp*	*Edu_Exp*	*O_Exp*	*Tot_Exp*
					Em1_Exp	*Em2_Exp*	*Ovi_n*	*Ovi_ch*	*Ovi_Exp*		*RD_n*	*R_n*	*L_Exp*	*DtD_n*	*DtD_R*	*DtD_Exp*						
Anzola dell'Emilia	37001	12,168	BO	2013	-	-	11	10	990.00	-	7,900	4	4,484.26	1,300	-	8,704.74	1,430.00	-	363.00	-	-	15,972.00
Argelato	37002	9,827	BO	2013	-	-	3	10	270.00	-	6,600	3	3,304.03	-	-	-	769.00	-	-	-	-	4,343.03
Baricella	37003	6,939	BO	2013	-	-	3	10	270.00	-	3,500	3	2,090.62	-	-	-	340.31	-	1,390.77	-	-	4,091.70
Bazzano	37004	6,854	BO	2013	-	-	8	10	720.00	-	1,950	5	4,129.13	-	-	-	-	-	1,270.50	-	-	6,119.63
Bentivoglio	37005	5,508	BO	2013	-	-	3	10	270.00	-	2,500	4	4,488.13	-	-	-	1,040.00	-	784.08	-	-	6,582.21
Bologna	37006	385,329	BO	2013	4,576.27	-	110	10	12,140.00	-	93,500	4	149,279.22	-	-	-	9,816.39	-	-	10,000.00	-	185,811.88
Budrio	37008	18,343	BO	2013	-	-	14	10	1,260.00	-	5,300	4	3,078.24	335	1	1,004.80	1,216.30	-	6,534.00	1,620.00	-	14,713.34
Calderara di Reno	37009	13,355	BO	2013	214.44	-	11	10	990.00	-	8,000	4	8,635.29	-	-	-	2,080.00	-	1,452.00	-	-	13,371.73
Camugnano	37010	1,954	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalecchio di Reno	37011	36,425	BO	2013	517.28	-	45	10	4,050.00	-	-	8	18,000.00	-	-	-	-	-	-	-	-	22,567.28
Castel d'Aiano	37013	1,940	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel di Casio	37015	3,494	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Maggiore	37019	17,830	BO	2013	-	-	20	10	1,800.00	-	11,215	4	10,215.98	-	-	-	677.60	-	2,613.60	2,650.00	-	17,957.18
Castello d'Argile	37017	6,524	BO	2013	-	-	10	10	900.00	-	3,000	3	4,083.75	358	5	9,658.33	134.31	-	-	-	-	14,776.39
Castello di Serravalle	37018	4,904	BO	2013	-	-	6	10	540.00	-	-	-	-	-	-	-	-	-	-	-	-	540.00
Castenaso	37021	14,597	BO	2013	-	-	14	10	1,260.00	-	8,840	3	5,929.81	2,000	1	2,843.74	435.60	-	3,811.50	-	-	14,280.65
Castiglione dei Pepoli	37022	5,924	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crespellano	37023	10,232	BO	2013	-	-	8	10	720.00	-	5,000	6	14,582.40	-	-	15,408.00	-	-	-	-	-	30,710.40
Crevalcore	37024	13,664	BO	2013	-	-	11	10	990.00	-	7,000	4	8,680.47	-	-	-	1,820.00	-	363.00	-	-	11,853.47
Gaggio Montano	37027	5,136	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galliera	37028	5,500	BO	2013	107.22	-	3	10	270.00	-	1,800	4	3,878.29	-	-	-	1,040.00	-	580.80	-	-	5,876.31
Granaglione	37029	2,268	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granarolo dell'Emilia	37030	11,137	BO	2013	670.00	-	10	9	810.00	-	7,300	4	7,920.00	-	-	-	-	-	-	-	-	9,400.00
Grizzana Morandi	37031	3,976	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Bologna	-	-	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lizzano in Belvedere	37033	2,335	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loiano	37034	4,497	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Malalbergo	37035	8,917	BO	2013	225.06	-	9	10	810.00	-	5,000	3	3,774.94	324	3	635.50	1,361.25	-	2,795.10	-	-	9,601.85
Marzabotto	37036	6,859	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minerbio	37038	8,798	BO	2013	-	-	4	10	360.00	-	4,500	4	5,587.50	-	-	-	537.24	-	1,343.10	-	-	7,827.84
Molinella	37039	15,936	BO	2013	9,072.58	-	-	-	-	-	9,294	5	26,989.76	1,927	5	6,474.72	5,929.00	-	4,500.00	-	-	52,966.06
Monghidoro	37040	3,858	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monte San Pietro	37042	10,961	BO	2013	-	-	-	-	-	-	2,000	5	4,840.00	-	-	-	-	-	1,133.29	-	-	5,973.29
Monterenzio	37041	6,123	BO	2013	-	-	-	-	-	-	1,650	4	2,420.00	-	-	-	-	-	-	-	-	2,420.00
Monteveglio	37043	5,395	BO	2013	-	-	6	10	540.00	-	-	-	-	-	-	-	-	-	-	-	-	540.00
Monzuno	37044	6,440	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ozzano dell'Emilia	37046	13,142	BO	2013	-	-	8	10	720.00	-	5,600	-	8,400.00	-	-	-	447.00	-	5,445.00	-	-	15,012.00
Pianoro	37047	17,313	BO	2013	-	-	-	-	-	-	4,328	7	7,710.00	-	-	-	-	-	3,670.00	-	-	11,380.00
Pieve di Cento	37048	7,014	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	1,040.00	-	-	-	-	1,040.00
Porretta Terme	37049	4,844	BO	2013	-	-	6	6	324.00	-	-	-	-	-	-	-	-	-	-	-	-	324.00
Province of Bologna	-	-	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sala Bolognese	37050	8,342	BO	2013	214.44	-	11	10	990.00	-	4,500	4	6,003.54	-	-	-	1,040.00	-	1,887.60	771.38	-	10,906.96
San Benedetto Val di Sambro	37051	4,426	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Giorgio di Piano	37052	8,458	BO	2013	278.95	-	6	10	540.00	-	5,200	4	7,415.82	374	4	1,025.57	1,040.00	-	-	-	-	10,300.34
San Giovanni in Persiceto	37053	27,800	BO	2013	428.87	-	22	10	1,980.00	-	12,500	4	11,561.43	430	4	10,597.79	3,250.00	-	1,234.20	270.00	-	29,322.29
San Lazzaro di Savena	37054	31,909	BO	2013	-	-	-	-	-	-	10,300	4	12,082.58	-	-	-	2,860.00	-	-	-	-	14,942.58
San Pietro in Casale	37055	12,027	BO	2013	-	-	6	10	540.00	-	5,300	4	8,812.85	-	-	-	1,430.00	-	290.40	-	-	11,073.25
Sant'Agata Bolognese	37056	7,391	BO	2013	107.22	-	10	10	900.00	-	2,600	4	3,361.74	55	3	716.32	780.00	-	217.80	810.00	-	6,893.08
Sasso Marconi	37057	14,779	BO	2013	-	-	10	10	900.00	-	-	-	-	-	-	-	-	-	-	-	-	900.00
Savigno	37058	2,725	BO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vergato	37059	7,770	BO	2013	-	-	6	10	540.00	-	1,240	5	3,150.84	-	-	-	-	-	492.59	1,100.00	-	5,283.43
Zola Predosa	37060	18,620	BO	2013	-	-	14	10	1,260.00	-	7,004	5	12,286.82	-	-	-	-	-	1,270.50	-	-	14,817.32
Bagno di Romagna	40001	6,134	CE	2013	-	-	7	10	630.00	-	-	-	-	-	-	-	-	-	-	-	-	630.00
Borghi	40004	2,743	CE	2013	-	-	6	10	540.00	-	480	5	987.36	-	-	-	604.75	-	-	-	-	2,132.11
Cesena	40007	97,603	CE	2013	1,172.97	-	65	10	5,850.00	-	31,700	4	66,123.80	-	-	-	6,743.05	-	-	-	-	79,889.82
Cesenatico	40008	26,035	CE	2013	-	-	35	10	3,150.00	1,452.00	10,975	5	17,587.00	-	-	-	7,867.93	-	1,130.00	-	-	31,186.93
Gambettola	40015	10,707	CE	2013	-	-	9	10	810.00	-	3,706	4	4,474.60	-	-	-	967.61	-	-	-	-	6,252.21
Gatteo	40016	9,161	CE	2013	-	-	10	10	900.00	-	3,332	5	6,853.90	2,237	1	9,473.69	1,028.09	-	484.00	-	-	18,739.68
LHA of Cesena	-	-	CE	2013	-	-	-	-	1120	-	-	-	-	-	-	-	-	-	-	8112.98	-	9232.98

Longiano	40018	7,095	CE	2013	-	-	11	10	990.00	-	3,077	4	4,915.00	-	-	-	787.00	-	-	-	-	6,692.00
Mercato Saraceno	40020	6,998	CE	2013	-	-	11	10	990.00	-	1,631	4	6,617.92	-	-	-	604.76	-	-	-	-	8,212.68
Montiano	40028	1,729	CE	2013	-	-	6	10	540.00	-	469	6	410.00	-	-	-	1,170.00	-	-	-	-	2,120.00
Province of Cesena	-	-	CE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roncofreddo	40037	3,402	CE	2013	-	-	7	10	630.00	-	966	3	1,174.70	-	-	-	604.76	-	-	-	-	2,409.46
San Mauro Pascoli	40041	11,495	CE	2013	-	-	10	10	900.00	-	3,253	5	6,691.40	-	-	-	846.66	-	-	-	-	8,438.06
Sarsina	40044	3,594	CE	2013	-	-	5	10	450.00	-	483	3	596.12	-	-	-	403.17	-	5,233.25	-	-	6,682.54
Savignano sul Rubicone	40045	17,860	CE	2013	-	-	12	10	1,080.00	-	4,040	5	8,310.30	2,605	5	23,292.50	1,089.00	-	252.00	-	-	34,023.80
Sogliano al Rubicone	40046	3,289	CE	2013	-	-	11	10	990.00	-	781	5	1,701.20	379	4	1,834.36	658.24	-	-	-	-	5,183.80
Verghereto	40050	1,960	CE	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Argenta	38001	22,412	FE	2013	484.00	-	15	10	1,350.00	-	8,000	4	8,470.00	-	-	-	-	-	2,891.00	-	-	13,195.00
Berra	38002	5,088	FE	2013	-	-	3	10	270.00	-	1,700	5	8,564.00	-	-	-	-	-	-	550.00	-	9,384.00
Bondeno	38003	15,108	FE	2013	-	-	12	10	1,080.00	-	3,800	4	6,637.58	-	-	-	-	-	-	-	-	7,717.58
Cento	38004	35,945	FE	2013	-	-	16	10	1,440.00	-	9,124	4	18,246.80	-	-	-	-	-	1,101.10	-	-	20,787.90
Codigoro	38005	12,402	FE	2013	8,548.76	-	8	10	720.00	-	4,100	6	21,420.00	-	-	-	-	-	-	-	-	30,688.76
Comacchio	38006	22,980	FE	2013	1,450.00	-	31	10	2,790.00	-	15,400	5	19,900.00	103	103	3,738.00	9,196.00	-	150.00	2,000.00	-	39,224.00
Copparo	38007	16,992	FE	2013	2,758.80	-	8	10	720.00	-	6,000	4	23,987.04	-	-	-	-	-	-	-	-	27,465.84
Ferrara	38008	134,983	FE	2013	9,115.80	-	79	10	8,230.00	-	29,700	4	82,280.00	-	-	-	2,700.00	-	-	8,000.00	-	110,325.80
Formignana	38009	2,807	FE	2013	3,218.60	-	1	10	90.00	-	1,000	6	6,098.40	-	-	-	-	-	-	-	-	9,407.00
Goro	38025	3,884	FE	2013	3,034.68	-	3	10	270.00	-	1,600	4	6,708.24	-	-	-	-	-	-	-	-	10,012.92
Jolanda di Savoia	38010	3,031	FE	2013	4,414.08	-	5	10	450.00	-	1,100	6	6,708.24	-	-	-	-	-	-	-	-	11,572.32
Lagosanto	38011	4,989	FE	2013	2,207.04	-	4	10	360.00	-	2,200	7	15,652.56	-	-	-	-	-	-	-	-	18,219.60
LHA of Ferrara	-	-	FE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Masi Torello	38012	2,365	FE	2013	-	-	2	10	180.00	-	1,300	8	9,610.00	-	-	-	-	-	-	-	-	9,790.00
Massa Fiscaglia	38013	3,552	FE	2013	2,758.80	-	1	10	90.00	-	200	5	6,098.40	-	-	-	-	-	-	-	-	8,947.20
Mesola	38014	7,101	FE	2013	11,586.96	-	6	10	540.00	-	2,300	6	14,026.32	-	-	-	-	-	-	-	-	26,153.28
Migliarino	38015	3,677	FE	2013	2,913.68	-	3	10	270.00	-	1,350	5	6,860.70	-	-	-	-	-	-	-	-	10,044.38
Migliaro	38026	2,227	FE	2013	-	-	2	10	180.00	-	650	8	5,285.28	-	-	-	-	-	-	-	-	5,465.28
Mirabello	38016	3,446	FE	2013	-	-	5	10	450.00	-	842	4	3,260.22	-	-	-	-	-	254.10	-	-	3,964.32
Ostellato	38017	6,467	FE	2013	2,390.96	-	6	10	540.00	-	2,900	5	11,970.00	-	-	-	-	-	-	-	-	14,900.96
Poggio Renatico	38018	9,835	FE	2013	1,270.50	-	8	10	720.00	-	2,250	4	5,880.60	-	-	-	-	-	1,270.50	-	-	9,141.60
Portomaggiore	38019	12,299	FE	2013	2,207.04	-	8	10	720.00	-	4,700	5	23,885.40	-	-	-	-	-	-	-	-	26,812.44
Province of Ferrara	-	-	FE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ro	38020	3,383	FE	2013	2,299.00	-	1	10	90.00	-	1,250	4	5,082.00	-	-	-	-	-	-	-	-	7,471.00
Sant'Agostino	38021	7,067	FE	2013	1,089.00	-	6	10	540.00	-	1,950	4	6,606.50	-	-	-	-	-	330.33	-	-	8,565.83

Tresigallo	38024	4,559	FE	2013	4,046.24	-	3	10	270.00	-	2,000	7	15,246.00	-	-	-	-	-	-	-	-	19,562.24
Vigarano Mainarda	38022	7,680	FE	2013	-	-	7	10	630.00	-	2,628	4	5,180.38	-	-	-	-	-	515.46	-	-	6,325.84
Voghiera	38023	3,837	FE	2013	3,586.44	-	4	10	360.00	-	1,400	6	8,537.76	-	-	-	-	-	-	-	-	12,484.20
Bertinoro	40003	11,214	FO	2013	-	-	16	10	1,440.00	-	3,076	5	5,013.76	-	-	-	-	-	-	-	-	6,453.76
Castrocaro Terme e Terra del Sole	40005	6,533	FO	2013	-	-	9	10	810.00	-	1,450	7	2,240.92	-	-	-	484.00	-	-	-	-	3,534.92
Civitella di Romagna	40009	3,812	FO	2013	302.50	-	8	10	720.00	-	950	4	1,840.00	-	-	-	-	-	-	-	-	2,862.50
Dovadola	40011	1,700	FO	2013	-	-	6	10	540.00	-	421	4	822.80	-	-	-	-	-	-	-	-	1,362.80
Forlì	40012	118,652	FO	2013	-	-	50	10	5,620.00	-	43,000	4	75,050.98	-	-	-	8,349.00	-	-	-	-	89,019.98
Forlimpopoli	40013	13,230	FO	2013	-	-	14	10	1,260.00	-	5,268	4	5,333.33	-	-	-	1,306.80	-	-	-	-	7,900.13
Galeata	40014	2,561	FO	2013	-	-	7	10	630.00	-	500	8	750.00	-	-	-	-	-	-	-	-	1,380.00
LHA of Forlì	-	-	FO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5499.99	-	5499.99
Meldola	40019	10,331	FO	2013	387.20	-	11	10	990.00	-	2,262	5	3,241.27	-	-	1,089.00	389.62	-	-	-	-	6,097.09
Modigliana	40022	4,730	FO	2013	-	-	7	10	630.00	-	1,200	4	3,566.40	-	-	-	-	-	-	-	-	4,196.40
Portico e San Benedetto	40031	793	FO	2013	-	-	6	10	540.00	-	180	6	1,089.00	-	-	-	-	-	-	-	-	1,629.00
Predappio	40032	6,522	FO	2013	-	-	10	10	900.00	-	1,571	4	1,520.71	-	-	-	-	-	-	-	-	2,420.71
Premilcuore	40033	811	FO	2013	-	-	6	10	540.00	-	1,000	4	500.00	-	-	-	-	-	-	-	-	1,040.00
Province of Forlì	-	-	FO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocca San Casciano	40036	2,002	FO	2013	-	-	7	10	630.00	-	615	7	1,843.00	-	-	-	-	-	-	-	-	2,473.00
Santa Sofia	40043	4,206	FO	2013	-	-	7	10	630.00	-	900	9	3,500.00	-	-	-	-	-	-	-	-	4,130.00
Tredozio	40049	1,260	FO	2013	-	-	6	10	540.00	-	300	3	1,440.00	-	-	-	-	-	-	-	-	1,980.00
Borgo Tossignano	37007	3,376	IM	2013	-	-	-	-	-	-	1,000	6	1,917.84	-	-	-	-	-	762.30	-	-	2,680.14
Casalfiumanese	37012	3,483	IM	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel del Rio	37014	1,240	IM	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Guelfo di Bologna	37016	4,408	IM	2013	-	-	-	-	-	-	2,726	4	3,034.58	-	-	-	-	-	619.64	-	-	3,654.22
Castel San Pietro Terme	37020	20,871	IM	2013	-	-	12	9	972.00	-	8,500	3	6,792.01	-	-	-	1,510.08	-	2,894.32	-	-	12,168.41
Dozza	37025	6,564	IM	2013	-	-	-	-	-	-	2,203	5	2,217.33	-	-	-	-	-	-	-	-	2,217.33
Fontanelice	37026	1,954	IM	2013	-	-	-	-	-	-	-	4	1,331.00	-	-	-	-	-	598.95	-	-	1,929.95
Imola	37032	69,928	IM	2013	-	-	50	9	4,050.00	-	16,000	6	22,233.50	-	-	-	1,692.75	-	-	-	-	27,976.25
LHA of Imola	-	-	IM	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2750	-	2750
Medicina	37037	16,865	IM	2013	-	-	12	10	1,080.00	-	6,300	4	5,183.64	-	-	-	-	-	6,050.00	-	-	12,313.64
Mordano	37045	4,719	IM	2013	-	-	-	-	-	-	2,117	4	2,792.00	-	-	-	-	-	-	-	-	2,792.00
Province of Imola	-	-	IM	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bastiglia	36001	4,175	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bomporto	36002	10,231	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campogalliano	36003	8,807	MO	2013	-	-	-	-	810.00	-	-	-	-	-	-	-	-	-	-	-	-	810.00
Camposanto	36004	3,302	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carpi	36005	69,985	MO	2013	863.40	-	-	-	3,750.00	-	16,000	6	18,433.24	-	-	-	2,571.25	-	-	-	-	25,617.89
Castelfranco Emilia	36006	32,601	MO	2013	-	-	-	-	900.00	-	-	-	-	-	-	-	-	-	-	4,580.00	-	5,480.00
Castelnuovo Rangone	36007	14,739	MO	2013	-	-	-	-	900.00	-	4,418	4	4,062.79	-	-	-	-	-	152.00	325.00	-	5,439.79
Castelvetro di Modena	36008	11,358	MO	2013	-	-	-	-	810.00	-	-	-	-	-	-	-	-	-	-	-	-	810.00
Cavezzo	36009	7,204	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Concordia sulla Secchia	36010	8,937	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fanano	36011	3,037	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finale Emilia	36012	15,885	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorano Modenese	36013	17,185	MO	2013	-	-	-	-	900.00	-	3,914	4	3,291.20	-	-	-	-	-	677.60	825.00	-	5,693.80
Fiumalbo	36014	1,302	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formigine	36015	34,516	MO	2013	-	-	-	-	1,980.00	-	-	-	-	-	-	-	-	-	-	4,320.00	-	6,300.00
Frassinoro	36016	1,951	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiglia	36017	3,973	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lama Mocogno	36018	2,838	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Modena	-	-	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maranello	36019	17,062	MO	2013	-	-	-	-	900.00	-	4,050	5	7,937.60	30	1	694.54	-	-	762.30	1,925.00	-	12,219.44
Marano sul Panaro	36020	4,937	MO	2013	-	-	-	-	900.00	-	-	-	-	-	-	-	-	-	-	-	-	900.00
Medolla	36021	6,394	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirandola	36022	24,551	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modena	36023	186,040	MO	2013	3,596.20	-	-	-	4,860.00	33,333.00	52,700	4	68,415.73	102	-	8,134.83	13,208.51	-	314.60	1,250.00	-	133,112.87
Montecreto	36024	999	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiorino	36025	2,263	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montese	36026	3,416	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonantola	36027	15,668	MO	2013	363.00	-	-	-	720.00	-	4,800	3	6,969.60	-	-	-	-	-	696.96	-	-	8,749.56
Novi di Modena	36028	11,042	MO	2013	-	-	-	-	540.00	-	3,000	3	3,158.10	-	-	-	-	-	-	-	-	3,698.10
Palagano	36029	2,315	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavullo nel Frignano	36030	17,519	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pievepelago	36031	2,280	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polinago	36032	1,760	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prignano sulla Secchia	36033	3,799	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Province of Modena	-	-	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ravarino	36034	6,298	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riolunato	36035	767	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Cesario sul Panaro	36036	6,337	MO	2013	-	-	-	-	540.00	-	1,950	4	3,557.40	-	-	-	-	-	-	-	-	4,097.40
San Felice sul Panaro	36037	11,183	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Possidonio	36038	3,735	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Prospero	36039	6,028	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sassuolo	36040	41,293	MO	2013	-	-	-	-	900.00	-	7,800	2	3,586.44	-	-	-	-	-	-	-	-	4,486.44
Savignano sul Panaro	36041	9,522	MO	2013	-	-	-	-	900.00	-	-	-	-	-	-	-	-	-	-	-	-	900.00
Serramazzoni	36042	8,395	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sestola	36043	2,575	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soliera	36044	15,417	MO	2013	-	-	-	-	486.00	-	4,714	3	14,304.00	-	-	-	-	-	-	-	-	14,790.00
Sorbara Union	-	20,704	MO	2013	-	-	-	-	2430	-	-	-	5820.7	-	-	-	-	-	2032.8	1440	-	11723.5
Spilamberto	36045	12,555	MO	2013	-	-	-	-	720.00	-	3,248	4	2,890.38	-	-	-	-	-	-	-	-	3,610.38
UCMAN	-	67,099	MO	2013	829.46	-	-	-	9162	-	-	-	18435.14	-	-	-	797.63	-	4063.28	-	-	33287.51
Vignola	36046	25,222	MO	2013	1,483.13	-	-	-	2,214.00	-	3,200	4	5,358.00	-	-	-	1,883.00	-	1,645.00	-	-	12,583.13
Zocca	36047	5,019	MO	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albareto	34001	2,190	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bardi	34002	2,306	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedonia	34003	3,614	PR	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Berceto	34004	2,172	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bore	34005	813	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borgo Val di Taro	34006	7,229	PR	2013	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Busseto	34007	7,135	PR	2013	314.60	-	-	-	-	-	1,600	6	2,323.20	-	-	-	-	-	-	550.00	-	3,187.80
Calestano	34008	2,141	PR	2013	-	-	3	10	270.00	-	430	4	1,200.00	-	-	-	-	-	-	-	-	1,470.00
Collecchio	34009	14,349	PR	2013	484.00	-	4	10	360.00	-	4,000	8	3,049.20	-	-	-	-	-	756.25	-	-	4,649.45
Colorno	34010	9,124	PR	2013	1,210.00	-	3	10	270.00	-	800	7	2,258.69	-	-	-	-	-	435.60	-	-	4,174.29
Compiano	34011	1,117	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corniglio	34012	2,012	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Felino	34013	8,770	PR	2013	-	-	5	10	450.00	-	2,734	4	1,403.60	-	-	-	-	-	-	-	-	1,853.60
Fidenza	34014	26,656	PR	2013	2,319.16	-	6	10	540.00	-	9,000	6	7,187.40	-	-	-	-	-	460.00	1,375.00	-	11,881.56
Fontanellato	34015	7,037	PR	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Fontevivo	34016	5,632	PR	2013	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Fornovo di Taro	34017	6,310	PR	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00

Langhirano	34018	10,113	PR	2013	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Lesignano de' Bagni	34019	4,972	PR	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
LHA of Parma	-	-	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4624	-	4624
Medesano	34020	10,900	PR	2013	-	-	6	10	540.00	-	-	-	-	-	-	-	-	-	-	3,300.00	-	3,840.00
Mezzani	34021	3,376	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monchio Delle Corti	34022	982	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montechiarugolo	34023	10,611	PR	2013	-	-	4	10	360.00	-	3,500	5	9,600.00	-	-	-	-	-	-	-	-	9,960.00
Neviano Degli Arduini	34024	3,721	PR	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Noceto	34025	13,066	PR	2013	-	-	4	10	360.00	-	1,000	3	1,270.50	-	-	-	-	-	227.48	1,650.00	-	3,507.98
Palanzano	34026	1,153	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parma	34027	190,522	PR	2013	-	-	70	10	6,300.00	-	336	2	3,098.33	-	-	-	-	-	-	-	-	9,398.33
Pellegrino Parmense	34028	1,090	PR	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Polesine Parmense	34029	1,503	PR	2013	943.80	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	1,213.80
Province of Parma	-	-	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roccabianca	34030	3,065	PR	2013	605.00	-	3	10	270.00	-	1,298	12	3,203.98	-	-	-	-	-	580.80	-	-	4,659.78
Sala Baganza	34031	5,567	PR	2013	-	-	3	10	270.00	-	1,462	4	2,195.08	-	-	-	-	-	-	-	-	2,465.08
Salsomaggiore Terme	34032	20,062	PR	2013	-	-	5	10	450.00	-	-	-	-	-	-	-	-	-	-	-	-	450.00
San Secondo Parmense	34033	5,715	PR	2013	1,913.01	-	-	-	-	-	1,480	12	3,702.60	-	-	-	-	-	726.00	-	-	6,341.61
Sissa	34034	4,235	PR	2013	-	-	-	-	-	-	900	6	1,996.50	-	-	-	-	-	726.00	550.00	-	3,272.50
SM Union	-	13,006	PR	2013	2871.12	-	-	-	540	-	-	-	2395	-	-	-	-	-	-	2200	-	8006.12
Solignano	34035	1,778	PR	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Soragna	34036	4,894	PR	2013	-	-	3	10	270.00	-	1,200	7	3,489.64	-	-	-	-	-	-	-	-	3,759.64
Sorbolo	34037	9,630	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terenzo	34038	1,210	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tizzano Val Parma	34039	2,138	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tornolo	34040	1,087	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torrile	34041	7,642	PR	2013	2,734.60	-	3	10	270.00	-	2,000	12	4,936.80	-	-	-	-	-	484.00	-	-	8,425.40
Traversetolo	34042	9,485	PR	2013	-	-	3	10	270.00	-	1,600	10	3,291.00	-	-	-	-	-	108.00	-	-	3,669.00
Trecasali	34043	3,764	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Valmozzola	34044	565	PR	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varano de' Melegari	34045	2,698	PR	2013	-	-	4	10	360.00	-	500	10	1,499.19	-	-	-	-	-	-	-	-	1,859.19
Varsi	34046	1,278	PR	2013	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Zibello	34048	1,822	PR	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00

Agazzano	33001	2,095	PC	2013	-	-	3	9	243.00	-	300	2	605.00	-	-	-	-	-	106.95	-	-	954.95
Alseno	33002	4,883	PC	2013	-	-	4	10	360.00	-	1,100	1	359.37	-	-	-	-	-	-	-	-	719.37
Besenzone	33003	990	PC	2013	242.00	-	2	10	180.00	-	220	2	484.00	-	-	-	-	-	-	-	-	906.00
Bettola	33004	2,987	PC	2013	-	-	2	10	180.00	-	100	3	300.00	-	-	-	-	-	-	-	-	480.00
Bobbio	33005	3,755	PC	2013	-	-	3	10	270.00	-	250	5	-	-	-	-	-	-	-	-	-	270.00
Borgonovo Val Tidone	33006	7,850	PC	2013	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadeo	33007	6,209	PC	2013	-	-	4	10	360.00	-	1,800	2	1,120.00	-	-	-	-	-	-	-	-	1,480.00
Calendasco	33008	2,515	PC	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Caminata	33009	273	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caorso	33010	4,859	PC	2013	1,113.20	-	4	10	360.00	-	1,750	6	1,884.00	-	-	-	-	-	-	-	-	3,357.20
Carpaneto Piacentino	33011	7,637	PC	2013	-	-	4	10	360.00	-	1,950	1	556.60	-	-	-	-	-	-	-	-	916.60
Castel San Giovanni	33013	13,871	PC	2013	-	-	7	10	630.00	-	3,000	3	3,267.00	-	-	-	-	-	2,057.00	-	-	5,954.00
Castell'Arquato	33012	4,741	PC	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Castelvetro Piacentino	33014	5,584	PC	2013	-	-	4	10	360.00	-	1,400	2	1,113.20	-	-	-	-	-	-	-	-	1,473.20
Cerignale	33015	153	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coli	33016	974	PC	2013	-	-	1	10	90.00	-	30	7	-	-	-	-	-	-	-	-	-	90.00
Corte Brugnatella	33017	637	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cortemaggiore	33018	4,606	PC	2013	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Farini	33019	1,423	PC	2013	-	-	2	10	180.00	-	-	-	-	-	-	-	-	-	-	-	-	180.00
Ferriere	33020	1,448	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorenzuola d'Arda	33021	15,502	PC	2013	-	-	7	10	630.00	-	5,000	2	3,025.00	-	-	-	-	-	-	728.00	-	4,383.00
Gazzola	33022	2,060	PC	2013	-	-	4	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gossolengo	33023	5,523	PC	2013	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Gragnano Trebbiense	33024	4,471	PC	2013	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Gropparello	33025	2,442	PC	2013	-	-	2	10	180.00	-	80	3	317.40	-	-	-	-	-	-	-	-	497.40
LHA of Piacenza	-	-	PC	2013	-	-	-	-	810	-	-	-	-	-	-	-	-	-	-	-	-	810
Lugagnano Val d'Arda	33026	4,214	PC	2013	-	-	4	10	360.00	-	17	1	-	-	-	-	-	-	-	-	-	360.00
Monticelli d'Ongina	33027	5,455	PC	2013	-	-	4	10	360.00	-	1,000	8	2,222.51	-	-	-	-	-	-	-	-	2,582.51
Morfasso	33028	1,096	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nibbiano	33029	2,269	PC	2013	-	-	2	10	180.00	-	-	-	-	-	-	-	-	-	-	-	-	180.00
Ottone	33030	559	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecorara	33031	784	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piacenza	33032	103,610	PC	2013	-	-	46	10	5,260.00	-	24,233	3	43,982.91	-	-	-	-	-	-	2,750.00	-	51,992.91

Pianello Val Tidone	33033	2,285	PC	2013	-	-	3	10	270.00	-	400	4	1,306.80	-	-	-	-	-	-	-	-	1,576.80
Piozzano	33034	646	PC	2013	-	-	2	10	180.00	-	-	-	-	-	-	-	-	-	-	-	-	180.00
Podenzano	33035	9,167	PC	2013	-	-	5	10	450.00	-	1,600	3	1,742.40	-	-	-	-	-	-	-	-	2,192.40
Ponte dell'Olio	33036	4,932	PC	2013	-	-	3	10	270.00	-	1,100	4	1,180.96	-	-	-	-	-	-	-	-	1,450.96
Pontenure	33037	6,504	PC	2013	-	-	4	10	360.00	-	1,800	2	1,220.00	-	-	-	-	-	-	-	-	1,580.00
Province of Piacenza	-	-	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rivergaro	33038	6,991	PC	2013	-	-	4	10	360.00	-	1,600	3	1,633.50	-	-	-	-	-	726.00	-	-	2,719.50
Rottofreno	33039	11,932	PC	2013	-	-	5	10	450.00	-	2,000	4	2,613.60	-	-	-	-	-	1,452.00	-	-	4,515.60
San Giorgio Piacentino	33040	5,813	PC	2013	278.30	-	4	10	360.00	-	1,700	3	1,524.60	-	-	-	-	-	-	550.00	-	2,712.90
San Pietro in Cerro	33041	926	PC	2013	-	-	2	10	180.00	-	-	-	-	-	-	-	-	-	-	-	-	180.00
Sarmato	33042	2,956	PC	2013	-	-	3	10	270.00	-	485	2	484.00	-	-	-	-	-	-	-	-	754.00
Travo	33043	2,056	PC	2013	-	-	3	10	270.00	-	350	2	1,960.20	-	-	-	-	-	-	-	-	2,230.20
Vernasca	33044	2,238	PC	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Vigolzone	33045	4,321	PC	2013	-	-	4	10	360.00	-	-	-	-	-	-	-	-	-	-	-	-	360.00
Villanova sull'Arda	33046	1,977	PC	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Zerba	33047	85	PC	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ziano Piacentino	33048	2,662	PC	2013	-	-	3	10	270.00	-	170	2	605.00	-	-	-	-	-	-	-	-	875.00
Alfonsine	39001	12,351	RA	2013	-	-	10	10	-	-	6,396	4	5,324.76	-	-	-	867.00	-	3,025.24	-	-	9,217.00
Bagnacavallo	39002	16,768	RA	2013	-	-	10	10	-	-	7,797	4	7,242.34	-	-	-	986.00	-	-	-	-	8,228.34
Bagnara di Romagna	39003	2,442	RA	2013	-	-	5	10	-	-	1,202	4	1,051.75	-	-	-	340.00	-	806.73	-	-	2,198.48
BR Union	-	103,969	RA	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4923	-	4923
Brisighella	39004	7,796	RA	2013	-	-	10	10	-	-	1,506	5	3,049.20	-	-	-	340.00	-	808.03	-	-	4,197.23
Casola Valsenio	39005	2,714	RA	2013	-	-	5	10	-	-	485	5	1,327.37	-	-	-	340.00	-	254.00	-	-	1,921.37
Castel Bolognese	39006	9,653	RA	2013	-	-	10	10	-	-	2,890	5	5,690.02	-	-	-	391.00	-	508.20	-	-	6,589.22
Cervia	39007	29,128	RA	2013	-	-	50	10	-	-	18,527	5	37,609.81	12,481	1	73,188.85	2,448.00	-	2,619.40	1,648.80	-	117,514.86
Conselice	39008	10,070	RA	2013	-	-	10	10	-	-	4,192	4	4,351.10	-	-	-	578.00	-	4,437.02	-	-	9,366.12
Cotignola	39009	7,444	RA	2013	-	-	10	10	-	-	4,195	4	3,211.34	-	-	-	578.00	-	2,823.55	-	-	6,612.89
Faenza	39010	58,885	RA	2013	-	-	50	10	-	-	16,389	5	16,593.94	-	-	-	2,176.00	-	5,662.80	118.26	-	24,551.00
Fusignano	39011	8,322	RA	2013	-	-	10	10	-	-	3,989	4	3,591.83	-	-	-	544.00	-	1,815.14	-	-	5,950.97
LHA of Ravenna	-	-	RA	2013	-	-	-	-	1120	-	-	-	-	-	-	-	-	-	-	-	-	1120
Lugo	39012	32,869	RA	2013	-	-	45	10	-	-	20,963	4	14,185.72	-	-	-	2,856.00	-	3,025.24	-	-	20,066.96
Massa Lombarda	39013	10,838	RA	2013	-	-	10	10	-	-	4,430	4	4,675.50	-	-	-	595.00	-	2,420.19	-	-	7,690.69
Province of Ravenna	-	-	RA	2013	-	-	-	-	32850	-	-	-	-	-	-	-	-	-	-	-	-	32850
Ravenna	39014	160,208	RA	2013	3,306.40	-	90	10	-	-	72,683	5	152,487.46	-	-	-	9,826.00	-	19,218.67	4,376.00	-	189,214.53

Riolo Terme	39015	5,843	RA	2013	-	-	10	10	-	-	1,665	5	3,946.61	1,300	5	4,000.00	340.00	-	381.15	-	-	8,667.76
Russi	39016	12,394	RA	2013	-	-	10	10	-	-	6,180	5	6,816.33	-	-	-	833.00	-	-	275.00	-	7,924.33
Sant'Agata sul Santerno	39017	2,865	RA	2013	-	-	10	10	-	-	2,655	4	1,235.96	-	-	-	357.00	-	302.52	-	-	1,895.48
Solarolo	39018	4,487	RA	2013	-	-	10	10	-	-	1,891	5	4,739.16	-	-	-	340.00	-	1,270.50	-	-	6,349.66
Albinea	35001	8,882	RE	2013	-	-	-	-	-	-	2,200	3	4,567.39	-	-	2,145.00	594.00	-	1,085.00	-	-	8,391.39
Bagnolo in Piano	35002	9,715	RE	2013	-	-	6	10	540.00	-	2,500	2	4,703.16	-	-	220.00	450.00	-	775.00	825.00	-	7,513.16
Baiso	35003	3,371	RE	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Bibbiano	35004	10,228	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	550.00	-	550.00
Boretto	35005	5,393	RE	2013	-	-	-	-	-	-	2,100	3	3,311.66	-	-	-	378.00	-	465.00	550.00	-	4,704.66
Brescello	35006	5,653	RE	2013	-	-	-	-	-	-	2,100	1	1,524.60	-	-	-	-	-	-	-	-	1,524.60
Busana	35007	1,306	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadelbosco di Sopra	35008	10,546	RE	2013	-	-	6	10	540.00	-	2,600	2	4,816.04	-	-	220.00	468.00	-	930.00	825.00	-	7,799.04
Campagnola Emilia	35009	5,661	RE	2013	-	-	-	-	-	-	1,600	2	2,214.30	-	-	-	-	-	-	-	-	2,214.30
Campegine	35010	5,216	RE	2013	-	-	-	-	-	-	-	5	6,600.00	-	-	-	-	-	-	550.00	-	7,150.00
Canossa	35018	3,912	RE	2013	-	-	5	10	450.00	-	900	2	747.71	-	-	-	360.00	-	310.00	550.00	-	2,417.71
Carpineti	35011	4,168	RE	2013	-	-	1	10	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Casalgrande	35012	19,041	RE	2013	-	-	5	10	450.00	-	4,000	4	16,441.69	-	-	1,796.00	1,080.00	-	775.00	550.00	-	21,092.69
Casina	35013	4,575	RE	2013	-	-	1	10	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Castellarano	35014	15,254	RE	2013	399.30	-	10	10	900.00	-	3,200	3	10,200.87	-	-	110.00	576.20	-	775.00	825.00	-	13,786.37
Castelnovo di Sotto	35015	8,637	RE	2013	-	-	-	-	-	-	2,500	2	4,364.64	-	-	110.00	450.00	-	465.00	825.00	-	6,214.64
Castelnovo ne' Monti	35016	10,715	RE	2013	-	-	1	10	90.00	-	-	-	-	-	-	-	-	-	-	-	-	90.00
Cavriago	35017	9,728	RE	2013	-	-	5	10	450.00	-	2,200	1	1,597.20	-	-	-	-	-	620.00	550.00	-	3,217.20
Collagna	35019	972	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Correggio	35020	25,838	RE	2013	-	-	35	10	3,150.00	-	8,213	3	11,311.39	-	-	223.85	1,440.00	-	775.00	1,375.00	-	18,275.24
Fabbrico	35021	6,829	RE	2013	-	-	-	-	-	-	1,800	3	3,761.57	-	-	110.00	540.00	-	465.00	-	-	4,876.57
Gattatico	35022	5,971	RE	2013	-	-	-	-	-	-	1,250	4	3,034.28	-	-	2,145.00	540.00	-	465.00	550.00	-	6,734.28
Gualtieri	35023	6,641	RE	2013	-	-	5	10	450.00	-	2,200	3	180.00	-	-	-	-	-	-	550.00	-	1,180.00
Guastalla	35024	15,250	RE	2013	211.15	-	20	10	1,800.00	-	3,500	3	4,590.60	-	-	2,106.50	630.00	-	465.00	1,100.00	-	10,903.25
LHA of Reggio Emilia	-	-	RE	2013	-	-	-	-	1050	-	-	-	-	-	-	-	-	-	-	-	-	1050
Ligonchio	35025	853	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzzara	35026	9,304	RE	2013	1,966.50	-	-	-	-	-	2,500	3	4,851.83	-	-	2,106.50	450.00	-	1,085.00	550.00	-	11,009.83
Montecchio Emilia	35027	10,382	RE	2013	-	-	8	10	720.00	-	3,140	2	3,251.48	-	-	-	279.00	-	524.50	550.00	-	5,324.98
Novellara	35028	14,028	RE	2013	-	-	6	10	540.00	-	-	-	-	-	-	-	-	-	-	825.00	-	1,365.00

Poviglio	35029	7,279	RE	2013	-	-	5	10	450.00	-	1,800	2	2,797.89	-	-	-	360.00	-	387.50	550.00	-	4,545.39
Province of Reggio Emilia	-	-	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quattro Castella	35030	13,222	RE	2013	576.68	-	8	10	720.00	-	2,800	4	7,115.30	-	-	6,240.00	756.00	-	1,085.00	550.00	-	17,042.98
Ramiseto	35031	1,286	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reggio nell'Emilia	35033	172,833	RE	2013	-	-	46	10	4,140.00	-	30,000	4	109,159.85	-	-	8,880.00	8,100.00	-	3,875.00	4,125.00	-	138,279.85
Reggiolo	35032	9,348	RE	2013	-	-	5	10	450.00	-	-	-	-	-	-	-	-	-	-	-	-	450.00
Rio Saliceto	35034	6,216	RE	2013	-	-	-	-	-	-	1,500	1	1,255.36	-	-	-	180.00	-	387.50	-	-	1,822.86
Rolo	35035	4,131	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubiera	35036	14,730	RE	2013	-	-	10	10	900.00	-	-	-	-	-	-	-	-	-	-	825.00	-	1,725.00
San Martino in Rio	35037	8,154	RE	2013	-	-	5	10	450.00	-	2,500	2	3,237.90	-	-	-	450.00	-	465.00	550.00	-	5,152.90
San Polo d'Enza	35038	5,961	RE	2013	-	-	4	10	360.00	-	1,500	3	3,702.54	-	-	2,117.50	360.00	-	387.50	550.00	-	7,477.54
Sant'Ilario d'Enza	35039	11,238	RE	2013	-	-	5	10	450.00	-	2,500	4	6,008.22	-	-	5,775.00	900.00	-	1,085.00	-	-	14,218.22
Scandiano	35040	25,308	RE	2013	-	-	10	10	900.00	-	-	-	-	-	-	-	-	-	-	550.00	-	1,450.00
TdM Union	-	19,183	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toano	35041	4,555	RE	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Vetto	35042	1,948	RE	2013	-	-	3	10	270.00	-	-	-	-	-	-	-	-	-	-	-	-	270.00
Vezzano sul Crostolo	35043	4,252	RE	2013	-	-	6	10	540.00	-	-	-	-	-	-	-	-	-	-	-	-	540.00
Viano	35044	3,425	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	550.00	-	550.00
Villa Minozzo	35045	3,914	RE	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bellaria-Igea Marina	99001	19,673	RN	2013	-	-	8	10	-	302.50	7,807	4	14,736.50	-	-	-	-	-	3,802.54	-	-	18,841.54
Casteldelci	99021	439	RN	2013	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattolica	99002	17,194	RN	2013	-	-	6	10	-	326.70	5,798	4	10,102.43	-	-	-	-	-	3,630.00	-	-	14,059.13
Coriano	99003	10,291	RN	2013	-	-	9	10	-	120.00	2,700	4	4,300.00	-	-	-	-	-	625.00	-	-	5,045.00
Gemmano	99004	1,172	RN	2013	-	-	3	10	-	100.00	223	4	356.80	-	-	-	-	-	190.00	-	-	646.80
LHA of Rimini	-	-	RN	2013	-	-	-	-	23620	-	-	-	-	-	-	-	-	-	-	-	-	23620
Maiolo	99022	840	RN	2013	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misano Adriatico	99005	12,800	RN	2013	-	-	11	10	-	363.00	5,805	4	10,957.52	-	-	-	-	-	232.32	-	-	11,552.84
Mondaino	99006	1,467	RN	2013	-	-	3	10	-	96.80	300	3	448.02	-	-	-	-	-	229.90	-	-	774.72
Monte Colombo	99007	3,485	RN	2013	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiore Conca	99008	2,238	RN	2013	-	-	3	10	-	36.30	350	4	643.72	-	-	-	-	-	229.90	-	-	909.92
Montegridolfo	99009	1,034	RN	2013	-	-	3	10	-	50.00	373	4	566.96	-	-	-	-	-	190.00	-	-	806.96

Montescudo	99010	3,370	RN	2013	-	-	5	10	-	60.50	750	4	907.50	-	-	-	-	-	169.40	-	-	1,137.40
Morciano di Romagna	99011	6,993	RN	2013	-	-	6	10	-	250.00	1,776	4	2,699.52	-	-	-	-	-	1,660.00	-	-	4,609.52
Novafeltria	99023	7,310	RN	2013	-	-	11	10	-	30.00	1,600	4	1,920.00	-	-	-	-	-	-	-	-	1,950.00
Pennabilli	99024	2,974	RN	2013	-	-	7	10	-	60.50	596	4	807.70	-	-	-	-	-	181.50	-	-	1,049.70
Poggio Berni	99012	3,463	RN	2013	-	-	3	10	-	100.00	1,293	5	2,392.05	-	-	-	-	-	380.00	-	-	2,872.05
Province of Rimini	-	-	RN	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riccione	99013	35,754	RN	2013	1,452.00	-	50	10	-	3,500.00	15,000	5	49,500.00	-	-	-	-	-	6,900.00	-	-	61,352.00
Rimini	99014	146,943	RN	2013	1,331.00	-	60	10	-	6,534.00	44,598	4	82,024.64	19,573	1	96,091.54	-	-	55,041.32	-	-	241,022.50
Saludecio	99015	3,124	RN	2013	1,331.00	-	3	10	-	133.10	335	3	514.55	-	-	-	-	-	399.30	-	-	2,377.95
San Clemente	99016	5,519	RN	2013	-	-	4	10	-	121.00	1,200	4	2,207.04	-	-	-	-	-	344.85	-	-	2,672.89
San Giovanni in Marignano	99017	9,296	RN	2013	-	-	8	10	-	242.00	3,500	4	7,139.00	-	-	-	-	-	482.79	-	-	7,863.79
San Leo	99025	3,076	RN	2013	-	-	8	10	-	60.50	350	4	813.12	-	-	-	-	-	363.00	-	-	1,236.62
Sant'Agata Feltria	99026	2,206	RN	2013	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santarcangelo di Romagna	99018	21,921	RN	2013	-	-	12	10	-	580.80	8,818	4	16,644.86	-	-	-	-	-	9,755.02	-	-	26,980.68
Talamello	99027	1,095	RN	2013	-	-	4	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torriana	99019	1,619	RN	2013	-	-	3	10	-	100.00	729	4	1,137.24	309	1	988.80	-	-	366.00	-	-	2,592.04
Verucchio	99020	10,035	RN	2013	-	-	6	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 104. E-R Plan Expenditures dataset - 2014

					Reported activity and relative expenditures incurred for its realization																	
Municipality	*ISTAT code*	*Population*	*LHA*	*Reported in the year*	*Management of reported cases (emergency)*		*Monitoring of Ae. albopictus population*			*CG_Exp*	*Larvicidal treatments*			*DtD interventions*			*QC_Exp*	*SI_Exp*	*LK_Exp*	*Edu_Exp*	*O_Exp*	*Tot_Exp*
					Em1_Exp	*Em2_Exp*	*Ovi_n*	*Ovi_ch*	*Ovi_Exp*		*RD_n*	*R_n*	*L_Exp*	*DtD_n*	*DtD_R*	*DtD_Exp*						
Anzola dell'Emilia	37001	12,251	BO	2014	246.05	-	11	10	1,006.50	-	7,900	4	6,565.66	5,200	-	12,745.11	1,040.00	-	402.60	-	-	22,005.92
Argelato	37002	9,747	BO	2014	-	-	3	10	274.50	-	5,426	4	4,669.02	-	-	-	951.60	-	2,437.56	-	-	8,332.68
Baricella	37003	6,923	BO	2014	266.62	-	3	10	274.50	-	3,630	4	3,141.12	-	-	-	951.60	-	1,402.27	-	-	6,036.11
Bentivoglio	37005	5,489	BO	2014	123.02	-	3	10	274.50	-	2,500	4	3,849.95	-	-	-	1,040.00	-	563.64	-	-	5,851.11
Bologna	37006	384,202	BO	2014	1,197.94	-	110	10	12,343.40	-	90,000	5	141,607.45	-	-	-	16,323.84	-	-	9,350.00	-	180,822.63
Budrio	37008	18,354	BO	2014	-	-	14	9	1,152.90	-	5,300	4	3,103.68	198	-	1,811.70	761.28	-	1,976.40	1,620.00	-	10,425.96
Calderara di Reno	37009	13,379	BO	2014	123.02	-	11	10	1,006.50	-	8,000	4	6,836.10	-	-	-	2,080.00	-	1,207.80	1,350.00	-	12,603.42
Camugnano	37010	1,965	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalecchio di Reno	37011	36,312	BO	2014	512.40	-	40	10	3,660.00	-	35,347	4	13,799.47	-	-	-	-	-	-	-	-	17,971.87
Castel d'Aiano	37013	1,927	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel di Casio	37015	3,462	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Maggiore	37019	17,929	BO	2014	-	-	20	10	1,830.00	-	11,100	4	11,187.73	-	-	-	761.28	-	3,634.87	-	-	17,413.88
Castello d'Argile	37017	6,516	BO	2014	-	-	10	9	823.50	-	3,330	4	7,210.20	394	-	9,662.40	142.74	-	1,024.80	1,350.00	-	20,213.64
Castenaso	37021	14,618	BO	2014	-	-	14	9	1,152.90	-	9,100	4	8,391.04	2,000	-	3,882.04	713.70	-	3,843.00	-	-	17,982.68
Castiglione dei Pepoli	37022	5,845	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crevalcore	37024	13,558	BO	2014	358.09	-	11	10	1,006.50	-	7,000	4	9,776.23	-	-	-	1,820.00	-	603.90	1,350.00	-	14,914.72
Gaggio Montano	37027	5,004	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galliera	37028	5,431	BO	2014	-	-	3	10	274.50	-	1,800	4	3,996.96	-	-	-	1,040.00	-	925.80	540.00	-	6,777.26
Granaglione	37029	2,238	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granarolo dell'Emilia	37030	11,243	BO	2014	1,476.20	-	10	8	732.00	-	7,600	4	9,006.00	-	-	-	-	-	1,315.00	-	-	12,529.20
Grizzana Morandi	37031	3,930	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Bologna	-	-	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lizzano in Belvedere	37033	2,280	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loiano	37034	4,392	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malalbergo	37035	8,994	BO	2014	464.82	-	9	10	823.50	-	5,190	5	5,217.17	324	4	1,033.74	1,712.88	-	2,818.20	-	-	12,070.31
Marzabotto	37036	6,843	BO	2014	691.00	-	-	-	-	-	1,944	4	2,846.66	-	-	-	-	-	1,281.00	-	-	4,818.66
Minerbio	37038	8,730	BO	2014	-	-	4	10	366.00	-	-	-	-	-	-	-	-	-	-	-	-	366.00

Molinella	37039	15,904	BO	2014	3,120.45	-	-	-	-	-	7,870	1	5,302.12	-	-	-	-	-	-	-	-	8,422.57
Monghidoro	37040	3,842	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monte San Pietro	37042	10,928	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monterenzio	37041	6,026	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monzuno	37044	6,370	BO	2014	-	-	-	-	-	-	700	4	2,391.20	500	-	1,171.20	-	-	256.20	-	-	3,818.60
Ozzano dell'Emilia	37046	13,362	BO	2014	-	-	8	9	658.80	-	21,305	4	6,391.50	-	-	-	713.70	-	4,392.00	-	-	12,156.00
Pianoro	37047	17,408	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pieve di Cento	37048	7,009	BO	2014	-	-	-	-	-	-	2,320	4	3,705.14	-	-	-	910.00	-	603.90	1,620.00	-	6,839.04
Porretta Terme	37049	4,785	BO	2014	-	-	6	10	549.00	-	-	-	-	-	-	-	-	-	-	-	-	549.00
Province of Bologna	-	-	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sala Bolognese	37050	8,379	BO	2014	405.38	-	11	10	1,006.50	-	4,500	4	6,305.69	-	-	-	1,170.00	-	811.91	1,079.99	-	10,779.47
San Benedetto Val di Sambro	37051	4,381	BO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Giorgio di Piano	37052	8,427	BO	2014	137.37	-	6	10	549.00	-	5,200	4	4,790.06	909	-	4,970.40	1,040.00	-	624.03	1,079.99	-	13,190.85
San Giovanni in Persiceto	37053	27,820	BO	2014	325.72	-	22	10	2,013.00	-	12,500	4	11,623.43	430	-	19,676.40	2,860.00	-	1,825.12	1,620.00	-	39,943.67
San Lazzaro di Savena	37054	31,851	BO	2014	477.46	-	-	-	-	-	10,300	4	13,315.81	-	-	-	2,860.00	-	-	-	-	16,653.27
San Pietro in Casale	37055	12,025	BO	2014	79.67	-	6	10	549.00	-	5,300	4	8,511.15	-	-	-	1,430.00	-	564.83	810.01	-	11,944.66
Sant'Agata Bolognese	37056	7,286	BO	2014	275.04	-	10	10	915.00	-	2,600	4	3,242.27	-	-	-	780.00	-	617.32	810.01	-	6,639.64
Sasso Marconi	37057	14,645	BO	2014	-	-	10	10	915.00	-	-	-	-	-	-	-	-	-	-	-	-	915.00
Valsamoggia	37061	30,150	BO	2014	-	-	30	10	2,745.00	-	-	5	28,435.04	-	-	-	-	-	15,402.00	-	-	46,582.04
Vergato	37059	7,725	BO	2014	-	-	6	10	549.00	-	1,256	5	3,150.84	-	-	-	-	-	631.81	-	-	4,331.65
Zola Predosa	37060	18,690	BO	2014	-	-	14	10	1,281.00	-	-	-	-	-	-	-	-	-	-	-	-	1,281.00
Bagno di Romagna	40001	6,105	CE	2014	-	-	7	10	640.50	-	1,100	3	1,449.36	-	-	-	609.76	-	-	-	-	2,699.62
Borghi	40004	2,860	CE	2014	-	-	6	10	549.00	-	480	7	1,338.56	-	-	-	609.76	-	-	-	-	2,497.32
Cesena	40007	97,131	CE	2014	1,151.81	-	58	10	5,307.00	2,562.00	31,600	5	83,814.89	1,000	1	2,500.00	6,798.78	-	2,196.00	-	-	104,330.48
Cesenatico	40008	25,956	CE	2014	-	-	33	10	3,019.50	-	10,975	5	18,465.00	-	-	-	3,397.58	-	943.00	-	-	25,825.08
Gambettola	40015	10,553	CE	2014	-	-	9	10	823.50	-	3,730	5	6,014.83	-	-	-	975.61	-	-	-	-	7,813.94
Gatteo	40016	9,134	CE	2014	-	-	10	10	915.00	-	3,541	5	7,344.40	2,250	1	9,772.20	1,036.59	-	366.00	-	-	19,434.19
LHA of Cesena	-	-	CE	2014	-	-	-	-	1139.2	-	-	-	-	-	-	-	-	-	-	275	-	1414.2
Longiano	40018	7,100	CE	2014	-	-	11	10	1,006.50	-	3,000	3	2,143.30	-	-	-	792.68	-	-	-	-	3,942.48
Mercato Saraceno	40020	7,004	CE	2014	-	-	11	10	1,006.50	-	1,621	4	3,083.19	-	-	-	609.76	-	-	-	-	4,699.45
Montiano	40028	1,690	CE	2014	-	-	6	10	549.00	-	469	6	410.00	-	-	-	609.76	-	-	-	-	1,568.76

Province of Cesena	-	-	CE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roncofreddo	40037	3,390	CE	2014	-	-	7	10	640.50	-	966	6	2,732.53	-	-	-	609.76	-	-	-	-	3,982.79
San Mauro Pascoli	40041	11,611	CE	2014	-	-	10	10	915.00	-	3,253	5	5,530.00	-	-	-	853.66	-	-	-	-	7,298.66
Sarsina	40044	3,561	CE	2014	-	-	5	10	457.50	-	800	5	8,350.00	-	-	-	609.76	-	-	-	-	9,417.26
Savignano sul Rubicone	40045	17,946	CE	2014	-	-	12	10	1,098.00	-	4,040	5	6,800.00	2,700	5	19,250.00	1,189.03	-	-	-	-	28,337.03
Sogliano al Rubicone	40046	3,239	CE	2014	-	-	11	10	1,006.50	-	781	5	1,400.00	370	4	4,500.00	609.76	-	-	-	-	7,516.26
Verghereto	40050	1,936	CE	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Argenta	38001	22,268	FE	2014	-	-	15	10	1,372.50	-	8,000	6	8,540.00	-	-	-	-	-	3,591.92	-	-	13,504.42
Berra	38002	5,026	FE	2014	766.67	-	3	10	274.50	-	1,700	4	8,940.00	-	-	-	-	-	-	-	-	9,981.17
Bondeno	38003	14,882	FE	2014	1,464.00	-	12	10	1,098.00	-	3,800	4	6,708.76	-	-	-	-	-	-	-	-	9,270.76
Cento	38004	35,946	FE	2014	-	-	16	10	1,464.00	-	8,611	4	18,397.60	-	-	-	-	-	610.00	-	-	20,471.60
Codigoro	38005	12,261	FE	2014	9,207.96	-	8	10	732.00	-	4,400	5	23,082.40	-	-	-	-	-	-	-	-	33,022.36
Comacchio	38006	22,745	FE	2014	2,697.00	-	31	10	2,836.50	14,640.00	15,500	4	18,752.23	51	1	1,900.00	7,381.00	-	725.00	1,500.00	-	50,431.73
Copparo	38007	16,897	FE	2014	2,283.84	-	8	10	732.00	-	6,000	4	25,180.80	-	-	-	-	-	-	-	-	28,196.64
Ferrara	38008	133,384	FE	2014	1,647.00	-	79	10	8,367.70	-	30,250	5	93,086.00	-	-	-	3,500.00	-	-	9,600.00	-	116,200.70
Fiscaglia	38027	9,396	FE	2014	13,512.72	-	6	10	549.00	-	3,200	4	13,429.76	-	-	-	-	-	-	-	-	27,491.48
Formignana	38009	2,829	FE	2014	3,330.60	-	1	10	91.50	-	1,050	5	5,508.30	-	-	-	-	-	-	-	-	8,930.40
Goro	38025	3,860	FE	2014	2,283.84	-	3	10	274.50	-	1,750	3	5,508.30	-	-	-	-	-	-	-	-	8,066.64
Jolanda di Savoia	38010	3,019	FE	2014	7,993.44	-	5	10	457.50	-	1,150	5	6,032.90	-	-	-	-	-	-	-	-	14,483.84
Lagosanto	38011	4,990	FE	2014	1,522.56	-	4	10	366.00	-	2,200	6	13,849.44	-	-	-	-	-	-	-	-	15,738.00
LHA of Ferrara	-	-	FE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Masi Torello	38012	2,349	FE	2014	1,332.24	-	2	10	183.00	-	1,400	7	10,282.16	-	-	-	-	-	-	-	-	11,797.40
Mesola	38014	7,075	FE	2014	3,425.76	-	6	10	549.00	-	2,350	3	7,396.86	-	-	-	-	-	-	-	-	11,371.62
Mirabello	38016	3,349	FE	2014	-	-	5	10	457.50	-	842	4	2,586.40	-	-	-	-	-	152.50	-	-	3,196.40
Ostellato	38017	6,400	FE	2014	1,332.24	-	6	10	549.00	-	2,850	5	14,951.10	-	-	-	-	-	-	-	-	16,832.34
Poggio Renatico	38018	9,894	FE	2014	366.00	-	8	10	732.00	-	2,280	5	7,510.32	-	-	-	-	-	512.40	-	-	9,120.72
Portomaggiore	38019	12,283	FE	2014	3,606.32	-	8	10	732.00	-	4,800	5	25,180.80	-	-	-	-	-	-	-	-	29,519.12
Province of Ferrara	-	-	FE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ro	38020	3,340	FE	2014	951.60	-	1	10	91.50	-	1,250	4	5,246.00	-	-	-	-	-	-	-	-	6,289.10
Sant'Agostino	38021	7,080	FE	2014	797.88	-	6	10	549.00	-	2,118	4	4,496.31	-	-	-	-	-	420.90	-	-	6,264.09
Tresigallo	38024	4,539	FE	2014	761.28	-	3	10	274.50	-	2,100	6	13,219.92	-	-	-	-	-	-	-	-	14,255.70
Vigarano Mainarda	38022	7,692	FE	2014	-	-	7	10	640.50	-	2,354	4	5,124.00	-	-	-	-	-	305.00	-	-	6,069.50
Voghiera	38023	3,830	FE	2014	4,758.00	-	4	10	366.00	-	1,400	6	8,813.28	-	-	-	-	-	-	-	-	13,937.28
Bertinoro	40003	11,215	FO	2014	-	-	16	10	1,464.00	-	3,451	4	4,210.22	-	-	-	1,830.00	-	-	-	-	7,504.22

Castrocaro Terme e Terra del Sole	40005	6,507	FO	2014	-	-	9	10	823.50	-	1,450	5	1,631.14	-	-	-	484.00	-	-	785.70	-	3,724.34
Civitella di Romagna	40009	3,778	FO	2014	-	-	8	10	732.00	-	950	4	1,840.00	-	-	-	-	-	-	-	-	2,572.00
Dovadola	40011	1,663	FO	2014	634.40	-	6	10	549.00	-	421	1	219.60	-	-	-	-	-	-	523.81	-	1,926.81
Forlì	40012	118,348	FO	2014	13,700.00	-	44	10	5,165.20	-	43,000	5	104,290.48	-	-	-	-	-	-	-	-	123,155.68
Forlimpopoli	40013	13,228	FO	2014	171.85	-	14	10	1,281.00	-	6,156	6	6,589.75	-	-	-	1,306.80	-	-	1,047.61	-	10,397.01
Galeata	40014	2,545	FO	2014	-	-	7	8	512.40	-	500	8	750.00	-	-	-	-	-	-	-	-	1,262.40
LHA of Forlì	-	-	FO	2014	153.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	153.72
Meldola	40019	10,196	FO	2014	-	-	11	10	1,006.50	-	2,262	6	4,139.46	-	-	1,085.80	589.26	-	-	1,047.61	-	7,868.63
Modigliana	40022	4,696	FO	2014	-	-	7	10	640.50	-	1,200	4	2,635.20	-	-	-	-	-	-	523.81	-	3,799.51
Portico e San Benedetto	40031	777	FO	2014	-	-	6	10	549.00	-	180	1	183.00	-	-	-	-	-	-	-	-	732.00
Predappio	40032	6,486	FO	2014	-	-	10	10	915.00	-	1,571	5	1,862.68	-	-	-	-	-	-	1,047.61	-	3,825.29
Premilcuore	40033	807	FO	2014	-	-	6	10	549.00	-	1,000	-	-	-	-	-	-	-	-	-	-	549.00
Province of Forlì	-	-	FO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocca San Casciano	40036	1,980	FO	2014	-	-	7	10	640.50	-	615	7	1,858.00	-	-	-	-	-	-	523.81	-	3,022.31
Santa Sofia	40043	4,200	FO	2014	-	-	7	10	640.50	-	900	9	3,740.00	-	-	-	-	-	-	-	-	4,380.50
Tredozio	40049	1,265	FO	2014	-	-	6	10	549.00	-	300	3	1,440.00	-	-	-	-	-	-	-	-	1,989.00
Borgo Tossignano	37007	3,329	IM	2014	-	-	-	-	-	-	1,000	6	1,933.65	-	-	-	-	-	768.60	-	-	2,702.25
Casalfiumanese	37012	3,469	IM	2014	-	-	-	-	-	-	2,726	6	4,251.66	-	-	-	-	-	1,281.00	-	-	5,532.66
Castel del Rio	37014	1,221	IM	2014	-	-	-	-	-	-	160	5	736.80	-	-	-	-	-	951.60	-	-	1,688.40
Castel Guelfo di Bologna	37016	4,445	IM	2014	-	-	-	-	-	-	2,726	5	3,134.90	-	-	-	-	-	512.40	-	-	3,647.30
Castel San Pietro Terme	37020	20,842	IM	2014	-	-	12	10	1,098.00	-	8,684	2	5,075.81	-	-	-	342.58	-	2,885.91	-	-	9,402.30
Dozza	37025	6,546	IM	2014	-	-	-	-	-	-	2,269	5	2,653.50	-	-	-	-	-	-	-	-	2,653.50
Fontanelice	37026	1,948	IM	2014	-	-	-	-	-	-	887	6	2,012.78	-	-	-	-	-	-	-	-	2,012.78
Imola	37032	69,614	IM	2014	-	-	50	10	4,575.00	-	16,000	6	22,551.76	-	-	-	892.13	-	-	-	-	28,018.89
LHA of Imola	-	-	IM	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2750	-	2750
Medicina	37037	16,772	IM	2014	1,089.00	-	12	10	1,098.00	-	6,300	-	6,533.10	-	-	-	856.44	-	3,050.00	-	-	12,626.54
Mordano	37045	4,690	IM	2014	121.00	-	-	-	-	-	2,117	4	2,815.76	-	-	-	-	-	-	-	-	2,936.76
Province of Imola	-	-	IM	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bastiglia	36001	4,147	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bomporto	36002	10,135	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campogalliano	36003	8,770	MO	2014	1,220.00	-	9	10	823.50	-	2,600	5	3,013.30	-	-	-	-	-	-	-	-	5,056.80
Camposanto	36004	3,249	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carpi	36005	70,898	MO	2014	8,463.40	-	26	10	3,518.20	-	16,000	6	19,330.13	-	-	-	2,592.50	-	-	-	-	33,904.23

Castelfranco Emilia	36006	32,845	MO	2014	-	-	10	10	915.00	-	7,915	4	9,036.44	-	-	-	-	-	-	-	-	9,951.44
Castelnuovo Rangone	36007	14,728	MO	2014	-	-	10	10	915.00	-	4,418	4	4,096.36	-	-	-	-	-	-	560.00	-	5,571.36
Castelvetro di Modena	36008	11,267	MO	2014	-	-	10	9	823.50	-	2,844	2	2,607.00	-	-	-	-	-	-	-	-	3,430.50
Cavezzo	36009	7,059	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Concordia sulla Secchia	36010	8,839	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fanano	36011	3,005	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finale Emilia	36012	15,841	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorano Modenese	36013	17,093	MO	2014	-	-	10	10	915.00	-	3,914	5	4,148.00	-	-	-	-	-	620.00	550.00	-	6,233.00
Fiumalbo	36014	1,299	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formigine	36015	34,298	MO	2014	691.74	-	22	10	2,013.00	-	7,500	5	14,127.60	-	-	-	-	-	768.60	3,780.00	-	21,380.94
Frassinoro	36016	1,947	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiglia	36017	3,984	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lama Mocogno	36018	2,800	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Modena	-	-	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maranello	36019	17,164	MO	2014	-	-	10	10	915.00	-	4,050	5	8,003.20	30	-	700.28	-	-	-	1,375.00	-	10,993.48
Marano sul Panaro	36020	4,908	MO	2014	-	-	10	10	915.00	-	600	3	1,253.25	-	-	-	-	-	-	-	-	2,168.25
Medolla	36021	6,314	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirandola	36022	24,204	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modena	36023	184,525	MO	2014	2,823.54	-	48	10	4,392.00	2,500.00	53,400	5	68,981.15	51	-	9,295.67	13,317.67	-	756.40	910.00	-	102,976.43
Montecreto	36024	986	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiorino	36025	2,242	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montese	36026	3,409	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonantola	36027	15,789	MO	2014	244.00	-	10	10	915.00	-	4,522	4	8,496.00	-	-	-	-	-	-	-	-	9,655.00
Novi di Modena	36028	10,465	MO	2014	-	-	6	10	549.00	-	3,000	5	5,490.00	-	-	-	-	-	-	-	-	6,039.00
Palagano	36029	2,286	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavullo nel Frignano	36030	17,463	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pievepelago	36031	2,255	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polinago	36032	1,731	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prignano sulla Secchia	36033	3,761	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Province of Modena	-	-	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ravarino	36034	6,239	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riolunato	36035	752	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

San Cesario sul Panaro	36036	6,374	MO	2014	-	-	6	10	549.00	-	2,350	4	3,586.80	-	-	-	-	-	-	-	-	4,135.80
San Felice sul Panaro	36037	10,976	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Possidonio	36038	3,707	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Prospero	36039	5,907	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sassuolo	36040	41,130	MO	2014	801.54	-	10	10	915.00	-	7,800	3	5,425.20	-	-	-	-	-	-	-	-	7,141.74
Savignano sul Panaro	36041	9,396	MO	2014	-	-	10	10	915.00	-	2,063	4	2,013.49	-	-	-	-	-	222.53	-	-	3,151.02
Serramazzoni	36042	8,214	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sestola	36043	2,563	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soliera	36044	15,325	MO	2014	3,367.20	-	6	10	549.00	-	5,400	3	3,739.63	-	-	-	-	-	-	-	-	7,655.83
Sorbara Union	-	20,521	MO	2014	-	-	-	-	2470.5	-	-	-	5868.81	-	-	-	-	-	2177	-	-	10516.31
Spilamberto	36045	12,527	MO	2014	-	-	8	10	732.00	-	3,255	1	1,427.40	-	-	-	-	-	-	-	-	2,159.40
UCMAN	-	66,281	MO	2014	1432.53	-	-	-	11071.5	-	-	-	45835.4	-	-	-	1000	-	4985.37	1100	-	65424.8
Vignola	36046	25,049	MO	2014	-	-	10	10	915.00	-	3,350	5	7,492.00	-	-	-	949.00	-	-	-	-	9,356.00
Zocca	36047	4,896	MO	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albareto	34001	2,162	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bardi	34002	2,273	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedonia	34003	3,570	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Berceto	34004	2,142	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bore	34005	789	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borgo Val di Taro	34006	7,124	PR	2014	-	-	4	10	366.00	-	-	-	-	-	-	-	-	-	-	-	-	366.00
Busseto	34007	7,183	PR	2014	951.60	-	-	-	-	-	1,600	6	2,342.40	-	-	-	-	-	-	1,100.00	-	4,394.00
Calestano	34008	2,139	PR	2014	-	-	3	10	274.50	-	556	4	836.00	-	-	-	-	-	-	-	-	1,110.50
Collecchio	34009	14,225	PR	2014	484.00	-	4	10	366.00	-	4,000	5	3,843.00	-	-	-	-	-	762.50	-	-	5,455.50
Colorno	34010	9,082	PR	2014	1,159.00	-	3	10	274.50	-	1,570	10	3,256.18	-	-	-	-	-	1,073.60	2,147.20	-	7,910.48
Compiano	34011	1,109	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corniglio	34012	1,998	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Felino	34013	8,749	PR	2014	-	-	5	10	457.50	-	2,734	8	1,769.00	23	-	-	-	-	-	-	-	2,226.50
Fidenza	34014	26,383	PR	2014	1,837.87	-	6	10	549.00	-	9,000	6	4,941.00	-	-	-	-	-	473.36	1,650.00	-	9,451.23
Fontanellato	34015	7,026	PR	2014	2,318.00	-	3	10	274.50	-	1,700	4	3,525.80	-	-	-	-	-	-	-	-	6,118.30
Fontevivo	34016	5,563	PR	2014	-	-	4	10	366.00	-	850	10	1,762.90	-	-	-	-	-	-	-	-	2,128.90
Fornovo di Taro	34017	6,228	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Langhirano	34018	10,160	PR	2014	-	-	4	10	366.00	-	-	-	-	-	-	-	-	-	-	-	-	366.00
Lesignano de' Bagni	34019	5,014	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
LHA of Parma	-	-	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medesano	34020	10,824	PR	2014	-	-	6	10	549.00	-	-	-	-	-	-	-	-	-	-	1,650.00	-	2,199.00
Mezzani	34021	3,360	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Monchio Delle Corti	34022	975	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montechiarugolo	34023	10,816	PR	2014	3,741.79	-	4	10	366.00	-	3,889	7	9,680.00	-	-	-	-	-	-	-	-	13,787.79
Neviano Degli Arduini	34024	3,699	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Noceto	34025	13,056	PR	2014	-	-	4	10	366.00	-	-	-	-	-	-	-	-	-	-	1,925.00	-	2,291.00
Palanzano	34026	1,153	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parma	34027	188,792	PR	2014	9,179.28	-	60	10	5,490.00	-	336	4	6,285.44	-	-	-	-	-	-	-	-	20,954.72
Pellegrino Parmense	34028	1,086	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	275.00	-	549.50
Polesine Parmense	34029	1,465	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	550.00	-	824.50
Province of Parma	-	-	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roccabianca	34030	3,076	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Sala Baganza	34031	5,519	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Salsomaggiore Terme	34032	19,787	PR	2014	-	-	5	10	457.50	-	-	-	-	-	-	-	-	-	-	-	-	457.50
San Secondo Parmense	34033	5,739	PR	2014	1,512.00	-	-	-	-	-	1,480	11	4,026.00	-	-	-	-	-	858.88	550.00	-	6,946.88
Sissa Trecasali	34049	7,952	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SM Union	-	12,956	PR	2014	976	-	-	-	549	-	-	-	3623.4	-	-	-	-	-	-	-	-	5148.4
Solignano	34035	1,761	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Soragna	34036	4,881	PR	2014	2,280.40	-	3	10	274.50	-	1,100	10	2,281.40	-	-	-	-	-	-	-	-	4,836.30
Sorbolo	34037	9,596	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terenzo	34038	1,176	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tizzano Val Parma	34039	2,121	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tornolo	34040	1,053	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torrile	34041	7,672	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Traversetolo	34042	9,454	PR	2014	-	-	3	10	274.50	-	1,600	10	3,982.08	-	-	-	-	-	278.16	1,100.00	-	5,634.74
Valmozzola	34044	558	PR	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varano de' Melegari	34045	2,692	PR	2014	-	-	4	10	366.00	-	500	10	1,511.58	-	-	-	-	-	-	825.00	-	2,702.58
Varsi	34046	1,266	PR	2014	-	-	4	10	366.00	-	-	-	-	-	-	-	-	-	-	-	-	366.00
Zibello	34048	1,837	PR	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Agazzano	33001	2,065	PC	2014	-	-	3	10	274.50	-	400	2	561.00	-	-	-	-	-	106.95	395.20	-	1,337.65
Alseno	33002	4,840	PC	2014	-	-	4	10	366.00	-	-	-	-	-	-	-	-	-	-	592.80	-	958.80
Besenzone	33003	995	PC	2014	-	-	2	10	183.00	-	220	5	1,220.00	-	-	-	-	-	-	-	-	1,403.00
Bettola	33004	2,936	PC	2014	-	-	2	10	183.00	-	100	2	300.00	-	-	-	-	-	-	197.60	-	680.60
Bobbio	33005	3,696	PC	2014	-	-	3	10	274.50	-	250	5	-	-	-	-	-	-	-	-	-	274.50
Borgonovo Val Tidone	33006	7,862	PC	2014	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Cadeo	33007	6,158	PC	2014	-	-	4	10	366.00	-	2,300	-	1,300.00	-	-	-	-	-	-	988.00	-	2,654.00
Calendasco	33008	2,528	PC	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	395.20	-	669.70
Caminata	33009	270	PC	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caorso	33010	4,781	PC	2014	793.00	-	4	10	366.00	-	1,840	7	1,963.60	-	-	-	-	-	-	-	-	3,122.60
Carpaneto Piacentino	33011	7,674	PC	2014	-	-	4	10	366.00	-	1,995	2	1,122.40	-	-	-	-	-	-	-	-	1,488.40
Castel San Giovanni	33013	13,849	PC	2014	-	-	7	6	384.30	-	3,000	2	2,196.00	-	-	-	-	-	732.00	-	-	3,312.30
Castell'Arquato	33012	4,713	PC	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	592.80	-	867.30
Castelvetro Piacentino	33014	5,579	PC	2014	-	-	4	10	366.00	-	1,400	3	1,683.60	-	-	-	-	-	488.00	-	-	2,537.60
Cerignale	33015	153	PC	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coli	33016	920	PC	2014	-	-	1	10	91.50	-	-	-	-	-	-	-	-	-	-	-	-	91.50
Corte Brugnatella	33017	632	PC	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cortemaggiore	33018	4,627	PC	2014	-	-	4	10	366.00	-	1,200	7	3,843.00	-	-	-	-	-	-	-	-	4,209.00
Farini	33019	1,370	PC	2014	-	-	2	10	183.00	-	-	-	-	-	-	-	-	-	-	-	-	183.00
Ferriere	33020	1,351	PC	2014	-	-	2	10	183.00	-	-	-	-	-	-	-	-	-	-	-	-	183.00
Fiorenzuola d'Arda	33021	15,406	PC	2014	-	-	7	10	640.50	-	5,000	2	3,050.00	-	-	-	-	-	-	-	-	3,690.50
Gazzola	33022	2,071	PC	2014	-	-	4	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gossolengo	33023	5,543	PC	2014	-	-	4	10	366.00	-	1,680	2	927.20	-	-	-	-	-	244.00	-	-	1,537.20
Gragnano Trebbiense	33024	4,521	PC	2014	-	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	329.40
Gropparello	33025	2,358	PC	2014	-	-	2	10	183.00	-	185	1	183.70	-	-	-	-	-	-	-	-	366.70
LHA of Piacenza	-	-	PC	2014	-	-	-	-	823.5	-	-	-	-	-	-	-	-	-	-	-	-	823.5
Lugagnano Val d'Arda	33026	4,154	PC	2014	-	-	4	10	366.00	-	-	-	-	-	-	-	-	-	-	-	-	366.00
Monticelli d'Ongina	33027	5,394	PC	2014	-	-	4	10	366.00	-	1,000	3	732.00	-	-	-	-	-	-	-	-	1,098.00
Morfasso	33028	1,077	PC	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nibbiano	33029	2,218	PC	2014	-	-	2	10	183.00	-	-	-	-	-	-	-	-	-	-	-	-	183.00
Ottone	33030	549	PC	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecorara	33031	771	PC	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piacenza	33032	102,651	PC	2014	231.80	-	40	10	4,799.20	-	20,000	4	23,330.25	-	-	-	-	-	-	2,750.00	-	31,111.25
Pianello Val Tidone	33033	2,291	PC	2014	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Piozzano	33034	656	PC	2014	-	-	2	10	183.00	-	-	-	-	-	-	-	-	-	-	-	-	183.00
Podenzano	33035	9,123	PC	2014	-	-	5	10	457.50	-	-	-	-	-	-	-	-	-	-	-	-	457.50
Ponte dell'Olio	33036	4,890	PC	2014	-	-	3	10	274.50	-	1,100	3	885.72	-	-	-	-	-	-	-	-	1,160.22
Pontenure	33037	6,442	PC	2014	-	-	4	10	366.00	-	1,800	4	2,440.00	-	-	-	-	-	-	600.00	-	3,406.00

Province of Piacenza	-	-	PC	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rivergaro	33038	7,015	PC	2014	610.00	-	4	10	366.00	-	1,600	4	2,196.00	-	-	-	-	-	976.00	-	-	4,148.00
Rottofreno	33039	11,980	PC	2014	549.00	-	5	10	457.50	-	2,000	4	2,635.20	-	-	-	-	-	732.00	-	-	4,373.70
San Giorgio Piacentino	33040	5,809	PC	2014	549.00	-	4	10	366.00	-	1,700	3	1,537.20	-	-	-	-	-	-	-	-	2,452.20
San Pietro in Cerro	33041	931	PC	2014	-	-	2	10	183.00	-	-	2	236.16	-	-	-	-	-	-	-	-	419.16
Sarmato	33042	2,935	PC	2014	-	-	3	9	247.05	-	485	4	1,000.40	-	-	-	-	-	-	-	-	1,247.45
Travo	33043	2,062	PC	2014	-	-	3	10	274.50	-	350	7	2,305.80	-	-	-	-	-	-	-	-	2,580.30
Vernasca	33044	2,196	PC	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Vigolzone	33045	4,354	PC	2014	-	-	4	10	366.00	-	-	-	-	-	-	-	-	-	-	-	-	366.00
Villanova sull'Arda	33046	1,888	PC	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Zerba	33047	83	PC	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ziano Piacentino	33048	2,615	PC	2014	-	-	3	10	274.50	-	-	-	610.00	-	-	-	-	-	-	-	-	884.50
Alfonsine	39001	12,294	RA	2014	120.78	-	10	10	-	-	6,634	5	6,759.72	-	-	-	867.00	-	-	-	-	7,747.50
Bagnacavallo	39002	16,890	RA	2014	265.29	-	10	10	-	-	8,298	5	9,138.28	-	-	-	986.00	-	-	-	-	10,389.57
Bagnara di Romagna	39003	2,421	RA	2014	-	-	5	10	-	-	1,285	5	1,332.16	-	-	-	340.00	-	809.89	-	-	2,482.05
BR Union	-	103,475	RA	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6564.48	-	6564.48
Brisighella	39004	7,711	RA	2014	-	-	10	10	-	-	1,506	5	2,847.84	-	-	-	340.00	-	1,281.00	-	-	4,468.84
Casola Valsenio	39005	2,667	RA	2014	-	-	5	10	-	-	485	5	1,338.34	-	-	-	340.00	-	128.10	-	-	1,806.44
Castel Bolognese	39006	9,598	RA	2014	-	-	10	10	-	-	2,890	5	5,464.99	-	-	-	391.00	-	768.60	1,367.60	-	7,992.19
Cervia	39007	29,228	RA	2014	233.45	-	50	10	-	-	18,081	6	45,582.00	12,481	1	70,000.00	2,516.00	-	3,727.34	550.00	-	122,608.79
Conselice	39008	9,887	RA	2014	-	-	10	10	-	-	6,108	5	5,398.06	-	-	-	578.00	-	4,478.38	-	-	10,454.44
Cotignola	39009	7,443	RA	2014	-	-	10	10	-	-	4,775	5	4,069.16	-	-	-	578.00	-	2,847.18	-	-	7,494.34
Faenza	39010	58,892	RA	2014	60.00	-	50	10	-	-	16,389	5	18,300.00	-	-	-	2,142.00	-	4,377.36	-	-	24,879.36
Fusignano	39011	8,314	RA	2014	-	-	10	10	-	-	4,315	5	4,587.72	-	-	-	544.00	-	1,829.68	-	-	6,961.40
LHA of Ravenna	-	-	RA	2014	-	-	-	-	1139.2	-	-	-	-	-	-	-	-	-	-	-	-	1139.2
Lugo	39012	32,603	RA	2014	-	-	45	10	-	-	20,976	5	17,823.59	-	-	-	2,856.00	-	3,052.17	-	-	23,731.76
Massa Lombarda	39013	10,703	RA	2014	-	-	10	10	-	-	4,600	5	5,848.30	-	-	-	595.00	-	2,441.09	-	-	8,884.39
Province of Ravenna	-	-	RA	2014	-	-	-	-	32574	-	-	-	-	-	-	-	-	-	-	-	-	32574
Ravenna	39014	159,041	RA	2014	532.90	-	81	10	-	-	73,549	6	150,746.03	10,000	1	72,375.00	9,860.00	-	26,352.00	4,923.36	-	264,789.29
Riolo Terme	39015	5,817	RA	2014	-	-	10	10	-	-	1,665	5	4,062.60	1,300	5	3,960.00	340.00	-	1,466.19	1,641.12	-	11,469.91
Russi	39016	12,227	RA	2014	200.00	-	10	10	-	-	6,180	6	8,678.64	-	-	-	833.00	-	-	1,641.00	-	11,352.64
Sant'Agata sul Santerno	39017	2,920	RA	2014	-	-	10	10	-	-	2,781	5	1,594.44	-	-	-	357.00	-	301.14	-	-	2,252.58
Solarolo	39018	4,528	RA	2014	-	-	10	10	-	-	1,891	5	3,575.88	-	-	-	340.00	-	1,442.41	-	-	5,358.29
Albinea	35001	8,887	RE	2014	300.75	-	-	-	-	-	2,200	4	5,021.00	140	1	2,150.00	684.40	-	720.00	-	-	8,876.15
Bagnolo in Piano	35002	9,694	RE	2014	-	-	6	10	549.00	-	-	-	-	-	-	-	-	-	-	1,150.00	-	1,699.00

Baiso	35003	3,406	RE	2014	-	-	3	10	274.50	-	-	-	254.19	-	-	-	-	-	-	-	-	528.69
Bibbiano	35004	10,229	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,100.00	-	1,100.00
Boretto	35005	5,314	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	550.00	-	550.00
Brescello	35006	5,618	RE	2014	-	-	-	-	-	-	2,162	2	2,856.00	-	-	-	-	-	539.00	1,100.00	-	4,495.00
Busana	35007	1,269	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadelbosco di Sopra	35008	10,600	RE	2014	-	-	6	10	549.00	-	-	-	-	-	-	-	-	-	-	1,150.00	-	1,699.00
Campagnola Emilia	35009	5,629	RE	2014	-	-	-	-	-	-	1,600	2	1,991.04	-	-	-	-	-	179.95	-	-	2,170.99
Campegine	35010	5,209	RE	2014	-	-	-	-	-	-	1,480	4	4,196.00	-	-	-	415.00	-	360.00	825.00	-	5,796.00
Canossa	35018	3,855	RE	2014	-	-	5	10	457.50	-	900	3	1,122.00	-	-	-	360.00	-	270.00	550.00	-	2,759.50
Carpineti	35011	4,124	RE	2014	-	-	1	10	91.50	-	-	-	-	-	-	-	-	-	-	-	-	91.50
Casalgrande	35012	19,105	RE	2014	-	-	5	10	457.50	-	-	-	-	-	-	-	-	-	-	1,100.00	-	1,557.50
Casina	35013	4,542	RE	2014	-	-	1	10	91.50	-	-	-	-	-	-	-	-	-	-	-	-	91.50
Castellarano	35014	15,227	RE	2014	-	-	10	10	915.00	-	3,850	4	10,505.00	-	-	-	788.00	-	900.00	1,925.00	-	15,033.00
Castelnovo di Sotto	35015	8,640	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,150.00	-	1,150.00
Castelnovo ne' Monti	35016	10,603	RE	2014	-	-	1	10	91.50	-	-	-	-	-	-	-	-	-	-	-	-	91.50
Cavriago	35017	9,772	RE	2014	3,276.90	-	5	10	457.50	-	2,200	4	6,137.80	-	-	-	456.30	-	899.80	-	-	11,228.30
Collagna	35019	958	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Correggio	35020	25,754	RE	2014	-	-	35	10	3,202.50	-	8,233	4	10,210.62	-	-	-	2,551.00	-	899.75	1,650.00	-	18,513.87
Fabbrico	35021	6,787	RE	2014	-	-	-	-	-	-	2,562	4	6,221.00	-	-	-	518.50	-	450.00	-	-	7,189.50
Gattatico	35022	5,926	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	550.00	-	550.00
Gualtieri	35023	6,591	RE	2014	507.00	-	5	10	457.50	-	-	-	442.00	-	-	-	-	-	295.00	550.00	-	2,251.50
Guastalla	35024	15,132	RE	2014	1,703.12	-	20	10	1,830.00	-	3,578	4	9,806.84	150	1	2,013.00	-	-	737.50	825.00	-	16,915.46
LHA of Reggio Emilia	-	-	RE	2014	-	-	-	-	1139.2	-	-	-	-	-	-	-	-	-	-	-	-	1139.2
Ligonchio	35025	851	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzzara	35026	9,372	RE	2014	-	-	-	-	-	-	3,023	4	6,707.00	140	1	2,106.00	622.00	-	1,179.00	1,100.00	-	11,714.00
Montecchio Emilia	35027	10,491	RE	2014	-	-	8	10	732.00	-	3,140	4	6,435.75	-	-	-	-	-	450.00	550.00	-	8,167.75
Novellara	35028	13,797	RE	2014	-	-	6	10	549.00	-	4,293	5	9,785.50	-	-	-	-	-	-	1,650.00	-	11,984.50
Poviglio	35029	7,196	RE	2014	-	-	5	10	457.50	-	-	-	-	-	-	-	-	-	-	825.00	-	1,282.50
Province of Reggio Emilia	-	-	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quattro Castella	35030	13,187	RE	2014	549.00	-	8	10	732.00	-	3,300	4	7,186.00	450	3	6,240.00	684.00	-	1,090.00	1,100.00	-	17,581.00
Ramiseto	35031	1,270	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reggio nell'Emilia	35033	172,673	RE	2014	200.00	-	40	10	3,660.00	-	30,000	4	124,754.00	1,230	8	16,104.00	7,466.00	-	3,599.00	5,225.00	-	161,008.00

Reggiolo	35032	9,213	RE	2014	-	-	5	10	457.50	-	-	-	-	-	-	-	-	-	-	-	-	457.50
Rio Saliceto	35034	6,258	RE	2014	-	-	-	-	-	-	2,148	4	5,372.40	-	-	-	436.00	-	539.90	-	-	6,348.30
Rolo	35035	4,144	RE	2014	-	-	-	-	-	-	2,040	4	5,866.98	-	-	-	-	-	269.83	-	-	6,136.81
Rubiera	35036	14,818	RE	2014	3,978.40	-	10	10	915.00	-	-	-	-	-	-	-	-	-	175.95	1,650.00	-	6,719.35
San Martino in Rio	35037	8,107	RE	2014	-	-	5	10	457.50	-	3,521	4	7,857.00	-	-	-	-	-	450.00	1,925.00	-	10,689.50
San Polo d'Enza	35038	6,099	RE	2014	-	-	4	10	366.00	-	1,500	4	5,035.50	140	-	2,013.00	415.00	-	450.00	550.00	-	8,829.50
Sant'Ilario d'Enza	35039	11,166	RE	2014	-	-	5	10	457.50	-	-	-	-	-	-	-	-	-	-	-	-	457.50
Scandiano	35040	25,357	RE	2014	-	-	10	10	915.00	-	-	-	-	-	-	-	-	-	-	825.00	-	1,740.00
TdM Union	-	19,240	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toano	35041	4,504	RE	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Vetto	35042	1,909	RE	2014	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Vezzano sul Crostolo	35043	4,311	RE	2014	-	-	6	10	549.00	-	-	-	-	-	-	-	-	-	-	1,100.00	-	1,649.00
Viano	35044	3,419	RE	2014	-	-	-	-	-	-	180	4	101.67	-	-	-	-	-	179.95	550.00	-	831.62
Villa Minozzo	35045	3,832	RE	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bellaria-Igea Marina	99001	19,530	RN	2014	-	-	8	10	-	1,500.00	7,913	4	15,826.00	-	-	-	-	-	2,400.00	-	-	19,726.00
Casteldelci	99021	437	RN	2014	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattolica	99002	17,052	RN	2014	-	-	6	10	-	1,647.00	7,000	5	21,350.00	-	-	-	-	-	2,950.00	-	-	25,947.00
Coriano	99003	10,334	RN	2014	-	-	9	10	-	366.00	2,600	4	6,344.00	-	-	-	-	-	1,046.15	-	-	7,756.15
Gemmano	99004	1,184	RN	2014	-	-	3	10	-	183.00	200	4	488.00	-	-	-	-	-	305.00	-	-	976.00
LHA of Rimini	-	-	RN	2014	-	-	-	-	24014.2	-	-	-	-	-	-	-	-	-	-	-	-	24014.2
Maiolo	99022	849	RN	2014	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misano Adriatico	99005	12,841	RN	2014	-	-	11	10	-	915.00	6,900	4	16,836.00	-	-	-	-	-	1,410.32	-	-	19,161.32
Mondaino	99006	1,473	RN	2014	-	-	3	10	-	305.00	280	4	683.20	-	-	-	-	-	305.00	-	-	1,293.20
Monte Colombo	99007	3,457	RN	2014	-	-	3	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiore Conca	99008	2,254	RN	2014	-	-	3	10	-	183.00	348	4	849.12	-	-	-	-	-	305.00	-	-	1,337.12
Montegridolfo	99009	1,035	RN	2014	-	-	3	10	-	150.00	313	4	763.72	-	-	-	-	-	305.00	-	-	1,218.72
Montescudo	99010	3,381	RN	2014	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Morciano di Romagna	99011	6,999	RN	2014	-	-	6	10	-	488.00	1,794	5	5,471.70	-	-	-	-	-	1,455.09	-	-	7,414.79
Novafeltria	99023	7,290	RN	2014	-	-	11	10	-	305.00	1,600	4	1,342.00	-	-	-	-	-	305.00	-	-	1,952.00
Pennabilli	99024	2,949	RN	2014	-	-	7	10	-	305.00	715	4	1,395.68	-	-	-	-	-	244.00	-	-	1,944.68
Poggio Torriana	99028	5,121	RN	2014	-	-	6	10	-	488.00	2,100	4	4,611.60	190	1	811.30	-	-	1,024.80	-	-	6,935.70
Province of Rimini	-	-	RN	2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riccione	99013	35,472	RN	2014	-	-	50	10	-	3,500.00	15,800	5	49,500.00	-	-	-	-	-	7,000.00	-	-	60,000.00
Rimini	99014	147,215	RN	2014	488.00	-	60	10	-	5,490.00	49,193	4	120,030.92	1,000	1	4,880.00	8,000.00	-	19,306.50	-	-	158,195.42
Saludecio	99015	3,106	RN	2014	-	-	3	10	-	305.00	550	4	1,342.00	-	-	-	-	-	457.50	-	-	2,104.50

San Clemente	99016	5,551	RN	2014	-	-	4	10	-	610.00	1,534	4	3,742.96	-	-	-	-	-	366.00	-	-	4,718.96
San Giovanni in Marignano	99017	9,314	RN	2014	-	-	8	10	-	549.00	4,000	4	8,784.00	-	-	-	-	-	2,827.96	-	-	12,160.96
San Leo	99025	3,047	RN	2014	-	-	8	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sant'Agata Feltria	99026	2,188	RN	2014	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santarcangelo di Romagna	99018	21,815	RN	2014	3,928.40	-	12	10	-	1,037.00	9,600	4	23,424.00	-	-	-	-	-	5,633.47	-	-	34,022.87
Talamello	99027	1,088	RN	2014	-	-	4	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Verucchio	99020	10,051	RN	2014	-	-	6	10	-	610.00	3,703	3	5,420.46	-	-	-	-	-	1,037.00	-	-	7,067.46

Table 105. E-R Plan Expenditures dataset - 2015

					Reported activity and relative expenditures incurred for its realization																
Municipality	***ISTAT code***	***Population***	***LHA***	***Reported in the year***	***Management of reported cases (emergency)***		***Monitoring of Ae. albopictus population***			***CG_Exp***	***Larvicidal treatments***			***DtD interventions***			***QC_Exp***	***SI_Exp***	***LK_Exp***	***Edu_Exp***	***O_Exp***	***Tot_Exp***
					Em1_Exp	***Em2_Exp***	***Ovi_n***	***Ovi_ch***	***Ovi_Exp***		***RD_n***	***R_n***	***L_Exp***	***DtD_n***	***DtD_R***	***DtD_Exp***						
Anzola dell'Emilia	37001	12,289	BO	2015	113.26	-	11	9	905.85	-	7,900	4	6,049.55	1,300	5,200	10,804.98	1,040.00	-	405.65	-	-	19,319.29
Argelato	37002	9,797	BO	2015	-	-	3	9	247.05	-	5,650	4	4,950.96	-	-	-	951.60	-	2,437.56	-	-	8,587.17
Baricella	37003	6,946	BO	2015	-	-	3	9	247.05	-	3,700	4	3,908.45	-	-	-	713.70	-	2,115.48	-	-	6,984.68
Bentivoglio	37005	5,538	BO	2015	-	-	3	9	247.05	-	2,500	4	3,914.61	260	768	3,193.00	1,040.00	-	185.44	-	-	8,580.10
Bologna	37006	386,181	BO	2015	2,713.50	-	110	9	10,055.30	-	85,000	10	134,024.71	-	-	-	9,332.02	-	-	-	-	156,125.53
Budrio	37008	18,426	BO	2015	-	-	14	9	1,152.90	-	5,300	4	3,103.68	-	197	1,802.55	761.28	-	3,294.00	-	-	10,114.41
Calderara di Reno	37009	13,337	BO	2015	246.05	-	11	9	905.85	-	8,000	4	6,319.17	-	-	-	2,080.00	-	1,425.57	-	-	10,976.64
Camugnano	37010	1,938	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casalecchio di Reno	37011	36,252	BO	2015	-	-	40	9	3,294.00	-	9,117	6	21,782.66	-	-	-	-	-	-	-	-	25,076.66
Castel d'Aiano	37013	1,898	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel di Casio	37015	3,451	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Maggiore	37019	18,036	BO	2015	-	-	20	9	1,647.00	-	11,710	4	11,946.55	-	-	-	761.28	-	2,897.50	-	-	17,252.33
Castello d'Argile	37017	6,549	BO	2015	-	-	10	9	823.50	-	3,330	4	4,575.00	-	-	-	142.74	-	-	-	-	5,541.24
Castenaso	37021	14,784	BO	2015	-	-	14	9	1,152.90	-	9,520	4	8,742.03	6,700	4	17,773.20	713.70	-	3,294.00	-	-	31,675.83
Castiglione dei Pepoli	37022	5,744	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crevalcore	37024	13,504	BO	2015	238.73	-	11	9	905.85	-	7,000	4	9,707.30	-	-	-	1,820.00	-	828.69	-	-	13,500.57
Gaggio Montano	37027	4,914	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galliera	37028	5,436	BO	2015	119.36	-	3	9	247.05	-	1,820	4	3,991.47	-	-	-	1,040.00	-	6,390.97	-	-	11,788.85
Granaglione	37029	2,227	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granarolo dell'Emilia	37030	11,578	BO	2015	1,037.00	-	10	9	823.50	-	7,800	4	9,010.00	-	-	-	-	-	-	-	-	10,870.50
Grizzana Morandi	37031	3,923	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Bologna	-	-	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lizzano in Belvedere	37033	2,248	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loiano	37034	4,348	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malalbergo	37035	8,984	BO	2015	201.30	-	9	9	741.15	-	5,270	4	5,354.58	324	4	1,336.60	1,234.23	-	2,562.00	-	-	11,429.86
Marzabotto	37036	6,828	BO	2015	-	-	-	-	-	-	1,944	4	2,846.66	-	-	-	-	-	1,024.80	-	-	3,871.46
Minerbio	37038	8,743	BO	2015	-	-	4	9	329.40	-	4,700	3	3,428.20	-	-	-	428.22	-	549.00	-	-	4,734.82

Molinella	37039	15,885	BO	2015	7,873.19	-	-	-	-	-	7,881	5	23,124.55	1,033	5	3,337.84	5,978.00	-	-	-	-	40,313.58
Monghidoro	37040	3,782	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monte San Pietro	37042	11,029	BO	2015	-	-	-	-	-	-	2,000	5	4,880.00	-	-	-	-	-	1,132.40	-	-	6,012.40
Monterenzio	37041	6,045	BO	2015	-	-	-	-	-	-	-	-	4,229.43	-	-	-	-	-	-	-	-	4,229.43
Monzuno	37044	6,421	BO	2015	-	-	-	-	-	-	700	4	2,391.20	-	-	-	-	-	422.73	-	-	2,813.93
Ozzano dell'Emilia	37046	13,480	BO	2015	536.80	-	8	9	658.80	-	19,804	4	7,731.48	-	-	-	951.60	-	2,086.20	-	-	11,964.88
Pianoro	37047	17,473	BO	2015	-	-	-	-	-	-	4,351	5	5,445.00	-	-	-	-	-	2,510.76	-	-	7,955.76
Pieve di Cento	37048	7,011	BO	2015	-	-	-	-	-	-	2,540	4	3,774.68	-	-	-	910.00	-	-	-	-	4,684.68
Porretta Terme	37049	4,802	BO	2015	-	-	6	9	494.10	-	-	-	-	-	-	-	-	-	-	-	-	494.10
Province of Bologna	-	-	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sala Bolognese	37050	8,388	BO	2015	195.37	-	11	9	905.85	-	4,500	5	5,842.95	-	-	-	1,170.00	-	620.07	-	-	8,734.24
San Benedetto Val di Sambro	37051	4,361	BO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Giorgio di Piano	37052	8,472	BO	2015	137.37	-	6	9	494.10	-	5,200	4	4,926.70	1,413	2,096	5,501.71	1,040.00	-	405.65	-	-	12,505.53
San Giovanni in Persiceto	37053	27,977	BO	2015	246.05	-	22	9	1,811.70	-	12,500	4	10,091.96	1,118	4,500	29,248.80	2,860.00	-	1,031.51	-	-	45,290.02
San Lazzaro di Savena	37054	31,979	BO	2015	275.70	-	-	-	-	-	10,300	4	12,802.92	-	-	-	2,860.00	-	-	-	-	15,938.62
San Pietro in Casale	37055	12,111	BO	2015	-	-	6	9	494.10	-	5,300	4	7,081.25	189	754	4,932.70	1,300.00	-	784.08	-	-	14,592.13
Sant'Agata Bolognese	37056	7,294	BO	2015	-	-	10	4	366.00	-	2,600	4	2,537.60	-	-	-	-	-	-	-	-	2,903.60
Sasso Marconi	37057	14,612	BO	2015	-	-	10	9	823.50	-	2,900	26	12,270.00	-	-	-	-	-	3,843.00	-	-	16,936.50
Valsamoggia	37061	30,426	BO	2015	1,514.02	723.45	30	9	2,470.50	-	10,200	4	12,015.93	-	-	-	-	-	1,666.63	-	-	18,390.53
Vergato	37059	7,731	BO	2015	-	-	-	-	-	-	1,260	5	3,150.84	-	-	-	-	-	671.24	-	-	3,822.08
Zola Predosa	37060	18,652	BO	2015	-	-	14	9	1,152.90	1,068.17	5,837	6	6,409.03	-	-	-	-	-	1,067.50	-	-	9,697.60
Bagno di Romagna	40001	6,091	CE	2015	-	-	7	10	640.50	-	1,100	3	1,932.48	-	-	-	609.76	-	-	-	-	3,182.74
Borghi	40004	2,856	CE	2015	-	-	6	10	549.00	-	545	5	1,380.17	-	-	-	609.76	-	-	-	-	2,538.93
Cesena	40007	97,134	CE	2015	-	-	58	10	5,307.00	-	31,600	5	85,267.00	-	-	-	6,798.78	-	-	-	-	97,372.78
Cesenatico	40008	26,104	CE	2015	-	-	33	10	3,019.50	-	10,975	5	11,383.00	-	-	-	3,353.66	-	1,335.00	-	-	19,091.16
Gambettola	40015	10,645	CE	2015	-	-	9	10	823.50	-	3,810	5	5,547.25	-	-	-	650.40	-	-	-	-	7,021.15
Gatteo	40016	9,148	CE	2015	-	-	10	10	915.00	-	3,950	4	6,553.84	2,190	1	9,351.30	1,036.58	-	183.00	-	-	18,039.72
LHA of Cesena	-	-	CE	2015	-	-	-	-	1139.2	-	-	-	-	-	-	-	-	-	-	-	-	1139.2
Longiano	40018	7,065	CE	2015	-	-	11	10	1,006.50	-	3,074	4	2,700.20	-	-	-	792.68	-	-	-	-	4,499.38
Mercato Saraceno	40020	6,982	CE	2015	-	-	11	10	1,006.50	-	1,621	4	3,134.67	-	-	-	609.76	-	-	-	-	4,750.93
Montiano	40028	1,704	CE	2015	-	-	6	10	549.00	-	469	6	410.00	-	-	-	609.76	-	-	-	-	1,568.76

Province of Cesena	-	-	CE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roncofreddo	40037	3,393	CE	2015	-	-	7	10	640.50	-	1,954	2	997.02	-	-	-	203.25	-	-	-	-	1,840.77
San Mauro Pascoli	40041	11,587	CE	2015	-	-	10	10	915.00	-	3,366	4	5,584.87	-	-	-	853.66	-	-	-	-	7,353.53
Sarsina	40044	3,527	CE	2015	-	-	5	10	457.50	-	490	6	1,372.00	-	-	-	609.76	-	1,650.00	-	-	4,089.26
Savignano sul Rubicone	40045	17,811	CE	2015	-	-	12	10	1,098.00	-	4,040	5	6,703.00	2,109	5	23,485.00	1,189.02	-	-	-	-	32,475.02
Sogliano al Rubicone	40046	3,234	CE	2015	-	-	11	10	1,006.50	-	781	5	1,372.06	379	4	4,623.80	609.76	-	-	-	-	7,612.12
Verghereto	40050	1,919	CE	2015	-	-	3	10	274.50	-	-	-	-	-	-	-	-	-	-	-	-	274.50
Argenta	38001	22,074	FE	2015	1,098.00	-	15	9	1,235.25	-	8,000	4	8,540.00	-	-	-	-	-	2,928.37	-	-	13,801.62
Berra	38002	4,952	FE	2015	-	-	3	9	247.05	-	1,700	3	4,644.00	-	-	-	-	-	-	-	-	4,891.05
Bondeno	38003	14,737	FE	2015	-	-	12	9	988.20	-	3,800	4	7,460.20	-	-	-	-	-	768.60	-	-	9,217.00
Cento	38004	35,877	FE	2015	1,225.00	-	16	9	1,317.60	-	8,500	4	15,080.00	-	-	-	-	-	750.00	-	-	18,372.60
Codigoro	38005	12,162	FE	2015	8,564.40	-	8	9	658.80	-	4,400	6	27,698.88	-	-	-	-	-	-	-	-	36,922.08
Comacchio	38006	22,755	FE	2015	1,301.51	-	31	9	2,552.85	2,400.00	15,500	5	22,051.85	32	1	1,193.00	9,315.00	-	1,107.50	-	-	39,921.71
Copparo	38007	16,757	FE	2015	-	-	8	9	658.80	-	6,000	4	25,180.80	-	-	-	-	-	-	-	-	25,839.60
Ferrara	38008	134,063	FE	2015	4,387.50	-	79	9	7,716.05	-	33,000	4	39,040.00	-	-	-	4,590.00	-	-	-	-	55,733.55
Fiscaglia	38027	9,331	FE	2015	7,268.76	-	6	9	494.10	-	3,200	4	13,429.76	-	-	-	-	-	-	-	-	21,192.62
Formignana	38009	2,816	FE	2015	8,374.08	-	1	9	82.35	-	1,050	6	6,609.96	-	-	-	-	-	-	-	-	15,066.39
Goro	38025	3,824	FE	2015	-	-	3	9	247.05	-	1,750	3	5,508.30	-	-	-	-	-	-	-	-	5,755.35
Jolanda di Savoia	38010	3,013	FE	2015	4,567.68	-	5	9	411.75	-	1,150	4	4,826.32	-	-	-	-	-	-	-	-	9,805.75
Lagosanto	38011	4,964	FE	2015	4,567.69	-	4	9	329.40	-	2,200	6	13,849.44	-	-	-	-	-	-	-	-	18,746.53
LHA of Ferrara	-	-	FE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Masi Torello	38012	2,364	FE	2015	934.52	-	2	9	164.70	-	1,400	7	10,282.16	-	-	-	-	-	-	-	-	11,381.38
Mesola	38014	7,024	FE	2015	2,283.84	-	6	9	494.10	-	2,350	3	7,396.86	-	-	-	-	-	-	-	-	10,174.80
Mirabello	38016	3,305	FE	2015	-	-	5	9	411.75	-	997	3	1,939.80	-	-	-	-	-	152.50	-	-	2,504.05
Ostellato	38017	6,320	FE	2015	1,576.24	-	6	9	494.10	-	2,850	5	14,951.10	-	-	-	-	-	-	-	-	17,021.44
Poggio Renatico	38018	9,937	FE	2015	366.00	-	8	9	658.80	-	2,280	4	6,008.25	-	-	-	-	-	1,024.00	-	-	8,057.05
Portomaggiore	38019	12,094	FE	2015	3,045.12	-	8	9	658.80	-	4,900	4	20,564.32	-	-	-	-	-	-	-	-	24,268.24
Province of Ferrara	-	-	FE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ro	38020	3,294	FE	2015	-	-	1	9	82.35	-	1,250	3	3,934.50	-	-	-	-	-	-	-	-	4,016.85
Sant'Agostino	38021	6,944	FE	2015	-	-	6	9	494.10	-	2,167	4	6,304.86	-	-	-	-	-	420.90	-	-	7,219.86
Tresigallo	38024	4,538	FE	2015	3,276.00	-	3	9	247.05	-	2,100	4	8,813.28	-	-	-	-	-	-	-	-	12,336.33
Vigarano Mainarda	38022	7,730	FE	2015	-	-	7	9	576.45	-	2,520	5	6,456.24	-	-	-	-	-	280.60	-	-	7,313.29
Voghiera	38023	3,798	FE	2015	6,185.40	-	4	9	329.40	-	1,400	6	8,813.28	-	-	-	-	-	-	-	-	15,328.08
Bertinoro	40003	11,184	FO	2015	-	-	16	9	1,317.60	-	3,451	4	4,210.22	-	-	-	1,830.00	-	-	-	-	7,357.82

Castrocaro Terme e Terra del Sole	40005	6,443	FO	2015	-	-	9	9	741.15	-	1,495	6	1,734.12	-	-	-	-	-	-	-	-	2,475.27
Civitella di Romagna	40009	3,801	FO	2015	-	-	8	9	658.80	-	950	4	1,840.00	-	-	-	-	-	-	-	-	2,498.80
Dovadola	40011	1,662	FO	2015	-	-	6	9	494.10	-	450	5	618.75	-	-	-	-	-	-	-	-	1,112.85
Forlì	40012	118,503	FO	2015	-	-	44	9	4,833.80	-	43,000	5	94,589.05	-	-	-	-	-	-	-	-	99,422.85
Forlimpopoli	40013	13,234	FO	2015	-	-	14	9	1,152.90	-	6,500	4	7,062.50	-	-	-	1,421.00	-	-	-	-	9,636.40
Galeata	40014	2,548	FO	2015	-	-	7	7	448.35	-	500	8	750.00	-	-	-	-	-	-	-	-	1,198.35
LHA of Forlì	-	-	FO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meldola	40019	10,090	FO	2015	-	-	11	9	905.85	-	2,262	6	4,139.46	-	-	-	634.40	-	-	-	-	5,679.71
Modigliana	40022	4,649	FO	2015	-	-	7	9	576.45	-	1,200	4	2,635.20	-	-	-	-	-	-	-	-	3,211.65
Portico e San Benedetto	40031	772	FO	2015	-	-	6	9	494.10	-	180	3	915.00	-	-	-	-	-	-	-	-	1,409.10
Predappio	40032	6,438	FO	2015	-	-	10	9	823.50	-	1,571	-	766.65	-	-	-	-	-	-	-	-	1,590.15
Premilcuore	40033	799	FO	2015	-	-	6	9	494.10	-	250	3	400.00	-	-	-	-	-	-	-	-	894.10
Province of Forlì	-	-	FO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocca San Casciano	40036	1,954	FO	2015	-	-	7	9	576.45	-	615	7	1,791.93	-	-	-	-	-	-	-	-	2,368.38
Santa Sofia	40043	4,176	FO	2015	-	-	7	9	576.45	-	900	9	3,740.00	-	-	-	-	-	-	-	-	4,316.45
Tredozio	40049	1,243	FO	2015	-	-	6	9	494.10	-	300	3	1,440.00	-	-	-	-	-	-	-	-	1,934.10
Borgo Tossignano	37007	3,315	IM	2015	-	-	-	-	-	-	1,000	6	1,280.98	-	-	-	-	-	768.60	-	-	2,049.58
Casalfiumanese	37012	3,447	IM	2015	-	-	-	-	-	-	6,275	6	3,642.01	-	-	-	-	-	614.88	-	-	4,256.89
Castel del Rio	37014	1,216	IM	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castel Guelfo di Bologna	37016	4,489	IM	2015	-	-	-	-	-	-	2,726	5	3,824.58	-	-	-	-	-	358.68	-	-	4,183.26
Castel San Pietro Terme	37020	20,852	IM	2015	-	-	12	9	988.20	-	5,143	4	9,496.48	-	-	-	951.60	-	-	-	-	11,436.28
Dozza	37025	6,624	IM	2015	-	-	-	-	-	-	2,269	4	1,740.00	-	-	-	-	-	-	-	-	1,740.00
Fontanelice	37026	1,984	IM	2015	-	-	-	-	-	-	887	6	2,012.78	-	-	-	-	-	-	-	-	2,012.78
Imola	37032	69,741	IM	2015	-	-	50	9	4,117.50	-	16,000	6	22,686.26	-	-	-	892.13	-	-	-	-	27,695.89
LHA of Imola	-	-	IM	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medicina	37037	16,885	IM	2015	1,098.00	-	12	9	988.20	-	6,300	4	5,226.48	-	-	-	1,141.92	-	4,880.00	-	-	13,334.60
Mordano	37045	4,749	IM	2015	-	-	-	-	-	-	2,192	4	2,995.14	-	-	-	-	-	-	-	-	2,995.14
Province of Imola	-	-	IM	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bastiglia	36001	4,219	MO	2015	-	-	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bomporto	36002	10,157	MO	2015	-	-	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campogalliano	36003	8,790	MO	2015	-	-	9	9	741.15	-	2,600	4	2,156.96	-	-	-	-	-	-	-	-	2,898.11
Camposanto	36004	3,198	MO	2015	-	-	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carpi	36005	70,555	MO	2015	1,136.21	-	26	9	3,351.50	-	15,600	2	4,464.00	-	-	-	1,586.00	-	307.44	-	-	10,845.15

Castelfranco Emilia	36006	32,753	MO	2015	-	-	10	9	823.50	-	8,051	1	1,202.24	-	-	-	-	-	-	-	-	2,025.74
Castelnuovo Rangone	36007	14,854	MO	2015	-	-	10	9	823.50	-	4,418	4	4,096.36	-	-	-	-	-	-	-	-	4,919.86
Castelvetro di Modena	36008	11,314	MO	2015	4,405.65	-	10	9	823.50	-	2,844	2	1,806.84	-	-	-	-	-	-	-	-	7,035.99
Cavezzo	36009	7,080	MO	2015	-	-	5	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Concordia sulla Secchia	36010	8,777	MO	2015	-	-	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fanano	36011	3,009	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finale Emilia	36012	15,742	MO	2015	-	-	15	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiorano Modenese	36013	17,193	MO	2015	-	-	10	9	823.50	-	4,100	5	4,148.00	-	7	300.00	-	-	2,139.27	-	-	7,410.77
Fiumalbo	36014	1,290	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Formigine	36015	34,364	MO	2015	144.68	-	22	9	1,811.70	-	7,450	5	11,547.50	-	-	-	-	-	853.15	-	-	14,357.03
Frassinoro	36016	1,926	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiglia	36017	3,976	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lama Mocogno	36018	2,783	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LHA of Modena	-	-	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maranello	36019	17,226	MO	2015	-	-	10	9	823.50	-	4,050	5	7,620.73	-	28	351.36	-	-	640.50	-	-	9,436.09
Marano sul Panaro	36020	5,011	MO	2015	-	-	10	9	823.50	-	600	2	468.00	-	-	-	-	-	-	-	-	1,291.50
Medolla	36021	6,308	MO	2015	-	-	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirandola	36022	24,057	MO	2015	-	-	44	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modena	36023	185,148	MO	2015	2,208.20	-	48	9	3,952.80	-	51,430	4	68,981.15	-	43	7,837.52	13,317.67	-	-	-	-	96,297.34
Montecreto	36024	975	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiorino	36025	2,226	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montese	36026	3,374	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonantola	36027	15,805	MO	2015	366.00	-	10	8	732.00	-	4,522	5	10,620.00	-	-	-	-	-	-	-	-	11,718.00
Novi di Modena	36028	10,331	MO	2015	-	-	6	9	494.10	-	3,300	4	4,750.68	-	-	-	527.04	-	-	-	-	5,771.82
Palagano	36029	2,239	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavullo nel Frignano	36030	17,496	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pievepelago	36031	2,232	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polinago	36032	1,701	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prignano sulla Secchia	36033	3,773	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Province of Modena	-	-	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ravarino	36034	6,226	MO	2015	-	-	7	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riolunato	36035	744	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

San Cesario sul Panaro	36036	6,412	MO	2015	-	-	6	7	384.30	-	2,350	4	3,586.00	-	-	-	-	-	-	-	-	3,970.30
San Felice sul Panaro	36037	10,974	MO	2015	-	-	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Possidonio	36038	3,642	MO	2015	-	-	10	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Prospero	36039	5,899	MO	2015	-	-	10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sassuolo	36040	41,068	MO	2015	-	-	10	9	823.50	-	7,874	3	4,960.62	-	-	-	-	-	-	-	-	5,784.12
Savignano sul Panaro	36041	9,266	MO	2015	-	-	10	9	823.50	-	2,100	3	1,537.20	-	-	-	-	-	686.13	-	-	3,046.83
Serramazzoni	36042	8,248	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sestola	36043	2,518	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soliera	36044	15,509	MO	2015	1,537.20	-	6	9	494.10	-	5,400	4	3,067.20	-	-	-	-	-	-	-	-	5,098.50
Sorbara Union	-	20,602	MO	2015	-	-	-	-	2223.45	-	-	-	4402	-	-	-	-	-	2892.5	-	-	9517.95
Spilamberto	36045	12,579	MO	2015	-	-	8	9	658.80	-	3,534	3	2,650.00	-	-	-	-	-	-	-	-	3,308.80
UCMAN	-	65,926	MO	2015	1252.03	-	-	-	8106.9	-	-	-	33495.1	-	-	-	-	-	8145.3	-	-	50999.33
Vignola	36046	25,306	MO	2015	240.00	-	10	9	823.50	-	3,350	4	6,074.00	-	-	-	949.00	-	1,220.00	-	-	9,306.50
Zocca	36047	4,841	MO	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albareto	34001	2,159	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bardi	34002	2,260	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedonia	34003	3,528	PR	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Berceto	34004	2,123	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bore	34005	768	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borgo Val di Taro	34006	7,044	PR	2015	-	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	329.40
Busseto	34007	7,112	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calestano	34008	2,120	PR	2015	-	-	3	9	247.05	-	480	3	695.40	-	-	-	-	-	-	-	-	942.45
Collecchio	34009	14,313	PR	2015	1,164.76	-	4	9	329.40	-	4,000	5	2,928.00	-	-	-	-	-	762.50	-	-	5,184.66
Colorno	34010	9,104	PR	2015	2,147.20	-	3	7	192.15	-	1,570	7	2,279.24	-	-	-	-	-	1,073.60	-	-	5,692.19
Compiano	34011	1,123	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corniglio	34012	1,987	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Felino	34013	8,776	PR	2015	805.20	-	5	8	366.00	-	-	-	1,952.00	-	-	-	-	-	-	-	-	3,123.20
Fidenza	34014	26,673	PR	2015	879.41	-	6	8	439.20	-	9,000	6	5,856.00	-	-	-	-	-	512.40	-	-	7,687.01
Fontanellato	34015	7,009	PR	2015	1,281.00	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,281.00
Fontevivo	34016	5,576	PR	2015	488.00	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	817.40
Fornovo di Taro	34017	6,177	PR	2015	-	-	3	8	219.60	-	-	-	-	-	-	-	-	-	-	-	-	219.60
Langhirano	34018	10,264	PR	2015	-	-	4	9	329.40	-	900	3	922.30	-	-	-	-	-	-	-	-	1,251.70
Lesignano de' Bagni	34019	5,000	PR	2015	-	-	3	8	219.60	-	3,000	3	724.68	-	-	-	-	-	-	-	-	944.28
LHA of Parma	-	-	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medesano	34020	10,853	PR	2015	1,854.00	-	6	9	494.10	-	-	-	-	-	-	-	-	-	-	-	-	2,348.10
Mezzani	34021	3,330	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Monchio Delle Corti	34022	942	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montechiarugolo	34023	10,804	PR	2015	854.00	-	4	9	329.40	-	3,889	6	10,101.60	-	-	-	-	-	1,073.60	-	-	12,358.60
Neviano Degli Arduini	34024	3,722	PR	2015	170.80	-	3	9	247.05	-	-	-	446.35	-	-	-	-	-	-	-	-	864.20
Noceto	34025	13,019	PR	2015	-	-	4	8	292.80	-	1,000	6	2,000.00	-	-	-	-	-	-	-	-	2,292.80
Palanzano	34026	1,147	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parma	34027	189,996	PR	2015	2,537.60	89.79	60	9	6,009.00	-	336	4	6,285.44	-	-	-	-	-	-	-	-	14,921.83
Pellegrino Parmense	34028	1,070	PR	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Polesine Parmense	34029	1,433	PR	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Province of Parma	-	-	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Roccabianca	34030	3,068	PR	2015	-	-	3	9	247.05	-	1,298	9	2,422.85	-	-	-	-	-	-	-	-	2,669.90
Sala Baganza	34031	5,569	PR	2015	-	-	3	9	247.05	-	1,430	8	2,372.66	-	-	-	-	-	-	-	-	2,619.71
Salsomaggiore Terme	34032	19,721	PR	2015	2,203.58	-	5	9	411.75	-	2,500	2	603.97	-	-	-	-	-	-	-	-	3,219.30
San Secondo Parmense	34033	5,713	PR	2015	1,512.00	-	-	-	-	-	1,480	12	4,392.00	-	-	-	-	-	1,018.40	-	-	6,922.40
Sissa Trecasali	34049	7,937	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SM Union	-	12,928	PR	2015	2928	-	-	-	494.1	-	-	-	6039	-	-	-	-	-	-	-	-	9461.1
Solignano	34035	1,802	PR	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Soragna	34036	4,820	PR	2015	-	-	3	7	192.15	-	1,100	10	2,281.42	-	-	-	-	-	858.88	-	-	3,332.45
Sorbolo	34037	9,598	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terenzo	34038	1,179	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tizzano Val Parma	34039	2,128	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tornolo	34040	1,028	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torrile	34041	7,682	PR	2015	292.80	-	3	9	247.05	-	2,000	-	2,903.60	-	-	-	-	-	644.16	-	-	4,087.61
Traversetolo	34042	9,444	PR	2015	-	-	3	9	247.05	-	1,600	10	3,318.40	-	-	-	-	-	-	-	-	3,565.45
Valmozzola	34044	551	PR	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varano de' Melegari	34045	2,688	PR	2015	-	-	4	9	329.40	-	500	10	1,586.00	-	-	-	-	-	-	-	-	1,915.40
Varsi	34046	1,258	PR	2015	-	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	329.40
Zibello	34048	1,833	PR	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Agazzano	33001	2,080	PC	2015	-	-	3	9	247.05	-	400	1	266.57	-	-	-	-	-	66.50	-	-	580.12
Alseno	33002	4,784	PC	2015	-	-	4	9	329.40	-	1,300	3	1,098.00	-	-	-	-	-	-	-	-	1,427.40
Besenzone	33003	1,000	PC	2015	-	-	2	9	164.70	-	220	4	976.00	-	-	-	-	-	-	-	-	1,140.70
Bettola	33004	2,877	PC	2015	-	-	2	9	164.70	-	100	4	300.00	-	-	-	-	-	-	-	-	464.70
Bobbio	33005	3,638	PC	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05

Borgonovo Val Tidone	33006	7,887	PC	2015	-	-	5	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadeo	33007	6,163	PC	2015	-	-	4	8	292.80	-	1,200	2	511.50	-	-	-	-	-	976.00	-	-	1,780.30
Calendasco	33008	2,528	PC	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Caminata	33009	261	PC	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caorso	33010	4,776	PC	2015	1,024.80	-	4	9	329.40	-	1,840	7	1,400.40	-	-	-	-	-	-	-	-	2,754.60
Carpaneto Piacentino	33011	7,670	PC	2015	-	-	4	9	329.40	-	1,995	2	1,122.40	-	-	-	-	-	-	-	-	1,451.80
Castel San Giovanni	33013	13,833	PC	2015	305.00	-	7	8	512.40	-	3,000	2	2,196.00	-	-	-	-	-	950.00	-	-	3,963.40
Castell'Arquato	33012	4,713	PC	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Castelvetro Piacentino	33014	5,517	PC	2015	305.00	-	4	9	329.40	-	1,400	4	2,244.80	-	-	-	-	-	488.00	-	-	3,367.20
Cerignale	33015	137	PC	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coli	33016	895	PC	2015	-	-	1	8	73.20	-	-	-	-	-	-	-	-	-	-	-	-	73.20
Corte Brugnatella	33017	610	PC	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cortemaggiore	33018	4,658	PC	2015	-	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	329.40
Farini	33019	1,340	PC	2015	-	-	2	7	128.10	-	-	-	-	-	-	-	-	-	-	-	-	128.10
Ferriere	33020	1,336	PC	2015	-	-	2	7	128.10	-	-	-	-	-	-	-	-	-	-	-	-	128.10
Fiorenzuola d'Arda	33021	15,350	PC	2015	-	-	7	9	576.45	-	5,000	2	1,464.00	-	-	-	-	-	-	-	-	2,040.45
Gazzola	33022	2,083	PC	2015	-	-	4	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gossolengo	33023	5,625	PC	2015	-	-	4	9	329.40	-	1,680	3	1,390.80	-	-	-	-	-	488.00	-	-	2,208.20
Gragnano Trebbiense	33024	4,553	PC	2015	-	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	329.40
Gropparello	33025	2,330	PC	2015	-	-	2	9	164.70	-	-	-	-	-	-	-	-	-	-	-	-	164.70
LHA of Piacenza	-	-	PC	2015	-	-	-	-	741.15	-	-	-	-	-	-	-	-	-	-	-	-	741.15
Lugagnano Val d'Arda	33026	4,182	PC	2015	-	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	329.40
Monticelli d'Ongina	33027	5,320	PC	2015	-	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	329.40
Morfasso	33028	1,050	PC	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nibbiano	33029	2,222	PC	2015	-	-	2	9	164.70	-	-	-	-	-	-	-	-	-	-	-	-	164.70
Ottone	33030	541	PC	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecorara	33031	743	PC	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piacenza	33032	102,623	PC	2015	341.60	-	40	9	4,504.40	-	20,000	3	20,496.00	-	-	-	-	-	-	-	-	25,342.00
Pianello Val Tidone	33033	2,235	PC	2015	-	-	3	7	192.15	-	-	-	-	-	-	-	-	-	-	-	-	192.15
Piozzano	33034	641	PC	2015	-	-	2	8	146.40	-	-	-	-	-	-	-	-	-	-	-	-	146.40
Podenzano	33035	9,179	PC	2015	-	-	5	9	411.75	-	-	-	-	-	-	-	-	-	-	-	-	411.75
Ponte dell'Olio	33036	4,857	PC	2015	-	-	3	9	247.05	-	1,100	4	1,019.92	-	-	-	-	-	-	-	-	1,266.97

Pontenure	33037	6,509	PC	2015	-	-	4	9	329.40	-	1,800	2	1,952.00	-	-	-	-	-	-	-	-	2,281.40
Province of Piacenza	-	-	PC	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rivergaro	33038	7,033	PC	2015	732.00	-	4	9	329.40	-	1,600	4	2,196.00	-	-	-	-	-	976.00	-	-	4,233.40
Rottofreno	33039	12,118	PC	2015	1,281.00	-	5	9	411.75	-	2,000	4	2,635.00	-	-	-	-	-	976.00	-	-	5,303.75
San Giorgio Piacentino	33040	5,810	PC	2015	549.00	-	4	9	329.40	-	1,700	3	1,537.20	-	-	-	-	-	-	-	-	2,415.60
San Pietro in Cerro	33041	915	PC	2015	-	-	2	9	164.70	-	-	-	-	-	-	-	-	-	-	-	-	164.70
Sarmato	33042	2,921	PC	2015	-	-	3	8	219.60	-	485	5	1,311.50	-	-	-	-	-	-	-	-	1,531.10
Travo	33043	2,079	PC	2015	-	-	3	9	247.05	-	350	6	1,976.40	-	-	-	-	-	-	-	-	2,223.45
Vernasca	33044	2,190	PC	2015	-	-	3	8	219.60	-	-	-	-	-	-	-	-	-	-	-	-	219.60
Vigolzone	33045	4,306	PC	2015	-	-	4	9	329.40	-	-	-	-	-	-	-	-	-	-	-	-	329.40
Villanova sull'Arda	33046	1,847	PC	2015	1,634.80	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	1,881.85
Zerba	33047	78	PC	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ziano Piacentino	33048	2,577	PC	2015	-	-	3	8	219.60	-	125	2	610.00	-	-	-	-	-	-	-	-	829.60
Alfonsine	39001	12,186	RA	2015	-	-	10	9	-	-	6,634	4	5,348.72	-	-	-	911.60	-	1,825.12	-	-	8,085.44
Bagnacavallo	39002	16,853	RA	2015	-	-	10	9	-	-	8,298	4	7,351.85	-	-	-	1,135.20	-	2,053.26	-	-	10,540.31
Bagnara di Romagna	39003	2,426	RA	2015	-	-	5	9	-	-	1,285	4	1,063.68	-	-	-	344.00	-	684.42	-	-	2,092.10
BR Union	-	103,232	RA	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brisighella	39004	7,694	RA	2015	-	-	10	9	-	-	1,506	4	2,278.28	-	-	-	344.00	-	1,281.00	-	-	3,903.28
Casola Valsenio	39005	2,671	RA	2015	-	-	5	9	-	-	485	5	1,338.34	-	-	-	344.00	-	128.10	-	-	1,810.44
Castel Bolognese	39006	9,634	RA	2015	-	-	10	9	-	-	2,890	5	5,464.99	-	-	-	395.60	-	768.60	-	-	6,629.19
Cervia	39007	29,147	RA	2015	-	-	50	9	-	-	18,154	6	45,600.00	12,481	1	64,987.24	2,476.80	-	3,513.60	-	-	116,577.64
Conselice	39008	9,897	RA	2015	-	-	10	9	-	-	6,108	4	4,332.45	-	-	-	653.60	-	4,334.66	-	-	9,320.71
Cotignola	39009	7,486	RA	2015	-	-	10	9	-	-	4,775	4	3,285.45	-	-	-	653.60	-	1,140.70	-	-	5,079.75
Faenza	39010	58,692	RA	2015	-	-	50	9	-	-	16,389	4	14,640.00	-	-	-	2,167.20	-	4,367.60	-	-	21,174.80
Fusignano	39011	8,252	RA	2015	-	-	10	9	-	-	4,315	4	3,611.18	-	-	-	584.80	-	1,368.84	-	-	5,564.82
LHA of Ravenna	-	-	RA	2015	-	-	-	-	1210.4	-	-	-	-	-	-	-	-	-	-	-	-	1210.4
Lugo	39012	32,533	RA	2015	-	-	45	9	-	-	20,976	4	14,291.07	-	-	-	2,889.60	-	1,825.12	-	-	19,005.79
Massa Lombarda	39013	10,681	RA	2015	-	-	10	9	-	-	4,600	4	4,680.57	-	-	-	619.20	-	-	-	-	5,299.77
Province of Ravenna	-	-	RA	2015	-	-	-	-	29316.6	-	-	-	-	-	-	-	-	-	-	-	-	29316.6
Ravenna	39014	159,645	RA	2015	-	-	81	9	-	-	73,750	6	151,158.00	-	-	-	9,632.00	-	23,424.00	-	-	184,214.00
Riolo Terme	39015	5,778	RA	2015	-	-	10	9	-	-	1,665	4	4,100.00	1,300	-	3,960.00	344.00	-	-	-	-	8,404.00
Russi	39016	12,190	RA	2015	-	-	10	9	-	-	6,180	6	9,357.20	-	-	-	842.80	-	-	-	-	10,200.00
Sant'Agata sul Santerno	39017	2,918	RA	2015	-	-	10	9	-	-	2,781	4	1,276.15	-	-	-	378.40	-	456.28	-	-	2,110.83
Solarolo	39018	4,471	RA	2015	-	-	10	9	-	-	1,891	5	3,575.88	-	-	-	344.00	-	1,442.40	-	-	5,362.28

Albinea	35001	8,883	RE	2015	823.50	-	-	-	-	-	2,200	4	6,025.00	140	1	2,150.00	912.50	-	720.00	-	-	10,631.00
Bagnolo in Piano	35002	9,713	RE	2015	-	-	6	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Baiso	35003	3,391	RE	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Bibbiano	35004	10,260	RE	2015	-	-	-	-	-	-	2,200	4	6,402.00	-	-	-	456.00	-	1,440.00	-	-	8,298.00
Boretto	35005	5,310	RE	2015	-	-	-	-	-	-	2,110	3	3,880.00	-	-	-	-	-	396.00	-	-	4,276.00
Brescello	35006	5,623	RE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Busana	35007	1,268	RE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadelbosco di Sopra	35008	10,607	RE	2015	-	-	6	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Campagnola Emilia	35009	5,664	RE	2015	-	-	-	-	-	-	1,650	2	2,053.30	-	-	-	-	-	270.00	-	-	2,323.30
Campegine	35010	5,229	RE	2015	-	-	-	-	-	-	1,500	4	3,796.00	-	-	329.40	622.20	-	360.00	-	-	5,107.60
Canossa	35018	3,860	RE	2015	-	-	5	9	411.75	-	1,200	3	2,240.00	-	-	-	-	-	180.00	-	-	2,831.75
Carpineti	35011	4,103	RE	2015	-	-	1	8	73.20	-	-	-	-	-	-	-	-	-	-	-	-	73.20
Casalgrande	35012	19,231	RE	2015	-	-	5	9	411.75	-	4,000	4	10,040.00	-	-	-	829.60	-	900.00	-	-	12,181.35
Casina	35013	4,502	RE	2015	-	-	1	6	54.90	-	-	-	-	-	-	-	-	-	-	-	-	54.90
Castellarano	35014	15,269	RE	2015	974.78	-	10	9	823.50	-	3,850	4	10,505.00	12	1	395.00	788.00	-	900.00	-	-	14,386.28
Castelnovo di Sotto	35015	8,439	RE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Castelnovo ne' Monti	35016	10,543	RE	2015	-	-	1	8	73.20	-	-	-	-	-	-	-	-	-	-	-	-	73.20
Cavriago	35017	9,818	RE	2015	-	-	5	9	411.75	-	2,200	4	5,149.50	20	-	659.00	684.50	-	900.00	-	-	7,804.75
Collagna	35019	939	RE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Correggio	35020	25,931	RE	2015	-	-	35	9	2,882.25	-	8,233	4	10,211.00	-	-	-	2,551.00	-	900.00	-	-	16,544.25
Fabbrico	35021	6,799	RE	2015	-	-	-	-	-	-	2,562	4	6,290.00	-	-	-	519.00	-	450.00	-	-	7,259.00
Gattatico	35022	5,895	RE	2015	-	-	-	-	-	-	-	-	5,066.00	-	-	2,150.00	622.20	-	539.90	-	-	8,378.10
Gualtieri	35023	6,576	RE	2015	-	-	5	9	411.75	-	2,200	4	503.86	-	-	-	-	-	-	-	-	915.61
Guastalla	35024	15,073	RE	2015	545.34	-	20	9	1,647.00	-	3,580	4	8,118.00	150	1	2,013.00	612.00	-	900.00	-	-	13,835.34
LHA of Reggio Emilia	-	-	RE	2015	-	-	-	-	1139.2	-	-	-	-	-	-	-	-	-	-	-	-	1139.2
Ligonchio	35025	840	RE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzzara	35026	9,337	RE	2015	-	-	-	-	-	-	3,023	4	6,702.20	-	5	164.70	622.20	-	540.00	-	-	8,029.10
Montecchio Emilia	35027	10,535	RE	2015	-	-	8	9	658.80	-	3,140	4	7,261.00	-	-	329.40	643.00	-	450.00	-	-	9,342.20
Novellara	35028	13,774	RE	2015	-	-	6	8	439.20	-	4,293	4	7,830.94	-	-	-	-	-	488.62	-	-	8,758.76
Poviglio	35029	7,239	RE	2015	-	-	5	9	411.75	-	1,800	3	4,169.00	-	-	-	415.00	-	360.00	-	-	5,355.75
Province of Reggio Emilia	-	-	RE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quattro Castella	35030	13,191	RE	2015	1,189.50	-	8	8	585.60	-	3,300	4	8,213.00	440	3	6,700.00	684.00	-	900.00	-	-	18,272.10
Ramiseto	35031	1,259	RE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Reggio nell'Emilia	35033	171,869	RE	2015	-	-	40	9	3,294.00	-	30,000	4	125,000.00	1,300	10	20,130.00	9,955.00	-	3,600.00	-	-	161,979.00
Reggiolo	35032	9,183	RE	2015	-	-	5	9	411.75	-	1,200	7	1,719.60	-	-	-	-	-	115.90	-	-	2,247.25
Rio Saliceto	35034	6,267	RE	2015	-	-	-	-	-	-	2,150	4	6,099.30	-	-	329.40	435.54	-	539.90	-	-	7,404.14
Rolo	35035	4,146	RE	2015	-	-	-	-	-	-	2,040	4	4,822.00	-	-	-	414.80	-	251.90	-	-	5,488.70
Rubiera	35036	14,875	RE	2015	-	-	10	9	823.50	-	6,000	4	6,960.60	-	-	-	-	-	1,440.00	-	-	9,224.10
San Martino in Rio	35037	8,099	RE	2015	-	-	5	9	411.75	-	3,521	3	5,412.48	5	-	164.70	726.00	-	413.88	-	-	7,128.81
San Polo d'Enza	35038	6,100	RE	2015	-	-	4	9	329.40	-	1,500	4	4,517.50	-	-	659.00	415.00	-	432.00	-	-	6,352.90
Sant'Ilario d'Enza	35039	11,198	RE	2015	-	-	5	9	411.75	-	2,500	4	9,731.00	350	10	6,040.00	638.00	-	1,281.00	-	-	18,101.75
Scandiano	35040	25,406	RE	2015	1,516.92	-	10	9	823.50	-	5,000	1	2,562.00	-	-	-	-	-	-	-	-	4,902.42
TdM Union	-	19,046	RE	2015	-	-	-	-	988.2	-	-	-	20770.5	-	-	-	7302.46	-	2879.2	-	-	31940.36
Toano	35041	4,466	RE	2015	-	-	3	9	247.05	-	-	-	-	-	-	-	-	-	-	-	-	247.05
Vetto	35042	1,895	RE	2015	-	-	3	8	219.60	-	-	-	-	-	-	-	-	-	-	-	-	219.60
Vezzano sul Crostolo	35043	4,286	RE	2015	-	-	6	9	494.10	-	-	-	-	-	-	-	-	-	-	-	-	494.10
Viano	35044	3,408	RE	2015	-	-	-	-	-	-	180	4	-	-	-	-	-	-	179.95	-	-	179.95
Villa Minozzo	35045	3,787	RE	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bellaria-Igea Marina	99001	19,565	RN	2015	-	-	8	9	-	591.70	8,186	5	15,234.43	-	-	-	-	-	3,660.00	-	-	19,486.13
Casteldelci	99021	436	RN	2015	-	-	3	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattolica	99002	17,116	RN	2015	-	-	6	9	-	976.00	8,067	5	17,911.97	-	-	-	-	-	3,545.00	-	-	22,432.97
Coriano	99003	10,436	RN	2015	-	-	9	9	-	200.00	2,549	4	4,527.83	-	-	-	-	-	2,076.20	-	-	6,804.03
Gemmano	99004	1,164	RN	2015	-	-	3	9	-	250.00	200	4	549.00	-	-	-	-	-	366.00	-	-	1,165.00
LHA of Rimini	-	-	RN	2015	-	-	-	-	21797.9	-	-	-	-	-	-	-	-	-	-	-	-	21797.9
Maiolo	99022	846	RN	2015	-	-	3	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Misano Adriatico	99005	12,972	RN	2015	-	-	11	9	-	915.00	7,000	4	17,080.00	-	-	-	-	-	2,231.55	-	-	20,226.55
Mondaino	99006	1,428	RN	2015	-	-	3	9	-	250.00	-	4	561.20	-	-	-	-	-	366.00	-	-	1,177.20
Monte Colombo	99007	3,459	RN	2015	-	-	3	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montefiore Conca	99008	2,279	RN	2015	-	-	3	9	-	200.00	255	4	497.76	-	-	-	-	-	305.00	-	-	1,002.76
Montegridolfo	99009	1,038	RN	2015	-	-	3	9	-	200.00	250	4	549.00	-	-	-	-	-	305.00	-	-	1,054.00
Montescudo	99010	3,345	RN	2015	-	-	5	9	-	61.00	809	4	854.00	-	-	-	-	-	158.60	-	-	1,073.60
Morciano di Romagna	99011	7,024	RN	2015	-	-	6	9	-	366.00	1,927	4	3,422.96	-	-	-	-	-	1,708.00	-	-	5,496.96
Novafeltria	99023	7,227	RN	2015	-	-	11	9	-	-	1,577	4	1,342.00	-	-	-	-	-	158.60	-	-	1,500.60
Pennabilli	99024	2,928	RN	2015	-	-	7	9	-	61.00	703	4	1,248.06	-	-	-	-	-	244.00	-	-	1,553.06
Poggio Torriana	99028	5,142	RN	2015	-	-	6	9	-	183.00	2,190	4	4,270.00	-	-	-	-	-	3,050.00	-	-	7,503.00
Province of Rimini	-	-	RN	2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Riccione	99013	35,462	RN	2015	-	-	50	9	-	3,500.00	15,800	4	40,094.00	-	-	-	-	-	-	-	-	43,594.00

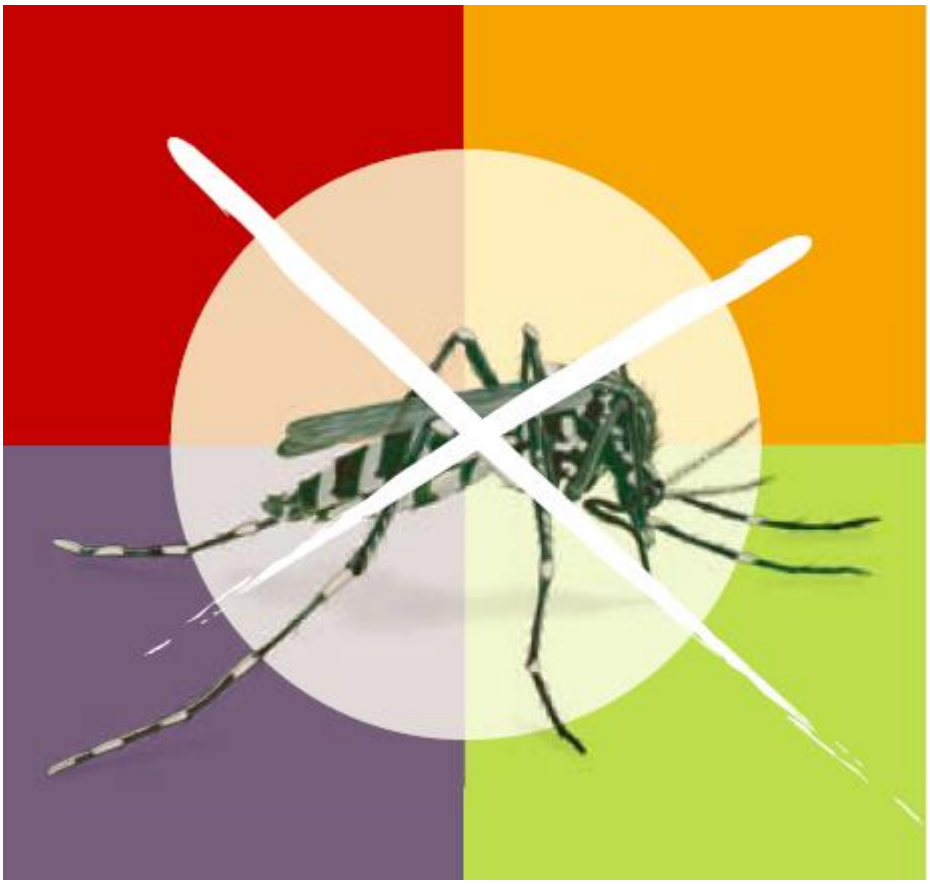
Rimini	99014	147,971	RN	2015	976.00	488.00	60	9	-	6,710.00	47,000	4	97,220.58	680	-	16,104.00	9,760.00	-	41,892.36	-	-	173,150.94
Saludecio	99015	3,121	RN	2015	-	-	3	9	-	200.00	501	4	1,100.20	-	-	-	-	-	457.50	-	-	1,757.70
San Clemente	99016	5,583	RN	2015	-	-	4	9	-	400.00	1,336	4	1,945.22	-	-	-	-	-	1,098.00	-	-	3,443.22
San Giovanni in Marignano	99017	9,338	RN	2015	-	-	8	9	-	-	3,767	5	8,456.16	-	-	-	-	-	878.40	-	-	9,334.56
San Leo	99025	3,030	RN	2015	-	-	8	9	-	150.00	447	4	981.61	-	-	-	-	-	366.00	-	-	1,497.61
Sant'Agata Feltria	99026	2,168	RN	2015	-	-	5	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santarcangelo di Romagna	99018	21,923	RN	2015	793.00	976.00	12	9	-	1,770.22	9,686	4	17,517.98	-	-	-	5,124.00	-	15,311.00	-	-	41,492.20
Talamello	99027	1,106	RN	2015	-	-	4	9	-	50.00	390	4	570.96	-	-	-	-	-	402.60	-	-	1,023.56
Verucchio	99020	10,082	RN	2015	-	-	6	9	-	433.10	3,800	4	3,355.00	-	-	-	-	-	1,116.30	-	-	4,904.40

Annex 2. COSFA-T pilot phase questionnaire

The following is the questionnaire used during the pilot phase of the COSFA-T project, for the telephonic interviews.

Codice estrazione	
Intervistatore	
Data dell'intervista (gg/mm/aaaa)	

Indagine sui costi sostenuti dalle famiglie a causa della presenza della Zanzara Tigre
(Progetto *COSFA-T*)



Regione Emilia-Romagna

AUSL di appartenenza dell'intervistato/a[3] _____

Comune di residenza dell'intervistato/a _____

[3] Per l'AUSL Romagna indicare se circoscrizione di Cesena, Forlì, Ravenna o Rimini.

Istruzioni per l'intervistatore:

- Compilare i dati relativi all'intervistato richiesti nel frontespizio del questionario (pag. 1) prima di contattare l'intervistato, utilizzando le informazioni disponibili sul file excel contenente i nominativi estratti per l'intervista.
- le parti scritte in carattere piano o in grassetto VANNO LETTE ALL'INTERVISTATO;
- le parti in GRASSETTO vanno LETTE CON ENFASI per attrarre l'attenzione dell'intervistato;
- le parti scritte in CORSIVO sono istruzioni e suggerimenti per l'intervistatore riferiti alle domande e NON VANNO LETTE ALL'INTERVISTATO;
- le parti TRA PARENTESI e scritte NON IN CORSIVO sono suggerimenti per l'intervistatore, DA LEGGERE SOLO SE NECESSARIO;
- una sola risposta va barrata, a meno che non sia specificato "Sono possibili più risposte"
- si leggono le domande nell'ordine in cui sono formulate sul questionario;
- NON SI LEGGONO LE RISPOSTE, salvo che non sia specificato "Leggere le risposte".

Tavola per annotare le chiamate senza esito

N° chiamata	***Indicare data e orario della chiamata senza esito (per mancata risposta o per altri motivi), annotare eventuale nuovo appuntamento, se questo è stato fissato e altre informazioni che possano essere utili per effettuare l'intervista***
1	***Data ....., ora ……...*** ***Fissato nuovo appuntamento il giorno ……., alle ore ……...*** ***Note*** ***……***
2	***Data ....., ora ……...*** ***Fissato nuovo appuntamento il giorno ……., alle ore ……...*** ***Note*** ***……***
3	***Data ....., ora ……...*** ***Fissato nuovo appuntamento il giorno ……., alle ore ……...*** ***Note*** ***……***
4	***Data ....., ora ……...*** ***Fissato nuovo appuntamento il giorno ……., alle ore ……...*** ***Note*** ***……***

5	***Data ....., ora ……..*** ***Fissato nuovo appuntamento il giorno ……., alle ore ……..*** ***Note*** ***……***
6	***Data ....., ora ……..*** ***Fissato nuovo appuntamento il giorno ……., alle ore ……..*** ***Note*** ***……***

Data di nascita dell'intervistato/a _____/_____/_____,

Sesso dell'intervistato/a □M□□F

(vedi i dati anagrafici riportati nel file excel contenente i nominativi estratti per le interviste)

_____

Buongiorno (o buonasera), sono *(nome e cognome di chi parla)*, la chiamo per conto della Regione Emilia-Romagna. Stiamo conducendo un'indagine sulle spese sostenute dalle famiglie per la lotta alla zanzara tigre.

È lei il/la sig./ra ……..?

Ha ricevuto per posta la lettera della Regione che annunciava un'intervista telefonica?

□ SÌ
□ NO *(proseguire comunque)*

Com'è scritto nella lettera, la ricerca della Regione prevede di realizzare delle interviste telefoniche a persone con più di 20 anni. Le persone sono scelte a caso tra gli iscritti di tutte le Ausl della Regione, e lo scopo dell'intervista è acquisire informazioni circa la misura e il tipo di spesa che le famiglie sostengono per difendersi dalla Zanzara Tigre.
Lei è una delle persone selezionate per l'intervista, che richiede circa 10 minuti. Le informazioni raccolte saranno rese anonime e trattate in base alla legge sulla privacy (D. Lgs. 196/2003).
Il suo nome non apparirà nel resoconto dell'intervista. Le ricordo inoltre che può decidere in ogni momento di interrompere l'intervista. È disponibile a rispondere ora?

□ SÌ *(Proseguire con l'intervista)*
□ NO → potrei richiamarla in un momento per lei più opportuno?

□ SÌ (giorno) (ora)
□ NO → La ringrazio per l'attenzione che ci ha dedicato. Buongiorno (o buonasera).

(Se accetta l'intervista)

Mi potrebbe confermare di essere residente, o comunque di passare la maggior parte dell'anno nel comune di _____, *(se diverso correggere nella prima pagina),* e conferma di essere nato/a il giorno _____/_____/_____? *(se diverso correggere sopra)*.

(Orario d'inizio dell'intervista, ora/min) _____

Prima Sezione: caratteristiche dell'abitazione dell'intervistato

Ora le farò alcune domande relative alle caratteristiche della sua abitazione

1. Qual è la sua tipologia? Le leggerò le possibili risposte e poi mi dirà qual è quella corretta *(leggere le risposte)*

   - ☐ Villetta monofamiliare *(proseguire l'intervista dalla domanda n° 3)*
   - ☐ Villetta plurifamiliare
   - ☐ Condominio
   - ☐ Altro, specificare_____

2. A quale piano si trova la sua abitazione? _____

3. La sua abitazione/condominio dispone di uno spazio esterno, giardino o cortile, utilizzabile? (che non sia semplicemente un'area di passaggio)

   - ☐ SÍ
   - ☐ NO → *(proseguire l'intervista dalla domanda n° 5)*

4. Con che frequenza, lei o qualcuno dei suoi familiari utilizzano il giardino/cortile, durante la stagione primaverile ed estiva, per attività all'aria aperta? *(leggere le risposte)*

   - ☐ Mai o quasi mai;
   - ☐ Qualche volta nell'arco della settimana;
   - ☐ Spesso, cioè prolungate permanenze ogni giorno o quasi;

5. Quante persone convivono nella sua abitazione? _____

6. In casa, sono presenti abitualmente bambini di età inferiore a sei anni?

   - ☐ SÌ
   - ☐ NO

7. Dove si trova la sua abitazione? *(leggere le risposte)*
   - ☐ Nel centro urbano
   - ☐ In periferia
   - ☐ In un'area di campagna vicino all'area urbana
   - ☐ Altrove (specificare)_____

Seconda Sezione: Gli insetti infestanti

Ora le farò alcune domande relative a diversi insetti spesso infestanti l'ambiente domestico. Si ricordi che, salvo diverse istruzioni, le risposte devono fare riferimento all'anno _____ *(se l'intervista avviene prima del 31/07/2015 fare riferimento qui e negli appositi spazi sotto all'anno 2014, altrimenti all'anno 2015)*

8. Come valuta il fastidio che, in generale, le **mosche** provocano alla sua famiglia? *(leggere le risposte)*

   ☐ Provocano poco o nessun fastidio
   ☐ Provocano abbastanza fastidio
   ☐ Provocano molto fastidio

   a. Nell'anno _____ la sua famiglia ha sostenuto delle spese per proteggersi da questo insetto?

      ☐SÌ
      ☐NO

9. Come valuta il fastidio che, in generale, le **vespe** provocano alla sua famiglia? *(leggere le risposte)*

   ☐ Provocano poco o nessun fastidio
   ☐ Provocano abbastanza fastidio
   ☐ Provocano molto fastidio

   a. Nell'anno _____ la sua famiglia ha sostenuto delle spese per proteggersi da questo insetto?

      ☐SÌ
      ☐NO

10. Se escludiamo le zanzare, ci sono **altri insetti** che, in generale, provocano fastidio alla sua famiglia?

    ☐ SÌ → Quali? _____
    ☐ NO

    a. Nell'anno _____ la sua famiglia ha sostenuto delle spese per proteggersi da questo insetto?

       ☐SÌ
       ☐NO

11. Come valuta, invece, il fastidio che, in generale, provocano alla sua famiglia le **zanzare comuni** (non le zanzare tigre), che sono chiare, ronzanti e che di solito pungono all'interno delle abitazioni

durante le ore serali e notturne? *(leggere le risposte)*

- ☐ Provocano poco o nessun fastidio
- ☐ Provocano abbastanza fastidio
- ☐ Provocano molto fastidio

a. Nell'anno _____ la sua famiglia ha sostenuto delle spese per proteggersi da questo insetto?

☐SÌ
☐NO

12. Come valuta, infine, il fastidio che, in generale, provocano alla sua famiglia le **zanzare tigre**, che sono piccole, di colore scuro con striature bianche, silenziose e che di solito pungono all'aperto e durante il giorno?

- ☐ Provocano poco o nessun fastidio
- ☐ Provocano abbastanza fastidio
- ☐ Provocano molto fastidio

a. Nell'anno _____ la sua famiglia ha sostenuto delle spese per proteggersi da questo insetto?

☐SÌ
☐NO

Terza Sezione: la Zanzara Tigre

In questa parte dell'intervista mi riferirò esclusivamente alla Zanzara Tigre con alcune domande più specifiche:

13. In particolare, come valuta il fastidio provocato alla sua famiglia dalle punture della zanzara tigre? *(leggere le risposte)*

    - ☐ Provocano poco o nessun fastidio
    - ☐ Provocano abbastanza fastidio
    - ☐ Provocano molto fastidio

14. La presenza della zanzara tigre crea problemi alla sua famiglia nell'utilizzare o fare attività liberamente in aree all'aperto, come cortili, giardini, orti e parchi? *(leggere le risposte)*
    - ☐ Crea pochi o nessun problema
    - ☐ Crea abbastanza problemi
    - ☐ Crea molti problemi

15. Il fatto che la zanzara tigre possa trasmettere diversi tipi di malattie infettive preoccupa la sua famiglia? *(leggere le risposte)*

    - ☐ Poco o per niente
    - ☐ Abbastanza
    - ☐ Molto

16. Ora le leggerò un elenco di prodotti che si usano contro le zanzare. Per ognuno dei prodotti indicati, le chiedo di dirmi se in famiglia lo avete utilizzato per difendervi dalla **Zanzara Tigre** nell'anno _____ e qual è stata la spesa complessivamente sostenuta. *(leggere le risposte; barrare le caselle o riempire gli spazi come appropriato)*

    - ☐ a) Prodotti spray per uso interno o esterno
        i. *(n° confezioni)*_____
        ii. *(spesa)*_____
        iii. Li acquistiamo solo per la zanzara tigre ☐
        iv. Li acquistiamo anche per difenderci da altri tipi di zanzare o altri insetti ☐
    - ☐ b) Piastrine o altri emanatori elettrici per uso interno
        i. *(n° confezioni)*_____
        ii. *(spesa)*_____
        iii. Le acquistiamo solo per la zanzara tigre ☐
        iv. Le acquistiamo anche per difenderci da altri tipi di zanzare o altri insetti ☐
    - ☐ c) Repellenti ad uso esterno, come zampironi, torce o emanatori di essenze
        i. *(n° confezioni)*_____
        ii. *(spesa)*_____
        iii. Li acquistiamo solo per la zanzara tigre ☐
        iv. Li acquistiamo anche per difenderci da altri tipi di zanzare o altri insetti ☐

☐ d) Repellenti naturali ad uso cutaneo
   i. *(n° confezioni)*_____
   ii. *(spesa)*_____
   iii. Li acquistiamo solo per la zanzara tigre ☐
   iv. Li acquistiamo anche per difenderci da altri tipi di zanzare o altri insetti ☐

☐ e) Repellenti chimici ad uso cutaneo
   i. *(n° confezioni)*_____
   ii. *(spesa)*_____
   iii. Li acquistiamo solo per la zanzara tigre ☐
   iv. Li acquistiamo anche per difenderci da altri tipi di zanzare o altri insetti ☐

☐ f) Trappole elettriche o ad aspirazione, ad innesco, CO2 o ferormoni, o ad ultrasuoni
   i. *(n° confezioni)*_____
   ii. *(spesa)*_____
   iii. Le acquistiamo solo per la zanzara tigre ☐
   iv. Le acquistiamo anche per difenderci da altri tipi di zanzare o altri insetti ☐

☐ g) Prodotti larvicidi da sciogliere nelle caditoie e nei tombini
   i. *(*nº *(n° confezioni)*_____
   ii. *(spesa)*_____
   iii. Li acquistiamo solo per la zanzara tigre ☐
   iv. Li acquistiamo anche per difenderci da altri tipi di zanzare o altri insetti ☐

☐ h) Altro, (in questo caso specificare prodotti, quantità e spesa)
   _____
   _____
   i. *(n° confezioni)*_____
   ii. *(spesa)*_____
   iii. Le acquistiamo solo per la zanzara tigre ☐
   iv. Le acquistiamo anche per difenderci da altri tipi di zanzare o altri insetti ☐

17. Nella sua abitazione ha installato delle zanzariere?

☐ SÌ
   i. In che anno? _____
   ii. Quanto le è costato? _____

☐ NO

(Le prossime domande vanno rivolte all'intervistato solo se questi abita in un condominio. In caso contrario passare alle domande finali)

Quarta Sezione: iniziative condominiali

Le prossime domande riguardano attività eventualmente svolte nelle zone comuni del suo condominio.

18. Nell'anno _____ sono state intraprese iniziative comuni di lotta alla zanzara tigre sostenute con le spese condominiali o comunque dall'insieme dei condomini?

    ☐ SÌ *(proseguire l'intervista)*
    ☐ NO *(passare alla conclusione dell'intervista)*
    ☐ Non so/non ricordo *(passare alla conclusione dell'intervista)*

19. Le leggerò un elenco di possibili attività, per ognuna le chiedo di dirmi se è una delle attività realizzate a livello condominiale nell'anno _____ *(leggere le risposte) (sono possibili più risposte)*

    ☐ Distribuzione periodica di prodotti larvicidi nelle caditoie/tombini dell'area condominiale
    ☐ Un intervento adulticida (nebulizzazioni nel giardino e/o nelle aree verdi)
    ☐ Interventi adulticidi a scadenza periodica programmata
    ☐ Altro (specificare)
    _____
    _____

20. Saprebbe indicare qual è stata la spesa a carico della sua famiglia per questi interventi nell'anno _____?

    ☐ SÌ → Quanto? (anche approssimativamente) _____
    ☐ NO

Quinta Sezione: domande finali

Ora faremo alcune domande conclusive.

21. In famiglia è lei che si occupa dell'acquisto di prodotti per difendersi dalla zanzara tigre?

    ☐ SÌ
    ☐ NO

22. Potrebbe indicarmi il suo titolo di studio?

- ☐ Licenza elementare
- ☐ Diploma di scuola media inferiore
- ☐ Diploma di scuola media superiore
- ☐ Laurea triennale
- ☐ Laurea quinquennale (o vecchi ordinamenti)
- ☐ Altro (specificare)_____
- ☐ Non sa/non risponde

Conclusione dell'intervista

La nostra intervista è conclusa, la ringrazio moltissimo per la collaborazione e la disponibilità, e le ricordo che per eventuali domande relative alla ricerca può scrivere una mail a Venturelli Claudio e Carmela Matrangolo, come già indicato nella lettera che annunciava questa intervista.

Buongiorno (o buonasera) e a risentirci.

(Orario di fine dell'intervista ora/min) _____

Annex 3. COSFA-T pilot phase dataset

Table 106. Legend of the COSFA-T dataset

Variable	**Mean**	**Explication**
FirstDate	Date of the first telephone contact	If the interviewed can't answer the questions at the moment of the first received call, he or she can re schedule another call, in a more appropriated moment
InterviewDate	Date of the interview	If the interviewed can't answer the questions at the moment of the first received call, he or she can re schedule another call, in a more appropriated moment
StartTime	Starting time of the interview	
EndTime	Ending time of the interview	
LHA	Name of the Local Health Authority of the interviewed	
MunName	Name of the municipality	
MunCode	ISTAT code of the municipality	
Interviewed Code	Code of interviewed, assigned specifically for COSFA-T research	
Group	Group of municipalities, based on demographic dimensions	For the purposes of the research the municipalities has been divided in 3 groups depending of their number of inhabitants. Group A < 10.000 inhabitants; Group B from 10.000 to 50.000 inhabitants; Group C > 50.000 Inhabitants
BirthDate	Date of birth of the interviewed	
Age	Age of interviewed at the time of the interview	
Gender	Gender of the interviewed	
Letter	Letter from the region announcing the interview	The Region Emilia-Romagna sent to the randomly selected population a letter announcing the interview. They are asked if they received it
V1	Kind of dwelling of the interviewed	
V1a	Other option specifications	If the option "other" is selected when asked about their dwelling type, here it is described what "other" means
V2	The floor number of the apartment	
V3	Indicate if the apartment has an external garden	It can be a garden or other kind of area where is possible to stop for a while and spend free-time
V4	Indicate the level of the use of the garden or other area as indicated in V3	
V5	Number of inhabitant in the dwelling	
V6	Indicate the usual presence of children in the dwelling	
V7	Indicate the dwelling environment, where it is situated	
V8	Indicate the level of eventual disturbance due to the presence of flies	
V8a	Indicate the eventual expenditure due to the presence of flies	
V9	Indicate the level of eventual disturbance due to the presence of wasps	
V9a	Indicate the eventual expenditure due to the presence of wasps	

V10	Indicate the eventual disturbance due to the presence of other insects	
V10ext	indicate which are the other insects (see V10)	
V10a	Indicate the eventual expenditure due to the presence of other insects	
V11	Indicate the level of eventual disturbance due to the presence of mosquitoes, other than Tiger Mosquitoes	
V11a	Indicate the eventual expenditure due to the presence of mosquitoes, other than Tiger Mosquitoes	
V12	Indicate the level of eventual disturbance due to the presence of other Tiger Mosquitoes	
V12a	Indicate the eventual expenditure due to the presence of other Tiger Mosquitoes	
V13	Indicate the Tiger Mosquito bites disturbance level	
V14	Indicate the level of eventual disturbance due to Tiger Mosquitoes, relative to the use of a garden	
V15	Indicate the level of eventual concern due to the vector ability of the Tiger Mosquitoes	
V16a	Insecticide Spray Products for Indoor or Outdoor Usage: Purchased / not Purchased	
V16a_i	Insecticide Spray Products for Indoor or Outdoor Usage: Number of Purchased Units	
V16a_ii	Insecticide Spray Products for Indoor or Outdoor Usage: Total Expenditure (Euro)	
V16a_iii_iv	Insecticide Spray Products for Indoor Or Outdoor Usage: Are They Purchased Only For Tiger Mosquito?	
V16b	Repellent Tablets and Other Electric Diffusers: Purchased / not Purchased	
V16b_i	Repellent Tablets and Other Electric Diffusers: Number Of Purchased Units	
V16b_ii	Repellent Tablets and Other Electric Diffusers: Total Expenditure (Euro)	
V16b_iii_iv	Repellent Tablets and Other Electric Diffusers: Are They Purchased Only for Tiger Mosquito?	
V16c	Repellents for Outdoor Use as Mosquito Coils or Vaporizers: Purchased / not Purchased	
V16c_i	Repellents for Outdoor Use as Mosquito Coils or Vaporizers: Number of Purchased Units	
V16c_ii	Repellents for Outdoor Use, Such as Mosquito Coils or Vaporizers: Total Expenditure (Euro)	
V16c_iii_iv	Repellents for Outdoor Use, such as Mosquito Coils or Vaporizers: Are They Purchased Only for Tiger Mosquito?	
V16d	Natural Repellents for On-Skin Use: Purchased / not Purchased	
V16d_i	Natural Repellents for On-Skin Use: Number of Purchased Units	
V16d_ii	Natural Repellents for On-Skin Use: Total Expenditure (Euro)	
V16d_iii_iv	Natural Repellents for On-Skin Use: Are They Purchased Only for Tiger Mosquito?	
V16e	Chemical Repellents for On-Skin Use: Purchased / not Purchased	
V16e_i	Chemical Repellents for On-Skin Use: Number of Purchased Units	
V16e_ii	Chemical Repellents for On-Skin Use: Total Expenditure (Euro)	
V16e_iii_iv	Chemical Repellents for On-Skin Use: Are They Purchased Only for Tiger Mosquito?	
V16f	Electric, Co2, Pheromones, Triggering or Ultrasonic Traps: Purchased / not Purchased	

V16f_i	Electric, Co2, Pheromones, Triggering or Ultrasonic Traps: Number of Purchased Units	
V16f_ii	Electric, Co2, Pheromones, Triggering or Ultrasonic Traps: Total Expenditure (Euro)	
V16f_iii_iv	Electric, Co2, Pheromones, Triggering or Ultrasonic Traps: Are They Purchased Only for Tiger Mosquito?	
V16g	Anti-Larvae Products Water Containers: Purchased / not Purchased	
V16g_i	Anti-Larvae Products Water Containers: Number of Purchased Units	
V16g_ii	Anti-Larvae Products Water Containers: Total Expenditure (Euro)	
V16g_iii_iv	Anti-Larvae Products Water Containers: Are They Purchased Only for Tiger Mosquito?	
V16h	Other Products or Instrument Purchased to Fight Against Tiger Mosquito Bites: Purchased / not Purchased	
V16h_ext	Other Products or Instrument Purchased to Fight Against Tiger Mosquito Bites: Description	
V16h_i	Other Products or Instrument Purchased to Fight Against Tiger Mosquito Bites: Number of Purchased Units	
V16h_ii	Other Products or Instrument Purchased to Fight Against Tiger Mosquito Bites: Total Expenditure (Euro)	
V16h_iii_iv	Other Products or Instrument Purchased to Fight Against Tiger Mosquito Bites: Purchased Only for Tiger Mosquito?	
V17	Mosquito Nets: Were They Purchased and Installed?	
V17_i	Mosquito Nets: Year of Eventual Installation	
V17_ii	Mosquito Nets: Total Expenditures (Euro)	
V18	Indicate If There Has Been Control Activities Put in Place by The Condominium	The cost of these activities is charged on households
V19_i	Periodical Anti-Larvae Treatments of Road Drains	
V19_ii	One Anti-Adult Treatment	
V19_iii	Periodical Anti-Adult Treatments	
V19_iv	Other	
V19_iv_ext	Other: Specify	
V20	Condominium Expenditure for Mosquito Control Activities	
V21	Purchasing The Products for The Fight Against Mosquitoes: Is The Interviewed Who Buy Them?	
V22	Education Level of the Interviewed	

Table 107. COSFA-T pilot phase: Dataset (1)

InterviewedCode	FirstDate	InterviewDate	StartTime	EndTime	LHA	MunName	MunCode	Group	BirthDate	Age	Gender	Letter	V1	V1a	V2	V3	V4	V5
CE-A004	10/06/2015	10/06/2015	10:19	10:38	Cesena	Longiano	40008	A	30/08/1941	73	F	YES	3	N.A.	2	0	N.A.	2
CE-B022	10/06/2015	10/06/2015	19:30	19:35	Cesena	Cesenatico	40007	B	13/01/1977	38	M	YES	2	N.A.	0	1	2	3
CE-C050	10/06/2015	10/06/2015	11:10	11:20	Cesena	Cesena	36041	C	19/04/1981	34	M	YES	2	N.A.	1	1	2	5
CE-A001	10/06/2015	11/06/2015	18:23	18:36	Cesena	Longiano	40018	A	21/04/1983	32	F	YES	4	Apartment above a warehouse	2	1	2	3
CE-B024	11/06/2015	11/06/2015	13:00	13:08	Cesena	Savignano sul Panaro	40018	B	24/10/1973	41	M	YES	4	terraced house on 3 floors	0	1	0	2
CE-C053	11/06/2015	11/06/2015	13:11	13:23	Cesena	Cesena	40007	C	31/10/1941	73	M	YES	1	N.A.	0	1	0	3
PR-A002	11/06/2015	11/06/2015	12:44	12:50	Parma	Borgo Val di taro	39014	A	05/12/1974	40	M	YES	2	N.A.	2	1	2	3
IM-B012	15/06/2015	15/06/2015	11:47	11:58	Imola	Castel San Pietro Terme	35022	B	22/04/1972	43	M	YES	3	N.A.	1	1	0	1
RE-B225	15/06/2015	15/06/2015	17:20	17:31	Reggio Emilia	Correggio	35033	B	30/01/1984	31	F	YES	2	N.A.	0	1	2	10
RE-B223	15/06/2015	15/06/2015	19:08	19:18	Reggio Emilia	Guastalla	35033	B	09/03/1966	49	F	YES	2	N.A.	3	1	0	3
RE-A001	15/06/2015	15/06/2015	10:52	11:05	Reggio Emilia	Boretto	40019	A	12/03/1980	35	M	YES	3	N.A.	1	0	N.A.	2
RN-B030	16/06/2015	16/06/2015	13:30	13:38	Rimini	Bellaria-Igea marina	37007	B	12/05/1990	25	f	YES	4	abitazione su due piani collegata ad un condominio	1	1	2	3
RE-A005	17/06/2015	17/06/2015	15:52	16:06	Reggio Emilia	Gattatico	40012	A	29/03/1979	36	F	YES	1	N.A.	0	1	2	5
RN-C086	17/06/2015	17/06/2015	13:54	14:02	Rimini	Rimini	39014	C	01/04/1951	64	M	NO	3	N.A.	1	0	N.A.	2
CE-C056	18/06/2015	18/06/2015	12:25	12:34	Cesena	Cesena	34006	C	07/02/1956	59	F	NO	3	N.A.	4	0	N.A.	2
RN-C087	18/06/2015	18/06/2015	12:00	12:09	Rimini	Rimini	99008	C	26/01/1954	61	M	NO	3	N.A.	1	1	0	2
RN-B032	18/06/2015	18/06/2015	11:35	11:42	Rimini	Bellaria-Igea marina	40012	B	24/07/1970	44	F	NO	3	N.A.	4	1	0	2
RN-A003	18/06/2015	18/06/2015	10:55	11:00	Rimini	pennabilli	34027	A	04/07/1979	35	F	NO	1	N.A.	0	1	2	3
RN-C089	22/06/2015	22/06/2015	10:15	10:23	Rimini	Rimini	40012	C	17/02/1958	57	M	NO	2	N.A.	0	1	2	2
RN-B034	22/06/2015	22/06/2015	17:01	17:09	Rimini	Riccione	39014	B	22/09/1991	23	M	NO	1	N.A.	0	1	2	4
RN-B033	22/06/2015	22/06/2015	9:44	9:53	Rimini	Riccione	34019	B	15/02/1961	54	M	NO	1	N.A.	0	1	2	5
RA-A004	23/06/2015	23/06/2015	12:34	12:42	Ravenna	Cotignola	99014	A	08/02/1941	74	F	NO	1	N.A.	0	1	2	2
RA-B028	23/06/2015	23/06/2015	15:57	16:06	Ravenna	Cervia	99001	B	30/11/1973	41	M	YES	3	N.A.	2	1	2	4
PR-B072	23/06/2015	23/06/2015	10:54	11:02	Parma	Noceto	99014	B	03/03/1952	63	M	NO	2	N.A.	0	1	0	2
RN-C091	25/06/2015	25/06/2015	14:00	14:08	Rimini	Rimini	35040	C	11/08/1980	34	M	NO	2	N.A.	2	1	0	2
RA-B031	26/06/2015	26/06/2015	10:32	10:38	Ravenna	Alfonsine	99024	B	12/04/1938	77	M	NO	3	N.A.	2	0	N.A.	1
Ra-C084	26/06/2015	26/06/2015	11:55	12:03	Ravenna	Ravenna	99013	C	04/11/1977	37	F	NO	3	N.A.	1	0	N.A.	6
RA-B035	29/06/2015	29/06/2015	12:23	12:31	Ravenna	Cervia	99014	B	14/04/1948	67	F	YES	1	N.A.	0	1	2	2
RE-C482	29/06/2015	29/06/2015	16:17	16:31	Reggio Emilia	Reggio nell'Emilia	35033	C	26/06/1946	69	M	YES	4	"villetta schiera"	0	1	2	4
RE-C480	29/06/2015	29/06/2015	13:10	13:16	Reggio Emilia	Reggio nell'Emilia	37032	C	22/07/1986	28	M	YES	3	N.A.	1	0	N.A.	2

RE-C478	29/06/2015	29/06/2015	10:59	11:14	Reggio Emilia	Reggio nell'Emilia	37032	C	12/03/1939	76	F	NO	3	N.A.	3	0	N.A.	2
IM-C032	01/07/2015	01/07/2015	18:57	19:06	Imola	Imola	99014	C	21/09/1988	26	F		1	N.A.	0	1	2	3
IM-C030	01/07/2015	01/07/2015	19:00	19:10	Imola	Imola	40007	C	14/05/1985	30	F	YES	3	N.A.	4	1	0	2
FO-C302	06/07/2015	06/07/2015	14:33	14:45	Forlì	Forlì	35020	C	14/04/1955	60	F	YES	3	N.A.	3	1	2	3
FO-B152	06/07/2015	06/07/2015	20:00	20:09	Forlì	Meldola	35005	B	03/10/1953	61	F	YES	2	N.A.	0	1	2	6
RE-B226	06/07/2015	06/07/2015	17:58	18:05	Reggio Emilia	Scandiano	39007	B	15/05/1993	22	F	YES	1	N.A.	0	1	2	3
FO-C305	08/07/2015	08/07/2015	13:00	13:13	Forlì	Forlì	37020	C	06/11/1937	77	M	YES	1	N.A.	0	1	2	4
RN-A010	13/07/2015	13/07/2015	15:17	15:28	Rimini	Montefiore Conca	34009	A	15/01/1957	58	F	NO	3	N.A.	1	0	N.A.	2
RA-C081	14/07/2015	14/07/2015	11:15	11:36	Ravenna	Ravenna	99013	C	17/03/1938	77	M	NO	3	N.A.	1	1	1	2
RA-C085	14/07/2015	14/07/2015	15:40	15:47	Ravenna	Ravenna	39009	C	03/06/1966	49	M	NO	2	N.A.	0	1	2	3
PR-A007	14/07/2015	14/07/2015	12:10	12:23	Parma	Lesignano de'Bagni	39001	A	25/01/1968	47	M	YES	2	N.A.	0	1	2	3
FO-C307	15/07/2015	15/07/2015	15:29	15:38	Forlì	Forlì	35024	C	05/07/1977	38	M	YES	3	N.A.	3	1	0	3
IM-A004	16/07/2015	16/07/2015	14:50	14:57	Imola	Borgo Tossignano	99001	A	16/01/1962	53	F	YES	2	N.A.	1	1	0	3
PR-B080	16/07/2015	16/07/2015	15:53	16:04	Parma	Collecchio	34025	B	18/09/1967	47	F	YES	3	N.A.	1	0	N.A.	2
PR-C121	17/07/2015	17/07/2015	12:42	12:53	Parma	Parma	39007	C	06/12/1948	66	M	YES	3	N.A.	3	1	0	3
BO-C231	25/06/2015	25/06/2015	18:45	18:55	Bologna	Bologna	37006	C	24/12/1953	61	M	YES	3	N.A.	1	1	0	2
BO-C227	18/06/2015	18/06/2015	18:28	18:35	Bologna	Bologna	37006	C	03/05/1932	83	M	NO	3	N.A.	4	0	N.A.	2
BO-C223	18/06/2015	18/06/2015	17:43	17:53	Bologna	Bologna	37006	C	13/04/1940	75	M	YES	3	N.A.	2	1	1	2
BO-C222	18/06/2015	18/06/2015	18:10	18:20	Bologna	Bologna	37006	C	20/07/1936	78	M	YES	3	N.A.	3	0	N.A.	2
BO-C218	18/06/2015	18/06/2015	19:19	19:26	Bologna	Bologna	37006	C	06/03/1973	42	F	YES	3	N.A.	3	1	1	2
BO-B076	18/06/2015	18/06/2015			Bologna	San Giovanni Persiceto	37053	B	25/10/1974	40	F	YES	2	N.A.	1	1	2	3
BO-B073	12/06/2015	12/06/2015		16:04	Bologna	San Giovanni Persiceto	37053	B	25/07/1967	47	M		2	N.A.	0	1	2	4
BO-B072	12/06/2015	12/06/2015	15:38	15:46	Bologna	Castenaso	37021	B	08/07/1956	58	M	YES	2	N.A.	0	1	2	3
BO-B071	12/06/2015	12/06/2015	15:21	15:31	Bologna	Ozzano dell'Emilia	37046	B	29/11/1943	71	M	YES	3	N.A.	2	1	0	
BO-A008	12/06/2015	12/06/2015	12:22	12:32	Bologna	Gaggio Montano	37027	A	27/11/1958	56	F	YES	4	"countryside"	0	1	2	4
BO-A003	12/06/2015	12/06/2015	10:17	10:27	Bologna	Sala Bolognese	37050	A	17/12/1946	68	M	NO	1	N.A.	0	1	1	2
BO-A001	12/06/2015	12/06/2015	19:52	20:08	Bologna	malalbergo	37035	A	01/08/1951	63	M	YES	3	N.A.	1	1	0	2

Empty cells mean that the information is lacking, or not understandable in the questionnaire

Table 108. COSFA-T pilot phase: Dataset (2)

InterviewedCode	V6	V7	V8	V8a	V9	V9a	V10	V10ext	V10a	V11	V11a	V12	V12a	V13	V14	V15	V16a	V16a_i	V16a_ii
CE-A004	0	1	0	1	0	0	0	N.A.	0	1	1	1	0	1	1	1	NO	N.A.	N.A.
CE-B022	0	3	0	0	1	0	0	N.A.	0	2	0	1	0	1	0	0	YES	1	3.5
CE-C050	1	3	1	0	0	0	0	N.A.	0	0	1	2	1	1	1	0	YES		
CE-A001	1	3	1	1	0	0	0	N.A.	0	1	1	1	1	1	1	2	YES	3	10
CE-B024	0	2	0	0	0	1	0	N.A.	0	0	1	0	0		0	0	NO	N.A.	N.A.
CE-C053	0	2	1	0	0	0	0	N.A.	0	1	0	2	1	1	0	1	YES		
PR-A002	1	3	2	0	0	0	1	"lumache"	1	0	0	1	0	0	0	1	NO	N.A.	N.A.
IM-B012	0	1	0	0	0	0	0	N.A.	0	0	1	2	1	1	2	0	NO	N.A.	N.A.
RE-B225	1	2	2	0	2	1	1	"Cimici; scarafaggi"	1	1	1	2	1	1	2	1	YES	1	6.5
RE-B223	0	1	2	1	0	0	1	"cimici"	0	2	1	2	1	1	1	1	YES	5.5	
RE-A001	0	1	0	0	0	0	1	"cimici"	1	1	1	2	1	1	1	1	NO	N.A.	N.A.
RN-B030	0	1	1	0	0	0	1	"processionaria"	1	1	0	1	1	2	0	2	NO	N.A.	N.A.
RE-A005	1	1	2	1	0		1	"cimici"; "grilli"	0	2	1	2	1	2	1	0	YES	4	28
RN-C086	0	1	0	0	2	1	1	"calabroni"; "api"	1	0	0	0	0	0	1	0	NO	N.A.	N.A.
CE-C056	0	1	2	0	0	1	1	"Tarme"; "insetti di umidità"	0	2	1	1	1	1	1	1	YES		
RN-C087	0	1	0	0	0	0	1	"formiche"	1	1	0	2	1	1	2	0	YES	9	45
RN-B032	0	3	0	0	0	0	0	N.A.	0	0	1	0	1	1	0	0	NO	N.A.	N.A.
RN-A003	1	1	0	0	0	0	0	N.A.	0	0	0	0	0	0	0	0	NO	N.A.	N.A.
RN-C089	0	2	0	0	0	0	0	N.A.	0	1	0	2	0	2	1	1	YES	4.5	15
RN-B034	0	1	0	0	1	1	1	"scarafaggi"; Blatte"	0	1	1	0	1	1	0	0	YES	3.5	15
RN-B033	0		0	0	1	1	0	N.A.	0	0	0	1	0	2	1	2	YES	2	20
RA-A004	0	1	1	1	0	0	0	N.A.	0	1	1	1	0	1	1	0	YES		10
RA-B028	0	2	0	0	0	0	0	N.A.	0	1	1	1	1	1	1	0	YES	2	10
PR-B072	0	1	0	0	0	0	0	N.A.	0	2	0	2	0	2	2	0	NO	N.A.	N.A.
RN-C091	0	2	0	0	0	0	1	"scarafaggi"	1	2	1	2	1	1	1	0	YES	2	15
RA-B031	0	1	0	0	2	0	0	N.A.	0	2	1	2	0	1	2	2	NO	N.A.	N.A.
Ra-C084	1	1	1	0	1	0	0	N.A.	0	0	0	1	0	2	0	0	NO	N.A.	N.A.
RA-B035	0	1	0	0	0	0	0	N.A.	0	1	0	0	1	1	1	1	NO	N.A.	N.A.
RE-C482	0	2	0	0	0	0	0	N.A.	0	2	0	1	0	2	1	0	NO	N.A.	N.A.
RE-C480	0	2	2	1	0	0	1	"ragni"	1	0	0	2	1	2	0	1	NO	N.A.	N.A.
RE-C478	0	2	1	1	2	0	1		0	1	0	0	0	2	0	1	YES	N.A.	N.A.
IM-C032	1	3	0	0	0	0	0	N.A.	0	1	0	2	0	1	0	0	YES	1	5
IM-C030	0	1	0		0		1	"formiche"; "farfalline di ***"	1	0		0	0	0	0	0	YES	1	4
FO-C302	0	2	0	0	1	1	0	N.A.	0	0	0	1	1	0	0	0	NO	N.A.	N.A.
FO-B152	1	1	0		0		1	"cimice verde"	1	0		2	1	2	1	1	NO	N.A.	N.A.
RE-B226	0	2	0	0	0	0	1	"Formiche"	1	1	1	1	1	0	1	0	YES		
FO-C305	0	2	0		2	0	1	"formiche"	1	2	1	2	1	2	2	1	YES	3.5	22.75
RN-A010	0	2	0	0	1	0	0	N.A.	0	0	0	0	0	0	0	0	YES	2	N.A.
RA-C081	0	1	0		0		1	"moscierini"	0	0	1	0	1	0	1	2	NO	N.A.	N.A.
RA-C085	0	1	0	0	0	0	0	N.A.	0	2	1	2	1	2	2	0	YES	N.A.	N.A.
PR-A007	0	3	0	0	0	0	0	N.A.	0	1	1	1	1	1	2	0	YES	1.5	10
FO-C307	0	1	0	0	0	0	1	"scarafaggi"	1	2	1	2	1	2	1	0	YES	2	10

IM-A004	0	3	0	0	2	0	0	N.A.	0	2	0	0	1	2	1	1	YES	2	15
PR-B080	0	1	0	0	0	0	0	N.A.	0	1	0	1	0	1	2	1	NO	N.A.	N.A.
PR-C121	0	2	1	0	1	1	1	"cimici, sia verdi che marroni"	0	0	1	2	1	2	2	1	YES	2.5	22.5
BO-C231	0	2	0	0	0	1	0	N.A.	0	0	0	0	0	0	1	2	YES	1	
BO-C227	0	2	0	0	0	0	0	N.A.	0	0	0	0	0	0	0	0	NO	N.A.	N.A.
BO-C223	0	2	0	0	0	0	0	N.A.	0	1	1	0	0	0	0	1	YES		20
BO-C222	0	2	0	0	0	0	0	N.A.	0	1	0	1	0	1	0	0	NO	N.A.	N.A.
BO-C218	0	1	0	0	0	0	0	N.A.	0	0	0	2	1	2	2	0	YES	1	6
BO-B076	1	2	0	0	0	0	0	N.A.	0	2	1	2	1	2	0	1	NO	N.A.	N.A.
BO-B073	1	2	0	0	2	0	0	N.A.	0	0	0	2	1	2	2	1	NO	N.A.	N.A.
BO-B072	0	3	0	0	2	0	1	"formiche"	1	2	1	2	1	2	2	0	YES		50
BO-B071	1	2	1	1	2	0	0	N.A.	0	2	0	2	0	2	0	2	YES		
BO-A008	0	4	1	0	1	1	1	"pappataci";"calabroni";"formiche";"ragni"	1	0	0	0	0	0	0	0	YES	1	
BO-A003	0	1	1	1	2	0	0	N.A.	0	2	1	2	1	2	2	2	NO	N.A.	N.A.
BO-A001	0	1	1	0	0	0	0	N.A.	0	1	1	2	0	2	0	1	YES	4.5	

Empty cells mean that the information is lacking, or not understandable in the questionnaire

Table 109. COSFA-T pilot phase: Dataset (3)

InterviewedCode	V16a_iii_iv	V16b	V16b_i	V16b_ii	V16b_iii_iv	V16c	V16c_i	V16c_ii	V16c_iii_iv	V16d	V16d_i	V16d_ii	V16d_iii_iv	V16e	V16e_i	V16e_ii	V16e_iii_iv	V16f	V16f_i	V16f_ii
CE-A004	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	1	12.5	0	NO	N.A.	N.A.
CE-B022	0	YES	1	3.5	0	YES	1	35	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
CE-C050	0	YES			0	YES			1	NO	N.A.	N.A.	N.A.	YES			1	NO	N.A.	N.A.
CE-A001	1	NO	N.A.	N.A.	N.A.	YES	10	12.5	0	YES	3	20	1	YES	3	20	1	YES	1	7.5
CE-B024	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
CE-C053	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES			1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
PR-A002	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	1	50
IM-B012	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	N.A.	20		NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RE-B225	0	YES	1	4	1	YES	4.5	20	1	YES	2	12.5	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RE-B223	0	YES	5.5	35	0	NO	N.A.	N.A.	N.A.	YES	2.5		0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RE-A001	N.A.	YES	N.A.	50		YES		55	1	YES	10	6	1	YES	10	60	1	NO	N.A.	N.A.
RN-B030	N.A.	YES	120	112,5	0	YES	45	17.5	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RE-A005	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.					YES	3		0	YES	1	35
RN-C086	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES			0	NO	N.A.	N.A.
CE-C056	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RN-C087	1	YES	9	55	1	YES		50	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RN-B032	N.A.	YES	3	3	0	YES		3	0	YES	N.A.	N.A.	0	YES	N.A.	N.A.	0	NO	N.A.	N.A.
RN-A003	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RN-C089	1	YES	20	21	1	YES	10	20	1	YES	2	N.A.	1	NO	N.A.	N.A.	N.A.	YES	1	30
RN-B034	0	YES	5.5	40	0	YES	1.5	5	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RN-B033	1	NO	N.A.	N.A.	N.A.	YES	5	10	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RA-A004	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	1	N.A.	0	NO	N.A.	N.A.
RA-B028	0	NO	N.A.	N.A.	N.A.	YES	4	10	0	NO	N.A.	N.A.	N.A.	YES	2.5	12.5	0	NO	N.A.	N.A.
PR-B072	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RN-C091	0	YES	10	10	1	YES	4	N.A.	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	1	20
RA-B031	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
Ra-C084	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	2		1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RA-B035	N.A.	NO	N.A.	N.A.	N.A.	YES	2		1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RE-C482	N.A.	NO	N.A.	N.A.	N.A.	YES	5.5	N.A.	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RE-C480	N.A.	YES	7.5	40	1	YES	11	40	1	YES	4	73.5	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RE-C478	1	YES	N.A.	N.A.	1	YES	N.A.	N.A.	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
IM-C032	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
IM-C030		NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
FO-C302	N.A.	YES	2	4	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
FO-B152	N.A.	YES	2.5	11	1	YES	2	15	1	YES	2		1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RE-B226	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
FO-C305	1	YES	12.5	37.5	1	YES	10	20	1	YES	2	12	1	NO	N.A.	N.A.	N.A.	YES		
RN-A010	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RA-C081	N.A.	YES	1.5			YES				NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
RA-C085		NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	N.A.	N.A.		YES	N.A.	N.A.		NO	N.A.	N.A.
PR-A007	1	NO	N.A.	N.A.	N.A.	YES	1	7.5	1	NO	N.A.	N.A.	N.A.	YES	1	6.5	1	NO	N.A.	N.A.

FO-C307	0	YES	10	N.A.	0	NO	N.A.	N.A.	N.A.	YES	2	15	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
IM-A004	0	YES	1	4.5	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
PR-B080	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	1	10	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
PR-C121	0	NO	N.A.	N.A.	N.A.	YES	5.5	15	0	NO	N.A.	N.A.	N.A.	YES	2.5	27.5	1	NO	N.A.	N.A.
BO-C231	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	YES	2	10	0	NO	N.A.	N.A.
BO-C227	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
BO-C223	1	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
BO-C222	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
BO-C218	1	YES	2	8	1	YES	4	14	1	YES	1	12	1	YES	1	7	1	NO	N.A.	N.A.
BO-B076	N.A.	NO	N.A.	N.A.	N.A.	YES	2		0	YES	2		0	YES	2.5		0	NO	N.A.	N.A.
BO-B073	N.A.	NO	N.A.	N.A.	N.A.	YES			1	YES	1		1	YES	3	20	1	NO	N.A.	N.A.
BO-B072	1	NO	N.A.	N.A.	N.A.	YES	6.5		0	YES	2		0	YES	2		0	NO	N.A.	N.A.
BO-B071	0	YES			0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
BO-A008	0	NO	N.A.	N.A.	N.A.	YES	1		0	YES	1		0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
BO-A003	N.A.	YES	100		0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.
BO-A001	0	NO	N.A.	N.A.	N.A.	YES	1		0	YES	3.5			NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.

Empty cells mean that the information is lacking, or not understandable in the questionnaire

Table 110. COSFA-T pilot phase: Dataset (4)

InterviewedCode	V16f_iii_iv	V16g	V16g_i	V16g_ii	V16g_iii_iv	V16h	V16h_ext	V16h_i	V16h_ii	V16h_iii_iv	V17	V17_i	V17_ii	V18	V19_i	V19_ii	V19_iii	V19_iv	V19_iv_ext	V20	V21	V22
CE-A004	N.A.	YES	1	0	1	NO	N.A.	N.A.	N.A.	N.A.	1	2007	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	1
CE-B022	N.A.	YES	3	0		NO	N.A.	N.A.	N.A.	N.A.	1	2011	1200	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
CE-C050	N.A.	YES			1	NO	N.A.	N.A.	N.A.	N.A.	1	2001	1250	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
CE-A001	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2014	1000	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2
CE-B024	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2008	400	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
CE-C053	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2010	800	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	2
PR-A002	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2010	500	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	5
IM-B012	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2014	1000	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
RE-B225	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2005	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
RE-B223	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2011	800	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	4
RE-A001	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2011	50	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2
RN-B030	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
RE-A005	0	YES			0	NO	N.A.	N.A.	N.A.	N.A.	1	2012	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
RN-C086	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
CE-C056	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	5
RN-C087	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2
RN-B032	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	5
RN-A003	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2009	2500	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	5
RN-C089	0	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2004	1000	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	5
RN-B034	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
RN-B033	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	2
RA-A004	N.A.	YES		0		NO	N.A.	N.A.	N.A.	N.A.	1	1982	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2
RA-B028	N.A.	YES		0		NO	N.A.	N.A.	N.A.	N.A.	1	2013	700	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
PR-B072	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2004	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	5
RN-C091		NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	5
RA-B031	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2014	550	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2
Ra-C084	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2007		0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
RA-B035	N.A.	YES	2		1	NO	N.A.	N.A.	N.A.	N.A.	1	2010	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
RE-C482	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2006	800	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
RE-C480	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2014	700	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
RE-C478	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	1990	450	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	1
IM-C032	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2014	20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
IM-C030	N.A.	NO	N.A.	N.A.	N.A.	YES	"antipulci per gatti"	2	40	0	1	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	5
FO-C302	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	1	1	0	0	0	0	4	1	2
FO-B152	N.A.	YES	1		1	NO	N.A.	N.A.	N.A.	N.A.	1	1997	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2

RE-B226	N.A.	YES				NO	N.A.	N.A.	N.A.	N.A.	1	1999	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
FO-C305		NO				YES	"Adulticide products" for weekly treatments made by professionals payed 20 euros per hour		100	1	1	1985	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
RN-A010	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	2
RA-C081	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2005		1	0	0	1	N.A.	N.A.		0	1
RA-C085	N.A.	YES	1	N.A.		YES	"trattamenti delle aree comuni con le altre famiglie, ma non ricorda il tipo di trattamenti né la spesa"	N.A.	N.A.	N.A.	1	2010	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
PR-A007	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2007	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
FO-C307	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2009	N.A.	1	1	0	0	0	0	N.A.	1	5
IM-A004	N.A.	YES		0		NO	N.A.	N.A.	N.A.	N.A.	1	1999	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
PR-B080	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2012	650	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	5
PR-C121	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2005	900	1	0	0	1	0	N.A.	47.5	1	3
BO-C231	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	1	1	1	0	0	N.A.	40	1	2
BO-C227	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	2
BO-C223	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	1
BO-C222	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	1	1	0	0	0	N.A.	N.A.	1	2
BO-C218	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	1998	1500	1	1	0	1	0	N.A.	90	1	5
BO-B076	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2010	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2
BO-B073	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2014	2500	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
BO-B072	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2003	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
BO-B071	N.A.	YES	1			NO	N.A.	N.A.	N.A.	N.A.	1	2005	N.A.	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2
BO-A008	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2009	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	3
BO-A003	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	2005		N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	3
BO-A001	N.A.	NO	N.A.	N.A.	N.A.	NO	N.A.	N.A.	N.A.	N.A.	1	1999	1033	0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	2

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