Sustainable Development needs Energy Efficiency

New approaches to international partnership and governance in Europe

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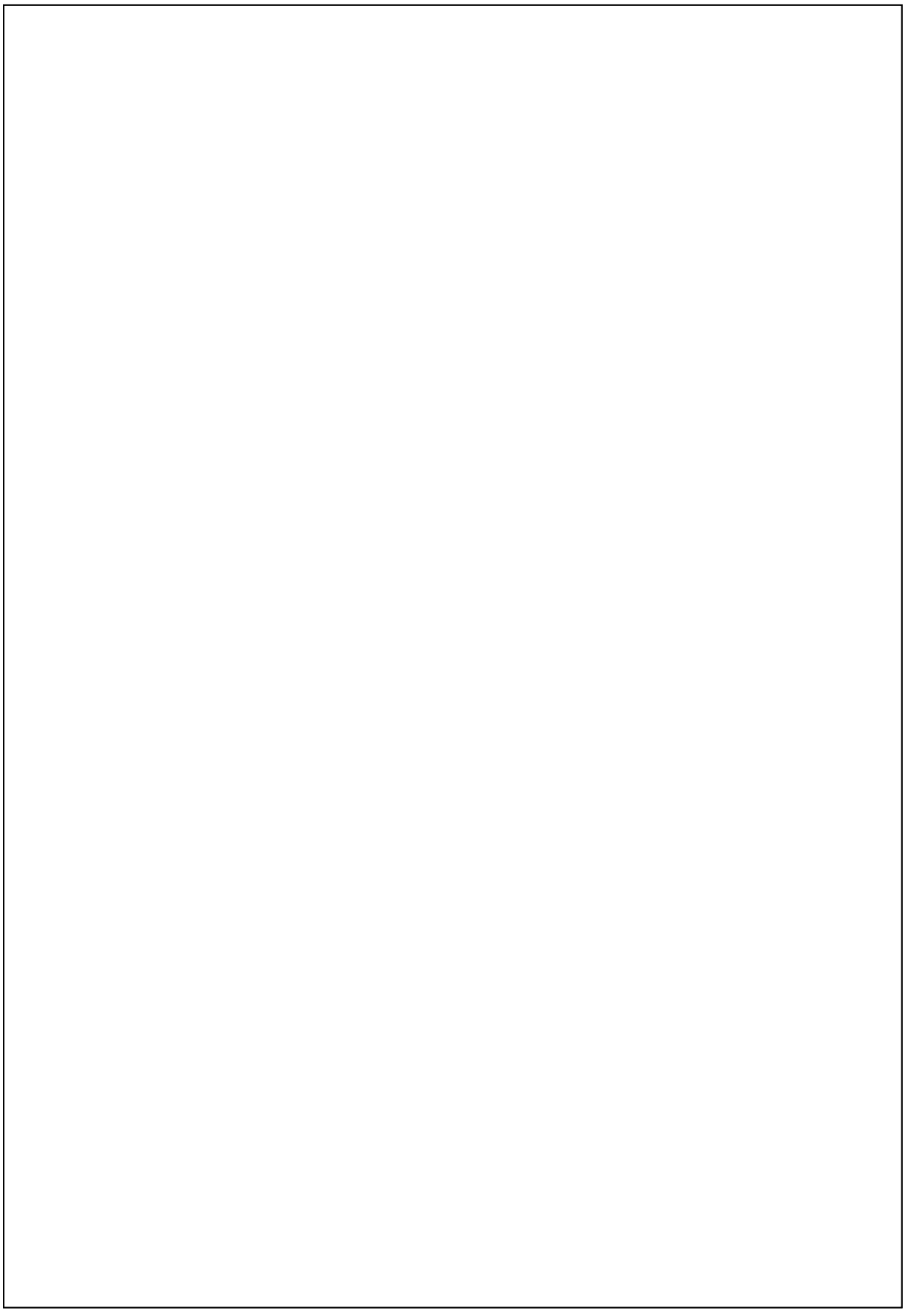
[1] The views expressed herein are those of the author and do not necessarily reflect the views of the United Nations.



The third but the most important and increasing trend is played by **the European Union** in achieving sustainable development and in recognizing in all energy efficiency efforts an essential vehicle in this process and new European perspective.
Looking at climate change and energy related issues, while the process related to the Kyoto protocol to achieve a reduction of green-house gas emissions and in favour of climate change mitigation seems to have shown its limits and difficulties in reaching the targets and getting a world-wide commitment, the European Union is showing a strong commitment for action. The Commission put forward plans for a 'unilateral' 20% reduction in greenhouse gas emissions, 20% increase in energy efficiency and 20% share of renewable energy by 2020 in a bid to reduce the EU' s dependency on imported fuels and trigger a new 'industrial revolution'. This has been endorsed by EU leaders at a summit on 8-9 March 2007 in Brussels. This EU move was prompted by mounting concerns regarding high oil and gas prices and worries about Europe's increasing dependency on a few external suppliers, as well as the global-warming crisis.

Sustainable Development seems to become a strategy for generating a *new momentum for Europe*. This ongoing trend offers a unique opportunity to drastically reduce the material character and impact of the European economy and increase the use of human resources. It could create the basis for new ways of production, new ways of transportation and energy use, and the development of new technologies that provide employment as well as social and environmental benefits.
Over next decades, the main challenge for the European region will be to produce more welfare using less natural resources and more human resources. Decoupling economic growth from resource use and pollution is absolutely essential for global sustainable development, and Europe can and should take the lead in this area.

This research has been briefly presenting the overall sustainable development process, with an overview to the history and main actors, and trying to identify new trends that recognize in the increase of energy efficiency a key factor.

PART I

HISTORY AND PROCESS

CHAPTER I

I. Introduction

This first Part seeks to describe the process and the role of the UN and related institutions most actively involved in the Johannesburg process by chronicling their preparations for, contribution to and activities since the WSSD. Nearly five years have passed since Johannesburg, and these organizations have made steady progress towards reshaping their traditional institutional roles in the light of sustainable development and towards employing their traditional institutional capacities to carve out a niche in the post-Johannesburg process. This has largely involved formulating plans of implementation at an institutional level, and, as such, little concrete, empirical progress can have been expected.

In analyzing the activities of the UN and major related organizations since the WSSD, the following chapters are organized by institution, starting with the core of the UN's sustainable development apparatus, the Commission on Sustainable Development, and proceeding to consider other relevant bodies and related organizations: the Economic Commission for Europe, the UN Development Programme, the UN Environment Programme, the UN Food and Agriculture Organization, the UN Conference on Trade and Development and the World Trade Organization. In brief, this is a survey of the major sustainable development initiatives and accomplishments of the United Nations and its partners in the post-Johannesburg process – without hoping, and not claiming, to cover all UN sustainable development activities.

The United Nations has led the international quest to harmonize economic growth with social development and environmental protection for more than three decades. In June 1972 the United Nations Conference on the Human Environment (Stockholm) recognized the vulnerability of the "human environment" in an era of unprecedented technological advancement and the consequent need to harness "man's capability to transform his surroundings" to ensure that the benefits of this progress are reaped in an equitable and sustainable manner.[2]

[2] "Declaration on the United Nations Conference on the Human Environment" at http://www.unep.org/Documents/Default.asp?DocumentID=97&ArticleID=1503

Sustainable Development:

Economic and social development that meets the needs of the current generation without undermining the ability of future generations to meet their own needs.

Brundtland Commission, 1987

Several years later, the UN Conference on Environment and Development, or "Earth Summit" (Rio de Janeiro, 1992), refined policies and developed strategies for "sustainable development". These policies and strategies were incorporated into Agenda 21, a blueprint for achieving sustainable development in the twenty-first century.

Agenda 21, the Earth Summit+5 (1997) and more recent commitments set forth sustainable development goals and accelerated the sustainable development process, raising international awareness and attracting attention at the highest levels. The turn of the millennium afforded the occasion for the most highly regarded of these more recent commitments. In September 2000, the leaders of the world assembled at the United Nations Millennium Summit in New York to reaffirm their commitment to working towards peace and prosperity through the United Nations. The Summit produced eight measurable, time-bound Millennium Development Goals (MDGs). One and a half years later, in March 2002, another high-level summit was convened in Monterrey, Mexico to address the challenge of financing development (International Conference on Financing for Development). By the Monterrey Consensus, the international community had accumulated an impressive set of normative conclusions. The task then became to develop strategies to turn this list of normative statements into a realizable plan to achieve sustainable development.

At the World Summit on Sustainable Development (WSSD) (Johannesburg, August-September 2002), world leaders, international organizations and civil society reinvigorated the sustainable development discourse by raising the issue to the forefront of the international

policy agenda. The Summit was approached with great expectations. Although not all of these were met – indeed perhaps some could not have been met – the WSSD generated consensus on concrete commitments and spawned partnerships for future cooperation. It was intended to provide the tools to implement the vision of Stockholm and Rio – a vision of economic development that complements, rather than derails, social and environmental progress. The participants at Johannesburg realized that the sustainable development process had languished since Rio and sought ways to implement outstanding commitments rather than to merely propound new ones. Johannesburg was always more about *action* than *rhetoric*, an approach reflected in the title of the Summit's product, the Plan of Implementation.[3] The Plan of Implementation recognized that, in order for sustainable development to work, action must be pursued at all levels: local, national, regional and international. The United Nations system is uniquely capable to coordinate the sustainable development process at all of these levels – by working with NGOs "on the ground" to support local involvement, by developing coordinated strategies that can be adopted by national governments, by addressing regional challenges within the regional commissions and by perceiving the global impacts of more localized decisions.

In the years since Johannesburg, the United Nations system has worked closely with the European Commission and the World Trade Organization (WTO) towards synchronizing the mutually supportive processes of sustainable development and trade liberalization. Recent breakthroughs in the current round of WTO negotiations mark a significant step toward implementing the Doha Development Agenda and integrating developing countries into the international trading regime in a socially and environmentally responsive and responsible manner.

The 2005 World Summit (New York, 14-16 September), which brought together more than 170 Heads of State and Government, reaffirmed and strengthened the commitment to achieve the goals of sustainable development. To this end, governments firmly committed themselves to undertake concrete actions and measures towards poverty eradication, changing unsustainable patterns of production and consumption, and protecting and managing the natural resource base.

[3] The Report of the World Summit on Sustainable Development can be found at http://www.johannesburgsummit.org/html/documents/documents.html

CHAPTER II

Environment, Prosperity and Social Progress: Opposing Forces or Complementary Goals?[4]

The origins of the concept of sustainable development can be traced as far back as the late eighteenth century, when Malthus predicted that population growth would outpace agricultural production and precipitate an epidemic of starvation.

The modern idea entered the international consciousness in the early 1970s, when the relationship between economic development and the environment began to be explored. Early attempts to define the term "sustainable development" emphasized the imperative of the consideration of social and environmental variables in the development formula. Development must weigh the costs to the environment and to society – and to future generations in general – as well as more immediate, short-term benefits. Only such an holistic approach to development could secure sustained prosperity.

The definition produced in 1987 by the World Commission on Environment and Development (WCED) is the most widely adopted: "Economic and social development that meets the needs of the current generation without undermining the ability of future generations to meet their own needs." Barry Dalal-Clayton, the Director for Strategies, Planning and Assessment at the International Institute for Environment and Development,[5] in his paper "What is Sustainable Development?", expands on this definition. By "needs of the current generation", he explains, the Brundtland Commission (as the WCED is more commonly referred to) had three broad "needs" in mind: economic needs; social, cultural and health needs; and political needs. Economic needs refers to access to an adequate livelihood or productive assets, as well as to welfare; social, cultural and health needs, to access to adequate housing, education and health care; and political needs to access to the decision-making system, especially at a local level. Dalal-Clayton compares such needs to those of future generations. Specifically, "without compromising the ability of future generations to meet their own needs" refers to a parallel troika of concepts: minimizing the use or waste of

[4] The material in this chapter is largely drawn from Barry Dalal-Clayton, 1987, "What is Sustainable Development?" (International Institute for Environmental Development) at http://www.nssd.net/
[5] http://www.iied.org/

non-renewable resources, the sustainable use of renewable resources and keeping within the absorptive capacity of local and global sinks for wastes.

- *Needs of the current generation:*
    - Economic needs
        - Access to an adequate livelihood or productive assets
        - Economic security when unable to secure a livelihood
    - Social, cultural and health needs
        - Healthy, safe, affordable and secure shelter
        - Neighbourhoods with access to water, transport, health care and education
        - Services that meet the specific needs of children
        - More equitable distribution of income between and within nations
    - Political needs
        - Freedom of political participation, particularly in local decision-making
        - Respect for civil and political rights
- *Without compromising the ability of future generations to meet their own needs:*
    - Minimizing the use or waste of non-renewable resources
    - Sustainable use of renewable resources
    - Keeping within the absorptive capacity of local and global sinks for wastes

(From Barry Dalal-Clayton, 1987, "What is Sustainable Development?")

Definition, however, sheds scant light on implementation. The Rio Earth Summit sought to develop a workable approach to achieving sustainable development. It proceeded from the premise that meeting basic human needs is the cornerstone of sustainable development. Thus, according to the World Health Organisation, "the most immediate environmental problems in the world are the ill-health and premature death caused by biological agents in the human environment in water, food, air or soil".

Two failures are responsible for the prevailing un-sustainability that the Johannesburg process seeks to address, and hence suggest principles for guiding the sustainable development process in the future: market failures and political failures. Market failures lead

to unsustainable outcomes where social and environmental costs are external to the market calculus. To the extent that such costs can be accurately captured by economic transactions, the market will self-regulate and sustainable development should result. An example of this is "internalizing" the "externality" of pollution through an emissions trading scheme. Political failures cause unsustainable development when governments interfere with the market to bring about outcomes that harm the environment or social or economic development. Subsidies account for much of the problem here – the worst offenders are subsidies that protect energy producers or consumers and those that artificially lower the price of agricultural products from the developed world.

Sustainable development is often conceived of as reconciling intrinsically conflicting interests. The received wisdom, for example, holds economic growth and technological advancement incompatible with environmental protection and natural resource conservation. After all, the industrial revolutions in the now-developed countries exacted a great price from the environment. To the extent that these trade-offs continue to govern the relationship between economic prosperity, social progress and environmental preservation, sustainable development must strive to maximize the economic, social and environmental vectors. However, more than this, sustainable development demands innovative thinking. Social and environmental goals *can* be mutually reinforcing: just as poverty leads to environmental degradation, economic prosperity can serve environmental objectives.

At least two principal themes underlie the strategies, policy and theory behind the sustainable development process in the twenty-first century: the broadest possible participation in decision-making and decision-making at the most localized level at which it can be effective. The programme established at Rio and given fresh impetus at Johannesburg is infused with these themes. Effectiveness and legitimacy, as well as the lack of an empirical response to policy stimuli, demand inclusiveness – they demand democracy. For it is only in such a system – a system embracing free speech and participation – that the dialogue, debate and negotiation requisite to developing workable sustainable development solutions are possible. The UN, as the embodiment of a post-Westphalian international order in which states no longer enjoy a monopoly on sovereignty, is ideally situated to take advantage of the multi-stakeholder approach to decision-making. It must welcome and listen to all voices, from

wherever they may emanate – from industry, NGOs, women, youth, minorities and indigenous peoples – and not just from capital-city establishments. Indeed, in an era when the United Nations is increasingly seen as ineffective or powerless, sustainable development constitutes an issue of immediacy and unparalleled consequence on which the UN is well positioned to act and on which the world needs the UN.

The second theme that characterizes the discourse on sustainable development is localism. If participation is to be broad and inclusive, it must therefore also be local. That is, government should take place as close to the ground as possible. The shapers of the post-Johannesburg sustainable development process believe that sustainable development projects must start at the level of the *community*, and they must actively involve the *community*. Only then can *global* sustainable development work.

At least three other themes follow from these principles. First, good governance colours the sustainable development discourse. "Governance" refers to increased transparency and accountability in national governments, intergovernmental organizations (including the UN, and particularly the WTO) as well as corporations. The Asian financial crises of the late 1990s raised the issue of governance to prominence, and the fraud and corruption surrounding the collapse of several major American corporations early in the following decade has only sharpened the saliency of good corporate governance. Second, many of the institutions discussed in the following chapters have recognized the importance of *capacity building* in the sustainable development process. This concept generally refers to the need to *enable* developing countries to pursue sustainable development, through increasing human capital (education) as well as scientific and technological capacity. Third, the summiteers at Johannesburg emphasized so-called "Type-II" partnerships as a complement to traditional binding intergovernmental commitments. Such partnerships would include stakeholders from governments, IGOs, civil society groups and businesses. The slow progress since Rio can partly be attributed to the fact that government regulation without the support of the private sector is largely ineffective, and corporate or NGO initiatives in the absence of a conducive policy environment are equally ill-fated. The Type-II partnership has emerged as another instance of trade-off and compromise in the sustainable development process – strategies and projects that maximize both profit and public interest have a healthier chance of success.

Finally, sustainable development, largely neglected for so long in favour of the seemingly "higher" political problems of international security, has a direct bearing on the prospect for international peace in the future. In the twenty-first century, wars will be much more likely to be sparked by poverty and scarce natural resources than by colonial rivalries or rival ideologies. Sustainable development is not only imperative for the developing populations of the world – it holds the potential to determine the fate of developed peoples as well.

CHAPTER III

Energy challenge to sustainable development

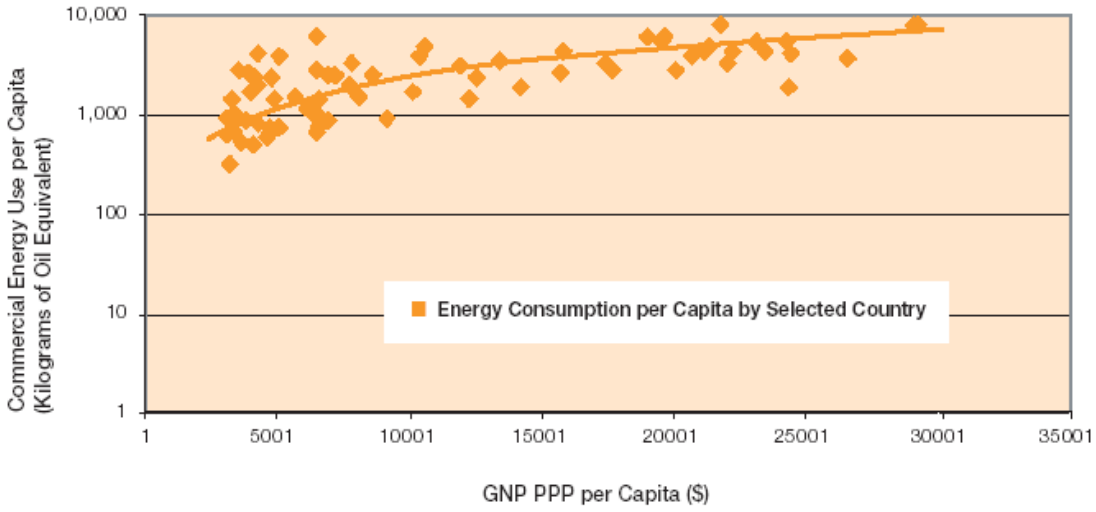
1. The role of Energy in the achievement of the MDGs

Access to reliable and affordable energy as well as an efficient use of energy resources are essential conditions for fostering and sustaining economic growth. Although energy is not explicitly mentioned in the Millennium Declaration, it plays a crucial role both in the achievement of the United Nations Millennium Development Goals (MDGs) and towards a path of sustainable development.

As it was recognized during the World Summit on Sustainable Development (Johannesburg, 2002), there is an explicit link between energy, in particular access to energy services, and poverty reduction. The MDGs emphasize poverty reduction in terms of income and highlight the importance of improved health, universal primary education, women's empowerment, gender equality and environmental sustainability. The contribution of energy services to meeting the MDGs consists both of the direct impact of energy on raising incomes and the indirect effects on education, health, environment and gender issues.

On the one hand, energy services are essential means to support overall development: as history demonstrates no country has substantially reduced poverty without massively increasing its use of energy. Empirical data show how commercial energy consumption (expressed in log normal terms) and national income are strongly correlated: countries with higher income are also those with higher energy consumption.

Correlation between Energy Consumption per Capita and National Income

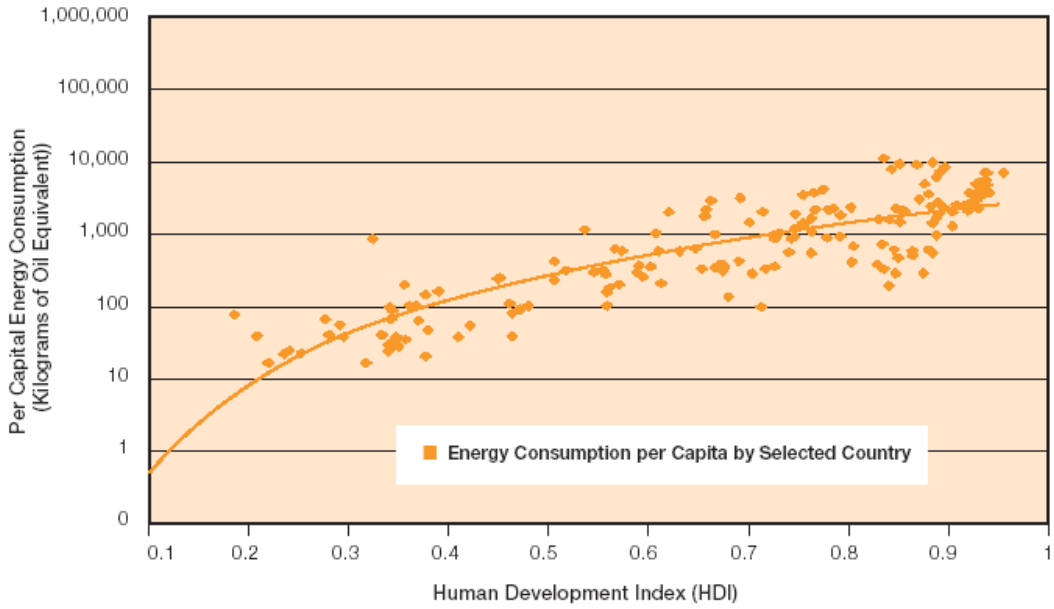


Source: World Bank, World Development Indicators Database.

Such a strong relationship implies that access to modern fuels and electricity can favour and sustain the eradication of poverty by enhancing food security, increasing labour productivity, creating employment and thus, finally, improving social welfare.

On the other hand, energy is also a precious and valuable tool in the achievement of all the other development goals. As empirical data demonstrate, there is a strong positive correlation between energy consumption and the Human Development Index (an index composed by variables such as life expectancy, educational achievement, income measured in purchasing power parity terms). Given such a correlation, it follows that, for the poor, access to modern fuels and electricity helps improving health (reducing child and maternal mortality and reducing disease), frees time for education, and brings benefits to women and girls.

Correlation between Energy Consumption per capita and Human Development Index



Source: UNDP Human Development Report 2004 Databse.

Finally, energy plays a fundamental role in ensuring environmental sustainability. The environmental damage and its harmful effects can, in fact, be reduced by increasing energy efficiency, introducing modern technologies for energy production and use, substituting cleaner fuels for polluting ones and introducing renewable energy sources[6].

2. Energy for development

In both developing countries and transition economies, access to energy services and investments in energy efficiency are central issues and necessary pre-requisites for fostering economic growth, promoting productivity and attracting foreign direct investments. Nonetheless, these countries face an array of difficulties in the provision of energy, as energy markets often do not function efficiently. Particularly, poor organisational structures, a lack of sound institutional and legal frameworks, huge electrical grid losses impair the provision of efficient, reliable and affordable energy and hamper the flow of domestic and foreign capital investments required to expand production and meet the growing energy demand.

[6] UN-Energy, *The energy Challenge for Achieving the Millennium Development Goals*, 2005.

As a matter of fact, investments and reforms appear to be fundamental for maintaining economic growth, while guaranteeing the respect of social and environmental needs. Energy efficiency improvements as well as renewable energy investments are badly needed. At the macro-level, efficiency improvements in industry as well as in the service sector can foster economic growth and deeply reduce energy costs, generating greater budget savings. Such investments are also important from an environmental and climate change point of view, as they can reduce air-borne trans-boundary pollutants of Sox, Nox and greenhouse gas emissions. As it was stated during the Energy and Sustainable Development Conference (Netherlands, December 2004), countries are called to face four major challenges in the energy sector:

(i) Ensuring sound sector management and good governance: these are, in fact, necessary conditions for a well functioning energy sector. In many countries the development of the energy industry is hampered as commercial markets are constrained by a low demand density, low household incomes, and in many cases, by large transportation distances. Breaking such a vicious circle of poverty and underdevelopment is clearly a public sector responsibility: urgent reforms and sector restructuring are needed.

(ii) Widening access to energy services to the poor: in developing economies there is a deep inequality in energy provision in both rural and urban areas. The poorest areas, in fact, receive the worst services. As a matter of fact, widening the access to modern fuels and electricity can sharply improve the living standards of the poor. The tools through which such an improvement could be achieved may encompass: state financial support to the utility to subsidise the connection costs of the poor, cross-subsidy within the utility customer-base, mandatory extension of concession areas.

(iii) Enhancing environmental performance: existing energy supply systems cause many environmental and health problems worldwide. Particularly, as countries develop, these negative effects become increasingly related to fossil fuels whose use augments because of the steep increase in demand by industry, power generation and transport. So, to ensure a path of sustainable development, countries should adopt preventive measures such as: sustainable management of natural biomass resources, rapid

transfer and deployment of clean fossil fuel technologies, improvements in energy efficiency, introduction of cleaner transport fuels.

(iv) Mobilising financial resources for energy investments: many energy investments in developing countries could generate competitive returns on investment and so they could represent an important factor to economic growth. In the coming decades, internal cash generation, domestic savings and external finance are considered the main financial sources for energy investments. But it is to emphasize that the actual capital flow will heavily depend on the quality of the financial markets, domestic banking system and on the overall investment climate. This implies that capital mobilisation will be stimulated if and only if countries will create a stable and transparent macroeconomic, fiscal and legislative framework[7].

3. Energy Scenarios

Current systems of energy supply and use are clearly not sustainable from an economical, environmental and social point of view. Recently, the International Energy Agency undertook an analysis in order to assess quantitatively the prospects to 2030 for global energy markets and their implications for the environment. The projections were achieved considering the level, for example, of energy demand or the level of carbon emissions under different scenarios. The report outlines important results and gives an indication of the magnitude of the task countries and governments should face in making energy production and use more sustainable.

The so-called Reference Scenario provides a picture of what the world will look like if governments will not undertake any reforms to change current trends. The scenario demonstrates that without new governments policies and commitments, short-term security risks will increase, climate-destabilising carbon-dioxide emissions will continue to rise, and many of the world's poorest people will remain deprived of those modern energy services, upon which their economic and human development depends.

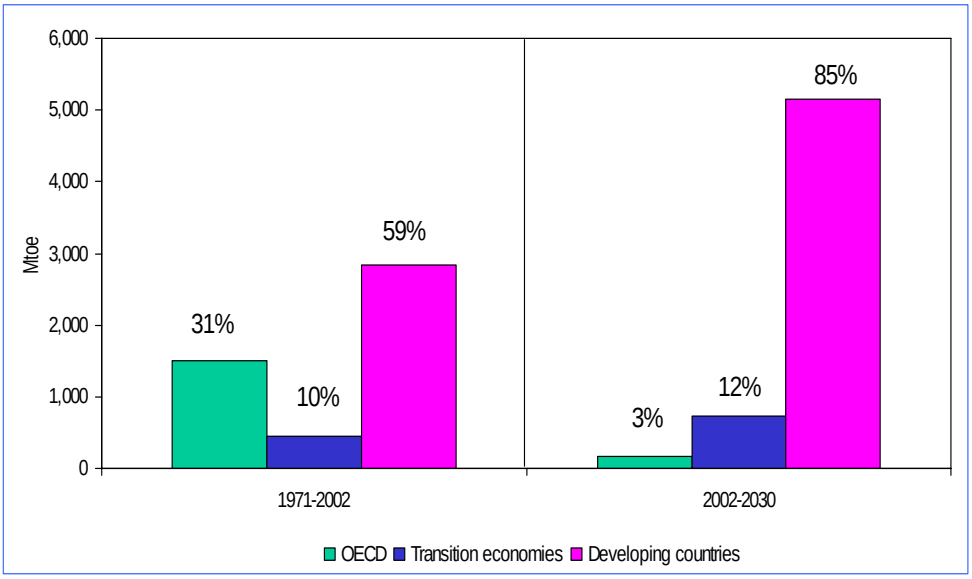
Particularly, considering a time period between 2002 and 2030, world primary energy demand is projected to expand and the use of fossil fuels will continue to dominate global

[7] Conference Paper, *Energy for Development*, 2004, www.energyfordevelopment.org.

energy use. Just under two-thirds of the primary energy demand will come from developing countries, given their more rapid economic and population growth.

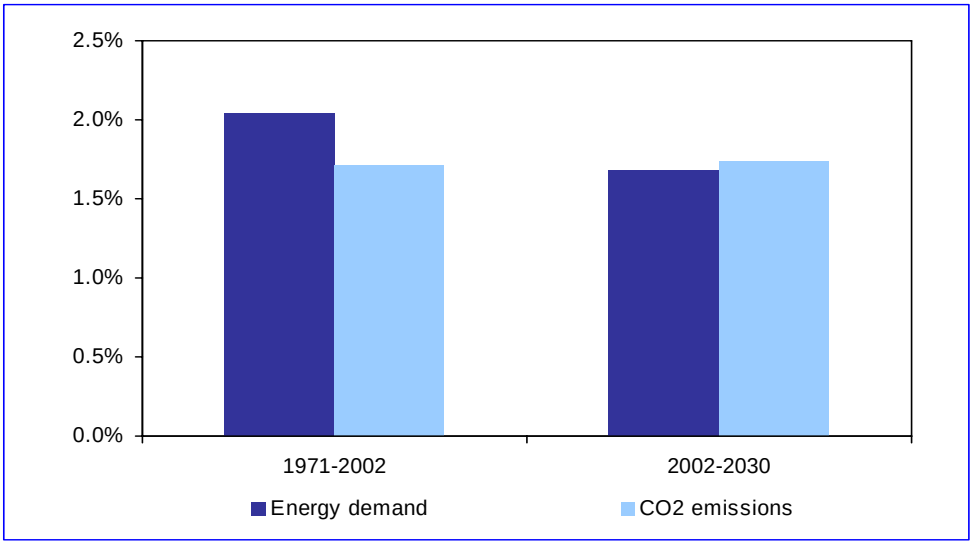
Under this scenario, the projected trends in energy use imply that the energy-related carbon-dioxide emissions will increase over 2002-2030, and more than two-thirds of this augment will come from developing countries.

Reference Scenario: Increase in World Primary Energy Production by Region



Source: *International Energy Agency, Energy and Sustainable Development (2005)*

Reference Scenario: Average Annual Growth in World Primary Energy Demand and Energy-Related CO_2 Emission

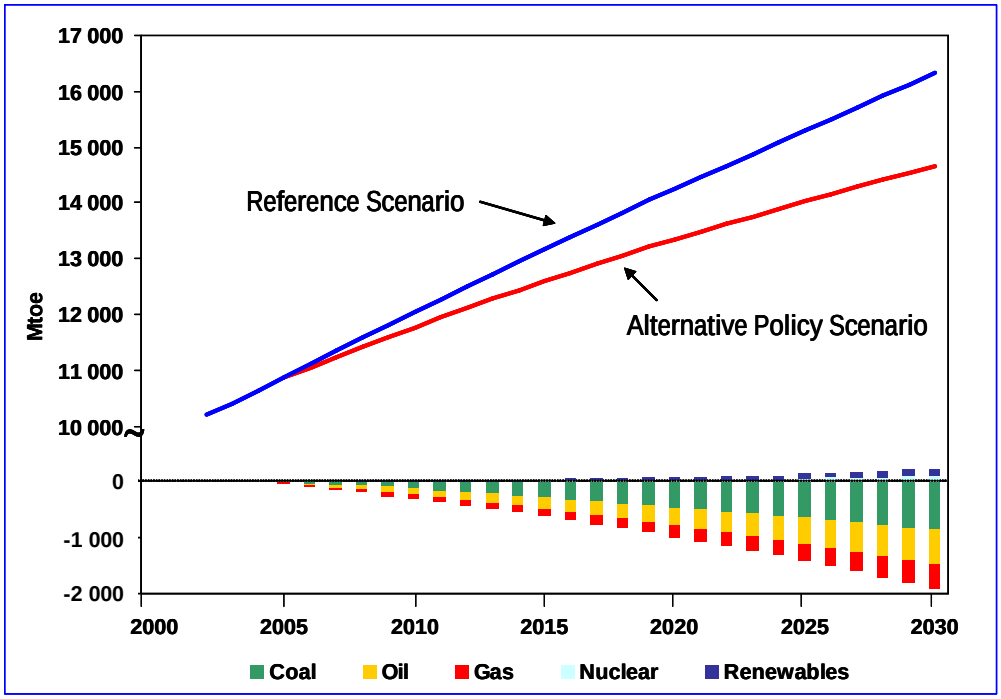


Source: *International Energy Agency, Energy and Sustainable Development (2005)*

Nonetheless, the analysis demonstrates that these trends are not unalterable. As the Alternative Policy Scenario shows, more vigorous government actions could steer the world onto a markedly different energy path. A set of environmental and energy security policies, which would assess investments in cleaner technologies, in energy efficiency and renewable resources, could have a significant positive impact on global energy markets and overall carbon emissions.

Under such an assumption, projected trends show that the level of global primary energy demand in 2030 is lower than the level in the Reference Scenario and, most importantly, the reduction in the use of fossil fuels is even bigger, thanks to the use of more efficient technologies and switching to carbon-free fuels.

Primary Energy Demand in the Reference and Alternative Policy Scenarios

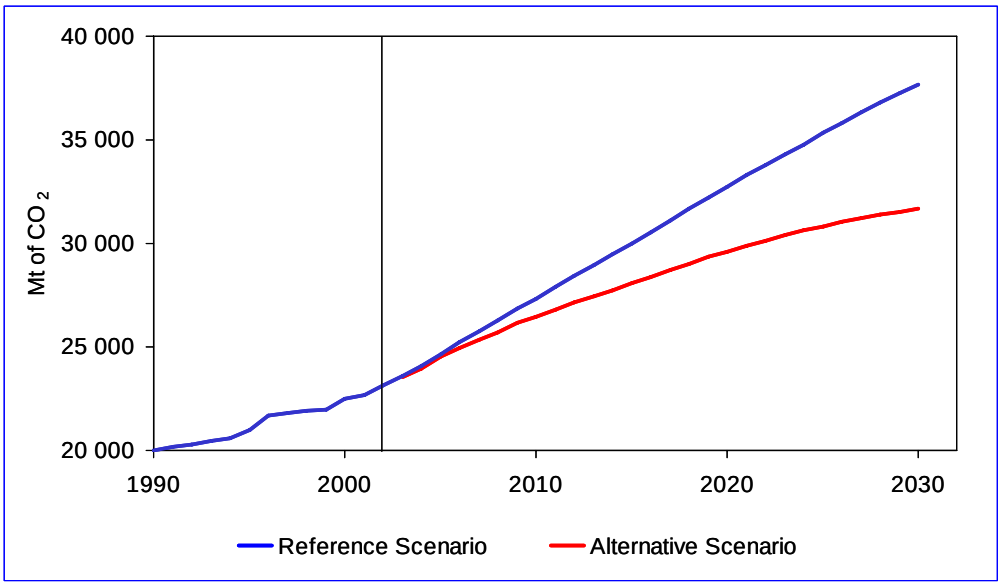


Source: *International Energy Agency, Energy and Sustainable Development (2005)*

Data show that government's actions towards a more sustainable pattern of consumption would have a positive impact, especially in developing countries and transition economies. This is because of the larger potential, in these regions, for energy-efficiency improvements in end-use sectors and in power generation.

Finally, comparing the level of predicted CO_2 emissions in the Alternative Scenario to the level in the Reference one, it is possible to assess the importance of policies and measures in reducing carbon emissions and developing more efficient energy systems[8].

Global Energy Related CO_2 Emissions in the Reference and Alternative Policy Scenarios



Source: *International Energy Agency, Energy and Sustainable Development (2005)*

Concluding, the work undertook by the International Energy Agency demonstrates the importance and need of strong countries commitments to the achievement of truly sustainable energy systems. In order to reach a sustainable development process, where economic needs meet social and environmental ones, it is fundamental to sustain and provides incentives to countries to invest in the energy sectors. As it was stated above, in order to reap all the positive effects that access to energy services and energy efficiency investments can provide, developing countries and transition economies are called to adopt and implement a series of reforms. Particularly, governments need to act decisively, on the one hand, to accelerate the transition to modern fuels and cleaner technologies, and on the other, to break the vicious circle of energy poverty and human underdevelopment in the world's poorest countries.

[8] International Energy Agency, *Energy and Sustainable Development*, 2005.

CHAPTER IV

Climate Change Mitigation: the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol

1. UN Framework Convention on Climate Change (UNFCCC)

As it was outlined in the previous chapters, pollution and climate change are major threats for future generations and for reaching a pattern of sustainable development. Countries and international organizations are actively trying to assess such serious issues.

The first commitment concerning climate change mitigation was made at the Rio de Janeiro United Nations Conference on Environment and Development, the so-called Earth Summit, in 1992. During that summit, the United Nations Framework Convention on Climate Change (UNFCCC) was signed and two years later, on 21 March 1994, it entered into force. Signatories governments committed themselves to a voluntary "non-binding" aim to reduce atmosphere concentrations of greenhouse gases with the goal of "preventing dangerous anthropogenic interference with the climate system". As of 2005, the Convention was ratified by 189 countries[9]. The actions undertaken were aimed primarily at industrialized countries, with the intention of stabilizing GHG emissions at 1990 levels by the year 2000[10]. The parties, in fact, agreed in general that they would recognize "common but differentiated responsibilities", with greater commitment for reducing emissions in the near term on the part of developed and industrialized countries.

Since the UNFCCC entered into force on 24th March 1994, signatories countries have been meeting annually in the so-called Conferences of the Parties (COPs) to assess and monitor progress in dealing with climate change[11]. Particularly, one of the most important outcomes of the Conference (COP-3) was the elaboration of the Kyoto Protocol, in December 1997[12].

[9] "The Convention and the Kyoto Protocol", available at http://unfccc.int/resource/convkp.html
[10] UNFCCC, 2003. "Caring for Climate", 5.
[11] Ibda, 7.
[12] United Nations Framework Conference on Climate Change, UNFCCC, available at http://unfccc.int/essential_background/kyoto_protocol/items/2830.php

2. The Kyoto Protocol

The Kyoto Protocol is an international and legally binding agreement whose main objective is to reduce greenhouse gases emissions worldwide. As it was mentioned above, it was signed in December 1997 during the third Conference of the parties (CPO-3) and entered into force on 16 February 2005.

According to the Protocol, countries are divided into three groups:

1. Annex I contains all the countries that were members of the OECD in 1992 plus several countries with economies in transition (mostly Central and Eastern European States);
2. Annex II consists of the OECD members of Annex I only;
3. Non-Annex I includes almost developing countries.[13]

For the entry into force of the Protocol, 55 Parties were required to ratify it, including Annex I parties accounting for at least 55 per cent of that group's 1992 total carbon dioxide emissions[14]. As of 19 September 2005, 156 countries have ratified the Protocol. Particularly, one of the most important accession to the Protocol was that of the Russian Federation on 18 November 2004. As of 13 December 2006, 169 parties have ratified the Protocol, the most recent accession country being Gabon. Nevertheless, only Annex I countries representing 44.2 % of this group's emissions have approved the Protocol, USA being among those not having ratified the Protocol and clearly stated that they do not intend to accede to the it. To achieve a worldwide reduction of GHG emissions in a cost-effective way, the Protocol establishes three different measures, the so-called 'Flexible Mechanisms'. These mechanisms, in fact, are based on the assumption that costs for reducing emissions vary greatly between countries, while the impact on the atmosphere is the same regardless of where GHG emissions accrue.

The first mechanism is an 'emission trading system' which enables Annex I countries to sell and buy emission credits among themselves. The second one is the so-called 'Joint Implementation' (JI) mechanism, through which Annex I countries will be able to acquire

[13] UNFCCC, 2003, "Caring for Climate", 5-6

[14] Kyoto Protocol, article 25, available at http://unfccc.int/resource/docs/convkp/kpeng.pdf

'Emission Reduction Units' (ERUs) by financing climate change mitigation projects in other Annex I countries. This implies that the host part's assigned amount of emissions is reduced by the same amount that the investing party is now allowed to emit additionally. Joint Implementation mechanisms are expected to most frequently take place in countries with economies in transition because of the relatively low cost for cutting emissions.

Finally, the third mechanism is the 'Clean Development Mechanism' (CDM), according to which Annex I States will be allowed to implement sustainable development projects in Non-Annex I countries. This mechanism is similar to the Joint Implementation one. Annex I countries can, in fact, obtain certified emission reductions (CERs) from CDM projects and use them to meet their specific emission targets. Moreover, it is to emphasize that such a mechanism will help developing countries on their way towards a path of sustainable development.

The COPs following up the adoption of the Kyoto Protocol were decided to serve as MOPs (Meetings of the Parties to the Kyoto Protocol) and focussed on specifying the procedures and the Protocol's rulebook. Particular importance is attributed to COP-7 held in Marrakech in November 2001. Rules and Modalities were decided that allowed for the CDM to start immediately while JI projects and international emissions trading can be undertaken from 2008 on.[15]

Another important issue was negotiation about the rules for counting emission reductions from carbon sinks, meaning processes that remove greenhouse gases from the atmosphere, such as forests.[16] In particular, large concessions were made to Russia that threatened not to ratify the Protocol.[17]

As it was stated above, 2005 marked the entry into force of the Protocol and its effective implementation. Parties to the United Nations Climate Change Conference met in Montreal from the 28th of November to the 8th of December 2005, to discuss about the Protocol's implementation and future commitments. The conference, in fact, host the 1st Meeting of the Parties to the Kyoto Protocol in conjunction with the 11th session of the Conference to the Party to the Climate Change Conference (COP-11). It provided an opportunity for the Parties to define the regulatory framework needed to implement the first commitment period (2008-

[15] 'COP-7 Marrakech – Final Report', 4-5. Available at http://www.europa.eu.int/comm/environment/climat/pdf/marrakech_report.pdf

[16] UNFCCC Information Kit, sheet 17.2. Available at http://unfccc.int/resource/iuckit/infokit.pdf

[17] 'COP-7 Marrakech – Final Report', 6.

2012), strengthen the operation of the Clean Development Mechanism and adopt the Joint Implementation strategy[18].

4. The EU's strategy in pursuit of its Kyoto targets

The European Union has consistently been one of the major supporters of the Kyoto Protocol; it ratified the agreement in May 2002, committing itself to reduce its GHG emissions by 8% by the period of 2008-2012[19]. This overall aim is split up into reduction targets for each Member State on the base of The Burden Sharing Agreement[20] that set different targets for each country. Emissions reduction levels, in fact, vary between states, as in some countries, such as Austria, Denmark and Finland, where much has already been done in the past, reducing emissions countries entail relatively higher costs than in other European ones.

The targets set for each member State are those collected in the table below:

1. Kyoto gas emission reduction objectives (to fulfil by 2008-2012 in comparison with the 1990's levels).

Developed Countries –5%	**European Union–8%**
Austria –13%	Italy –6,5%
Belgium –7,5	Luxembourg –28%
Denmark –21%	Netherlands–6%
Finland 0%	Portugal +27%
France 0%	Spain +15%
Germany –21%	Sweden +4%
Grecia +25%	Regno Unito –12,5
Irlanda +13%	

Source: UN Kyoto Protocol and EU objectives set by the Environment Council, 16 june 1998.

Spain, Portugal, Greece, and Ireland were allowed to exceed their 1990 emission level target to avoid hindering their economic development.

[18] UNFCCC, Cop-11 and Mop-1, available at http://unfccc.int/meetings/cop_11/items/3394.php
[19] 'The Kyoto Protocol – A brief Summary', available at http://www.europa.eu.int/comm/environment/climat/kyoto.htm
[20] Agreed in June 2004 on the basis of art. 4 of the Kyoto protocol.

After the ratification of the Protocol, due to the observation that the Community was facing large difficulties in achieving its Kyoto targets, the European Commission launched the European Climate Change Programme (ECCP) in March 2000[21], accompanied by the publication of the 'Green Paper on Greenhouse Gas Emissions Trading'[22].

This paper proposed the start of a limited emissions trading scheme enabling a "learning-by-doing" phase focused on CO_2 emissions and limited to the most heavy emitters of this gas prior to the international emissions trading within the Kyoto protocol scheduled to start in 2008.[23] The ECCP was supposed to identify and develop the necessary elements of a EU strategy to implement the Protocol.

Of particular importance to this document is the establishment of Working Group 1 that dealt with the Kyoto "Flexible Mechanisms". Its final report advocates measures facilitating participation in CDM and JI, but states that 'JI and the CDM should primarily be driven by the private sector.'[24] According to the report this facilitation could consist of recognizing JI and CDM credits towards fulfilment of domestic obligations.[25] Further analyses of financial mechanisms at Community level are recommended but it seems that the EC intends to firstly establish an adequate regulatory framework reducing investors' risks in order to boost demand for JI/CDM credits.[26] The Commission's website lists several programmes not directly addressed to JI/CDM but that 'can be utilised in the context of Joint Implementation and the Clean Development Mechanism.'[27] For example, ALTENER II, THERMIE, INTERREG III, Tacis, SYNERGY and Phare are mentioned. Concerning the EU's overall efforts to honour its commitments, the first ECCP phase concluded in October 2001, that the EU would have to introduce additional policies and measures in order to achieve the Kyoto target. Despite the huge effort to make, the report identified measures leading to a reduction by an amount almost twice as high as necessary for compliance with the Kyoto Protocol.[28]

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[21] Communication from the Commission, COMM (2000) 88, Press Release. Available at http://www.europa.eu.int/comm/environment/docum/0088_en.htm

[22] Available at http://europa.eu.int/eur-lex/en/com/gpr/2000/com2000_0087en01.pdf

[23] Short Summary of the green paper available at http://www.europa.eu.int/comm/environment/docum/0087_en.htm

[24] ECCP Working Group on JI/CDM – Conclusions, 15 November 2002, 1. Available at http://www.europa.eu.int/comm/environment/climat/jicdm/jicdm_final_conclusions.pdf

[25] Ibda, 2.

[26] Background document n° 3 to the ECCP Working Group on JI/CDM (2nd phase), 1. Available at http://www.europa.eu.int/comm/environment/climat/pdf/backgrndoc3.pdf

[27] 'Overview of existing EC programmes relevant in the context of JI/CDM', available at http://www.europa.eu.int/comm/environment/climat/jicdm/overexist.htm

[28] ECCP Report 2001, Executive Summary. Available at: http://www.europa.eu.int/comm/environment/climat/pdf/eccp_report_summary_0106.pdf

As a reaction to this, the Commission brought forward three measures relating to climate change mitigation:

- An Action Plan, outlining the priority actions the Commission has set itself to implement in 2002 and 2003
- The Proposal for ratification of the Kyoto Protocol
- A Proposal for a Directive on Greenhouse Gas Emissions Trading

4.1 Directive on Greenhouse Gas Emissions Trading

As the Directive 2003/87/EC is the most important legislative measure in terms of implementing the Kyoto "Flexible Mechanisms", this document concentrates on this one of the three above-mentioned measures. The Directive entered into force on October 25, 2003, chiefly prepared and influenced by the ECCP Working Groups and the Green Paper.

According to the Directive, starting from 2005, a trading scheme on CO_2 emissions is established.

The European Scheme is a so called cap-and trade scheme, divided up in phases: 2005-2007, 2008-12, 2012-2016. In the first phase (2005-08), 12,000 industrial sites[29] are included in the trading scheme, representing 45% of all the industrial CO_2 emissions, and 28% of total EU GHG emissions. The cap is defined by the reduction objective agreed on by all Member States under the Burden Sharing Agreement.

In the framework of the Scheme, Member States have to prepare National Allocation Plans 'outlining the number of CO_2 allowances that they intend to allocate to energy-intensive industrial plants'[30]. The National Allocation Plans are the cornerstone of the System. The Naps are assessed by the Commission on the basis of the criteria of Annex III[31] (article 9), and must be submitted at least 18 months before the start of the next phase. Within three months of notification of a Nap by a Member State, the Commission can reject the plan, notifying the reasons for its decision. The Member States then have to take in account the changes requested by the Commission in a subsequent version of this Nap.

[29] Quotas are imposed in six key industries: energy, steel, glass, brick making, and paper/cardboard.

[30] Press Release IP/04/862 of 7 July 2004, available at: http://www.europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/862&format=HTML&aged=0&language=EN&guiLanguage=en

[31] Coherence with the national reduction objectives, the emissions trends forecasts, the potential reduction and the preservation of the competitiveness principles.

According to such a Trading Scheme, all the industrial sites under the directive have the same obligations. The first condition to operate is that the competent authority shall issue a greenhouse gas emissions permit granting authorization to emit greenhouse gases (article 6). In addition, the operator has the obligation to surrender allowances equal to the total emissions of the installation in each calendar year (article 6 e).
Before conceding the authorization, the competent authority shall verify if the operator is capable of monitoring and reporting the emissions.
Nor later than on 30 April of each year, the industrial operators realise that they will not be able to conform to the cap represented by the initial amount of allowances allocated, two solutions remain available to them:

1) Pay a penalty of 40 euro (100 euro from 2008 onwards) per tonne of CO2 emitted for which the operator has not given allowances;
2) Let the emissions exceed the initial amount of allowances, and buy the needed number of allowances on the new trading market.

Firms curbing their emissions below the level fixed by the NAP, and selling the surplus to the industrial sites in need will constitute the supply side on this market.
The responsible of the functioning of the scheme are at the end the Member States: they enforce the National Plan, they monitor the emissions, and they use the penalties.
They have to set up a registry to keep track of the transfer and cancellation of allowances, whereas a hub at European level must automatically verify the conformity of these movements with the directive.

4.2 Effectiveness and competitiveness of the EU ETS scheme

It is clear that the overall system's goal is to ensure that emissions are cut at the least cost to the economy. As of 7 July 2004[32], the Commission has received and accepted eight national allocation plans, accounting for over 40% of the allowances expected to be put into circulation for the 2005-2007 training period.[33]

Nevertheless, the Commission is worried about a possible 'over-allocation of allowances which [it] is seeing in different plans'.[34] This could have a negative impact on the trading scheme which, as a market-based instrument, requires scarcity to be effective.

One of the underlying principles of the European Climate Change Programme has consistently been to identify the most cost-effective measures to achieve the Kyoto targets. Recent Commission studies conclude that the targets can be achieved at an annual cost of € 2.9 to € 3.7 billion, which is less than 0.1 % of GDP in the EU. One of these studies concluded that without the Emissions Trading Scheme costs could reach € 6.8 billion. So emission trading allows the costs of Kyoto to be reduced even further.

[32] On 7 July 2004, the Commission concluded the assessment of a first set of eight plans. It accepted five plans unconditionally (Denmark, Ireland, the Netherlands, Slovenia, Sweden), and partially rejected the other three - those of Austria, Germany and the UK.
On 20 October 2004, the Commission concluded the assessment of a second set of eight plans. It accepted six plans unconditionally (Belgium, Estonia, Latvia, Luxembourg the Slovak Republic and Portugal), and conditionally approved the other two - those of Finland and France.
In late December 2004, the Commission concluded the assessment of a third set of five plans. It accepted four plans unconditionally (Cyprus, Hungary, Lithuania and Malta), and conditionally approved the Spanish plan.
On 8 March 2005, the Commission conditionally approved the Polish plan, and on 12 April 2005, it accepted the plan of the Czech Republic without conditions. On 25 May 2005, the Italian plan was conditionally accepted, and on 20 June 2005, the Commission concluded the assessment of the last plan, from Greece, approving it without conditions.(DG Environment, EUROPA - Rapid - Press Releases).

[33] Ibda.

[34] Speech by Catherine DAY on 'EU Climate Change policy: recent progress and outlook' on 11 May 2004, page 3. Available at http://www.europa.eu.int/comm/environment/climat/pdf/040511speech.pdf

The EU Commission demonstrated the high effectiveness of the trading scheme as a market based instrument by a simple simulation.[35]

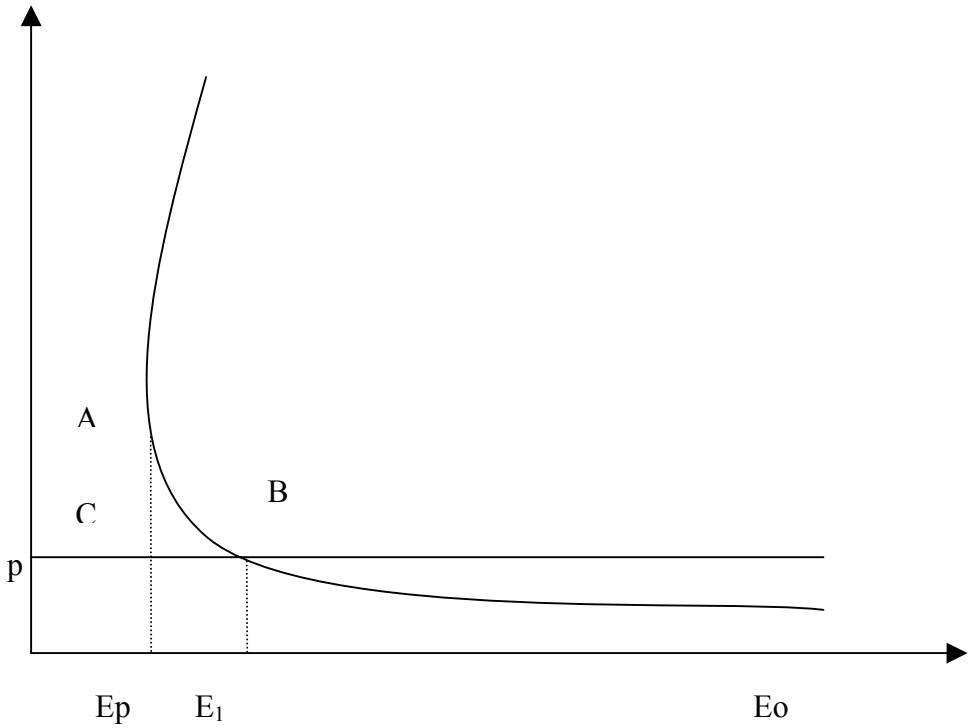
Two companies, A and B, emit both 100,000 tonnes of CO_2 per year. The government gives each of them 95,000 emission allowances. One allowance represents the right to emit 1 tonne of CO_2. So, neither company is fully covered for its emissions. At the end of each year, the companies have to surrender a number of allowances corresponding to their emissions during the year, whatever the emissions of the individual company are. Both Companies have to cover 5,000 tonnes of CO_2. They have two ways of doing this. They can either reduce their emissions by 5,000 tonnes, or purchase 5,000 allowances in the market. In order to decide which option to pursue, they will compare the costs of reducing their emissions by 5,000 tonnes with the market price for allowances.

For the sake of the example, let's say that the allowance market price is € 10 per tonne of CO_2. Company A's reduction costs are € 5 (i.e. lower than the market price). Company A will reduce its emissions, because it is cheaper than buying allowances. Company A may even reduce its emissions by more than 5,000 tonnes, say 10,000 tonnes. For Company B, the situation may be the opposite: its reduction costs are € 15 (i.e. higher than the market price) so it will prefer to buy allowances instead of reducing emissions.
Company A spends € 50,000 on reducing 10,000 tonnes at a cost of € 5 per tonne and receives € 50,000 from selling 5,000 tonnes at a price of € 10. So Company A fully offsets its emission reduction costs by selling allowances, whereas without the Emissions Trading Scheme it would have had a net cost of € 25,000 to bear. Company B spends € 50,000 on buying 5,000 tonnes at a price of € 10. In the absence of the flexibility provided by the Emissions Trading Scheme, company B would have had to spend € 75,000.

Since only a company that has low reduction costs and therefore has chosen to reduce its emissions, like Company A, is able to sell, the allowances that Company B buys represent a reduction of emissions, even if Company B did not itself reduce emissions. It is this flexibility in the system which makes emissions trading the most cost-effective manner of achieving a given environmental target. The overall cost to industry would have been higher if Company B had been forced to reduce emissions at its own plant at a higher cost.

[35] Europe Press Release, DG environment of the European Commission, questions and answers on emissions trading and national allocation plans, (26 October 2006).

The minimisation of compliance costs constitutes a most significant opportunity of the EU scheme, the following graph illustrate this point.



The company in question has an initial allocation of emissions permits equal to E_P. Its original emissions are E_0. At the end of the compliance period, e.g. at the end of one year, the firm must hold emissions permits equal to its actual emissions in order to be in compliance. For the first emissions reduction units, it is cheaper to abate internally than to buy emissions permits at price P. Consequently, the firm reduces emissions internally up to that amount where marginal abatement costs equal the market price of emissions permits (E_1). In order to be in compliance, the firm could continue to reduce emissions internally or just buy emissions permits on national or international markets, the latter through the Emission Trading Mechanism. Since any further internal reduction would be more expensive than purchasing emissions permits at price P, a cost minimising firm would buy emissions permits in a quantity equal to the difference (E_1 - E_P). If no trading were allowed, it had to reduce emissions internally up to E_P. Cost savings achieved through emissions trading amount to the area (ABC).

4.3 The EU Emission Trading Scheme and the Kyoto Protocol

The Directive furthermore links the Kyoto project-based mechanisms Joint Implementation and Clean Development Mechanism to the EU Emission Trading Scheme. This means that credits obtained through one of the two mechanisms are recognized equivalent to allowances; ensuring, additionally to cost effectiveness, the promotion of transfer of environmentally sound technologies to developing countries. All the companies that have emission reduction projects outside the EU through JI or CDM could convert the credits obtained by these projects in allowances to spend in the European Market through the emission trading system. Furthermore this link provides investors in green technology with the necessary certainty.[36] Not eligible are nuclear projects as well as "carbon sink" projects (storage of carbon in forests) as their impact is only temporary. In order to ensure that a significant part of the GHG emissions reductions takes place within the EU, companies are only allowed to use such credits up to a percentage of their allowed emissions.[37] According to the Kyoto Protocol's provisions, CDM credits can be issued from 2000 onward while reductions from JI projects will be credited from 2008 onward. By adopting the *acquis communautaire*[38], the 10 Member States that acceded to the EU in mid 2004, are embracing the EU's climate policies right from the start, paving the way for a realising the opportunities to reducing emissions in these countries. It remains to be seen whether these policies suffice to bring the EU back on track of complying with its Kyoto targets.

It is of fundamental importance that the majority of third party countries adopt an emission trading scheme connected with the EU ETS, to preserve a high level of competitiveness.

The EU ETS is not a system created to work in isolation. Article 25 of the 2003/87/EC directive reads mutual recognition between the emission trading system of the European Union and other systems for the exchange of the emission allowances. Norway, Switzerland, Canada and Japan have already started formal discussions with the EU regarding the possibility to link their different trading systems. A cap and trade system limited to Europe will be totally inefficient with a very low benefit for the world. The best scenario would

[36] Press Release IP/04/505 of 20 April 2004, available at http://www.europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/505&format=HTML&aged=0&language=EN&guiLanguage=en

[37] Ibda.

[38] Acquis communautaire is the term used to describe all the principles, policies, laws and objectives that have been agreed by the European Union.

require full cooperation among the European Union, China, USA, Australia and Russia. The worse scenario would see an active but isolated European Union, which would give the other actors, such as China, the possibility to increase their emission levels without producing negative effects in the world system. The European Union must launch a positive signal to make the other partners cooperate in an active manner.

4.4 Practical experience

In order to illustrate the actual state of implementation of the Kyoto mechanisms JI and CDM, a short overview about different actors' actions will be given in the following.

a) The Netherlands' activities

The Netherlands were the first country to provide public funding for the purchase of CERs (Certified Emission Reductions) through CDM projects. This extra funding helps realizing formerly not feasible projects. The Ministry of Housing, Spatial Planning and the Environment (VROM) is the implementing agency for CDM and is supposed to use its funds to purchase CERs in a cost-effective manner.[39] For this purpose it has contracted several Agencies, such as Rabobank, the IBRD and Senter, an agency under the Dutch Ministry for Economic Affairs. These select projects and purchase the resulting CERs for the VROM. Memoranda of Understanding (MoUs) are signed with the most important partner countries. These MoUs facilitate implementation of CDM projects, as they contain procedures and prepare the grounds for CDM projects.[40] For instance, the obligatory letters of approval can be more easily obtained by JI project investors.

Senter, one of the contracted agencies, focuses on buying ERUs (Emission Reduction Units obtained in the framework of JI projects) through its procurement programme, named ERUPT. On behalf of the Dutch government, by order of the Ministry of Economic Affairs of the Netherlands, Senter buys the credits that an investor realised for an approximate price of € 3-5 per carbon unit. The choice of projects is based on a tender. As the JI mechanism only starts in 2008, solely the ERUs a project achieves in the period from 2008-2012 are

[39] 'CDM – The Dutch contribution to mitigate climate change', available at http://www2.vrom.nl/Docs/internationaal/Factsheet%20February%202003.pdf

[40] The different MoUs are available for download at http://www2.vrom.nl/pagina.html?id=7478

bought by Senter.[41] ERUPT has so far bought credits in 19 projects, leading to an emission reduction of 12.3 million tons of CO_2 equivalents for a total amount of € 65.2 million.[42]

b) The World Bank's Prototype Carbon Fund (PCF)

The PCF, launched in early 2000, is a pilot activity financing emission reductions realised in JI and CDM projects. Its financing sources are governments and companies that are expected to make contributions and who will, in return, receive a share of the achieved emission reductions. The fund aims at

- Demonstrating how JI and CDM projects can contribute to sustainable development and lower the cost of compliance with the Kyoto Protocol
- Disseminating good practice about how to operate in the carbon market.

The fund is scheduled to terminate in 2012.[43]

c) Support by the European Union

As already mentioned, it is rather difficult to outline the EU's support with reference to JI and CDM projects, as no specific fund is yet available. As of mid 2004, the emphasis seems to be put on the smooth start of the EU Emission Trading Scheme (ETS). A background document to the ECCP Working Group on JI/CDM[44] puts forward a few ideas of means how the European Union could financially support the Kyoto project mechanisms. Among these are the establishment of a Carbon Purchase Fund, an investment fund and a technical assistance fund. In light of the workload caused to the Commission by the national allocation plans, it seems likely that this subject will be put off until the ETS works smoothly. Nevertheless, current EC programmes like Phare and ISPA touch issues relevant to JI/CDM as they support capacity building activities in Eastern European Countries prior to their accession to the community.[45] Other programmes focus on investment-related capacity building, including all bilateral geographic programmes and the SYNERGY and TACIS initiatives. A couple of programmes also provide direct investment, e.g. INTERREG III,

[41] 'Carboncredits.nl', available at http://www.senter.nl/asp/page.asp?id=i001003&alias=erupt
[42] 'Carboncredits.nl', Presentation held on September 8, 2004 by Adriaan Korthuis, SenterNovem. Available at http://www.senter.nl/sites/erupt/contents/i001577/erupt-5%20introduction.ppt
[43] 'About PCF' at http://carbonfinance.org/pcf/router.cfm?Page=About
[44] Available at http://www.europa.eu.int/comm/environment/climat/pdf/020913backgroundoc.pdf
[45] 'Community Financial Support and JI/CDM', Part I. Presentation available at http://www.europa.eu.int/comm/environment/climat/jicdm/cfs1.pdf

SAPARD and ALTENER.[46] The possibility to achieve emission reductions through CDM or JI projects can benefit a lot the projects already supported by the Community because it adds an additional value to them. Due to this link the existing EU programmes already provide incentives and, through capacity building, prepare the grounds for a successful implementation of JI and CDM projects.

4.5 Conclusion

The EU has, after perceiving the risk of not complying with its Kyoto Protocol commitments, taken immediate action to improve its performance. The established Emissions Trading Scheme, including its linkage to the Kyoto Project Mechanisms Joint Implementation and Clean Development Mechanism, will forward the Community on its way to achieve the Kyoto targets. Nevertheless, in the context of a possible over-allocation of allowances, it is important to ensure the effective functioning of the Trading Scheme. It also remains to be seen, whether the incentives provided for JI and CDM projects will be sufficient. Perhaps, recognizing its advantages and necessity, more countries will follow the Netherlands and establish funds financing climate change action abroad. Despite all constraints, the EU clearly plays the leading role in undertaking action to mitigate climate change. The introduction of an Emissions Trading Scheme has aroused interest among other countries and could prepare the grounds for a successful start of the international emission trading in 2008.

[46] Ibda.

CHAPTER V

A Call to Action: Johannesburg, 2002

For ten days in late summer 2002 – late winter in South Africa – the problem of sustainable development captured the world's attention. From 26 August to 4 September government delegates and, towards the end of the Summit, heads of state gathered at the Sandton Convention Centre near Johannesburg to assess the progress made in the decade since Rio and to commit to future goals. The Summit was organized by the Tenth Session of the UN Commission on Sustainable Development acting as Preparatory Commission (PrepCom).

Sustainable development touches all strata of society. Therefore, the process demands democratic decision-making and broad participation. The Summit recognized this imperative and welcomed corporations, non-governmental organizations and other major groups to take part in the discourse. Indeed, the forging of public-private partnerships counts as a principal achievement of the WSSD.

This paper seeks to address the three fundamental sustainable development issues that are most amenable to UNECE contribution: energy, environment and trade. The representatives at Johannesburg recognized the central role that energy plays in development and the consequent need to deliver energy resources to the developing world while ensuring energy access to future generations. To this end, the WSSD's Plan of Implementation calls for the accelerated development of renewable energy sources and of efficient energy use. This problem is particularly salient in countries in transition (CITs), such as the countries of Eastern Europe and the CIS, where existing patterns of energy consumption and production are the largely inefficient relics of centrally planned economies. While no concrete targets were set regarding renewable energy and energy efficiency, the WSSD took the important first step of eliciting the support of major governments and relevant players in the business world.

Pillars of Sustainable Development	Main Relevant UNECE Work Sectors
• Environment • Social Development • Economic Prosperity	• Environment • Trade • Energy

Environment is one of the three pillars of sustainable development. The WSSD infused the Plan of Implementation throughout with a consideration of environmental consequences. In addition, the Summit offered an opportunity to advocate the ratification of the Kyoto protocol.

The WSSD recognized that trade can be harnessed in the service of sustainable development. Market access will enable developing countries and CITs to share in technological advancements that promise to improve standards of living and to reconcile economic growth with environmental sustainability. Freer trade will also have the desired effect of levelling the playing field. The dismantlement of subsidies and other trade-distorting mechanisms will open the markets of developed countries to the South. The Plan of Implementation calls for removing energy subsidies to clarify market signals that reflect environmental effects.

The Plan of Implementation's most concrete commitment, the halving of poverty by 2015, encompasses the goal of rural development. The salience of rural development to sustainable development stems from the fact that the world's poor live mostly in rural areas. Rural development confronts us with a vicious cycle: poor conditions in rural areas cause migration – particularly of rural youth – to urban areas, which increases pressure on the sustainability of both urban and rural environments, as the former struggles to cope with a population influx, and the latter with a loss in human capital. The challenges posed by rural development implicate multiple dimensions of sustainable development: poverty, subsidies, sustainable agricultural practices, education and women's and minority rights.

After poverty "eradication" – as the drafters of the Plan refer to the commitment to halve poverty – the terms of consensus reached in the Plan of Implementation fall under several

broad themes: changing unsustainable patterns of consumption and production, protecting and managing the natural resource base of economic and social development, sustainable development in a globalising world, health and sustainable development, sustainable development of small island developing states, and sustainable development for Africa. The Plan also sketches an institutional framework for achieving its goals, assigning general mandates to the relevant UN and other institutions. The WSSD mapped out the course of the sustainable development process for the coming years. It delegated the responsibilities of micromanagement to the UN bodies that specialize in the various sustainable development-related aspects. Some argue that the WSSD should be the last of its kind – at least until action by international organizations, regional commissions, national governments and local groups has proved talk worthy again[47].

Plan of Implementation – Commitments/Themes

- Poverty eradication
- Changing unsustainable patterns of consumption and production
- Protecting and managing the natural resource base of economic and social development
- Sustainable development in a globalizing world
- Health and sustainable development
- Sustainable development of small island developing States
- Sustainable development for Africa

[47] See Anders Rasmussen, Prime Minister of Denmark, in "The bubble-and-squeak summit", Economist, Sep. 5, 2002.

PART II

KEY ACTORS

CHAPTER VI

The UN's Focal Point on Sustainable Development: Commission on Sustainable Development (CSD)[48]

1. Introduction

The United Nations Commission on Sustainable Development (CSD) was established in the wake of the 1992 Rio Earth Summit as a functional commission of the UN Economic and Social Council. Its mandate is threefold: to ensure effective follow-up to the Earth Summit, to enhance international cooperation and the intergovernmental decision-making capacity for the integration of environment and development issues and to examine the progress of the implementation of Agenda 21 at the national, regional and international levels.[49] The CSD facilitates and monitors the implementation of sustainable development commitments and serves as a focal point for the UN's sustainable development activities. The WSSD Plan of Implementation calls for the strengthening of the CSD as the high level commission on sustainable development within the United Nations system and envisions the enhanced role of the Commission to include "reviewing and monitoring progress in the implementation of Agenda 21 and fostering coherence of implementation, initiatives and partnerships."[50]

2. Summary of Activities

The General Assembly met in special session in 1997 to review the progress made in the implementation of Agenda 21 in the five years since Rio. The CSD prepared a comprehensive assessment and realignment of the sustainable development process in the Programme for the Further Implementation of Agenda 21, which the General Assembly adopted. The Assembly also approved a programme of work for the CSD covering the five years leading up to the WSSD.

[48] http://www.un.org/esa/sustdev/
[49] Resolution Adopted by the General Assembly 47/191: Institutional arrangements to follow up the United Nations Conference on Environment and Development (A/RES/47/191).
[50] Plan of Implementation, para. 145.

In 2001, the tenth session of the CSD (CSD-10) donned the hat of Preparatory Committee (PrepCom) for the ten-year review process of Agenda 21. The PrepCom convened at a global level four times, the last at a ministerial level in Bali, and paved the way for the WSSD.

The WSSD reaffirmed the CSD's role in the UN system as a high-level platform for dialogue on sustainable development and sought to endow the CSD with the institutional capacity to respond to the new priorities set at Johannesburg and to lead the sustainable development process in the years ahead. The Plan of Implementation calls for a strengthened CSD to function as a forum for discussion to foster partnerships and exchange experiences in order to identify challenges and develop solutions. It also directs the CSD to encourage diversity in the sustainable development discourse by engaging international organizations, major groups, the scientific community and educators.

For its eleventh session in April-May 2003, the CSD sketched out its proposed post-Johannesburg orientation. Responding to the WSSD's call for institutional reform, the Commission identified three broad avenues for change: a narrowing of focus to exact maximum value from the CSD's resources, the enhancement of the CSD's role as a forum for information exchange and the building of partnerships.

The CSD intends to refine its focus to devote its resources to a more detailed approach to analyzing compliance with Johannesburg goals and targets. Towards this end, the CSD reorganized its future work programme as a series of two-year "Implementation Cycles": in the first year ("Review Year") the Commission reviews progress with a view to generating input for the second year ("Policy Year"), which formulates policy. CSD-11 adopted a fifteen-year programme of work that assigns "thematic clusters" to each of the two-year cycles while considering broader, cross-cutting issues over the duration of the programme.

From 14-20 April 2004, CSD-12 completed the first review session on the theme of water, sanitation and human settlements. Because these issues are particularly relevant to small island nations, CSD-12 has organized a conference on implementing JOIP and Agenda 21 in small island nations and less developed, land-locked countries. In addition, CSD-12 identified the lack of coherent information as a major obstacle for implementing sustainable

development. The Committee called for a more effective national reporting framework, one that is less burdensome on countries and uses appropriate indicators according to national conditions and priorities. The suggestion was made to create an inventory and timetable of national-level efforts in the development and implementation of indicators. Further, CSD-12 noted the need for more effort to collect gender-disaggregated data.[51]

Some commentators have viewed Johannesburg as a failure because of its paucity of new concrete commitments, and it is true that on this score the Summit did not advance the process far. However, the main contribution of the WSSD to sustainable development was never supposed to be the setting of new goals so much as the identification of the obstacles that hindered progress since Rio and the development of strategies for achieving outstanding commitments. The Plan of Implementation casts the CSD in a uniquely important role in this effort, in recognizing the importance of information exchange in the sustainable development process. As such, the CSD seeks to broaden its institutional role by developing an information exchange capacity to supplement its traditional functions of negotiated decision-making and the recommendation of policy. As a dynamic forum for the exchange of information, the CSD will advance the democratic vision of sustainable development through a policy of inclusiveness: the exchange of knowledge, opinions and operational experience will not be limited to governments and international institutions, but will extend to all stakeholders. The post-Johannesburg CSD will thus serve as a vehicle for the WSSD's insistence on the importance of information in achieving concrete progress.

The Plan of Implementation carved out a third role for the CSD: a focal point for discussion on partnerships as a vehicle for achieving sustainable development goals. Partnerships, as conceived in this context, are voluntary, multi-stakeholder initiatives that supplement, rather than supplant, intergovernmental commitments. They are the concrete manifestation of the idea that a democratic, open and transparent approach is essential to the sustainable development process.

CSD-11 enumerated criteria and guidelines for partnerships, stressing the values of voluntariness and transparency, as well as the supplemental nature of partnerships. The implementation track drafted by the Commission's eleventh session outlines the partnership

[51] CSD "Report of the Twelfth Session" available at http://www.un.org/esa/sustdev/csd/csd12/csd12.htm

aspect of the CSD's new character: it is to manage the evolution of the partnership concept to ensure that partnerships add value to the sustainable development process and conform with intergovernmental arrangements. At CSD-12, the Commission held a partnership fair to give an opportunity for partnerships registered with the commission to showcases progress, network, identify new partners and learn from each other's experiences. The Committee has also launched a online partnership database with information on hundreds of CSD registered partnerships.[52] In addition, CSD-12 identified problems currently affecting partnerships. Namely, the committee noted the need for more private sector involvement, as well as more "demand-driven" partnerships as opposed to "donor-driven" partnerships.[53]

The importance of partnerships, particularly public/private ones, was also stressed during the thirteenth session of the Commission. CSD-13 emphasised how the active participation of private/public partnerships is essential to the achievement of the agreed international development goals[54].

3. Environment

As indicated in the preceding section, CSD spent much of the year following the WSSD recasting its institutional identity and developing a programme of work to meet the expectations set for it in the Plan of Implementation. CSD-12 marked the completion of the commissions first review year on the theme of water, sanitation, and human settlements, all crucial environmental factors in sustainable development. At CSD-12 delegates supported integrating water, sanitation and human settlements into national sustainable development strategies, including poverty reduction strategy papers. The committee particularly emphasized the need for developing integrated water resource management and improving water management to protected health and the environment.[55]

The topics of water, sanitation and human settlements were also the main focus of the thirteenth session of the Commission (30 April 2004 and 11-22 April 2005). CSD-13 emphasized the importance of investments in water, sanitation and human settlements for the

[52]To access the database go to http://webapps01.un.org/dsd/partnerships/search/browse.do

[53] See "Partnerships for Sustainable Development: Report of the Secretary General" available at http://ods-dds-ny.un.org/doc/UNDOC/GEN/N04/237/63/PDF/N0423763.pdf?OpenElement

[54] CSD "Report of the Thirteenth Session" available at http://www.un.org/esa/sustdev/documents/docs_csd13.htm

[55] See CSD-12 "Review of thematic issues: Chair's Summary Part II" (final unedited version)

achievement of all the internationally agreed development goals. According to the Commission, efforts to reach the Millennium Development Goals targets on such issues represent an investment that would pay off in a significant reduction in extreme poverty, water-borne diseases and environmental degradation. Nonetheless, the lack of financial resources may represent a serious threat towards the achievement of the agreed objectives. As a matter of fact, the Committee called for a stronger and more active participation of public/private sector partnerships, communities, non-governmental organizations and local authorities. With this regard it was also reaffirmed the primary and essential role of the Commission in promoting and monitoring sustainable development within the United Nations system[56].

At Marrakech, Morocco, in June 2003, a strategy (the "Marrakech Process") was mapped out in cooperation with UNEP for realizing the Johannesburg agreements on sustainable consumption and production. The theme of sustainable consumption and production cuts across many sectors, but its implications for the environment in particular imbue it with moment. The consumption and production patterns that prevail in the developed world today place unsustainable pressure on the natural resource base and on the environment more generally. The Marrakech Process Discussion Paper[57] divides the issue into four categories: urban management and transportation, including waste management and construction; general policy measures and analytical tools that address both consumption and production; tools for changing consumer behaviour; and tools for changing production patterns. For each category, the Paper identifies initial, as well as medium- and long-term priorities, assigning immediacy to those priorities that promise the most benefit for the most countries. It suggests that the Expert Group consider market incentives to encourage sustainable production, such as, for example, shifting responsibility for disposal and recycling to the producer, a policy that motivates producers to design longer-lived and more reusable and recyclable products. It also recommends using market mechanisms to internalize externalities, such as taxes for resource depletion or credit trading for carbon emissions. Initial priorities for changing consumer behaviour include standards, labelling schemes and the setting of an example for

[56] CSD "Report of the Thirteenth Session" available at http://www.un.org/esa/sustdev/documents/docs_csd13.htm

[57] "International Expert Meeting on a 10-Year Framework of Programmes for Sustainable Consumption and Production": Discussion Paper at http://www.un.org/esa/sustdev/sdissues/consumption/cpp_discussion.pdf

private businesses and consumers by public procurement of sustainable goods and services. Finally, the Discussion Paper proposes the facilitation of information exchange – for example, best practices – as an initial priority for changing production patterns.

The 14th session of the CSD concluded on 12 May 2006. As the first year of the second implementation cycle, CSD-14 focused on progress in the following areas: Energy for Sustainable Development; Industrial Development; Air pollution/ Atmosphere; and Climate Change[58].

4. Trade

The CSD has not focussed on the intersection of trade and sustainable development since the World Summit, except to the extent that the Commission advocates a more liberal trading system as a means to achieve its other goals. The most recent explicit trade activity of the Commission was a Report of the Secretary-General (2001) issued as part of the Johannesburg preparatory process on the relationship between trade and finance, on one hand, and trade and the environment on the other. It tracks the evolution in thinking about trade and environment since the Rio Summit – how trade and environment have increasingly been perceived as inextricably intertwined as components of sustainable development, rather than ends in themselves. The Report thus set the parameters of discussion going into the WSSD.

[58] http://www.un.org/esa/sustdev/csd/review.htm

5. Energy

The Marrakech Process Discussion Paper intentionally excludes energy, in general, from its discussion on sustainable consumption and production,[59] but includes the energy-related issues integral to achieving sustainable consumption and production – namely, energy efficiency and the development of markets for renewable energy. Examples of the intersection of energy with the four sustainable consumption and production areas mentioned above include improving energy efficiency in transportation (urban management and transportation), the internalization of environmental and social benefits through the subsidization or favourable tax treatment of renewable or clean energy production and practices (general policy instruments and analytical tools), standards and labelling for energy-efficient products (changing consumer behaviour), and the sharing of best practices in clean production and energy efficiency (changing patterns of production).

Other than the energy-related activities of the Marrakech Process, the CSD has not been extensively involved in this sector since the WSSD. As mentioned above, the Commission's resources in the year following Johannesburg have been directed primarily at procedural, rather than substantive, work, designing a long-term work programme to fulfil the mandate conferred on it by the Plan of Implementation. The Commission focussed on energy in 2001, at its Ninth Session (CSD-9).

At its fourteenth session in 2006, the Commission on Sustainable Development (CSD) undertook a review focusing on identifying constraints and obstacles with respect to implementation in the area of energy, which forms part of a thematic cluster with industrial development, atmosphere/air pollution and climate change. The fifteenth session of the Commission in 2007, will take policy decisions on practical measures and options to expedite implementation in the selected cluster of issues[60].

[59] *Ibid*. at 5.
[60] http://www.un.org/esa/sustdev/sdissues/energy/enr.htm

6. Rural Development

Rural development plays an integral role in sustainable development: the challenges facing rural areas – migration, inadequate water, hygiene and sanitation, disease – are the challenges of sustainable development. These forces degrade social, environmental and economic conditions by overwhelming capacities in urban as well as rural areas and by aggravating poverty and inequity. As life in rural areas worsens, people – particularly young people – flock to cities, draining the countryside of human capital and exacerbating the pressures on urban resources. The post-Johannesburg process must find ways to break this cycle of un-sustainability.

On the margins of the ECOSOC High-Level Segment (Geneva, June-July 2003), the Conference of Non-Governmental Organizations in Consultative Status with the United Nations (CONGO) organized a forum on rural development entitled "Promoting an integrated approach to rural development in developing countries for poverty eradication and sustainable development". The forum identified the main principles and themes of rural development. It also defined the roles of the UN and NGOs in the rural development process: the UN, together with national governments, needs to meet the challenge of bridging the traditional "gap", or disconnect, between policymaking and the experience of NGOs "on the ground". The principles that should guide the rural development process include good governance – particularly accountability of the international civil service – democracy and local decision-making and participation. The forum also emphasized that the rural development effort should focus on empowering the rural poor to help themselves – through education and employment – rather than more patronizing approaches. As well, rural development must take advantage of information and communications technologies (ICTs) and account for gender, aboriginal and minority perspectives.

CHAPTER VII

Focusing on the Human Element: United Nations Development Programme (UNDP)

1. Introduction[61]

The United Nations Development Programme (UNDP) is the UN's global network for sustainable development.[62] As such, it plays an integral role in the sustainable development process: it advances the UN agenda on development, in part by assisting countries to implement sustainable development principles. It achieves this by drawing on its extensive resources to build the capacity of countries to meet the challenges of sustainable development. Because of its broad network of country offices and contacts, special knowledge of development issues, thematic expertise and country-specific experience, UNDP is ideally situated for capacity building.

2. Summary of Activities[63]

The UNDP's activities leading up to, at, and in the follow-up to the WSSD largely follow the same pattern of its sustainable development activities established at the 1992 Rio Conference. There, Agenda 21 specifically nominated the UNDP to lead capacity building activities, which have continued to constitute the focus of the institution's contribution.

In the preparations for the WSSD, UNDP participated in the CSD PrepComs and led "side events" at PrepCom 2 (January/February 2002) and PrepCom 3 (March/April 2002). The PrepCom 2 side event discussed how to approach sustainable development opportunities and challenges from the national perspective. At PrepCom 3, UNDP sponsored a series of side

[61] Unless otherwise specified, all information is from the United Nations Development Programme's official web site, http://www.undp.org/.
[62] Statement submitted by Mark Malloch Brown, Administrator, United Nations Development Programme, PrepCom 4, Bali, Indonesia, 5 June 2002 (http://www.undp.org/dpa/statements/administ/2002/june/5jun02.html).
[63] See generally UNDP's WSSD web site at http://www.undp.org/wssd/

events on energy, the Equator Initiative, poverty and environment, and water. At the ministerial-level preparatory conference (PrepCom 4, Bali), the UNDP Administrator outlined the UNDP's strategy for supporting the WSSD process, which included its traditional role of assisting countries to achieve sustainable development goals at a national level, as well as an emphasis on meeting the Millennium Development Goals and on "Type-II" partnerships.[64]

UNDP, in cooperation with other relevant UN institutions, developed the WEHAB initiative, in response to the Secretary General's proposal to conceptually prepare for the WSSD, by constructing a framework of five categories for action: Water, Energy, Health, Agriculture and Biodiversity. Such a structured approach should ensure that the principle of integration continues to guide the sustainable development process. At the Summit, UNDP organized nearly 30 side events, centred around the theme of capacity development.

The Plan of Implementation recognized UNDP's experience and success in capacity building and called for the strengthening of its initiatives in that area. In particular, UNDP's Capacity 21 and Capacity 2015 programmes are devoted to this goal. With regard to the issues of interest to ECE, several other UNDP programmes work toward implementing WSSD outcomes: for environment, the Poverty and Environment Initiative and Global Environment Facility, and for energy, the Energy for Sustainable Development programme. Through these programmes, the organization has undertaken significant work in water governance, sustainable land management, the conservation and sustainable use of biodiversity and the reduction of greenhouse gases. It has mobilized over US$ 7 billion through more than 10.000 large and small-scale projects, in partnership with other UN organizations, governments, NGOs, civil society organizations and the private sector. Regarding the UNECE member countries, UNDP's efforts aim at supporting East European countries and the CIS to integrate energy and environment issues into their national development plans and strategies through capacity development, policy advisory services and trust fund management[65].

[64] "World Summit on Sustainable Development (WSSD): Address by Mark Malloch Brown, UNDP Administrator" at http://www.undp.org/dpa/statements/administ/2002/august/30aug02.html
[65] Energy & Environement Bureau for Development Policy, "The Sustainable Difference: Energy and Environment to achieve the MDGs" at http://www.undp.org/energyandenvironment/sustainabledifference/

UNDP does not pursue significant trade activities within its sustainable development programme.

The UNDP's 2003 Annual Report[66] includes a chapter on sustainable development that focuses on two of the aspects of sustainable development to which the Programme's resources are most amenable: water and energy.
In 2006 Annual Report, UNDP remains committed to doing its part to translate the ambitious new partnership for development launched in 2000 into better policies, stronger institutions and greater resources more effectively deployed, all with the aim of achieving concrete improvements in the lives of those who need and deserve our strong support.

3. Environment

The UNDP's environment activities include two programmes directed at realizing the commitments of Agenda 21 and Johannesburg: the Poverty and Environment Initiative and the Global Environment Facility. The Programme's overarching concern is development; therefore, both approach environment issues in terms of reducing poverty.

The Poverty and Environment Initiative (PEI),[67] a joint venture of UNDP and national and intergovernmental institutions, strives to expose the fallacies inherent in the traditional assumptions that poverty should outrank environment on the international agenda, or that the two core sustainable development issues are incompatible, rather than mutually enforcing. The mission of PEI is to build capacity and nourish learning and information exchange in order to enable developing countries and CITs to integrate environmental management and poverty reduction. In its early phase (1998-2000) PEI concentrated on developing a broad set of policy options based on analyses of case studies. The Initiative is now working on helping countries design and effect policy to manage the environment so as to eliminate poverty. In fact, UNDP and UNEP recently formed a global partnership on poverty and environment to

[66] "UNDP Annual Report 2003: People and Our Planet: The Road to Sustainable Development" at http://www.undp.org/annualreports/2003/english/people.pdf
And Annual Report 2006: "Global partnership for development" at http://www.undp.org/publications/annualreport2006/index.shtml

[67] "UNDP-EC Poverty and Environment Initiative" at http://www.undp.org/seed/pei/

carry out joint activities at country, regional and global levels. The main goal of such a partnership is to facilitate and promote stakeholder dialogue, coalition-building and actions on policy options for mainstreaming environment in poverty reduction policy, planning and implementation frameworks.

PEI proposes to carry out these activities within the framework of the sustainable development principles of broad participation – particularly the involvement of the poor themselves. PEI contributed to the Johannesburg preparatory process by issuing "Linking Poverty Reduction and Environmental Management",[68] a paper elaborating on the Initiative's mission. The paper proffered three lessons learned from experience in the decade since Rio. First, environment management and poverty reduction policies must reflect the priorities of the poor, enable the poor to invest in environment solutions that have the potential of bettering their livelihoods and seek to change the destructive behaviour of the non-poor. Second, policymakers must take into consideration the relationship between environment and development; that is, they must realize the costs of environmental degradation on the poor and not merely pursue economic prosperity at the expense of the environment. This is another example of how market mechanisms can work for sustainable development goals if externalities are internalized. Third, PEI reminded the WSSD that environment policies or poverty policies cannot be pursued in a vacuum; rather, they must be integrated into the tripartite sustainable development framework.

UNDP collaborates with two other institutions to implement the Global Environment Facility (GEF),[69] the designated "financial mechanism" that helps developing countries meet the terms of the Rio agreements on climate change and biodiversity. UNDP manages GEF projects in more than 90% of the countries in which the Facility is active.

Since 1991, UNDP has administered the GEF Small Grants for Sustainable Development Programme. To date, GEF has committed $117.35 million U.S. to national NGOs and community groups directly involved in addressing global environmental problems. In all, UNDP has disbursed more than 3,00 small grants of up to $50,00 each. For projects that reconcile global environmental benefits with sustainable livelihoods for local people. Its priority areas are biodiversity conservation, climate change mitigation and protection of

[68] http://www.undp.org/wssd/docs/LPREM.pdf
[69] http://www.gefweb.org/

international waters, as well as land degradation and desertification. In Kazakhstan, for example, funds from the Small Grants Programme were used to support a project that successfully protected twenty bird nests, including those of Golden Eagles. A similar program in Poland was aimed at protecting the white stork. Also in Poland, the Small Grants Program supported the Barka Foundation, which helped local villagers near Pozan convert from Coal to waste-wood for heating.[70]

4. Trade

Recognising the potential of liberalised trade and private investment for growth, UNDP helps countries to develop strong institutions, laws and regulatory structures to manage globalisation at a national level. To this end, the Programme works with UNCTAD to build capacity in developing countries to participate in trade negotiations and dispute procedures through such initiatives as the Integrated Framework for Technical Assistance to LDCs and the Globalization, Liberalization and Sustainable Human Development Programme.[71]

5. Energy

UNDP fuelled the consideration of the role of energy in sustainable development in the years between the Millennium Summit and the WSSD by contributing to two reports deliberating past experience in sustainable energy and proposing sustainable energy solutions for the future. The first, the World Energy Assessment,[72] was prepared as the substantive input for CSD-9 (2001), which focused on energy. The second was issued as a follow-up to the first document and in preparation for the World Summit.[73] Both emphasized that social and economic development and equity are predicated on access to energy and that energy solutions in developing countries must be pursued consistently with environment policies.

[70] "Hands-on Action for Sustainable Development 1992-2002: The GEF Small Grants Program"
[71] "Achievements: Trade and Private Investment" at http://www.undp.org/wssd/achieve_trade.htm
[72] "World Energy Assessment" at http://www.undp.org/seed/eap/activities/wea/
[73] "Energy for Sustainable Development: A Policy Agenda" at http://www.undp.org/seed/eap/html/publications/2002/2002a.htm

The UNDP Initiative for Sustainable Energy (UNISE)[74] has identified three priorities of sustainable energy: efficiency, renewables and new technologies.

Access to greater quality and quantity of energy services is an essential prerequisite to improve living standards and human welfare and to guarantee economic growth. As a matter of fact, UNDP is financing projects to promote access to energy services to support household and productive activities in rural areas as well as access to clean energy technologies. UNDP's main priority is to strengthen developing countries' national policies by incorporating sustainable energy considerations in poverty reduction strategies, macroeconomic reform, energy sector reform, and sustainable development planning[75].

Particularly, it is to emphasize the active role of the organization in several UNECE member states, such as: Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Kazakhstan, Macedonia, Moldova, Romania, Russian Federation, Serbia and Montenegro, Ukraine. Many projects have been undertaken in the energy efficiency area in order to enhance national capacities and to ensure countries energy availability.

[74] "UNDP Initiative for Sustainable Energy" at http://www.undp.org/seed/energy/unise/

[75] Energy & Environement Bureau for Development Policy, "The Sustainable Difference: Energy and Environment to achieve the MDGs" at http://www.undp.org/energyandenvironment/sustainabledifference/

CHAPTER VIII

Looking Out for the Planet: United Nations Environment Programme (UNEP)

1. Introduction

The United Nations Environment Programme (UNEP) is another of the UN institutions whose mandate and experience make it a major player in the sustainable development process. Indeed, its establishment was a product of the Stockholm Conference (1972), the genesis of the sustainable development process within the United Nations system.[76] UNEP's mission statement rings remarkably similar to the definition of sustainable development itself: "To provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations."[77] Its history and mission therefore ensure that UNEP will have an important part to play in the implementation of the Johannesburg programme.

2. Summary of activities

In May 2000, two and a half years prior to the WSSD, UNEP convened the first Global Ministerial Environment Forum in Malmö, Sweden. The consensus reached at Malmö provided the basis for UNEP's vision going into the WSSD process.[78] The UNEP Division of Technology, Industry, and Economics (DTIE) was particularly active at the Summit, with a focus on energy, and prepared a follow-up agenda. At the regional level, UNEP regional offices coordinated with the regional commissions to prepare for the Summit. For example, UNEP's Regional Office for Europe (ROE) cooperated with ECE to develop regional environmental strategies in the lead-up to Johannesburg.[79]

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[76] "Summit Characteristics" at http://www.unep.org/wssd/wssdpagevision.asp
[77] "About UNEP: The Organization" at http://www.unep.org/Documents/Default.asp?DocumentID=43
[78] "UNEP Vision" at http://www.unep.org/wssd/Vision.asp
[79] "Report of the UNECE Regional Ministerial Meeting for the World Summit on Sustainable Development" at http://www.unece.org/env/documents/2001/ece/ac22/ece.ac.22.2001.2.e.pdf

At the Seventh special session of the Governing Council (February 2002), UNEP recognized that its role in the revitalization of the sustainable development process lay in strengthening international environmental governance.[80] No longer could the international community address environmental issues in isolation; the concept of sustainable development exposes the relationships between environment, society and economy. The Plan of Implementation calls for the full implementation of the decision on international environmental governance adopted by the Governing Council.

The Plan of Implementation further defines UNEP's role in the institutional framework for sustainable development by calling for the strengthening of cooperation between UNEP and the other institutional players in the sustainable development process as well as for the strengthening of UNEP's contribution to sustainable development programmes, particularly in the area of capacity-building.

The Twenty-second session of the Governing Council/Global Ministerial Environment Forum (February 2003) reconsidered the proposals for reforming and strengthening the institutional architecture supporting global environmental governance in the light of the WSSD and reached a set of conclusions for the further implementation of a new model of governance.[81] It also outlined a plan to implement the Johannesburg outcomes, adopting the theme of "environment for development" to guide the Programme's future activities.[82]

The 8th Special Session of the UNEP Governing Council was held on 29 March 2004 at Jeju S. Korea. Dubbed the "Jeju Initiative," the Council focused on water sanitation and human settlement. Their work at Jeju constituted UNEP's contribution to CSD-12.[83]

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[80] "Report of the Governing Council on the Work of Its Seventh Special Session/Global Ministerial Environment Forum" at http://www.unep.org/governingbodies/gc/specialsessions/gcss_vii/Documents/K0260448.doc

[81] "Implementing the Outcomes of the World Summit on Sustainable Development: International Environmental Governance" at http://www.unep.org/GoverningBodies/GC22/Document/k0263573.pdf

[82] "Actions of the UNEP to Implement the Plan of Implementation of the WSSD" at http://www.unep.org/GoverningBodies/GC22/Document/k0263704.pdf

[83] "President's summary of the ministerial segment of the eighth special session of the United Nations Environment Programme Governing Council/Global Ministerial Environment Forum" available at http://www.regeringen.se/content/1/c6/02/19/13/de4fc6f7.pdf

In addition, the UNEP/SETAC "Life-Cycle Initiative" was launched by Mr. Klaus Toepfer, UNEP's Executive Director, and Ms. Lorraine Maltby, President of SETAC Global on April 28 at the opening of UNEP's Seventh High Level Seminar on Cleaner Production. The initiative takes cleaner production further by looking at the whole life cycle both in a strategic as well as from a practical point of view. Moreover, the initiative links to key themes of the World Summit for Sustainable Development (WSSD), such as good governance, protecting consumer interests, disseminating best practice, identifying business opportunities (alleviating poverty), globalisation, developing multi-stakeholder partnerships, Global Reporting Initiative (GRI) and Global Compact.[84]

3. Environment

It is redundant to say that all of the activities of the UN Environment Programme strive to protect the environment. Therefore, this paper will consider UNEP's contributions in the environment sector in the context of the other themes.

4. Trade

The UNEP office most directly concerned with the relationship between trade and environment is the Economics and Trade Branch (ETB) of the Division of Technology, Industry, and Economics. The UNEP ETB cooperates with the UN Conference on Trade and Development (UNCTAD) in the Capacity Building Task Force on Trade, Environment and Development (CBTF). The WSSD Plan of Implementation recognizes capacity building as one of the guiding principles of the implementation of sustainable development. Explained in greater detail above, capacity building aims to arm developing countries with the resources – technical, financial and institutional – necessary to embark upon the path to achieving sustainable development.

[84] "Sustainable Consupmtion Events" at www.uneptie.org/pc/sustain/events/events.htm

5. Energy

Although energy appears to play a minor role in UNEP's strategy for implementing the Johannesburg agreements, the Programme is active in a number of initiatives that look at the energy aspect of sustainable development. First among these is the Energy Programme, whose mission is to address "the environmental consequences of energy production and use, such as global climate change and local air pollution".[85] Activities within this programme respond to the Plan of Implementation. Among these one of the initiatives most directly addressing energy and sustainable development is the Global Network on Energy for Sustainable Development, a "Type II" partnership involving energy centres in the industrialized as well as developing worlds.[86] The Global Network works towards delivering green and cleaner energy technologies to developing countries. UNEP is further engaged on energy issues in the sustainable development process in the Collaborating Centre on Energy and Environment, the African and Brazil Rural Energy Enterprise Development Initiatives and the Offshore Oil and Gas Environment Forum.

UNEP has also recently undertaken a project on "promoting industrial energy efficiency trough cleaner production" in countries such as China, India, Hungary, Czech Republic, Slovakia. The primary goal of the project is to promote energy efficiency, helping countries in reducing emissions of greenhouse gases[87].

Also energy related, UNEP, OECD and the Austrian government have collaborated to create a website dedicated to improving passenger and freight mobility in Central and Eastern Europe while protecting human health and respecting natural resource limits and the environment. Dubbed the "EST goes East Clearing House" the project in its pilot phase. It is designed to disseminate information on best practices and exchange environment-related transport information, and promote new projects.[88]

[85] UNEP-DTIE Energy and OzonAction Branch – Energy Unit at http://www.uneptie.org/energy/
[86] See http://www.gnesd.org/
[87] See http://www.unep.org/
[88] "About EST goes East Clearing-House" at http://www.unep.ch/est-east/aboute.schtml

CHAPTER IX

Management of Natural Resources and Environmental Protection: Food and Agriculture Organization (FAO)

1. Introduction

Leaders gathered at the World Food Summit in 1996 committed their countries to cutting hunger in half by the year 2015. A series of international conferences and summits during the 1990s identified other major goals and quantified targets with the same time horizon. These were brought together in the Declaration adopted by the UN Millennium Summit in September 2000 and later restated in the form of eight Millennium Development Goals.

The Food and Agriculture Organization (FAO) is a key partner in the implementation of the United Nations Framework Convention on Climate Change (UNFCCC). In this respect, FAO deals mostly with normative activities (such as policy and technical guidelines and databases), but it also includes information on field programmes. Selected technical and institutional links to many other partners that support these conventions are also included under this theme.

2. Energy

The Food and Agriculture Organization (FAO) helps integrate energy as a tool for food security and sustainability, develop renewable energy sources adapted to the needs of rural populations, and foster efficient use of conventional energy sources.

Assessment and planning. FAO has promoted national frameworks for sustainable energy in Asia, helped establish a Latin American and Caribbean Working Group on Energization for Sustainable Rural Development (GLAERS), and published a study on energy needs in African agricultural in the year 2010.

Regional wood energy networks in Latin America and Asia are promoting more efficient end use of wood as a modern energy carrier. FAO's biofuels programme covers such technologies as anaerobic digestion of organic wastes and residues, organic recycling, pyrolisis and briquetting. Solar energy applications include solar drying and solar cooking, heating, water pumping, communications, lighting, greenhouses and refrigeration. FAO promotes introduction of machinery, tools and alternative technologies to rural areas, taking into account specific farming systems and agro-industrial activities. FAO supports the draught animal equipment components of agricultural mechanization projects and the improvement of animal systems for food production and other farm uses.

Activities for the integration of energy sources include integration of alcohol production from sorghum with biogas, pyrolysis, solar and wind systems and energy conservation; and assessment of the potential of various renewable sources of energy in specific farm activities.

3. Sustainable Development

The responsible management of natural resources is the key to attaining sustainable agricultural and rural development. FAO has long been at the forefront of promoting natural resources management and environmental protection in its work, but, as of 1 January 2007, this commitment has been strengthened by the creation of the new Natural Resources Management and Environment Department. The new Department replaces the former Sustainable Development Department, although its former work in the areas of gender, equity and rural employment will continue to be carried out by FAO’s Economic and Social Development Department. The new Natural Resources Management and Environment Department’s main functions are to support environmental services, to promote the sustainable management and use of land, water, and genetic resources, and to strengthen agricultural research and extension systems. The Department will take the lead in the areas of bioenergy, climate change issues, land and water management, land tenure issues, biodiversity for food and agriculture, and research and extension.

The new Natural Resources Management and Environment Department consists of three Divisions:

- Environment, Climate Change and Bioenergy Division
- Land and Water Division
- Research and Extension Division

The new Environment, Climate Change and Bioenergy Division builds upon the work of the former Environment and Natural Resources Service, with particular attention focused upon the role of rural institutions in addressing local development issues. This reflects the greater interest expressed by member countries in Climate change issues related to agriculture, forestry and fisheries. Member countries are assisted both in the mitigation of climate change and in the development of adaptive capacities of agriculture, fisheries and forestry to the effects of climate change. This assistance is made available through a variety of approaches, including technical support, policy tools, institutional strengthening, guidelines and best practices.

4. Bionergy

While FAO has been involved with Bioenergy for the past three decades, the structure of the new Department places a greater emphasis on FAO's work in Bioenergy for poverty alleviation, food security and climate change mitigation and increases opportunities for cooperation with member countries, other organizations and private-public partnerships. The Division continues to serve as a focal point for organizing and facilitating a multidisciplinary and global approach to bioenergy through the mechanisms of the International Bioenergy Platform (IBEP) and the Global Bioenergy Partnership (GBEP). IBEP is expected to provide analysis and information for policy and decision-making support; to build and strengthen institutional capacity at all levels; to enhance access to energy services from sustainable bioenergy systems; and to facilitate opportunities for effective international exchange and collaboration. GBEP's Secretariat is located at FAO's Headquarters and is supported by the Italian Ministry for the Environment. The GBEP Secretariat acts as the principal coordinator of Partnership communications and activities and assists international exchanges of know-

how and technology, promote supportive policy frameworks and identify ways of fostering investments and removing barriers to the development and implementation of joint projects.

Bioenergy: Access to clean and affordable energy is a key factor to increase agricultural productivity and to achieve food security and improve rural livelihoods. Providing multiple energy services for cooking and heating as well as power for electricity, industry and transportation, bioenergy (and other renewable energies such as solar, wind and geothermal) can contribute strongly to increased labour productivity and diversification of economic activities in rural areas. The specific functions of agriculture as an energy producer, agroecosystem regenerator and environmental service provider (e.g. climate change mitigation, biodiversity protection, rehabilitation of marginal land, etc.) are essential components of sustainability.

Environmental technologies in agriculture are the technological means for ecosystem management that aim at improving agricultural production and post-production while conserving the regenerative and reproductive capacity of the natural resource base. They combine traditional and scientific knowledge of natural processes and are based on the utilization and recycling of renewable resources, including energy.

CHAPTER X

Broadening Trade and Market Access for the Poor: United Nations Conference on Trade and Development (UNCTAD)

1. Introduction

The United Nations Conference on Trade and Development (UNCTAD) facilitates intergovernmental discourse on trade, development and related issues by contributing substantive input, and assists developing countries to build the capacity required to meet the demands of sustainable development.[89] UNCTAD's contribution to the WSSD process focuses on its institutional strengths: technical assistance and capacity building, biotrade, climate change, commodities, investment, technology, and enterprise development. The Conference's sustainable development work also involves follow-up on Doha trade and development issues. Its post-Johannesburg activities focus on addressing the effects of sustainable development environmental policy on market access for developing countries. The sustainable development activities of UNCTAD thus focus on the environment and trade sectors; energy is not a significant aspect of its work.

2. Summary of Activities

While it is true that some of UNCTAD's *raisons d'être* and the principles of sustainable development coincide, such as the effort to employ trade to broaden market access for developing countries in such a way as to protect the environment, UNCTAD's activities are largely outside the scope of this paper. However, it has played and continues to play a significant role in the mutually supporting processes parallel to the WSSD – particularly the Doha Development Agenda. At the Summit, the UNCTAD Secretary General delivered a speech on the topic of migration – in particular, on how UNCTAD's resources can be most effectively employed to address migration problems.[90] In addition, as discussed in the

[89] "What is UNCTAD?" at http://www.unctad.org/Templates/Page.asp?intItemID=1530&lang=1
[90] Migration, however, is beyond the scope of this paper.

previous chapter, UNCTAD and UNEP used the occasion of the Summit to reinvigorate their joint venture, the Capacity Building Task Force on Trade and Environment (CBTF). UNCTAD proposes to follow-up Johannesburg with a programme aimed at reconciling the environmental regulation called for in the Plan of Implementation with the trade needs of developing countries.[91]

On the occasion of the Seventh session of UNCTAD's Commission on Trade in Goods and Services, and Commodities (February 2003), the Conference summarized its commitments to implementing Johannesburg.[92] UNCTAD proposes to fulfil its sustainable development responsibilities through enhancing technical assistance cooperation with the secretariats of the other institutional players and implementing "Type II" partnerships, particularly in connection with CBTF.

3. Environment

In the lead up to the WSSD, UNCTAD's sustainable development activities in the environment sector were influenced by UNCTAD's significant involvement in the implementation of the Doha work programme. For example, in July 2002, only about three months before the Johannesburg Summit, UNCTAD held a workshop to deliberate trade and environment issues, particularly as they affect Latin American countries, and to identify practical approaches to achieve the Doha objectives.[93] At the Summit, UNCTAD and UNEP launched the second phase of the Capacity Building Task Force on Trade and the Environment (discussed above), but this institution has yet to engage in sustainable development activities touching the ECE region.

Several environment priorities were included in the document issued by UNCTAD in preparation for Johannesburg, "Promoting Trade for Sustainable Development: UNCTAD's Contribution to the World Summit on Sustainable Development".[94] First, in addition to the

[91] See generally "Trade, Environment and Development" at http://www.unctad.org/en/docs//c1d52_en.pdf
[92] "Report of the Commission on Trade in Goods and Services, and Commodities on its seventh session" at http://www.unctad.org/en/docs/c1d58_en.pdf
[93] "UNCTAD Workshop on Post-Doha Trade & Environment Issues" at http://r0.unctad.org/trade_env/test1/meetings/sanjose2.htm
[94] "Promoting Trade for Sustainable Development: UNCTAD's Contribution to the World Summit on Sustainable Development" at http://www.unctad.org/en/docs//poedmm216.en.pdf

CBTF, UNCTAD is active in a number of other technical assistance and capacity building programmes. Again, however, UNCTAD directs most of its energies towards the least developed countries of Latin America and Africa, and its programmes have little impact on ECE members. Second, UNCTAD's Biotrade Initiative seeks to promote the sustainable use of biodiversity through helping developing countries to take advantage of biodiversity to produce value-added products and services. Third, UNCTAD is very involved with initiatives addressing the problems associated with climate change. It works on greenhouse gas emission trading and counsels developing countries on the implementation of the Kyoto Protocol, with particular emphasis on how developing countries can benefit from Kyoto. Fourth, UNCTAD contributes to the environmental accounting aspect of enterprise development by promoting standards to ensure that the market accurately accounts for environmental costs and liabilities. And finally, the organisation analyses the relationship between foreign direct investment (FDI) and environment.

4. Trade

Along with environment and development, trade is one of the troika of themes addressed by UNCTAD. This grouping is hardly surprising: the concept of sustainable development itself recognizes that these three forces are locked in a system where progress or regress by one can influence the others directly. As such, the challenge of sustainable development is to comprehend the interrelationships among the factors. One of the principles of sustainable development is that trade, particularly in the sense of greater market access for developing countries, can facilitate environment and development ends. This principle defines UNCTAD's institutional outlook.

Trade is an important factor in many of the initiatives highlighted in UNCTAD's WSSD report. Of course, the Task Force for Trade, Environment and Development and the Conference's other technical assistance and capacity building activities seek to enable developing countries to manage the mutual influence exercised by trade and environment. As well, as mentioned above, UNCTAD is a major partner of the WTO, and plays a significant part in the follow-up to the Doha Ministerial Conference. Trade constitutes an integral aspect of UNCTAD's Biotrade Initiative, which employs international trade as a vehicle for the sustainability of biodiversity. Export commodities, in developing countries as well as

economies in transition, supply the focus for a third trade-related activity pursued by UNCTAD as part of the WSSD process. UNCTAD recognizes that nearly half the world – and particularly the developing world – relies on commodity production for employment, as well as livelihood in general. The challenge here lies in the current pattern of trade distorting mechanisms, for which developed countries bear most of the responsibility: agricultural products, one of the commodities most relied on by the South, are subject to the sharpest trade practices, infamously in the form of subsidies. While the removal of such measures is more the province of the WTO than UNCTAD, UNCTAD works to better the lot of developing countries from the supply side, engaging in projects to fight the current plague of low commodity prices with diversification and to promote the sustainable production and export of commodities.

The background note by the UNCTAD secretariat in preparation for the Seventh session of the Commission on Trade in Goods and Services, and Commodities focused on the challenge of reconciling "environmental requirements" with trade and development – that is, of encouraging the consideration of the effects on trade and development of public and private environmental regulation. The note emphasizes "the need to ensure that this does not have unnecessary adverse effects on developing countries' exports and that environmental standards are not used as a disguised form of protectionism".[95] The paper also proposed several issues to be addressed by the Commission, including building capacity to enable developing countries to respond to environmental requirements and the creation of markets and trading opportunities for environmentally preferable products (EPPs).

In her statement to a special meeting of UNCTAD in July 2003, German Federal Minister for Economic Co-operation and Development Heidemarie Wieczorek-Zeul chastised developed countries for not taking their sustainable development commitments seriously enough.[96] She accused the economically advanced countries – the leaders of the globalization and trade liberalization movement – of practicing what they preach only when it serves their interests: "It is not right to preach free trade whilst at the same time barring developing countries from engaging in it as soon as it is no longer convenient." The most telling example, of course, is

[95] "Trade, Environment and Development" at 3.
[96] Heidemarie Wieczorek-Zeul, "Trade and development: Making the development round a reality in Cancun", Statement to UNCTAD special meeting, Geneva, 22 July 2003.

agricultural subsidies. The international trading system as it now stands, however, is biased against developing countries and LDCs in other sectors as well: Ms. Wieczorek-Zeul noted that while the value of shoe imports (generally from developing countries) in the United States amounts to only about one-sixth the value of automobile imports (generally from developed countries), customs revenues from shoe imports exceed those from automobiles. She further emphasized the imperative of integrating developing countries into the globalization process for reducing poverty and enabling sustainable environment policies. Only then will the "Doha Development Agenda" live up to its name.

UNCTAD XI was held in Sao Paulo, Brazil, on 13-18 June. The theme of the eleventh quadrennial session of the United Nations Conference on Trade and Development was "coherence," namely, achieving coherence between national development strategies and global economic processes in trade and development. Towards that end, the conference called upon all countries to word towards the multilateral trading system advanced by the Millenium Development Goals, one that is "open, equitable, rule-based, predictable and non-discriminatory" The conference also devoted attention to trade and gender issues, the development of creative industries in developing countries, and improving the supply capacity of developing countries.[97]

In addition, UNCTAD convened a Roundtable on Promoting Trade for Sustainable Development, as a parallel event with UNCTAD XI. The discussion focused on the positive contribution trade can make to the sustainable development process in developing countries in particular. [98]

5. Energy

UNCTAD's sustainable development activities in the energy sector are negligible.

[97] Secretary General's statement at www.unctadxi.org.
[98] TD/(XI)/BP/10, May 24 2004

CHAPTER XI

Making Trade Work Towards Sustainable Development: World Trade Organization (WTO)

1. Introduction

The World Trade Organization (WTO) replaced the General Agreement on Tariffs and Trade (GATT) in 1995. GATT was intended to supplement the post-war international economic arrangements at Bretton Woods that established the World Bank and the International Monetary Fund. The post-war world leaders remembered the economic chaos of the 1930s, which was caused in part by the lack of coordinated international economic policy and which created an environment conducive to the extreme political movements that eventually precipitated the Second World War. In the 1940s, it was hoped that a coherent international trading regime would contribute to peace and prosperity. At the turn of the twenty-first century, as GATT was transformed from a "general agreement" into a proper "organization" – the World Trade Organization – its raison d'être remains that of liberalizing trade. However, free trade is still only the means to an end, and today that end includes sustainable development.

2. Summary of Activities

The signatories to the Marrakesh Agreement, which established the WTO in 1995, recognized the imperative of sustainable development in the first substantive paragraph of the preamble.[99] This reflected the priority assigned to environment and development concerns at Rio in 1992. The WTO has worked towards this objective in two major ways. First, the WTO Secretariat participates in the annual CSD sessions, reporting to the CSD on the WTO's progress with regard to trade, environment and sustainable development. Second, the GATT/WTO contributed to the Rio follow-up process by establishing a Committee on Trade and Environment (CTE) to recommend development-enhancing trade policy.

[99] "Uruguay Round Agreement: Marrakesh Agreement establishing the World Trade Organization" at http://www.wto.org/english/docs_e/legal_e/04-wto_e.htm

In 2001 at the Fourth Ministerial Conference in Doha, Qatar, the WTO embraced sustainable development as the motivation behind future trade negotiations in the "Doha Development Agenda". The WSSD Plan of Implementation recognized the WTO's role as the leading institution in the campaign to realize the potential of international trade in the sustainable development process and called upon the members of the WTO to fulfil their Doha commitments.

On July 31, 2004, negotiators on all sides made a breakthrough on the latest round of talks, which were launched at Doha, broke down at Seattle and stalled at Cancun. The General Council adopted four "frameworks" on agriculture, market access for non-agricultural products, trade in services and trade facilitation.[100] Though promising, the agreement remains very general and more difficult negotiations lay ahead, particularly on cotton subsidies and drug patents.

3. Environment

The WTO has developed a set of parameters to guide its work on environment based on both its institutional competence as well as the challenge of reconciling environment and development concerns.[101] First, as it itself frankly admits, the WTO is not an environmental protection agency; its environment activities are therefore limited to matters touching trade. This delimitation of its role focuses on the complementarity between the twin goals of trade and environment: "Environmental protection preserves the natural resource base on which economic growth is premised, and trade liberalization leads to the economic growth needed for adequate environmental protection."[102] Second, the WTO rules already afford the requisite scope for national environmental protection policies. Only the principle of non-discrimination – which calls for equal treatment for domestic and imported products or for products imported from different trading partners – shapes the capacity of governments to pursue environmental protection. Third, that developing countries need access to markets in order to protect the environment follows from the first guideline. Simply put, trade

[100] "Draft General Council Decision of 31 July 2004." WT/GC/W/353.
[101] "Parameters of the discussion in the WTO" at http://www.wto.org/english/tratop_e/envir_e/issu2_e.htm
[102] *Ibid*.

liberalization alleviates poverty in developing countries, the most obstructive hurdle to environmental protection. Finally, the WTO believes that many environmental problems can best be addressed at the national level through better intragovernmental coordination and at the regional and global levels through multilateral environmental agreements (MEAs), which avoid the pitfalls of unilateralism and extraterritoriality.

The Doha Ministerial Declaration, adopted less than a year before the WSSD, spells out the WTO's agenda, coloured throughout by the theme of development. The ministers agreed to carry out the Doha Work Programme through two institutional mechanisms: new negotiations and committee work.

Under the trade and environment heading, the Doha Declaration sets forth five subjects for new negotiations: MEAs, information exchange, observer status, trade barriers on environmental goods and services and fisheries subsidies.[103] The negotiations on multilateral environmental agreements[104] are intended to examine the applicability of existing WTO rules to trade provisions incorporated in MEAs. The information exchange negotiations are supposed to expand the scope of existing cooperation between the WTO and MEA secretariats by broadening discussions on dispute settlement mechanisms and the impact of the agreements on trade. On observer status in the WTO to other international governmental organisations, an issue currently at the mercy of politics, the ministers resolved to develop criteria for observership. Finally, negotiations shall deliberate the reduction or elimination of trade barriers on environmental goods and services, such as air filters or consultancy services on wastewater management, as well as the potential for environmental harm posed by fisheries subsidies.

The Doha Declaration instructs the Committee on Trade and Environment to devote particular attention to several priorities. First, it urges policymakers to strike a balance between environmental objectives and market access for developing countries. Second, it encourages policymakers to find "win-win-win" situations where the removal of trade

[103] See "The Doha Declaration explained" at http://www.wto.org/english/tratop_e/dda_e/dohaexplained_e.htm#environment

[104] E.g., the Montreal Protocol for the protection of the ozone layer, which applies restrictions on the production, consumption and export of aerosols containing chlorofluorocarbons (CFCs).

restrictions and distortions benefits the environment and development as well as the multilateral trading system. Third, the ministers called on the Committee to use the WTO intellectual property regime to improve access for developing countries to green technologies and products. Fourth, the Declaration instructs the Committee to analyse the effects of eco-labelling on trade and look at whether existing WTO rules obstruct progress in eco-labelling.

At the 8th meeting of the Committee on Trade and Environment Special Session held on 9 April 2004, delegates stressed the importance of reconciling WTO rules and multilateral environmental agreements (MEAs). In addition, participants supported work on a development oriented list of environmental goods and various avenues for greater information exchange and cooperation between WTO and UNEP. Further, the Secretariat, in cooperation with UNEP, UNCTAD and a number of MEAs, organized regional seminars for government officials on trade, the environment and sustainable development.[105]

4. Trade

As explained in the preceding section, the WTO's mandate focuses its sustainable development activities almost exclusively on trade issues. Therefore, this paper will consider the WTO's involvement in trade and sustainable development in the context of the other sectors.

5. Energy

The WTO only directly confronts the nexus between energy and sustainable development to the extent that it pushes for the removal of environmentally damaging energy subsidies within its broader trade liberalization and sustainable development programmes. For example, prompted by bi-lateral WTO-ascention negotiations with the EU, Russia struck a deal in June 2004 with the EU in which it agreed to raise domestic gas prices in line with its own energy strategy and promised to give private companies access to state-run gas pipelines.[106]

[105] 2004 Report of the WTO
[106] Wall Street Journal May 24, 2004, page A2

PART III

NEW TRENDS IN PARTNERSHIP

CHAPTER XII

Governance on Sustainable Development

UN Sustainable Development Board

A new governance mechanism is required to provide oversight for the One UN at the country level. There is also a need to provide operational guidance and direction to the separate organizations for the coherence and effectiveness of the UN system at the country level. The report of the Secretary-General's High-Level Panel recommends the establishment of a UN Sustainable Development Board (responsible for operational coherence and coordination, system-wide implementation of policies, for allocations of voluntary funding and for performance of the One UN at the country level), reporting to the Economic and Social Council.

The UN Sustainable Development Board will also review the consolidated One Country Programme, which will include components developed by individual organizations, reflecting the policies and directives of their respective boards.

1. Role and mandate of the UN Sustainable Development Board

- Endorse "One" Country Programme and approve related allocations of voluntary donor finance from the Millennium Development Goal funding mechanism. Following an inclusive planning process by the UN country team, in line with the principle of country ownership, and approval of the programme by the country, the Sustainable Development Board will endorse unified country programme and approve the allocation of voluntary funds. It would ensure agency alignment with jointly agreed UN priorities.

- Maintain a strategic overview of the system to drive coordination and joint planning between all Funds, Programmes and Agencies to monitor overlaps and gaps.

- Review the implementation of global analytical and normative work of the UN in relation to the One UN at country level, to progresss towards the internationally agreed development goals and to provide strategic guidance on the policy and analytical work of UN sustainable development activities.

- Oversee the management of the MDG funding mechanism, which will coordinate donors resources and consolidate allocations. The Board's decisions, particularly on allocations, will be informed by strategic policy and operational advice provided by the UN Development Policy and Operations Group, under the leadership of the Development Coordinator. To fulfil this role the Group requires an internal Development Finance and Performance Unit to manage voluntary donor finance and monitor system-wide performance.

- Review the performance of the UN Resident Coordinator system, taking all necessary steps to strengthen coherence and delivery. This will include monitoring the implementation and delivery of efficiencies, results-based management and the harmonisation of business practices. It will also cover the provision of common services to all funds, programmes and specialized agencies in the field.

- Consider and comment on the implementation of the strategic plans of funds, programmes and specialized agencies with a role in delivering the MDGs, the other internationally agreed goals and normative activities relating to sustainable development, particularly in the context of the One Country Programme. The board would assess and strengthen system-wide operational and normative coherence, performance and effectiveness of UN system-wide sustainable development activities. There should be additional discretionary funding available to the Board to provide incentives for good performance of Headquarters of Funds, Programmes and Specialized Agencies and to fund programmatic gaps and priorities.

- Commission periodic strategic reviews of One Country Programmes. The Board will ensure that the One Country Programmes are aligned with national development plans, have full country ownership established through inclusive consultative processes and are focused on internationally agreed development goals. Strategic review will be prepared for the

Board's consideration under the direction of the UN Development Coordinator. The Board should provide clear guidance and directions to relevant stakeholders to implement the recommendations of such reviews.

- Consider and act on independent evaluation, risk and audit findings, submitted by the new Independent Evaluation Unit, established by the Secretary-General and reporting to the Board. This Unit will strengthen evaluation across the development system and provide timely, independent performance information to improve the system and its processes.

2. Membership and reporting

The Economic and Social Council should establish the Board and determine membership in line with experience gained from the composition of the executive boards of the funds, programmes and specialized agencies. The Board will comprise a subset of member states on the basis of equitable geographic representation. Senior staff from development, planning, finance and foreign ministries, with the appropriate skills and competencies, should represent member states, the Board should convene at ministerial level when required. It should enable major non-UN inter-governmental organizations with a key role in the international development architecture to fully participate in its meetings. The Boards decisions should be communicated to all relevant UN inter-governmental bodies. Executive heads of UN agencies, or their deputies, with significant operational and normative programmes should take part as ex-officio members.

When allocating funding for One Country Programme, a high-level representative from that country should be invited. The Board should invite independent experts, senior official of the Bretton Woods Institutions and NGOs to participate in discussions and to inform the Board's decision-making, when necessary[107].

[107] "Delivering as One", Report of the Secretary-General's High-Level Panel, 9 November 2006.

CHAPTER XIII

A Regional Approach in Europe: United Nations Economic Commission for Europe (UNECE)[108]

1. Introduction

The United Nations Economic Commission for Europe (UNECE) is one of the five Economic and Social Council (ECOSOC) regional commissions. Its membership is composed of the countries of Europe and the CIS, as well as the United States and Canada. During the Cold War, UNECE was the only permanent platform for dialogue between East and West, and since the fall of communism, it has redirected its energies towards guiding structural transformation in the Countries in Transition (CITs) and promoting greater economic integration and harmonization among its constituency. Its areas of specialization include environment and human settlements, sustainable energy, trade, industry and enterprise development, timber, and transport. The UNECE's experience and expertise in these sectors provide the resources necessary to lead the implementation of Agenda 21 and the Johannesburg agreements at regional and sub-regional levels. Indeed, the European Union, in its first meeting on the follow-up to the Johannesburg Summit, nominated the ECE for the role of leader of the region's sustainable development programme.[109]

2. Summary of activities

The importance of integrating sustainable development into ECE's work has been repeatedly emphasized by member States. The 1997 Plan of Action stressed the importance of introducing the outlook for sustainable development in all relevant ECE activities, noting that it was "particularly relevant for ECE work" and should "permeate all its activities".

[108] http://www.unece.org/
[109] "Proposed Follow-up for the ECE Region of the World Summit on Sustainable Development" at http://www.unece.org/commission/2003/e.ece.1398e.pdf

The UNECE preparatory process culminated one year before the WSSD with a Regional Ministerial Meeting (24-25 September 2001).[110] The Ministerial Statement adopted by the Meeting outlined the region's perspective on the sustainable development process by setting priorities and developing strategies for meeting regional challenges and by defining the region's responsibilities and role in addressing global problems.[111] The ministers identified six priority actions on global challenges: poverty eradication; sustainable management and conservation of the natural resource base; making globalisation work for sustainable development; improving governance and democratic processes at all levels; financing sustainable development; and education, science and technology for decision-making.

The Ministerial Statement also considered the current state of regional sustainable development activities and courses for future action – programmes and strategies recognized and approved in the Johannesburg Plan of Implementation. The ECE is extensively involved in all three of the major issue areas on which this paper focuses. The Commission's environment activities include the Environment for Europe process, and its Energy Efficiency 21 initiative exemplifies a sustainable development approach to energy. The ministers resolved to employ trade liberalization to achieve sustainable development ends. As well, they committed themselves to promoting good governance, particularly corporate governance.

In 2002, the Plan of Implementation of the World Summit for Sustainable Development stated that the "implementation of Agenda 21 and the outcomes of the Summit should be effectively pursued at the regional and sub-regional levels, through the regional commissions and other regional and sub-regional institutions and bodies". The Summit also called on the regional commissions to promote the integration of the three dimensions of sustainable development into their work in a balanced way and to facilitate and promote such integration into the work of regional, sub-regional and other bodies "for example by facilitating and strengthening the exchange of experiences, including national experience, best practices, case studies and partnership experience related to the implementation of Agenda 21".

[110] The Ministerial Meeting was a joint venture with the UN Environment Programme (UNEP).
[111] "Ministerial Statement to the World Summit on Sustainable Development" at http://www.unece.org/env/documents/2001/ece/ac22/ece.ac.22.2001.2.e.pdf at 8.

In this connection, the Commission for Sustainable Development, at its session in May 2003 also invited the Regional Commissions to consider organizing regional implementation meetings in collaboration with other regional and sub-regional organizations.

The fifth Ministerial Conference "Environment for Europe" requested the UNECE, in cooperation with other relevant organizations and institutions to assist in "assessing progress in the implementation of environmental commitments of this region emanating from the Johannesburg Declaration on Sustainable Development and the Plan of Implementation as well as the UNECE Regional Preparatory Meeting for WSSD." The Declaration went on to state that the results of this work "should feed into regional implementation meetings organized in preparation for the UNCSD meetings as recommended by UNCSD at its 11th session".

UNECE activities related to Sustainable Development

Given the above, the "mainstreaming" of sustainable development in all ECE activities has been actively pursued within ECE. One indicator of achievement for Executive Direction and Management is the extent to which sustainable development is incorporated into the relevant ECEs areas of work.

ECE already has a significant number of ongoing activities related to sustainable development. Among the recurrent ones:

- The development of standards and recommendations in transport that aim at reducing the negative impact of transport on the environment e.g. in the areas of vehicle construction, transport of dangerous goods, combined transport
- The development and implementation of the five ECE environmental conventions and related protocols
- The environmental performance reviews
- Activities relating to the "Environment for Europe" Process
- Working with cities and local authorities to improve urban environmental performance and promote the integration of land use and local transport policies.
- Promotion of the use of energy efficient technology and energy efficiency investment projects

- Promotion of clean coal technology and the role of coal in sustainable development
- Promotion of sustainable forest management

In addition to the above continuing recurrent activities, a number of new sustainable development issues are being taken up. These include, for example, statistical indicators for assessing progress in sustainable development; analytical studies covering progress made in achieving sustainable development in the region; promotion of renewable energy; and trade and environment. Some of these issues have been further discussed and specified at the first meeting of the ECE senior management group on sustainable development, established by the Executive Secretary, which took place in May 2003.

ECE's role in the regional follow-up to WSSD

The Johannesburg plan of implementation and the CSD-11 resolution highlight the specific role of the Regional Commissions in the monitoring and implementation of WSSD, and request them to cooperate with the other regional and subregional organizations for this purpose. This is a long-standing practice of ECE and number of the organizations, groupings and initiatives have been involved in the two most recently held high-level meetings convened by the ECE: the Ministerial Preparatory Meeting for WSSD (Geneva, September 2001) and the "Environment for Europe" Ministerial Conference (Kiev, May 2003).

At the substantive level, these meetings will focus, during the implementation year of each cycle, on the three thematic clusters as identified in the multi-year programme of work decided by the CSD, namely, in 2004-2005, water, human settlements and sanitation.

The First Regional Implementation Forum on Sustainable Develpment

Following the decisions of the eleventh session of the Commission on Sustainable Development (CSD-11), the Economic Commission for Europe at its Ad Hoc Informal meeting on 2 September 2003, decided to hold the First Regional Implementation Forum on 15-16 January 2004 in Geneva. This meeting evaluated progress made in implementing sustainable development goals and identified obstacles and constraints in the areas of water, human settlements and sanitation. The outcomes of the meeting provided substantial inputs to the Review Year of the "Implementation Cycles" and contributed to CSD-12.

At the Summit itself, the UNECE identified the main sustainable development concerns for the two categories of countries that comprise the ECE region: developed countries and countries in transition (CITs).112 The challenges for the economically advanced countries, she remarked, consist mainly in decoupling economic growth from resource use and moving towards more sustainable patterns of production and consumption. CITs, meanwhile, must strive to promote environmentally sound technologies, invest in less energy-intensive equipment for industrial activities and public utilities, change energy consumption behaviour and address the question of waste. She also drew attention to the need for capacity building in less developed countries to reach the Johannesburg goals. The Executive Secretary concluded her statement with the two ways in which UNECE could contribute to the sustainable development process: by "further develop[ing] its support to the implementation of its legal agreements" and by "adopt[ing] an integrative approach to policy debate, exchange of experiences, assessment and monitoring, placing these activities in a truly sustainable development perspective."

At the Fifty-eighth session of the UNECE in March 2003, the Commission prepared a Proposed Follow-Up for the ECE Region of the WSSD,[113] which served as the basis for consideration of its institutional role in the sustainable development process. It recommends the establishment of a Senior Management Group for Sustainable Development to coordinate the institution's sustainable development activities. It also directs each of the UNECE sub-programmes to mainstream the commitment to sustainable development in their daily work; the Environment sub-programme will work towards the implementation of the WSSD commitments. The Proposed Follow-Up calls for region-wide forums to exchange information and to coordinate national sustainable development programmes.

The first meeting of the ECE senior management group on sustainable development took place in May 2003.[114] In late June 2003, UNECE prepared a note on its sustainable development activities in implementing WSSD outcomes. This document recognized the ECE's role in coordinating regional and sub-regional responses to Johannesburg and

[112] Statement by UNECE Executive Secretary, World Summit on Sustainable Development (Johannesburg, 29 August 2002) at http://www.unece.org/press/execsec/2002/bs020829.htm
[113] See "Proposed Follow-up".
[114] "Note on the ECE Role in the Regional Follow-up to WSSD" at http://www.unece.org/env/water/meetings/spwh/2meeting/wp5e.pdf

affirmed the ECE's commitment to convening regional implementation meetings coincident with implementation years in the CSD's programme of two-year work cycles. At the first Regional Implementation Forum on Sustainable Development, held in January 2004, UNECE assessed the progress achieved since Johannesburg and reviewed the development of sustainable development partnerships. In coordination with CSD's thematic cycles, the forum focused on water, sanitation and human settlements.[115] To complement the forum, UNECE has prepared two regional meetings on Education for Sustainable Development. The goal of these meetings is to raise awareness about sustainable development to help overcome the political and financial barriers that often hamper initiatives.[116].

UNECE is also active in facilitating public-private partnerships (PPPs) for sustainable development. It encourages cooperation between public institutions and private companies to provide access to basic needs. The success of such partnerships, however, depends on taking into account social and environmental factors as well as economic viability, including political acceptability and good governance. UNECE strives to show that these principles have important implications for the "bottom line": financial institutions are much more willing to support projects that embrace transparency and accountability.

3. Environment

The intergovernmental initiative that most facilitates regional coordination on environment policy is the Environment for Europe (EfE) process[117], a series of ministerial-level meetings. Part of the broader political agenda in this process was the goal of supporting and strengthening the democratisation processes taking place in the post-communist countries. Information, participation and access to justice were seen as essential elements of a true participatory democracy. These themes therefore became central elements in the EfE process, resulting in the endorsement of the Sofia Guidelines in 1995 and the adoption of the Convention on Access to Information, Public Participation in Decision-making and Access to

[115] Report of the UNECE Regional Implementation Forum on Sustainable Development (ECE/AC.25/2004/2).
[116] Report of Second regional meeting on education for sustainable development
Rome, 15-16 July 2004 (CEP/AC.13/2004/8)

[117] "Environment for Europe" Process at http://www.unece.org/env/wgso/

Justice in Environmental Matters at the Aarhus "Environment for Europe" Ministerial Conference in 1998. The strengthening of citizens' environmental rights were already clearly reflected in principle 10 of the 1992 Rio Declaration.

The Declaration of the most recent EfE ministerial conference (Kiev, May 2003)[118] was a collective response to the decisions of Johannesburg as well as of the preparatory regional Ministerial Statement.[119] It outlines responses across the sectors to make regional environmental progress happen. The list of responses includes a discussion of the regional process and potential for contribution to global challenges as well as regional strategies. One of these strategies is an interesting approach to the principle of internalizing externalities: the civil liability regime as a supplement to market incentives. The Declaration adopted an environmental strategy for the countries of Eastern Europe, the Caucasus and Central Asia (EECCA) calling for the building of partnerships at sub-regional level and for implementing the results of the WSSD. The strategy is a comprehensive plan to confront problems across the sustainable development spectrum through cooperation within the EECCA region and with other ECE countries.

Progress in the UNECE region is also made directly through NGOs. Countries with a thriving NGO sector find that public participation is enhanced and that the public is better informed. NGOs are frontrunners in awareness-raising campaigns through which the public is educated in sustainable development issues.

On Regional Conventions, there is no doubt that the UNECE has assumed a place at the centre of harmonizing and developing environmental law and policy developments on the pan-European level, through the Environment for Europe Process as well as through the UNECE Committee on Environmental Policy. Particularly, during the Kiev Conference, it was stressed the essential role of the Committee on Environmental Policy, in cooperation with other relevant organizations and institutions, in monitoring the outcome of the Kiev

[118] The sixth ministerial conference of "Environment for Europe" is scheduled to take place in Belgrade in the fall of 2007

[119] "Environment for Europe: Declaration by the Environment Ministers of the region of the United Nations Economic Commission for Europe (UNECE)" at http://www.unece.org/env/documents/2003/ece/cep/ece.cep.94.rev.1.e.pdf

Declaration120 and in developing a communication strategy to raise awareness of the "Environment for Europe" process. The Committee was also invited to assist Ministers in assessing progress in the implementation of environmental commitments in the region, stemming from the Johannesburg Declaration on Sustainable Development121. During the Kiev Conference, three Protocols to Conventions of the United Nations Economic Commission for Europe were adopted and opened for signature.

To date, five environment and sustainable development conventions have been adopted under the auspices of the UNECE: the Convention on Long-range Transboundary Air Pollution (1979) and its 8 protocols; the Convention on Environmental Impact Assessment in a Transboundary Context (1991); the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992) and its protocol; the Convention on the Transboundary Effects of Industrial Accidents (1992); the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (1998)[122].

Within the "Conference for Europe" Process, the Sixth Ministerial Conference is planned to take place in Belgrade, in Serbia from 10 to 12 October 2007. The Conference is prepared by the Working Group of Senior Officials (WGSO) which is an intergovernmental group created for the express purpose of preparing for upcoming Ministerial Conferences "Environment for Europe" and for coordinating the follow-up response. Each Working Group of Senior Officials is established by the UNECE Committee on Environmental Policy upon the recommendations of the Ministerial Conferences. The Working Group of Senior Officials is open to participation of all member States of the United Nations Economic Commission for Europe.

[120] The Kiev Declaration was the fifth ministerial conference held as part of the " Environment for Europe Process" on 21-23 May 2003, in Kiev. During the Conference, countries reaffirmed their commitment to cooperation on environmental protection and sustainable development.
[121]UNECE, 2003, Provisional Agenda for the tenth session, Geneva 20-22 October, Committee on Environmental Policy (ECE/CEP/115/Add.1).
[122] For more information see: http://www.unece.org/env/welcome.html.

4. Trade

The UNECE's preparation for the WSSD, as embodied in the Ministerial Statement, emphasized the importance of making globalization work for developing countries and CITs. It called for the opening of markets to such countries and the expansion of foreign direct investment (FDI) in them in a socially and environmentally responsible way. The support of economic integration through the removal of barriers to trade has been an integral function of the UNECE throughout its institutional history. It is, therefore, natural that the Commission should capitalize on its experience and strength in this area to advance global and regional sustainable development. The Ministerial Statement also recognises the role of trade in financing sustainable development. A liberalized international trade regime should supplement FDI and official development assistance (ODA) by providing access to markets for developing countries. In this regard, the ministers echoed the call for eliminating or reducing environmentally adverse subsidies.[123]

The ECE Follow-Up document filters the work of the Commission's Trade Development sub-programme through the sustainable development prism. The sub-programme will support the Plan of Implementation primarily through its activities in certification, conformity assessment, technical harmonization and trade in biomass. It will also continue its efforts in trade development in environmentally sensitive areas, such as its work in timber certification. For example, in July 2003, ECE in cooperation with FAO held a roundtable "Trade, Environment and Forests - Working together for Sustainable Development", where a number of important international governmental and non-governmental organizations, together with governmental representatives discussed such crucial issues, as forest certification in relation to the sustainable forest management.

The division will continue its efforts in trade facilitation with an eye to making trade serve sustainable development goals. In particular, ECE is planning to use some of its current programmes to achieve a more sustainable trade. For instance, the Multiplier Points Programme, whose purpose is to provide the public and private sectors in the countries in transition with information on UNECE activities through a network of regional informational centres, will be used in the future to disseminate information about sustainable trade related issues.

[123] See "Ministerial Statement".

In response to decisions made on the Commission's major policy directions at the fifty-eighth session of the UNECE, the Committee for Trade, Industry and Enterprise Development (CTIED), on the occasion of its seventh session (May 2003), evaluated the extent of its cross-sectoral activities, including sustainable development activities, and determined prospective new areas for cross-sectoral development.[124] It highlighted CTIED initiatives that exemplify the integration of sustainable development goals in trade development and facilitation work. For example, CTIED and the UNECE committees on timber and environmental policy are collaborating to promote trade in sustainability managed forest products.

During its 8th session, CTID reviewed its progress on sustainable development issues. In particular, the Committee noted its project, "Improved Trade Logistics for the Sustainable Use of Biomass" and the development of new international standards in the timer industry for "green" (environmentally friendly) products. CTID also cited its progress on implementing the "International Model for Technical Harminization" as a practical tool for integrating environmental concerns into international standards and regulations.[125]

5. Energy

The Sustainable Energy Division (SED) conducts the UNECE's energy activities.

The UNECE contributed to the preparations and lead-up to the process of the Commission on Sustainable Development as well as its eventual follow up. This Contribution, entitled "One more step on path to a sustainable energy future", summarizes the results and conclusions of deliberations by delegates to the tenth annual session of the Committee on Sustainable Energy (31 October - 2 November 2000) and to the High-level Forum on Sustainable Energy in a Competitive Market; Forging Partnerships (1 November 2000). It represents the views of

[124] "Cross-Sectoral Activities in Sustainable Development, Gender Mainstreaming and ICT for Development and the World Summit on the Information Society (WSIS)" at http://www.unece.org/trade/tips/docs/ctied7/trd-03-015e.pdf

[125] "Cross-Sectoral Activities in Sustainable Development, Gender Mainstreaming and ICT for Development and the World Summit on the Information Society."TRADE/2004/212 March 2004

delegates from governments, the private sector and non-government organizations from the ECE region on a range of issues pertaining to the sustainable production and use of energy. The Contribution restates the sustainable energy policy objectives of ECE member countries, identifies the key energy issues confronting the region, outlines in broad terms the energy policy responses required to meet the challenges, and identifies two areas of particular importance to the region for follow up by the UNECE: (1) energy intensity and efficiency; and (2) energy pricing, subsidization and the internalization of externalities.
In addition, five energy policy issues were identified as priorities that needed to be addressed, to varying degrees, by ECE countries in order to promote and facilitate the transition to a more sustainable energy future. These are:

- energy availability and security of supply;
- energy intensity reductions and efficiency improvements;
- energy pricing, subsidization and internalization of externalities;
- cleaner fossil fuels, renewable energy, and research & development;
- market opening, liberalization and economic efficiency.

The UNECE WSSD follow-up document carved out a niche for its Sustainable Energy sub-programme in the post-Johannesburg process. Specifically, the UNECE will direct its energy activities at the improvement of energy efficiency (through capacity building, support for energy efficiency investment projects and the sharing of environmentally sound technologies), the promotion of the use of natural gas, the fostering of technical cooperation in clean coal technologies and the removal of unsustainable energy subsidies. The UNECE also proposes to introduce a programme on new and renewable energy. These proposals build off of the existing work of the Sustainable Energy sub-programme. The sub-programme is designed to take account of WSSD goals and works in five areas: promoting convergence in the overall legal, regulatory and policy framework; promoting energy efficiency and conservation, particularly in CITs; encouraging the greater use of natural gas as a "transitional" fuel to bridge the gap until "new" environmentally benign energy sources are developed and commercialised; greening the coal-to-energy process; and addressing issues related to electric power network system interconnections.[126] At UNECE's fifty-ninth

[126] "Introduction: Sustainable Energy" at http://www.unece.org/ie/se/intro.html

session, on 24-26 February, 2004 UNECE re-affirmed its commitment to this sub-programme by endorsing the United Nations Framework Classification for Fossil Energy and Mineral Resources and recommending it be applied worldwide. Further, it decided to focus it sixtieth annual session to follow-up to the International conference on finance for development.[127]

The Committee on Sustainable Energy discussed in its 2006 session the significant potential for energy efficiency improvements in the UNECE region as well as the importance of implementing appropriate policy approaches to realize that potential.

The Committee was briefed on the current status of EE21 Project, which has evolved as a project initially focusing on capacity building, normative frameworks and development of policy reforms to one addressing market formation, project development and promotion of investment. The new phase of the EE21 Project (2006-2009) has been recognized by the Committee as responding to the existing obstacles encountered in financing energy efficiency projects by facilitating the creation of a dedicated energy efficiency investment fund based on a public-private partnership and supported by the EE21 Project.

[127] UNECE Annual Report 7 March 2003- 26 Feb 2004, E/ECE/1416

The Energy Efficiency 21 Project (EE21)

The Energy Efficiency 21 Project is an example of a Sustainable Energy programme devoted to achieving sustainable development in the energy sector at a regional level. The Project aims to enhance trade and cooperation in energy efficient, environmentally sound techniques and management practices towards the end of bridging the energy efficiency gap between actual practice and best technologies as well as between market developed countries and CITs within the ECE region.[128] EE21 focuses on developing the skills of private and public sector experts at the local level for energy efficiency and renewable energy investments.

Since 1991, EE21 is devoted to achieving sustainable development in the energy sector at a regional level. EE21's main objective is to assist south-eastern European, eastern European, and Commonwealth of Independent States (CIS) countries to enhance their energy efficiency, diminish fuel poverty, and meet international environmental treaty obligations under the UNFCCC and the UNECE.

The specific Energy Efficiency Investment Project for Climate Change Mitigation achieved in the period 2000-2005 the following main objectives to: (i) develop communications and skills in 15 locations in the private and public sectors at the local level; (ii) strengthen energy efficiency policies in the five participating countries; (iii) promote opportunities for commercial banks and companies to invest in energy efficiency projects. Project proposals for a total value of US$ 60 million have been identified and of these 18 projects for approximately US$ 15 million have been financed, contributing to an estimated annual CO2 reduction of 136,000 tonnes that could be compared to eliminating CO2 emissions of 68,000 cars. Financial institutions such as the World Bank, the EBRD and the Nordic Investment Bank (NIB) have played a key role in that respect. But they have also shown that this is a time consuming and labour intensive process that needs to become much more fluid or business-as-usual in order to succeed on any meaningful scale.

In this period EE21 worked towards enhancing information exchange, improving institutional networking, building capacity, promoting energy efficiency legislation and

[128] "Sustainable Energy: Energy Efficiency" at http://www.unece.org/ie/se/eneffic.html

identifying energy efficiency investment projects and potential sources of financing. It focused on developing carbon emissions trading standards, promoting energy policy reform and encouraging sound business practices.[129] Besides, new project' objectives were defined during the Sixteenth Session of the Steering Committee. These goals aim at assisting South-East European, East European and CIS countries to enhance their energy efficiency, diminish fuel poverty arising from economic transition and meet international environmental treaty obligations under UNFCCC and the UNECE. Particularly, after the ratification of the Kyoto Protocol by the Russian Federation, the intention of the project was to promote sound business environment and corporate governance to introduce the needed economic and institutional reforms and policies and to favour the implementation of the Kyoto Protocol mechanisms[130].

In order to understand how the EE21 Project can support East European UNECE member states in boosting energy efficiency investments and in developing adequate energy policies, the Committee on Sustainable Energy and the EE21 Steering Committee jointly organised a special session on the "Implementation of the Kyoto Protocol, Energy Efficiency and Climate Change Mitigation" (29th June 2005). The special session stressed out how the lack of energy efficiency investments in Eastern Europe is mainly due to policy barriers, inadequate financial engineering skills and the lack of proper financing mechanisms. As a matter of fact, the Commission, with the EE21 Project, was called to provide for the establishment of a public-private partnership dedicated to fund energy efficiency investments in transition economies.

In its Programme of Work for 2006-2009, endorsed by the Committee on Sustainable Energy, the promotion of the development and implementation of strategies and policies to facilitate the transition to a more sustainable energy future and the contribution of a regional perspective to global events related to energy sustainability are addressed and listed as key priorities. Such work would address, inter alia, the reforms needed in energy pricing and the removal of consumption subsidies in order to employ market mechanisms in the service of sustainable energy and, therefore, of sustainable development.

[129] ENERGY/WP.4/2004/6
[130] ENERGY/WP.4/2005/5

The general objective of the new phase is to enhance regional cooperation on energy efficiency market formation and investment project development to reduce greenhouse gas emissions in economies in transition. The EE21 Project will implement different activities in order to: (i) accelerate regional networking between national participating institutions and international partners by enhanced internet communications; (ii) promote municipal level projects to enable local energy efficiency development also through the development of a new public-private partnership Investment Fund; and (iii) develop and harmonize regional policies and standards to introduce the economic, institutional and regulatory reforms needed. The structure of the Energy Efficiency 21 Project provides for cross-cutting objectives and activities that are largely implemented through sub-projects in which the UNECE serves as the Executing Agency, Associated Agency or provides direct value-added information dissemination services.

The Sub-Regional and Country-Oriented Projects of the Energy Efficiency 21 can be listed as follows: (i) Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation; (ii) The Regional Network for Efficient Use of Energy and Water Resources in Southeast Europe (RENEUER; (iii) Removing Barriers to Energy Efficiency Improvements in the State Sector in Belarus; (iv) Biomass Energy for Heating and Hot Water Supply in Belarus; (v) Green Labels Purchase – making a greener procurement with energy labels; (vi) Development of Coal Mine Methane Projects in Central and Eastern Europe and the Commonwealth of Independent States.

A new EE21 project on Financing Energy Efficiency Investments for Climate Change Mitigation will provide for the establishment of a public-private partnership dedicated fund to finance energy efficiency investments in UNECE transition economies. This new phase of the EE21 Project is supported by the Global Environmental Facility (GEF), the United Nations Foundation (UNF), the Fonds Français pour l'Environnement Mondial (FFEM) and the European Business Congress (EBC) with an approved amount of US$ 7.750 million.

Therefore, this project is to promote the formation of an energy efficiency market in Eastern Europe and the CIS so that cost-effective investments can provide a self-financing method of reducing global greenhouse gas (GHG) emissions. It will complement other initiatives and

assist participating countries to address the financial, technical and policy barriers to energy efficiency and renewable energy investments. The project will (a) establish a dedicated source of equity and quasi-equity finance –an Investment Fund- with the participation of public and private sector investors; (b) enhance the skills of the private and public sector experts at the local level to identify, develop and submit bankable projects for financing to the fund and/or other sources of finance; (c) provide assistance to municipal authorities and national administrations to introduce economic, institutional and regulatory reforms needed to support these investment projects.

The project is designed to go largely beyond what has been done previously in the form of demonstration investments financed under special conditions in selected Eastern European locations. Its objective is the establishment of a dedicated financial facility, managed by a private experienced Fund Management company, linked to a pipeline of projects that can provide for the large scale participation of private sector investors in partnership with public entities. Based on the lessons learned from earlier financing mechanisms, the project will help leading private and public financial institutions to create a US$ 250 million public-private equity Fund that can complement other financing schemes. As a result, the project is expected to leverage an investment volume of up to US$ 2 billion for energy efficiency and renewable energy projects.

The outcome of the project will be solid investments that could represent a reduction of GHG emissions of 10 million tonnes of CO2 per year, enhanced skills of local experts and policy reforms in participating countries. Hence direct CO2 emissions reduction for this project stands at 200 million tonnes if we consider a 20-year period, according to GEF standards. Taking into account the possibility the Fund is replicated after a demonstrating success, direct post project CO2 emissions reduction can be estimated again at a 200 million tonnes level over a 20-year period. Finally, in terms of indirect emissions reduction, a conservative estimate based on the volume of most cost-effective energy efficiency investments, leads to a CO2 reduction figure of 600 million tonnes over 20 years.

CHAPTER XIV

A New Actor on Energy in Europe: the European Union

1. Introduction

For most of its existence, the European Community has limited its efforts to promoting economic growth and integration. The 1957 Treaty of Rome did not mention the environment. Not until 1973 did the EC adopt its first community wide environmental policy, the "Environmental Action Program" (EAP), which adopted a vertical and sectorial approach to the environmental problems. Though it led to little immediate, concrete action, the adoption of the 1973 EAP was the first time the Council formally accepted that environmental measures should be carried out at the Community level. The first EAP was followed by two more in 1977 and 1983. The 1977 version added little substance to the first EAP, requiring that its measures be continued and updated[131]. In this moment we cannot talk about a Community Policy but just of "a policy patchwork"[132].

The Community, at this stage, does not have a systematic policy, but just a form of sub-policy in the context of the internal market, which is evaluated on the basis of the advantages and disadvantages of the market.

In the 1983 EAP, the Council committed itself to reducing pollution at its source, supporting the "polluter pays" principle, and integrating environmental considerations into all policy areas. The legal basis for measures to implement these principles at the community level was still limited by the Community's unchanged economic purpose. EC environmental measures had to be based on either article 235 (now 308), which gave the EC power to address

[131] The fifth and the sixth Action Plans are particularly relevant. As far as the 5th Action Plan is concerned, titled "For a lasting and sustainable development", it established the principles of a European strategy on a voluntary basis for the 1992-2000 period, starting a horizontal action that takes all the pollutant factors into account (industry, energy, tourism, transports, agriculture). In 2001 the European Union adopted the 6th programme of Action for the environment (2001-2010), titled "Environment 2010: our future, our choice" that set four sectors which needed urgent intervention: climate change, protection of nature and biodiversity, health, quality of life, management of natural resources and waste.

[132] Lenshow Andrea (1997) *Transforming in European Environmental Governance*, European University Institute, Working Paper RSC 97/61

unforeseen circumstances that would impede broader Community goals, or article 100 (now 94) on eliminating trade distorting national policies.

Explicit legal basis for environmental measures came in 1987 when the EC ratified the Single European Act (SEA). Though it did not use the phrase "sustainable development," the SEA amended the EC Treaty in art. 130r (now 174) to explicitly allow for environmental protection to be integrated into other Community policies. In 1993[133], the EC took another step away from its history as being mainly an economic union by formally changing its objectives to include "sustainable and non-inflationary growth respecting the environment…" as well as social security and "raising the standard of living and quality of life." (art. 2) The phrase "sustainable development" was intentionally avoided due to opposition from the conference on Monetary Union, which advocated the phrase "sustained non-inflationary growth."[134]

The Treaty of the European Union brought the concept of "sustainable energy with respect for the environment" and the principle of environmental caution[135] into the EU system. For the first time the environment acquired the status of European policy.

In 1999, the phrase "sustainable development," entered EC treaty-law with the ratification of the Treaty of Amsterdam. The treaty raised the prominence of environmental issues at the EU level and also marked the community's recognition of the internationally accepted concept of sustainable development (however fluid it may be). Article 2 declared that one of the tasks of the EC is to promote "harmonious, balanced and sustainable development of economic activities…." Article 6 required that all EU activities take account of the need for sustainable development. In addition, the treaty extended co-decision to environmental measures, giving the generally more pro-environment European Parliament a greater impact on shaping EU environmental policy.

The European Council of Cardiff went further in June 1998. It created the basis for a coordinated community action to incorporate environmental issues in the European policies. This is known as the Cardiff Process that invited the Agriculture, Transports and Energy Council to define their strategies of integration. A strategy of integration implies that all the

[133] The Treaty of European Union, signed in Maastricht in February 1992.

[134] David Wilkinson, Steps Towards Integrating the Environment Into Other EU Policy Sectors, in The Transition to Sustainability: The Politics of Agenda 21 In Europe. Page 113 - 14

[135] According to this principle, although an environmental threat is not 100% proven, it is necessary to act in order to prevent it. The aim is to guarantee a high level of environmental protection and human, animal or agricultural security when the scientific data doesn't consent to evaluate the risk.

European policies should be planned in advance to evaluate their future impact on the environment, positive or negative they be.

No changes to the EC Treaty's environmental provisions have been made since the Treaty of Amsterdam. A "Protocol on Sustainable Development" has been proposed for inclusion in the EU' s new constitution.[136]

2. Current Strategy

The European Union is playing a very active role in promoting the assessment of environmental and energy issues both within the region and at a world-wide level. As it was mentioned in chapter IV, the Union was one of the most active parties, for example, in promoting the ratification and implementation of the UNFCCC and the Kyoto Protocol.

The EU strategy on sustainable development is divided into internal and external components, as defined in two documents adopted by the Council. The internal component was adopted by the Göteborg council in 2001[137]. Called "A sustainable Europe for a Better World- A European Strategy for Sustainable Development," the document defining the EU's internal policy consists of three parts: 1) a set of cross-cutting proposals to better integrate sustainable development into future EU policy; 2) a set of sustainable development priority issues, identified as climate, public health, natural resources, traffic, and land-use; and 3) steps to implement the strategy and monitor progress, which includes comprehensive reviews at the start of each Commission's term of office and every two years by a stakeholder forum. The Council recognized that economic growth, social cohesion and environmental protection should be implemented all together. Economic, social and environmental interests should all be equally considered and public policies should pursue the same objectives. Sustainable Development is now the main key of the Political Economy. At Göteborg the environment dimension completed the Lisbon Strategy. The Strategy for Sustainable Energy now includes three goals: economic, social and environmental progress.

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[136] Smith, Don C. 'The European Union's Commitment to Sustainable Development: Is the Commitment Symbolic or Substantive in the Context of Transport Policy?' *Colorodo Journal of International Environmental Law*, 2002.

[137] Communication from the Commission, " A sustainable Europe for a better world: a European Union Strategy for Sustainable Development" COM (2001) 264 final

In July 2004, the Commission began a twelve-week consultation to review and revise the current strategy. The report of the review is due to be completed by 2005.

The EU's external policy was finalized by the Commission in 2002. Called "Towards a Global Partnership for Sustainable Development," the document defining the EU's external policy sets priority objectives and includes concrete actions to further sustainable development around the world. Those priority objectives and actions to achieve them focus on six issues: 1) trade 2) poverty 3) natural resource management 4) the coherence of EU policies 5) governance and 6) finance.

3. Environment

The EU's external environmental policy includes accession to the Convention to Combat Desertification, the Convention on Persistent Organic Pollutants, the Montreal and Kyoto Protocols and the Auhrus treaty on access to environmental information.

In addition, the EU has six external assistance programmes for Central and Eastern Europe, which each includes environmental components.

The Phare Programme is designed to assist applicant countries of Central and Eastern Europe in their preparations for joining the EU Phare began in 1989 to assist Poland and Hungary and now covers 10 countries: the eight new member states as well as Bulgaria and Romania. Because only Bulgaria and Romania remain candidate countries, the programme is currently being restructured. 2003 was the final year for new programs in those countries that have already joined the EU, although payments on existing programs will be made until 2006. One of Phare' s objectives is to promote economic and social cohesion, which provides for various environmental projects.

Phare consists of three types of programmes: National Programmes, Multi-Country & Horizontal Programmes, and Cross-Border Co-operation. National Programmes take up most of the Phare budget. Of its total budget of 1,703 million Euros, 1,223 million were allocated as part of national programs. Those programmes are based on each individual country's National Development Programme, which they develop in co-operation with the EU. The environmental component of each national program thus varies according the countries level of compliance with EU environmental accession requirements. Phare's Multi-Country & Horizontal Programme includes a sub-programme called LIFE II (the Financial

Instrument for the Environment), which co-finances environmental initiatives. It has two sub-parts: LIFE Nature aims to contribute to the implementation of Community nature protection legislation, and LIFE Environment aimsat developing innovative financial structures through demonstration projects. The third type of Phare programme, Cross-Border Co-operation, does not include the environment among its main objectives.

CARDS (Community Assistance for Reconstruction, Development and Stabilisation) is an EU assistance program for the Western Balkans. Among its four main objectives, CARDS includes promoting sustainable economic and social development.[138] The participating countries are Albania, Bosnia and Herzegovina, Croatia, Serbia, Montenegro and the former Yugoslav Republic of Macedonia. The programme's overall objective is to promote stability within the region and develop closer ties with the EU For 2000- 2006, 4.6 billion Euros will be provided for the CARDS budget.

TACIS (Technical Assistance Programme for the Commonwealth of Independent states) started in 1991 and gives grants for technical assistance to thirteen countries in Eastern Europe and Central Asia. Those countries are: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. It supports projects that work on institutional reforms, private sector development, environmental protection, rural economic reform and nuclear safety. Over 851 million Euros have thus far been allocated from TACIS for environmental projects.[139]

For example, in Russia, the EU' s TACIS programme funded a project to establish "Eastern Energy Centres," which develop policy recommendations and energy savings strategies. TACIS also funded a project to upgrade energy efficiency in housing by installing modern heat control systems. The EU established the Russian-European Centre of Energy Research in St. Petersburg and funded courses on energy savings technologies, energy audits and consulting through two specialized programs called THERMIE and SNERGY.[140] In Kazakhstan, a 1998 programme set up a demonstration project to improve the energy efficiency of a hospital in Almaty, and in Ukraine, the EU supported the Fuel Gap Programme and the Chernobyl Shelter Fund.

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[138] EU "About CARDS" available at http://europa.eu.int/comm/europeaid/projects/cards/foreword_en.htm
[139] EU "About Tacis" available at http://europa.eu.int/comm/europeaid/projects/tacis/foreword_en.htm
[140] Assenza, Gaudenz B., and Emila Istrate, 2004. 'International Organizations and Energy Efficiency: Lessons of Experience in Russia' In: *United Nations, Experience of International Organizations in Promoting Energy Efficiency: Russia'*. Geneva Switzerland: United Nations Economic Commission for Europe.

ISPA (Instrument for Structural Policies for Pre-Accession) is an aid program for EU candidate countries that exclusively focuses on environmental and transport infrastructure measures. ISPA funds go towards financing large-scale environmental projects. IPSA's 2004 budget for the two remaining candidate countries, Bulgaria and Romania, was 452 million.[141]

Finally, SAPARD (the Special Accession Programme for Agriculture and Rural Development) includes funding for projects that promote environmentally sustainable agricultural. The programme currently has a budget of over 225.2 million Euros for Bulgaria and Romania.

4. Trade

The EU committed to promoting sustainable development through trade in their external strategy, "Global Partnership for Sustainable Development." In the paper it planned to do the following:

- Work through WTO to integrate developing countries into the world economy;
- Help developing countries benefit from the global trading system
- Change the generalized system of preferences (GSP) to take account of sustainable development;
- Include sustainable development in its bilateral and regional agreements;
- Increase transparency in the international financial system;
- Encourage European businesses to be socially responsible;
- Promote cooperation between the WTO and NGOs[142].

Perhaps the most significant step toward implementing the EU's trade and sustainable development plans was made this summer at the WTO. In July 2004, the EU agreed in principle to significant cuts in its massive agricultural subsidies, which currently dwarf even those of the United States. Also at WTO, the Commission has launched 'sustainability impact assessments' on individual Doha Development.[143]

[141] EU "Pre-Accession Assistance" available at http://europa.eu.int/comm/enlargement/pas/ispa.htm
[142] "Global partnership for sustainable development" available at http://europa.eu.int/scadplus/leg/en/lvb/128015.htm
[143] "Environment and Sustainable Development" available at http://europa-eu-un.org/articles/lt/article_1004_lt.htm

In addition, the EU' s Common Agricultural Policy mid-term review gave more support for the organic sector and other environmentally-friendly farming methods and rural development, and the Common Fisheries Policy mid-term review gave additional support to the sustainable management of fish stocks internationally and in the EU. Further, the EU has included environmental considerations into its public procurement rules, and has co-financed several awareness campaigns on fair trade products.

Also trade related, labour standards were integrated into the trade and development provisions of the EU' s Corporate Social Responsibility Policy Papers adopted in 2001 and 2002. The EU has been a major contributor to the ILO International Programme on Elimination of Child Labour and has been working toward getting ILO an observers status in the WTO[144] .

5. Energy

The Treaty on European Union (TEU) confirmed that the Community's sphere of activity covers the energy sector. Though it did not include a separate chapter on energy, the TEU referred to it in the list of objectives (Article 3u) and in the Environmental title (Title XIX, article 175(2).

Today, the EU is committing to reach sustainable energy production and sustainable consumption patterns. There is, in fact, a common understanding between EU Member States that the adoption of energy efficiency measures and the use of renewable resources may lead to positive effects on environmental impacts and on economic growth.

The entry into force of the Kyoto Protocol, global warming, sustainable development and intelligent energy are all topical concerns which prompt a move towards renewable energy sources, but which also encourage the drawing-up of major strategies for rationalising not only the consumption but also the production of energy. Furthermore, the European Union consider the energy as an essential factor for competitiveness and economic development for the all Europe.

[144] "Trade and Social Conditions" available at http://europa.eu.int/comm/trade/issues/global/social/index_en.htm

It has set since the beginning these goals:

1. Security of Supply
2. European Markets Integration
3. Research and technological development

One of the first obstacles the European Union has to face is its dependence of energy production from fuels (oil, gas and coal) that actually represents about the 80% of the European productive mix for getting energy. The introduction of internal markets in electricity and gas and the dramatic rise in oil prices in 2005 have given renewed impetus to finding an energy policy which reconciles economic and environmental objectives and the security of energy supplies. In this scenario, the European strategy tries to guarantee cleaner energy, at limited costs and at sufficient amounts, in order to realise an efficient and competitive and safe market. These objectives are strictly correlated and they require unitary measures at community level both on the supply and demand side. The Commission following these guidelines has implemented different Programmes in order to promote energy efficiency policies based on a more rationale use of energy through the diffusion of renewable.

EU environment ministers are expected to endorse a Commission agreement, approved on 10 January 2007, to reduce the EU' s greenhouse-gas emissions "unilaterally" by 20% by 2020 compared with 1990 levels, the reference year under the Kyoto Protocol.
But the ministers' conclusions, which are traditionally adopted unanimously among the 27 nation-bloc, are leaving some members unhappy. "Hungary and Poland are worried by the binding nature of the targets," a EU official said on 19 February.
However, the last-minute squabble is likely to be tempered due to support from other member states. In similar conclusions adopted unanimously on 15 February, energy ministers said that the Council "supports ambitious overall EU targets for reducing greenhouse gas emissions for 2020 as a key component of the global action" to mitigate global warming (EurActiv 16/02/07).
EU heads of states and governments meeting in Brussels on 8-9 March 2007 have made a “firm independent commitment to achieve at least a 20% reduction of greenhouse gas emissions by 2020” compared with 1990 levels.

The 27-nation bloc agreed to go even further and slash its emissions by an overall 30% "provided that other developed countries" such as the US "commit themselves to comparable emissions reductions".
The new targets are significantly higher than the 8% overall target the EU agreed to reach by year 2012 under the Kyoto Protocol – an objective that Europe is currently struggling to meet. They will then be followed up by a formal legislative proposal later in the year.

5.1 Energy Green Papers

In November 2000, it has drawn up the **Green Paper "Towards a European Strategy for the Security of Energy Supply"**, whose objectives were to ensure security of supply, lessen the environmental impact of energy use and production and reduce energy demand through the introduction and take-up of energy –saving techniques and tools. The main strategy is based for the first time on measures, on the demand side, as the energy policy is up to Member States, and we can't talk yet of a community policy, that limits the possibility of interventions on the supply side. The green book promotes a control strategy on the demand increase, encouraging real changes in the consumer behaviours, for example through fiscal actions.
In June 2005, the Commission adopted a **Green Paper on Energy Efficiency, "Doing more with less"**[145], in order to explore ways through which improving energy efficiency.
The aim of this approach, which is wide-ranging in terms both of its target audience (national, regional and local decision-makers, international institutions, banks and private individuals) and of its scope (production and end use of energy, industry and services, households, building and transports), is to reverse by 2020 the trend towards ever-increasing energy consumption by achieving a 20% saving in energy146. The Commission points out in particular that half of the target could be achieved if the Member States transposed and implemented the legislation already adopted. The European Union has to make a strong push towards a re-invigorated programme promoting energy efficiency at all levels of European Society taking into account:

[145] European Commission, Doing More with less, Green Paper on Energy Efficency.
[146] EUROPEAN COMMISSION, 2005, 'Sustainable Energy Europe'.

1. *Competitiveness and the Lisbon agenda:* Applying measures on energy efficiency also means the creation of many new high-quality jobs in Europe. Furthermore, a successful energy efficiency scheme means that some of the €60 billion not spent on energy translates as a net saving, resulting in increased competitiveness and better living conditions for EU citizens. In this way an average EU household could save between €200 and €1,000 per year in a cost-effective manner, depending on its energy consumption.

2. *Environmental protection and the EU' s Kyoto obligations*: Energy saving is without doubt the quickest, most effective and most cost-effective manner for reducing greenhouse gas emissions, as well as improving air quality, in particular in densely populated areas. It will therefore help Member States in meeting their Kyoto commitments.

3. *Security of supply:* By 2030, on the basis of present trends, the EU will be 90% dependent on imports for its requirements of oil and 80% dependent regarding gas. Making a real effort to at first cap EU energy demand at present levels and subsequently reduce it, would represent an important contribution in developing a coherent and balanced policy to promote the security of energy supplies for the European Union.

On 8 March 2006 the European Commission published a Green Paper "A European Strategy for Sustainable, Competitive and Secure Energy"[147] on developing a common, coherent European Energy Policy. If the EU can take a common approach on energy, and articulate it with a common voice, Europe can lead the global energy debate. The Green Paper will help the European Union lay the foundations for secure, competitive and sustainable energy. This green paper identifies six key areas where action is necessary to address the challenges. The most fundamental question is whether there is an agreement on the need to develop a new, common European strategy for energy, and whether sustainability, competitiveness and security should be the core principles to underpin the strategy. The issues of the new potential policy are:

1. Competitiveness and the internal energy market
2. Diversification of the energy mix
3. Solidarity
4. Sustainable development
5. Innovation and Technology
6. External policy

[147] Commission of the European Communities, a European Strategy for Sustainable Competitive and Secure Energy, Brussels 8.3.2006

Meanwhile, the six priority areas are:

1. An internal energy Market that guarantees security of supply: solidarity between Member States. Concrete measures should include a review of the existing community legislation on oil and gas stocks, an European energy supply observatory, improved network security, improved transparency on energy stocks at the European level;
2. Energy for growth and jobs in Europe: completing the internal European electricity and gas markets. Action could include the development of an European Grid, an European Regulator and an European Centre for Energy Networks, improved interconnections, creating the framework to stimulate new investment, more effective unbundling, boosting competitiveness;
3. Tackling security and competitiveness of energy supply: towards a more sustainable, efficient and diverse energy mix;
4. An integrated approach to tackling climate change by setting a clear goal to prioritise energy efficiency, adopting a long-term road-map for renewable energy sources;
5. Encouraging innovation: a strategic European energy technology plan;
6. External energy policy, in order to react to the challenges of high and volatile energy prices, increasing import dependency.

5.2 Programmes

Internally, the EU has committed to using renewable energy for 14 to 22 % of its power needs by 2010.[148] It has plans to decrease its energy intensity by 28% by 2010. Towards these goals, the Commission has established the following programmes:

1. *'6th Framework Programme for Research and Technology Development'* (2002-2006) - EU's main instrument for funding research, including RES and EE with a total budget for EE and RES research at 810 million Euros
2. 'Campaign for Sustainable Energy (2004-2007)'- successor programme to 'Campaign for Take-off' (ended 2003) and includes both energy efficiency and renewable energy support
3. *'Energy Intelligent Europe' (2003-2006)* - supports non-technological projects in energy efficiency and RES. Projects are promotional and include information

[148] "Glimmer of Hope" in The Bulletin, Winter 2004-2004, Regional Environmental Center

dissemination, training, policy and strategy recommendations, networking, data collection, training and education.

4. *'Sustainable Energy Europe 2005-2008 Campaign'* – the campaign will contribute to the achievement of EU energy policy objectives and targets in the field of renewable energy sources, energy efficiency, clean transport and alternative fuels.

5.3 Structural Funds

Besides the implementation of the above-cited programmes, the EU is also trying to achieve sustainable energy production and consumption through the use of Structural Funds. Particularly, sine 2004, these funds are available to the New Member States[149]. They represent a clear opportunity for linking and integrating sustainable energy issues with urban development policies. Nonetheless, it is to emphasize that during the past, Structural Funds have not always been used in a proper way, as sometimes they financed infrastructures projects without taking into account their impact on natural resources and climate issues. As a matter of fact, to promote an efficient use of these financial resources, the Commission has launched the so-called RUSE (Redirecting Urban development towards Sustainable Energy) operation. The main objectives of this recent initiative are: improving the use of Structural Funds and other financial resources, improving capacity building on energy issues in both municipalities, agencies and city networks and finally influencing national decision makers regarding the integration of energy issues in national policies.

5.4 Directives

In order to support better integration of energy efficiency measures into national legislation the European Commission has proposed several directives which have been adopted and are now in force. These concern broad areas where there is significant potential for energy savings, such as:

1. *End-use Efficiency & Energy Services:* Estimates are that the Union's energy consumption is approximately 20% higher than can be justified on economic grounds. There is a very large economic potential of unrealized energy savings. A part of this energy savings can effectively be realized through energy services and other end-use efficiency measures.

[149] For more details see www.ruse-europe.org

The Commission has proposed late 2003 a new proposal for a *Directive on the promotion of end-use efficiency and energy services* to enhance the cost-effective and efficient end-use of energy in Member States. Upon adoption, it provides the necessary targets, mechanisms, incentives and institutional, financial and legal frameworks to remove existing market barriers and imperfections for the efficient end use of energy. According to the Directive the Member States shall adopt and aim to achieve an overall national indicative energy savings target of 9 % for the ninth year of application of the Directive, to be reached by way of energy services and other energy efficiency improvement measures. Member States shall take cost-effective, practicable and reasonable measures designed to contribute towards achieving this target.

2. *Energy Efficiency in Buildings:* The buildings sector accounts for 40% of the EU' s energy requirements. It offers the largest single potential for energy efficiency. Research shows that more than one-fifth of the present energy consumption and up to 30-45 MT of CO2/Y could be saved by 2010 by applying more ambitious standards to new and when refurbishing buildings – which represents a considerable contribution to meeting the Kyoto targets. The aim of improved energy efficiency has been set out in earlier existing legal instruments. Among the main Community legislation for the sector are the Boiler Directive (92/42/EEC), the Construction Products Directive (89/106/EEC) and the buildings provisions in the SAVE Directive (93/76/EEC). The *Directive on the energy performance of buildings* in force since January 2003 builds on those measures with the aim to provide for an ambitious step-ahead to increase the energy performance of public, commercial and private buildings in all Member States.

3. *Eco-design of Energy-Using Products*: Apart from the user's behaviour, there are two complementary ways of reducing the energy consumed by products: labelling to raise awareness of consumers on the real energy use in order to influence their buying decisions (such as labelling schemes for domestic appliances), and energy efficiency requirements imposed to products from the early stage on the design phase. The production, distribution, use and end-of-life management of energy-using products (EuPs) is associated with a considerable number of important impacts on the environment, namely the consequences of energy consumption, consumption of other materials/resources, waste generation and release of hazardous substances to the environment. It is estimated that over 80% of all product-related environmental impacts are determined during the design phase of a product. Against

this background, Eco-design aims to improve the environmental performance of products throughout the life cycle by systematic integration of environmental aspects at a very early stage in the product design. The Council and the European Parliament therefore adopted a Commission proposal for a Directive on establishing a framework for setting Eco-design requirements (such as energy efficiency requirements) for all energy using products in the residential, tertiary and industrial sectors. Coherent EU-wide rules for eco-design will ensure that disparities among national regulations do not become obstacles to intra-EU trade. The directive does not introduce directly binding requirements for specific products, but does define conditions and criteria for setting requirements regarding environmentally relevant product characteristics (such as energy consumption) and allows them to be improved quickly and efficiently. It will be followed by implementing measures to establish the eco-design requirements. In principle, the Directive applies to all energy using products (except vehicles for transport) and covers all energy sources.

4. *Energy Labelling of Domestic Appliances:* The energy demand in household accounts for 25% of the final energy needs in the EU. Electricity used for domestic appliances in households show the sharpest increase. Higher standards of living and comfort, multiple purchases of electric appliances and the growing need for air-conditioning are main reasons for this trend to prevail. Energy consumption by consumer electronics and new media as Internet is also steadily growing. The response is to act in two complementary ways:

1. *Energy Labelling of household appliances:* Seen that the market of household appliances such as washing machines, dishwasher, oven, air-conditioning systems etc. are highly visible to the consumer, the intention is to increase consumer's awareness on the real energy use of household appliances through a liable and clear labelling in their sales points.
2. *Minimum Efficiency Requirements:* Compulsory minimum efficiency requirements will encourage producers of household appliances to improve the product design in view to lower the energy consumption at their use.

5. *Combined Heat and Power:* The use of combined heat and power (CHP) presents a substantial potential for increased energy efficiency and reduced environmental impacts. It is considered to be a priority area for many Member States. The efficient use of fuel, in simultaneous production of heat and power can offer energy savings and avoided CO2

emissions compared with separate production of heat and power and the development in the use of fuels used in CHP applications show a trend towards cleaner fuels. Nearly 40% of the electricity produced from cogeneration is produced for public supply purposes, often in connection with district heating networks. 60% are generated by auto-producers, normally for industrial processes. The Communities strategy outlined in the Commission's cogeneration strategy of 1997 sets an overall indicative target of doubling the share of electricity production from cogeneration to 18% by 2010. This was endorsed by the Member States in the form of a Council Resolution in December 1997. The indicative target was taken up in the Communication on CHP (COM/97/514 final) providing for an analysis of the barriers and strategies for its realisation. Projections show that meeting this target is expected to lead to avoided CO_2 emissions of over 65 Mt CO_2/year by 2010. In terms of installed capacity, the share of electricity produced by cogeneration processes has raised to 10% in the EU in 2001. Large differences however are to be noted amongst the Member States with variations of the shares between 2% and 60% of the electricity production. Hence, a new Community legislative measure concentrates on providing a framework for the promotion of this efficient technique in order to overcome still existing barriers, to advance its penetration in the liberalised energy markets and to help mobilising un-used potentials. The Directive defines high efficiency cogeneration as cogeneration providing at least 10% energy savings compared to separate production. As the indicative target value from the 1997 strategy is out-dated, the Directive does not include targets. Instead the Directive urges Member States to carry out analyses of their potential for high efficiency cogeneration.

Although the several legislative measures that the EU has adopted, there is still a great scope for further energy efficiency. Most energy directives and programmes are, in fact, specific to sectors and techniques. For this reason, in December 2003, the European Commission has proposed a global directive on energy end-use efficiency and energy services, which presently is under discussion in the Parliament and the Council. The proposed Directive has two main objectives: the first goal is the improvement of energy end-use efficiency, whereas the second one is the creation of a self-sustaining, commercially viable market for energy end-use efficiency services, under full competition. Developing such a market will allow

reaching a sufficient size for economies of scale to emerge as well as numerous positive externalities such as employment and competitiveness[150].

5.5 Voluntary Instruments

A number voluntary instruments were also adopted to foster better cooperation with industry. In fact, in the context of "better governance" the Commission welcomes alternative courses of actions such as self-regulation (voluntary agreements) by the industry where such actions are likely to deliver the policy objectives faster or more cost-effectively than mandatory requirements. Voluntary agreements can present advantages compared with regulation. They can provide for quick progress due to rapid and cost-effective implementation. They allow for flexible and adjusted adaptation to technological options and market sensitivities. However self-regulation is not always a feasible option, in particular in sectors where the market is very fragmented. There are also drawbacks: self-regulation is not binding on all industry members (there is the possibility of having "free riders") and cannot, like legislation, be enforced in the courts; compliance consequently cannot be guaranteed. Voluntary agreements can be particularly successful in the area of energy efficiency: three agreements, the first one covering stand-by losses of Televisions and Videocassette Recorders, the second covering domestic washing machines**,** and the third covering refrigerators and freezers have been implemented successfully as unilateral commitments by industry. They have now been upgraded for Televisions and DVD players, for refrigerators/freezers and for washing machines. The Commission has started several initiates that aim at promoting energy efficiency and serve as a forum for exchange of ideas of various stakeholders. The European Commission, Directorate General for Energy and Transport is undertaking an active role in the promotion of energy efficiency and sustainable energy through two initiatives in particular: *Managenergy Initiatives* and *Sustainable Energy Europe Campaign 2005-2008*. The first aims to support the work of actors working on energy efficiency and renewable energies at the local and regional level. The main tools are training workshops and online events. Additionally information is provided on case studies, good practice, European legislation and programmes. The second is a European Commission initiative in the framework of the *Intelligent Energy - Europe (2003-2006)* programme, which will contribute

[150] Laponche B., 'Europe: On the Path of Sustainable Energy?', 2005.

to achieve the European Union's energy policy targets within the fields of renewable energy sources, energy efficiency, clean transport and alternative fuels.

5.6 Research and Demonstration programme

The European Commission’s efforts concentrate at the same time on removing barriers to a efficiently functioning market. This is done with the help of Community technology research and demonstration programmes, such as the RTD Framework Programmes and with pro-active support programmes as Intelligent Energy – Europe Programme. On 6 April the European Commission adopted a proposal for a new EU programme for Research. The proposal provides new impetus to increase Europe's growth and competitiveness, recognising that knowledge is Europe's greatest resource. The programme places greater emphasis than in the past on research that is relevant to the needs of European industry, to help it compete internationally, and develop its role as a world leader in certain sectors. The programme will also for the first time provide support for the best in European investigator-driven research, with the creation of the European Research Council. Focus will be on excellence throughout the programme, a requirement if it is to play its role in developing Europe's global competitiveness. Another priority will be to make participation in the programme simpler and easier, through measures addressing the procedures, plus a rationalisation of instruments. In spite of this new approach, there are many elements of continuity: in practice, for the majority of participants, the programme itself will not change, but participation will become simpler.

- **The Intelligent Energy - Europe Programme (2003-2006)** was launched in 2003 following a Decision No 1230/2003/EC of the European Parliament and of the Council.

The programme supports sustainable development in the energy context, making a balanced contribution to the achievement of the following general objectives: security of energy supply, competitiveness, and environmental protection.

This programme also aims at economic and social cohesion and seeks to increase transparency, coherence and the complimentarily of all the actions and other related measures.

This programme is structured in four specific fields as follows:

5.5.1 SAVE, which concerns the improvement of energy efficiency and the rational use of energy, in particular in the building and industry sectors, with the exception of actions under STEER, including the preparation of legislative measures and their application; SAVE projects exploit the immense potential for energy savings in four areas:

1.BUILDINGS (CONSTRUCTION AND USE):

- AUDITAC Field benchmarking and Market development for Audit methods in Air Conditioning (2005)
- BUDI Pilot actions to develop a functioning market for energy performance certificates (2005)
- EEBD Development of an interactive vocational Web training tool for the take-off of the Buildings Directive (2005)
- EPA-NR Energy Performance Assessment for Existing Non Residential Buildings (2005)
- BESTFACADE Best Practice For Double Skin Facades (2005)
- DEEP Dissemination of Energy Efficiency Measures in the Public Buildings Sector (2005)
- ENPER EXIST Applying the EPBD to improve the Energy Performance Requirements to existing buildings (2005)
- EPLABEL A programme to deliver energy certificates for display in public buildings across Europe within a harmonising framework (2005)
- E-Tool Energy-toolset for improving the energy performance of existing buildings (2005)
- GREENBUILDING (2005), Intelligent Metering Energy Savings from Intelligent Metering and Behavioural Change (2005)
- EULEB European High Quality and Low Energy Architecture (2005)
- IMPACT Improving energy Performance Assessments and Certification schemes by Tests (2005)
- Keep Cool Service Buildings Keep Cool – Promotion of "sustainable cooling" in the service building sector (2005)
- Passive-On Marketable Passive Homes for Winter and Summer Comfort (2005)
- PEP Promotion of European Passive Houses (2005)

- STABLE Securing The Take-off of Building Energy Certification: Improving Market Attractiveness through Building Owner Involvement (2005)
- TOWARDS CLASS A - Municipal Buildings As Shining Examples (2005)
- Vent Dis.course Development of Distance Learning Vocational Training Material for the Promotion of Best Practice Ventilation Energy Performance in Buildings (2005)

3. SOCIAL HOUSING:

- EI-Education Energy Intelligent Education for Retrofitting of Social Houses (2006)
- EPI-SoHo Energy Performance Integration in Social Housing, a strategic approach for portfolio management (2006)
- E-RETROFIT-KIT Tool-Kit for "Passive House Retrofit" (2006)
- ESAM Energy Strategic Asset Management in Social Housing Operators in Europe (2006)
- FACTOR 4 Programme of actions Factor 4 in existing social housing in Europe (2006)
- ISEES Improving the Social Dialogue for Energy Efficient Social Housing (2006)
- INOFIN Innovative Financing of Social Housing Refurbishment in Enlarged Europe (2006)
- NIRSEPES New Integrated Renovation Strategy to improve Energy performance of Social housing (2006)
- RESHAPE Retrofitting Social Housing and Active Preparation for EPBD (2006)
- ROSH Development and marketing of integrated concepts for energy efficient and sustainable retrofitting of social Housing (2006)
- SHARE Social Housing Action to Reduce Energy Consumption (2006)
- TREES Training for Renovated Energy Efficient Social housing (2006)

4. INDUSTRY:

- BESS Benchmarking and Energy Management Schemes in SMEs (2005)
- COGEN CHALLENGE European Campaign for the Development and Documentation of 1000 Small-scale Cogeneration Projects in European Cities and Towns (2005)
- DEXA-MCP Dissemination, Extension and Application of the Motor Challenge Program (2005)

- EMS-TEXTILE Promotion of Energy Management Practices in the Textile Industries of Greece, Portugal, Spain and Bulgaria (2005)
- OPTIPOLYGEN OPTimum Integration of POLYGENeration in the Food Industry (2005)
- RECIPE Reduced Energy Consumption in Plastics Engineering (2005)

5. EQUIPMENT & PRODUCTS

- 4EM-MCP Energy Efficient Electric Motor Systems in New Member and Candidate Countries (2006)
- CEECAP Implementing EU Appliance Policy in Central and Eastern Europe (2006)
- Eco n' Home Eco n' Home or how to reduce energy consumption in Household (2006)
- EL-TERTIARY Monitoring Electricity Consumption in the Tertiary Sector (2006)
- Energy+Pumps Technology procurement for very energy efficient circulation pumps (2006)
- ENER in TOWN Monitoring and control of energy consumption in municipal public buildings over the internet (2006)
- ENERL In European Efficient Residential Lighting INitiative (2006)
- E-Street Intelligent Road and Street lighting in Europe (2006)
- EURO-TOPTEN Reducing energy consumption: making efficient products the normal and best choice for consumers, retailers and manufacturers (2006)
- GREEN-IT Green initiative for energy efficient eco-products in the construction industry (2006)
- Green Labels Purchase - making a greener procurement with energy labels (2006)
- New Green Light The European Green Light Programme in New Member States (2006)
- REMODECE Residential Monitoring to Decrease Energy Use and Carbon Emissions in Europe (2006)
- SEEDT Strategies for development and diffusion of Energy Efficient Distribution Transformers (2006)

5.5.2 ALTENER, which concerns the promotion of new and renewable energy sources for centralised and decentralised production of electricity and heat and their integration into the

local environment and the energy systems, with the exception of actions under STEER, including the preparation of legislative measures and their application; ALTENER projects help increase the use of new and renewable energy sources. They concentrate on:

1. ELECTRICITY PRODUCTION:

- CLEAN-E Clean Energy Network for Europe -2005,
- DG-GRID Enhancement of sustainable electricity supply through improvements of the regulatory framework of the distribution network for DG (2005),
- ELEP European Local Electricity Production (2005),
- EurObserver - EurObserver Barometer (2005),
- GreenNet-EU27 Guiding a Least Cost Grid Integration of RES-Electricity in an extended Europe (2005),
- PV POLICY GROUP (2005),
- RES Market-places Creating Renewable Energy Market-Places for Investors and Regional Actors in Rural Areas (2005),
- THERMALNET , An integrated network on thermal biomass conversion for power, heat and transport fuels (2005),
- E-TRACK A European Tracking System for Electricity (2005),
- GREEN LODGES RES & micro CHP in Rural Lodges (2005),
- OPTRES Assessment and optimisation of renewable support schemes in the European electricity market (2005),
- REALISE FORUM Renewable energy and liberalisation in selected electricity markets Forum (2005),
- RES-e Regions Boosting green electricity in 11 European regions (2005),
- WINEUR Wind Energy Integration In The Urban Environment (2005).

2. HEAT PRODUCTION:

- 5 EURES Five European RES-Heat Pilots (2005),
- BioProm "Bioenergy-Promotion" - Overcoming the non-technical barriers of project-implementation for bioenergy in condensed urban environments (2005),

- Boosting Bio Boosting Bioenergy in Europe (2005),
- ECOHEATCOOL European heating and cooling market study (2005),
- EUBIONET II Efficient trading of biomass fuels and analysis of fuel supply chains and business models for market actors by networking (2005),
- K4RES-H Key Issues for Renewable Heat in Europe (2005),
- PROPELLETS Promoting European pellet heating systems in the market (2005),
- RURASU Rural Advice And Support Units For RES In Heat Systems And Integrated Energy Management In Buildings (2005),
- Biomass Partnerships Establishment of regional biomass markets through plant partnerships (2005),
- BIO-SOUTH Techno-economical assessment of the production and use of biofuels for heating and cooling applications in South Europe (2005),
- EARTH Extend Accredited Renewables Training for Heating (2005),
- ELVA Establishing Local Value Chains for RES Heat in local communities (2005),
- Green Energy Cluster Stimulation of regional RES HEAT markets through establishment of regional SME clusters (Green Energy Clusters) (2005),
- PROBIOGAS Promotion of Biogas for Electricity and Heat Production in EU Countries - Economic and Environmental Benefits of Biogas from Centralised Co-digestion (2005),
- QUOVADIS Quality Management Organisation, Validation of standards, Developments and Inquiries for SRF (2005),
- SOLARGE- Enlarging Solar Thermal Systems in Multi-Family Houses and Hotels in Europe (2005);

3. ALTERNATIVE FUELS:

- BIODIESEL CHAINS Promoting favourable conditions to establish biodiesel market actions (2006),
- Bio-NETT Developing local supply chain networks, linking bio-fuel producers with public sector users (2006),
- Pro-Biodiesel Overcoming Non-Technological Barriers for full-scale use of Biodiesel in Europe (2006),
- STAR BUS Promoting sustainable energetic pathways for buses' fleet (2006),

- BIOFUEL MARKETPLACE, Web-Based Biofuel Marketplace for supporting the e-Commerce of biofuel products and technologies (2006),
- REFUEL Renewable Fuels for Europe (2006),
- PROCURA Green Fleet Procurement Models (2006),
- SUGRE Sustainable Green Fleets (2006)

4. SMALL-SCALE APPLICATIONS:

- ACCESS Accelerated Penetration of Small-Scale Biomass and Solar Technologies (2006), BEST RESULT Building and Energy Systems and Technologies in Renewable Energy Sources Update and Linked Training (2006),
- BioProFarm Promotion of Biomethanisation in Agricultural Environnement as a Decentralised Renewable Energy Ressource for Europe (2006),
- EAST-GSR Solar thermal applications in Eastern Europe with Guaranteed Solar Results (2006),
- ICOSAW Promotion of the Intelligent Combination of Sun and Wood for Producing Warm Water and Heating for Private Houses (2006),
- PURE Promoting the use of photovoltaic systems in the urban environment through demo relay nodes (2006),
- RES-FC MARKET Regional markets of RES-fuel cell systems for households (2006),
- SOLAR KEYMARK-II Large open EU market for solar thermal products (2006),
- WASTE WATER HEAT WASTE WATER - renewable heat source for heat pumps (2006),
- AGRIFORENERGY Promoting the use of biomass from agricultural and forestry sector for heating, electricity and transport purposes (2006),
- BIOHOUSING SUSTAINABLE, comfortable and competitive biomass based heating of private houses (2006),
- DESOLASOL Fotovoltaica para pequeños inversores en Alemania, España, Francia y Portugal (2006), ground coupled heat pumps (GCHP) in the built environment (2006),
- PREHEAT Policy reinforcement concerning heat storage technologies (2006),
- PV-UP-SCALE PV in Urban Policies: a Strategic and Comprehensive Approach for Long-term Expansion (2006),
- RESINBUIL Introduction of Renewable Energies in Building Sector (2006),

- SOLCAMP Solar energy for camping sites (2006)
- GROUND-REACH Reaching the Kyoto targets by means of a wide introduction of

5.5.3 STEER, which concerns support for initiatives relating to all energy aspects of transport, the diversification of fuels, such as through new developing and renewable energy sources, and the promotion of renewable fuels and energy efficiency in transport, including the preparation of legislative measures and their application. Ongoing STEER projects promote sustainable energy use in transport by strengthening the knowledge of local management agencies:

- COMPETENCE Strengthening the knowledge of local management agencies in the transport field (2005)
- E-ATOMIUM Energy Agencies Training On Mobility In Union Member states (2005)
- TREATISE Training programme for local energy agencies and actors in transport and sustainable energy actions (2005)
- E-TREAM e-learning for training Energy Agencies in mobility management and alternative fuels (2006)
- and by policy measures for more energy efficient transport:
- ASTUTE Advancing Sustainable Transport in Urban areas To promote Energy efficiency (2006)
- BYPAD-platform Further implementation and improvement of cycling audits in EU cities and regions, training of certified auditors and continuous exchange of knowledge on cycling policy (2006)
- ECODRIVEN European Campaign On improving Driving behaviour, ENergy-efficiency and traffic safety (2006)
- MIDAS Measures to Influence transport Demand to Achieve Sustainability (2006)
- MOVE International Cluster for Mobility Management Development and Research Dissemination (2006)
- SNOWBALL Demonstration, take-up and further dissemination of sustainable integrated planning methods in European cities (2006)
- SPICYCLES Sustainable Planning & Innovation for Bicycles (2006)
- START Short Term Actions to Reorganize Transport of goods (2006)

5.5.4 COOPENER, which concerns support for initiatives relating to the promotion of renewable energy sources and energy efficiency in the developing countries, in particular in the framework of the Community cooperation with developing countries in Africa, Asia, Latin America and the Pacific. COOPENER projects focus on sustainable energy services to overcome poverty in developing countries. Contributing to the EU Energy Initiative for Poverty Eradication and Sustainable Development, they enhance:

1. LOCAL POLICIES, LEGISLATION AND MARKET CONDITIONS:

- ANDENERGY Andean Energy Hub (2006),
- DEA Development and Energy in Africa (2005),
- MEPRED EUEI Partnership/Dialogue Facility Pilot Project: Mainstreaming Energy for Poverty Reduction and Economic Development into EU Development Assistance (2005),
- PEPSE Poverty Eradication and Planning of Sustainable Energy (2005),
- SAFENERGY PERU Strengthening energy services legislation and market conditions for enabling sustainability and poverty alleviation in Peru (2006),
- CRECER CON ENERGIA Linking Income-Generating activities and Micro-enterprises with Energy Services for the Poor in the Chaco Region (2006),
- IE4SAHEL Energy for Poverty Alleviation in Sahel (2005),
- MIRREIA Mitigating Risk and Strengthening Capacity for Rural Electricity Investment in Africa (2005),
- REEPASA Renewable and Efficient Energy for Poverty Alleviation in Southern Africa (2006),
- TIE-ENERGIA Turning Information into Empowerment: Strengthening Gender and Energy Networking in Africa (2005)

2. LOCAL ENERGY EXPERTISE:

- APPLES Alleviation of Poverty through the Provision of Local Energy Services (2005),
- BEPITA Biomass Energy Platforms Implementation for Training in Africa (2005),
- ENABLE Building capacity in renewables in the health, education and water sectors to help meet poverty reduction targets in sub-Saharan Africa (2005),

- HABIT@ Renewable Energies and Energy Effiency on the Built Environment: Training, Networking and Capacity-Building Actions. A dissemination activity in South America (2006),
- INSABA Integrated Southern Africa Business Advisory (2005),
- PREA Promoting Renewable Energy In Africa (2006),
- RIAED Réseau International d'Accès aux Energies Durables (2006),
- BEPINET Biomass Energy Platforms Implementation for Training in Latin America - Network (2006), EETT Energy Efficiency Training of Trainers (2006),
- ENEFIBIO Removal of non technological barriers to encourage SME energy efficiency by the rational use of biomass (2005),
- IMRPOVES-RE Improving the economic and social impact of rural electrification (2005),
- MICROGRIDS Promotion of microgrids and res for electrification in developing countries (2006),
- PROVEN PROVEN in Rural Africa (2005),
- SIE-Afrique II Appui à la mise en place de systèmes d'informations énergétiques nationaux (2005).

There are also project defined as horizontal. These projects concentrate on the so-called 'Horizontal Key Actions' of the IEE Programme:

1. FINANCIAL MECHANISMS AND INCENTIVES:

- CF-SEP Commercial Finance for Sustainable Energy Projects (2006),
- EUROCONTRACT European Platform for the Promotion of Energy Performance Contracting (2005),
- PU-BENEFS Regional Market Preparation for Energy Efficiency Services in Public Buildings (2005),
- ST-ESCOs Development of pilot Solar Thermal Energy Service Companies (ST-ESCOs) with high replication potential (2005),
- ENERGY 4 Cohesion Sustainable Energy Actions for Europe´s Cohesion (2006),
- PRIME Private Investments Move Ecopower (2005),

- SEIPLED Sustainable Energy Investment Projects for Local Economic Development (2006)

2. MONITORING AND EVALUATION:

- AID-EE Active Implementation of the European Directive on Energy Efficiency (2005),
- DATAMINE Collecting DATA from energy certification to Monitor performance Indicators for New and Existing buildings (2006),
- EURO WHITE CERT STEPWISE Towards Effective European energy efficiency Policy portfolios involving White Certificates (2005),
- THERRA Thermal Energy from Renewables - References and Assessment (2006),
- City Instruments Monitoring, Evaluating and Transferring Instruments to address Climate Change in Metropolitan Regions (2006),
- EEE-NMC Evaluation and Monitoring of Energy Efficiency in the New EU member Countries and the EU25 (2006),
- ODYSSEE-MURE Monitoring of energy efficiency in EU15 and Norway (2005)

3.THINK GLOBALLY, ACT LOCALLY (INCLUDING ENERGY EDUCATION):

- Active Learning Integration of Active Learning and Energy Monitoring with School Curriculum (2006),
- FEEDU Persuasive force of children through education (2005),
- KITH Realising the potential for small scale renewable energy sources in the home (2006)
- BALANCE Balance globally, evaluate locally (2006),
- FINANCE Financing Instruments trough National Association Networking in Countries of Europe (2005),
- SERENADE Sharing Expertise in Energy Advice across Europe (2006);

4. SUSTAINABLE ENERGY COMMUNITIES:

- 3-NITY 3-fold initiative for Energy planning and sustainable development at local level (2006),

- EFFCOBUILD Energy Efficiency Communities - establishing pilot communities for the building sector (2006),
- NEC NEw Concept of local sustainable development in pilot communities (2006),
- SEC-TOOLS Energy Service Communities in New Member States - Sustainable Energy Development at Local Level Energy Planning & Financing Tools (2006),
- WISE-PLANS Co-operation between communities for Energy Action Plans (2006),
- BELIEF Building in Europe Local Intelligent Energy Forums (2006),
- ENSRC Energy self supply in rural communities (2006),
- RERINA Integration of renewable energy technologies in rural insular areas (2006),
- SECURE Sustainable Energy Communities in Urban Areas in Europe (2006),

5.5.5 CONCERTO, supports local communities, as clearly defined geographical areas or zones, in developing and demonstrating concrete strategies and actions that are both sustainable and highly energy efficient. Interactions and relevant energy flows between centralised and decentralised energy supplies and demands can be identified, measured and assessed.

The CONCERTO initiative has been only possible as a result of the strong commitment from the relevant, local authorities and includes technical experts, academics, and private companies from across Europe.

Throughout the 9 participating CONCERTO projects the focus is primarily on demonstrating the environmental, economic and social benefits of integrating renewable energy sources (RES) together with energy efficiency (EE) techniques through a sustainable energy-management system operated on a community level.

The CONCERTO initiative provides a platform for the exchange of ideas and experiences between the 28 CONCERTO demonstration communities, and other cities that are committed to introducing similar strategies. Communities participating will benefit from the shared expertise of Europe's most advanced communities, active in the field of energy sustainability. In addition, 'Key actions' which are initiatives combining several of the above mentioned specific fields and/or relating to certain Community priorities, such as sustainable development in the outermost regions as defined in Article 299(2) of the Treaty, may be launched.

IEE supports European projects, one-off events and the setting up of local/regional energy agencies with a total budget of €250 million, covering up to 50% of the costs. Events are a powerful means of communication.

1. Supported events are international conferences and seminars supported financially by the programme
2. Contractor's meetings facilitate exchange between project leaders, the IEEA, the European Commission and other stakeholders
3. Info Days inform you of calls for proposals and help you apply for Intelligent Energy - Europe funding

The programme currently supports more than 200 international projects, 30+ local/regional energy management agencies, and almost 40 European events in the areas of

1. New and renewable energy sources
2. Energy efficiency, notably in buildings and industry
3. Energy aspects of transport
4. Co-operation with developing countries

A new call for proposals has been published in May 2006 - a great funding opportunity for European projects, events and the creation of new local/regional energy agencies. The 2006 call for proposals - the last under the current IEE programme - has been published. European organisations can apply for financial support for their projects before 31 October 2006. Approximately € 50 million will be made available to co-finance up to 50% of the project costs. Organisations from EU Member States, Romania, Bulgaria, Croatia, Iceland, Norway and Liechtenstein can apply.

Since 2005, the programme is implemented by the new Intelligent Energy Executive Agency (IEEA). The Intelligent Energy Executive Agency (IEEA) implements the Intelligent Energy - Europe programme.

With more than 40 staff, the IEEA manages the different projects and events funded under the IEE programme, and disseminates the know-how and best practices which result. This gives the programme a sharper focus and greater visibility.

The IEEA is the first of a number of new Executive Agencies created by the European Commission to put policies into action more efficiently and with improved results, helping the Commission concentrate on its policy-making and institutional tasks. The parent Directorate-General of the IEEA is DG TREN.

The decision to create the IEEA was taken at the end of 2003. Since 2006 it is fully responsible for the operation of the IEE programme and for managing its own budget.

The 2007-2013 Intelligent Energy - Europe (IEE) Programme is part of the Competitiveness and Innovation framework Programme (CIP). With a budget of €730 million, the IEE programme aims to increase use of renewable energy and reduced energy consumption by supporting energy efficiency, new and renewable energy sources, and technological solutions to reduce greenhouse gas emissions caused by the transport sector. The Commission has started several initiates that aim at promoting energy efficiency and serve as a forum for exchange of ideas of various stakeholders. An annual Conference of local actors where interested parties can meet is also organized. The conference entitled "Towards an EU external energy policy to assure a high level of supply security" will take place in Brussels in Brussels on the 20th and 21st November 2006. The objective of this Conference is to bring together the key players in the field of energy to discuss the ways in which Europe can most effectively address the issue of energy security. The Conference will focus on the external aspects of European policies on energy matters and will concentrate mainly on oil and natural gas security supplies' issues. Panelists and participants to this Conference will include Ministers of Foreign Affairs and Energy, industry representatives, international organisations, the academic word and civil society. It should be noted that, for security reasons, participation in this Conference will be strictly by invitation only.

6. Summaries of the EU legislation in the energy efficiency area

The European Commission indicated energy to be an essential element for Europe's competitiveness and economic development. The European Union is actually facing new energy challenges for which it must have an appropriate energy strategy.

The signature of the Kyoto Protocol on Climate Change boosted the importance of the environment dimension and sustainable development in Community energy policy.
As the EU' s external energy dependence is continuing to grow (it currently meets 50% of its energy requirements through imports).

In the Green Paper (a European strategy for sustainable, competitive and secure energy), the Commission proposes a common European energy policy which will enable Europe to face the energy supply challenges of the future and the effects these will have on growth and the environment. The European Union (EU) must act quickly and effectively in six priority areas to ensure that it has energy supply which is sustainable, competitive and secure. The internal market, energy efficiency, research and an external policy will all contribute to making Europe a strong player on the international stage.

As the Green Paper reports, the EU rate of dependence will grow by 70% by 2030 if nothing is done, and that will put the EU in a weak position on the international energy market. Vigilance with regard to diversification of energy sources and supplier areas is one of the ways of ensuring security of supply.

One year after the Lisbon European Council the 23rd and 24th of March 2000, the Commission adopted a set of measures to open the gas and electricity markets up fully by July 2007.

The legislation on Community guidelines in the trans-European energy networks and on measures to create an advantageous context for this area was adopted during 1996. Under these guidelines, some 74 projects of common interest have been identified, representing a

total investment of EUR 18 000 million. In a number of cases, the EU's financial instruments, composed essentially of European Investment Bank (EIB) loans and European Regional Development Fund (ERDF), have been mobilised.

The introduction of trans-European energy networks also has an impact on relations with third countries. Interconnections have been made with certain Mediterranean countries, the countries of Central and Eastern Europe and Norway.

As a signatory to the European Energy Charter, which promotes East-West cooperation on energy, the European Community plays an active role in taking initiatives in the Baltic Sea region, and develops major links with other countries such as the Balkan States or China. It also maintains its relationships with the OECD and the EEA partners.

Nowadays, the world faces climate change among others challenges. The campaign to combat it is supported by the Energy from renewable energy sources (RES), which also play an important role in the diversification and sustainability of energy sources.
The 1997 White Paper's prime objective was to double the proportion of renewable energy sources in the EU's gross domestic energy consumption (from 6% in 1997 to 12% in 2010). But we observe that there is no concrete result without a policy of firm management of energy consumption.

The European Union established a strategy for sustainable development in May 2001 and called the Commission to consider the Union's contribution to global sustainable development, and to improve global governance, to promote more efficient management of interdependence. In order to contribute to this global sustainable development and to cover economic, social, environmental and financial aspects, a series of actions have been added to the May 2001 strategy. Those actions are: harnessing globalisation, by developing trade for sustainable development, with the cooperation of the WTO; fighting poverty and promoting social development to increase the quality, quantity, impact and sustainability of development cooperation; sustainable management of natural and environmental resources, to reverse the trend of the loss of environmental resources by 2015 as well as to develop intermediate objectives in the sector of water, land and soil, energy and biodiversity;

improving the coherence of European Union policies, to integrate sustainable development into all EU policies; better governance at all levels, with strengthening the participation of civil society, and the legitimacy, coherence and effectiveness of global economic, social and environmental governance.

The European Union is also establishing a set of measures for further integration of environmental considerations in energy policy and is reviewing progress made so far.
The Community has taken several measures, which take into account the three main objectives of Community energy policy: to promote energy efficiency/saving, to increase the share of production, and use, of cleaner energy sources; to reduce the environmental impact of the production and use of energy sources.

The Green Paper clarifies that efforts must be made in the transport, energy production and building sectors in particular. It also calls public authorities to make citizens and businesses more accountable by beneficial energy saving behaviour.

On the other hand, a Competitiveness and Innovation Framework Programme have been proposed for the period 2007-2013, in order to meet the objectives fixed by the Lisbon strategy, encouraging the use of information technologies, environmental technologies and renewable energy sources. Some specific programmes of the framework are detailed as the Entrepreneurship and Innovation Programme, the Objective of the ICT Policy Support Programme and the "Intelligent Energy – Europe" Programme.

The Commission, the European Parliament, the Economic and Social Committee and the Committee of Regions set up an Action Plan to reduce energy consumption by improving energy efficiency in order to protect the environment, to increase security of supply and to establish a more sustainable energy policy. The proposed actions are divided in three categories: measures to integrate energy efficiency into other EU policies (in the areas of Transport, Modern Enterprise policy, Regional and Urban policy, Research and Development, Taxation and Tariff policy, International co-operation and pre-accession activities); initiatives to strengthen and extend existing policies (in the areas of Transport, Household appliances, commercial and other equipment, Industry (including electricity and

gas companies), Buildings and Horizontal Measures); and new policies and measures (in the areas of the Promotion of energy-efficiency in public procurement, Co-operative technology procurement, Energy audits in industry and the Tertiary sector).

XV. Conclusions

In the years since Johannesburg, the United Nations system has made much progress in developing agendas and programmes to implement sustainable development outcomes. Since then, each actor has begun to contribute its unique talents and experiences to make development more sustainable. However, little measurable, concrete progress has been made, but perhaps little could have been expected in so short a time. The institutions surveyed above have designed individual plans of implementation, specific activities, and hopefully will begin to realize the promise vested in them by the international community in the years ahead. If not, Johannesburg, hailed as the end of rhetoric and the call to action, will not confirm to the UN system its reputation.

Is any new indication or recent trend emerging?

At UN level, the **New Governance on Sustainable Development** is under discussion and definition within 2007, in particular to provide oversight for the UN at the country level, in line with a well identified country programme.

The **United Nations Economic Commission for Europe (UNECE)** is committed to lend its wealth of experience in political and economic coalition-building to mobilize the countries of Western and Eastern Europe to the task of implementing the Johannesburg Plan of Implementation. To this end, it will continue to cooperate closely with other UN bodies and international organizations in order to capitalize on institutional strengths and to most effectively address the challenges of sustainable development. In particular, the ECE is ideally suited to coordinate the flow of capacity-building resources from Western Europe and North America to the countries in transition in Eastern Europe and the former Soviet Union in the context of the "wider Europe" geopolitical trend.

The experience of the UNECE is particular relevant to promote sustainable development and, more specifically, sustainable energy through specific activities. Among those efforts, the

Energy Efficiency 21 Project promotes market formation in many countries of the region. As annex to this paper, general characteristics and trends of the energy sector in Bulgaria are presented as example of one of the participating countries in the new phase of the EE21 Project, also in view of assessing the potentiality for energy efficiency improvements.

Recently, the **European Union** is showing a strong commitment for action. The Commission put forward plans for a reduction in greenhouse-gas emissions, increase in energy efficiency and renewable energy by 2020. There is no doubt that the EU is trying to reduce the dependency on imported fuels, increase energy security and trigger a new 'industrial revolution'. In few words, worries about Europe's increasing dependency on a few external suppliers, concerns regarding high oil and gas prices as well as the global-warming crisis seems to become a boosting input for a sustainable development in Europe: *transforming a fear in a new opportunity*.

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ANNEX

The Development of the National Energy Sector in Bulgaria[151]

General characteristics of the energy sector

According to the World Bank's 2004 GEF Project Brief on Bulgaria, the country has a vast potential to achieve significant energy efficiency gains in a cost-effective manner due to its current low efficiency base. The country requires 0.38 ton of oil per thousand US$ of GDP. This proportion is more than twice the average for countries in the European Union. Electricity demand is over-stimulated by households that have relied on under priced electricity for heating and have developed wasteful consumption patterns. There is no low-pressure natural gas market to provide an alternative for heating in this sector. District heating systems also require modernization in order to make more efficient use of electricity. Saving potential is as high as 50 percent for the existing building stock, 40 percent for district heating, and 30 percent for industry.[152]

If the Government's *National Energy Saving Program to 2010*, adopted in 2001, were carried out, combined energy savings would amount 1.4 million tonnes of oil equivalent annually. This represents about 15 percent of the country's total energy consumption. The program also aims at reducing CO2 emissions by 5.6 million tonnes per year. However, access to finance is difficult and represents an important barrier for EE projects. Commercial banks give low credits at high margins and perceive the risks involved in EE projects as too high. Although the projects that showed more potential, required low-budget investments, and offered a payback time of three years, were included in the Government's medium-term plan for 2001-2003, few were carried out. Commercially financed EE investments for this period amounted to US$13 million, 5 percent of what is annually required by the *National Energy Saving Program to 2010*. According to the World Bank, Bulgaria's EE market is still underdeveloped and fails to produce the capital necessary for investment.[153]

Bulgaria is dependent on energy resources mainly imported from Russia such as gas, oil, nuclear fuel, and coal. Nevertheless, the country's electricity generation capacities are enough to satisfy its domestic needs and to export to neighbouring countries. Although EE is an area of limited knowledge and application in Bulgaria, there is great potential for its development. Nearly all official documents and regulations concerning energy development in Bulgaria include EE considerations.

Energy resources: Bulgaria imports more than 70 percent of its primary energy resources.[154] Fuels such as oil, natural gas, high quality coal, and nuclear fuel that are used for energy generation are imported primarily from Russia. The energy independence coefficient elaborated by the Bulgarian National Statistical Institute (NSI) suggests 50.4 percent energy independence

[151] From UNECE, 2005, "Financing Energy Efficiency and Climate Change Mitigation. A Guide for Investors in Belarus, Bulgaria, Kazakhstan, the Russian Federation and Ukraine", Energy Efficiency Series No. 28, New York and Geneva

[152] GEF Bulgaria, not dated.

[153] GEF Bulgaria, not dated.

[154] MEER 2002, 2.

of the country, of which 66.7 percent for coal, 0.8 percent for crude oil, and 0.8 percent for natural gas.[155]

Coal: According to the US Department of Energy, there are large deposits of low-quality brown coal in Bulgaria. Estimated reserves include about 3 billion metric tonnes of lignite and 200 million metric tonnes of subbituminous coal. The Maritza coalfield, located in southern Bulgaria, is the largest deposit. Its reserves are estimated to last about 50 years. Coal obtained from this coalfield has an average heating value of about 2,840 Btu per pound, as well as a fairly high ash and sulphur content. In 2002, total coal production in Bulgaria amounted to 28.4 million short tonnes, which included 28.25 million short tonnes of lignite, 0.015 million short tonnes of bituminous, and 0.01 million short tonnes of anthracite. Domestic reserves of lignite are considered to be of poor quality because of their low calorific value and high sulphur content.[156]
Local lignite is used to fire one of the most significant Thermal Power Plants (TPPs) in Bulgaria, the Maritza East Complex, and provides about three million metric tonnes for the annual production of one million metric tonnes of briquettes. Coal from the Bobov Dol, Stanyantsi, Beli Breg, and Chukurovo mines, which provide coal for the Bobov Dol TPP. In total, there are 22 coalmine companies in the Bulgarian territory. Annual production and consumption of coal in Bulgaria has been constant since 1991. Since a supply of higher-quality hard coal is necessary for metallurgical industries, the US Department of Energy has been suggested that the country will probably remain a net coal importer. This coal is obtained from Ukraine and can come from as far away as Australia.[157]

Oil and gas: Bulgaria has demonstrated that the country's crude oil reserves are of approximately 15 million barrels. However, the country depends on its imports. In 2002, total oil production and consumption was of 2,000 b/d and 91,000 b/d, accordingly. Since Bulgaria did not have the technology necessary to look and extract oil in its territory, the Government signed agreements with foreign companies to explore the Black Sea and its coast. The company Neftochim, situated in Burgas, operates the 134,000 b/d oil refinery on the Balkan Peninsula that covers 85 percent of the Bulgarian refined product market. In October 1999, the Russian Oil Company Lukoil bought 58 percent of Neftochim and made the commitment to invest more than $400 million to upgrade the refinery to meet environmental standards. [158] The country imported 0.3 MT and exported 1.5 Mt oil products in 2001.[159]
Bulgaria has depended entirely on Russian gas imports. However, the country has demonstrated gas reserves that amount to 6 Gm3.[160] In 2001, Bulgaria signed a 25-year concession accord with the British company Patreco for the exploration and extraction of natural gas in Bulgaria's segment of the Black sea, including the Galata deposit. The company plans to extract 14 billion cubic feet (BcF) annually and sell them to Bulgargaz. Melrose Resources of Scotland is another company exploring the Galata area. It recently

[155] NSI 2000, 244.
[156] United States Department of Energy 2005.
[157] United States Department of Energy 2005.
[158] United States Department of Energy 2005.
[159] Austrian Energy Agency 2004.
[160] Austrian Energy Agency 2004.

announced in June 2004 that this deposit has reserves of 90 Bcf and estimated reserves of 800 Bcf.[161]

Electricity supply: In 2002, Bulgaria's electricity exports and imports were estimated at 8 billion kWh and 1 billion kWh, respectively. Bulgaria exports electricity to Turkey, Greece, Serbia & Montenegro, Macedonia, and Albania. Nuclear energy has been a main electricity source for Bulgaria. However, in 2006 the Kozloduy Nuclear Power Plant (NPP) will only operate two of its six units. In 2002, NPP supplied 48.1 percent of the total energy production, in 2003 this participation diminished to 40.6 percent. Other important electricity generators in Bulgaria are thermal and hydro power plants. The table below shows the country's structure of electricity generation capacity and its net generation in 2002. From the 43 TWh generated, 48 percent were produced by TPP, 47 percent by NPP, and about 5 percent by HPP.[162] According to the Austrian Energy Agency, the total electricity consumption in 2002 was of 32.7 TWh.[163]

Table 0.1 Structure of electricity generation capacity and net generation in Bulgaria in 2002

	Installed capacity (thousand MW)		Net generation in 2002 (billion kWhr)	
	MW	%	kWhr	%
Thermal TPP	6.33	53.88	20.7	48.14
Nuclear- NPP	3.76	31.97	20.2	46.98
Hydroelectric	1.67	14.2	2.1	4.88
TOTAL	**11.76**	**100**	**43**	**100**

Source: DOE/EIA as cited by US Department of Energy 2005.

Nuclear Energy: Kozloduy NPP is the most important nuclear power generation plant in Bulgaria, providing around 45 percent of the country's electricity in 2000. It consists of four VVER 440/230 and two VVER 1000/320 power units, with a total capacity of 3,760 MWe. The first four units were built in the 1970s and early 1980s. Units 5 and 6 were constructed in 1988 and 1993, correspondingly.[164] Bulgaria signed an understanding with the European Commission in 1999, stating that due to safety precautions, the first four units of the NPP would be closed and replaced with alternative energy sources. The first two units were closed in 2002 and units 3 and 4 will be closed in 2006. Modernisation programmes for the last two units are being carried out with the support of the EU.[165] In 2003, the construction of the 600 MWe Belene NPP was announced, which requires an investment of $2 to 3 billion.[166]

Thermal power: The structure of fossil-fuel electricity generation in Bulgaria includes six plants operating with lignite, brown coal, imported black coal, and imported black coal gas. The Maritza East Complex, which consists of plants Maritza East one, two, and three, is the

[161] United States Department of Energy 2005.
[162] United States Department of Energy 2005.
[163] Austrian Energy Agency 2004.
[164] IEA 1999a, 143.
[165] Austrian Energy Agency 2004.
[166] United States Department of Energy 2005.

largest non-nuclear plant in the country. It accounts for about two-thirds of Bulgaria's power generation through TPP. The government is planning to increase its 12 billion kWh power generation to 19.5 billion kWh in 2005 and 21 billion kWh in 2010. This means that the Maritza East Mines that supply 25 million metric tonnes per year will have to increase their output to 36 million metric tonnes in 2005 and 38 million metric tonnes in 2010.[167]
The other three TPPs are the 1,260 MW Varna Power Station, the 400 MW Rousse, and the 630 MW Bobov Dol. In addition to these large plants, there are a few independent producers that have 1,606 MW of thermal capacity for CHP and supply 14 percent of electricity. These independent producers may be district-heating plants owned by municipalities or industrial thermal stations. About 20 percent of public and residential heating is provided by small HPPs built between 1970 and 1990, located in 21 Bulgarian districts.[168]

Hydropower: There are 18 hydroelectric generating power stations located in six large cascading dams in Bulgaria. These cascades are Belmeken-Sestrimo-Chiara, Vacha, Batak, Arda, Iskar, Sandanska Bistritsa, and Piriniska Bistritsa, located in the Rodopi, Rila, and Pirin mountains.[169] Hydro power plants and pumped storage hydropower are the most significant renewable energy source in Bulgaria, representing 14 percent of installed electricity capacity and nearly 5 percent of net electricity generation in 2002.

Renewable energy sources: Bulgaria's National Program on Renewable Energy Sources plans on increasing the participation of renewable energy sources in electricity generation. The most significant non-hydroelectric renewable source currently used is biomass-fuelled thermal-electric power generation, representing about 0.1 percent of total electricity generation in 2001. Attempts to generate electricity through solar energy were made between 1977 and 1990, but the solar collectors installed are no longer in use. Although there are no operating wind energy and geothermal plants in Bulgaria, the Bulgarian Academy of Sciences and the Geothermal Energy Association estimate that the country has a wind energy potential of 2,2000 to 3,400 MWe and a geothermal power generation potential of about 200 MWe.[170]

Electric power transmission infrastructure: Transmission of electric power in Bulgaria is the responsibility of the National Electric Company (NEC), owner of the country's high-voltage power transmission network. NEC has 85 km of 750 kV overhead power lines, 2,266 km of 400 kV lines, 2,650 km of 200 kV lines, and 9,511 km of 110 kV lines. NEC also owns one step-down substation of 750/400 kV with transformer capacity of 2,500 MVA, 28 substations of 400/220/110 kV, 400/110 kV, and 220/110 kV with total transformer capacity of 14,654 MVA, 248 step-down substations of 110/20/10/6 kV with total transformer capacity of 13,095 MVA, and a 400 kV switching substation.[171]
Technical policy, operation, repair, and network and facility development for power transformation and transmission for HV customers and distribution companies are assigned to the High-Voltage Networks Enterprise. It operates in all Bulgarian territory, divided into

[167] United States Department of Energy 2005.
[168] United States Department of Energy 2005.
[169] United States Department of Energy 2005.
[170] United States Department of Energy 2005.
[171] NEC, not dated.

13 local power transmission regions (PTR).[172] Bulgaria's grid is connected with all of its neighbouring countries including Greece and Turkey, Bulgaria's main electricity export partners. The Bulgarian power system will also be interconnected with other countries in the region, including Ukraine, Moldova, Romania, Turkey, Greece, and former Yugoslavia.[173]

The gas pipeline network imports gas from Russia and provides transit delivery of Russian natural gas through Romania to Turkey, Greece, and Macedonia. The owner and operator of the whole natural gas network is the state company Bulgargaz. The company delivers gas to Turkey since 1987. Delivery for Greece and Macedonia began in 1996 and 1997 respectively.[174] In order to participate in the transmission of Russian and Caspian gas to Central and Western Europe, Bulgaria is willing to expand its network.

According to Bulgaria's 2002 energy strategy, attaining long-term cooperation with Russia is sought to increase the transit of Russian natural gas through Bulgaria. The country aims at positioning itself as a reliable alternative for future oil, natural gas, and electricity transit, as well as a possible dispatch and regional market centre. If gas pipelines were built from Central Asia through Bulgaria to Central Europe, Bulgaria could become an alternative east-west corridor, diversifying the dependence of Western Europe on imported natural gas. [175]

The pipeline system forms a ring structure that runs from east to west with two main branches. One runs through northern Bulgaria and the other through the central part of the country. Other secondary connecting lines branch off from the main structure to major industrial centres.[176] The high-pressure gas pipeline network has a total length of over 2,500 km. There are nine compressor stations with a total installed capacity of 170 MW. The system also has sub-surface gas storage in Chiren and 70 gas distribution sectors.[177] However, there is no gas grid for low and medium pressure gas pipes for domestic users and small industrial enterprises, limiting their access to gas. Although some programmes of gasification have begun in several Bulgarian towns, the process is slow due to high costs and low investments.

The Bulgarian oil pipeline network was built to transport oil from the Tyulenovo- Shabla field on the northeastern coast to Pleven refinery.[178] There is a project to build a transit pipeline to transport Caspian oil from the Bulgarian Black Sea port Burgas to the Greek port Alexandroupolis. Bulgarian, Greek, and Russian companies have established a joint venture for the construction of this $600 million pipeline and are currently negotiating the terms.[179] Bulgaria is also involved in a project to build a pipeline from Burgas through Macedonia to the Albanian port of Vlore on the Adriatic Sea. This 750,000 b/d pipeline would have a length of 560 miles and cost between $850 million and $1 billion. Bulgarian, Macedonian, and Albanian governments have agreed on the project and set up the Albanian-Macedonian-Bulgarian Oil Pipeline Corporation (AMBO).[180]

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[172] NEC, not dated.
[173] IEA 1999a, 146.
[174] MEER, not dated.
[175] MEER 2002, 14.
[176] Lynch 2001, 7-8.
[177] MEER, not dated.
[178] IEA 1999a, 135.
[179] Nenova 2002.
[180] Lynch 2001, 7-8.

Energy demand in Bulgaria decreased during the transition period last decade. According to some estimates final energy consumption dropped by 42.2 percent in total, by 20 percent per $1,000 GDP, by 63 percent in agriculture, 58 percent in transport, 36 percent in industry, and 22 percent in households.[181] The following table provided by the Bulgarian Energy Industry shows the distribution of final energy consumption for 2002 and 2003. The table illustrates the predominance of consumption in the economic and public sector and households.[182]

Table 0.2 Distribution of final energy consumption 2002–2003 (%)

Sector	2002 %	2003 %
Economic and public	26	28.1
Household	26.3	26.1
Own and technological costs	15.1	14.9
NEC- high voltage	14.8	15.5
Export	17.8	15.4
TOTAL	**100**	**100**

Source: *The Facts. Energy Policy*, Bulgarian Energy Industry 2003.

Energy intensity is defined as the amount of primary energy resources consumed per unit of GDP (kg oil equivalent/$1000). In 1998, this indicator was 1,628 kgoe/$1000, higher than all other countries in Europe with the exception of Ukraine. This ratio is seven times the average of OECD member countries.[183] Unlike other countries in transition, energy intensity has increased in comparison with the beginning of the transition period, from 1,332 kgoe/$1000 in 1989 to 1,628 kgoe/$1000 in 1998.[184] A significant amount of energy is lost in transmission, where there is strong potential for EE. A promising feature of the *National Strategy for Energy Sector Development* is the search of new alternatives for transmission such as the construction of an efficient system for gasification and heating that requires fewer resources.

Industry: One example of the remaining features of central economic planning in Bulgaria is the large share of heavy industry with energy-intensive technologies. This includes ferrous and non-ferrous metallurgy, mechanical engineering, chemical and oil processing, and electrical and electronic engineering industries. This pattern of industrial development was applied because Bulgaria had easy and inexpensive access to Soviet energy resources. Today, the high energy-intensity of production, in addition to outdated machinery, is one of the main obstacles to increase the competitiveness of the industrial sector. During the years of transition the total consumption of primary energy diminished, reducing the ratio of the amount of energy needed for GDP. However, this reduction was greater for the GDP than for industrial production, where energy intensity remains high.[185]

[181] Novem and EnEffect 2000, 18.
[182] MEER 2003.
[183] MEER 2002, 10.
[184] MEER 2002, 10-11.
[185] MEER 2002, 10-11.

Households: Households account for 42 percent of electricity consumption,[186] a share higher than that of other countries in the same region with a larger GDP per capita.[187] This pattern of high-energy consumption within the household sector is explained by the households' dependence on electricity for heating and its subsidised prices. Households lack other heating alternatives such as household gasification.[188] Natural gas has been used mainly in the industrial sector, with around 70 percent of all gas consumption. One of the priorities of the National Energy Strategy is therefore, the expansion of residential gas supply and consumption. Around 20 percent of the population use central heating, 30 percent use electric heaters, and 50 percent use electric heaters, coal, and firewood.[189] Coal for heating in the residential sector is predominantly in the form of briquettes, which account for nine percent of Bulgaria's coal production.[190]

Regulatory bodies: The Energy and Energy Efficiency Law (EEEL) enforced in 1999 and amended in 2001 and 2004 set up two main bodies to regulate and control the energy sector — the Ministry of Energy and Energy Resources and the State Energy Regulatory Commission. The Ministry of Energy and Energy Resources was created in 2001, emerging from the former State Energy and Energy Resources Agency (SAEER). It is responsible for the development and implementation of state energy policy. Article 4 of the EEEL states that its Minister shall propose the prepared energy strategy to the Parliament for approval and carry out its implementation with other state institutions and municipal authorities. The Minister is also responsible for the planning of the country's energy balance in terms of extraction, production, import, and export of the necessary energy resources, restructure programmes, privatizations, investments, and EE programmes. In the case of state owned energy enterprises of the electricity, gas supply, and coal mining sectors, the Ministry fulfils the functions of an owner.
The State Energy Regulatory Commission (SERC) exercises authority as the main energy regulatory body. It has seven members and is responsible for regulation of production, transmission, and distribution of electricity, heat, and gas. This also includes the construction of electric-power lines, gas pipelines, and production capacities for heat-transmission, gas-transmission, and gas-distribution networks. The SERC issues, suspends, and keeps record of permits and licenses for utilities. It also defines the general conditions to sell electricity, heat, and natural gas. Since 2002 the SERC establishes the prices for these sectors by approving the companies' propositions, an obligation that previously corresponded to the Council of Ministers. According to the 2002 Energy Strategy, institutional changes within SERC would strengthen its position, autonomy, and influence. It would be given the right to apply new rules for market pricing and for consumers' access to the transmission net. Eligible consumers would need to fulfil certain criteria and pay a fee to NEC.[191]
The Committee on the Use of Atomic Energy for Peaceful Purposes (CUAEPP) was set up in 1985 to specialize in national policy and control on the safe use of atomic energy.[192] It was renamed Nuclear Regulatory Agency (NRA) in 2002. It defines safety requirements for the use, transportation, and storage of nuclear material. It also establishes the criteria for training, qualifying, and licensing specialists to work in the atomic energy field. The NRA reports to

[186] Austrian Energy Agency 2004.
[187] MEER 2002, 10-11.
[188] Lynch 2001.
[189] IEA 1999a, 140.
[190] Lynch 2001.
[191] MEER 2002, 6.
[192] NRA 2003.

the Council of Ministers of the Republic of Bulgaria. Licences are issued by one of its entities, the Inspectorate on the Safe Use of Atomic Energy, which also establishes the requirements and processes the applications for them. This entity also provides on-site inspectors, some of which are at the NPP Kozloduy. The NRA grants annual operating licenses for the Kozloduy units after inspection.[193]

Table 0.3 Electricity prices per categories of end-users ($BGL/kWh)

Mode of measurement	Zones	Industry			Households
		HV	MV	LV	
With three tariff levels	Peak tariff	0.122	0.137	0.163	-
	Daily tariff	0.076	0.085	0.101	
	Night tariff	0.046	0.052	0.062	
With two tariff levels	Daily tariff	0.098	0.109	0.130	0.098
	Night tariff	0.046	0.052	0.062	0.053
With one tariff level	-	0.093	0.104	0.124	-

Source: SERC, 2005.

Tariff system: The tariff of natural gas in 2002, based on production and operating costs of Bulgargaz, was 300 BGL per thousand nm3 including VAT.[194] Heat and electricity tariffs are differentiated by consumer type and liberalized only for industrial consumers. These latter may be billed with day and night tariffs like households or on the basis of three zones. Tariff prices for high, medium, and low voltage electricity currently in force are shown inTable 2.5. Since 1 January 2002, the price of household heat has been 40 BGL per Gcal.[195] Further increase in energy prices is expected, particularly for district heating and household electricity, since the government is aiming at market-based tariffs.

Subsidies: Although Bulgaria has carried out reforms aimed at liberalizing the energy sector and market mechanisms are currently applied for pricing liquid fuels, coal, and natural gas, some prices remain subsidised. This practice is carried out in the form of cross-subsidies between different categories of consumers. Household heating and electricity for example, are cross-subsidised by industrial and commercial customers.[196]
The State Regulatory Commission on Energy is the entity responsible for the regulation of tariffs since 1 January 2002. The Law on the State Budget for 2001 determined that subsidising district heating companies with resources from the state budget would be done through the Ministry of Finance. Subsidies were allocated to the district heating companies based on a calculation of the losses they would suffer from selling heat to households at a fixed price. However, the Energy Strategy of Bulgaria aims at gradually cutting off state subsidies for producers and shifting them to low-income consumers by means of targeted support. It is envisaged that subsidies for heating energy will be distributed directly to the

[193] IEA 1999a, 147-148.
[194] SERC 2002.
[195] MEER, not dated.
[196] World Bank 2001b, 161.

low-income households jointly by the regional social assistance centres and local authorities.[197]

Direct taxation: Personal income and corporate income taxes were reduced in 2002. It was decided that an income of 110 BGL would not pay taxes and those over 1,000 BGL would be charged up to 29 percent. Corporate income tax rate was uniformed as 15 percent. Prior to 2002, profit tax for enterprises was 15 percent for those with profits under 50,000 BGL and 20 percent for those above this amount.[198] The Corporate Income Tax Law states that all companies and partnerships, including non-corporate partnerships, are liable to corporate income tax and a 10 percent municipal tax. This latter is deductible from the annual taxable base for the corporate income tax. The aggregated tax rate, including corporate and municipal tax, for the annual taxable income amounts to 23.5 percent.[199]

Indirect taxation is represented by value added tax (VAT), excise duties, and custom duties. The VAT in force since 1 January 1999 is 20 percent. Any legal, physical, resident, or non-resident person who has a taxable turnover exceeding BGN 75,000 in a year is obliged to register for VAT purposes. Voluntary registration is possible for those with a taxable turnover between BGN 50,000 and BGN 75,000.[200] Under the VAT Act a rate of twenty percent applies for import of goods and services. Exports and processing of import goods that are further re-exported have a VAT rate of zero. The VAT on electricity and heating energy prices was initially introduced for business entities only, but in 1994 it was expanded to cover the population and the budgetary sphere too.

Excise duties: Eighty percent of excise tax revenues on fuels, vehicles, and road transportation are destined for the Road Network Fund. The remaining 20 percent is designated to the National Environment Protection Fund. The Law on Liquid Fuels Taxation for these funds was adopted in 1996 and updated in 1998. It states the taxes levied on the production and import of gasoline, diesel, and residual with sulphur content. Cars are annually taxed according to their engine horsepower. This contribution goes directly to the Road Network Fund. A highway charge that would be applied depending on the vehicle's horsepower is being considered.[201]

Customs duties: The Customs Act, effective since 1 January 1999, provides different customs arrangements on warehousing, inward processing, and placing of goods in free zones and warehouses. Import goods are subject to customs duty, which is a percentage of the customs value plus the VAT of 20 percent. Customs duties on products were significantly reduced in 1999 due to the application of Free Trade Agreements with EU, EFTA, CEFTA, Macedonia Turkey, Croatia, Israel, and Estonia.[202] Customs Tariffs in 2002 for some energy sources, raw material, and other commodity groups were rated zero. These include electricity, natural gas, and most types of coal, including charcoal. However, briquettes and

[197] EnEffect 2001, 20-21.
[198] Ministry of Finance of the Republic of Bulgaria 2002.
[199] Bulgarian Foreign Investment Agency 2002, 35-36.
[200] Bulgarian Foreign Investment Agency 2001, 43.
[201] La Rovere et al 2000, 15.
[202] Bulgarian Foreign Investment Agency 2002, 41.

lignite have a 3.8 percent and fuel oils a 4.7 percent due rate. The highest rate applied on energy carriers for petrol and different types of oils is 22 percent.[203]

Advisory services: Consultants that provide expertise on energy related technological, economical, and financial issues are limited. According to the World Bank, the absence of the financial and technical skills required for the preparation of solid EE business plans is one of the main obstacles to obtain commercial EE Finance. A poorly constructed business plan is a frequent cause for rejection by financial institutions.[204] Main advisory bodies include:

The *State Energy Efficiency Agency*, the main body under the EEEL, has the status of an Executive Agency to the Ministry of Energy and Energy Resources. It implements the state EE policy defined by the Minister. The Agency also cooperates with local administration and bodies on implementing EE projects and programmes. One of its main functions is to provide consultation services on rational energy use, utilisation of RES, as well as energy audits and technical expertise.

Energy Centre Sofia is the successor of the European Community Energy Centre Sofia established in June 1992 in the framework of THERMIE programme. One of the main objectives of the Centre is the promotion of efficient and environmental friendly energy technologies. The Centre is also responsible for the coordination and support of measures executed under the EU energy programmes in Bulgaria. It has been involved in different PHARE, SYNERGY, THERMIE, and SAVE projects and activities. Since 1997 the centre is registered as an independent energy consultant that collaborates with European, regional, national, and municipal authorities with focus on EE and RES. Since 1998 Sofia Energy Centre, in consortium with Energoprojekt, has been working as FEMOPET Bulgaria, as Fellow Member of the Organisations for Promotion of Energy Technologies Network.

Energoprojekt is a company specialised in construction and maintenance services in the energy sector. It is also involved in the implementation of engineering projects, consultancy, and studies. Its activities at present are broadly connected with the rehabilitation of the Bulgarian energy sector. Energoprojekt also participates in several programmes supported by foreign institutions such as the EU PHARE programme.

EnEffect Center for Energy Efficiency is a NGO actively involved in EE activities. It aims at supporting central and local authorities and fulfilling the knowledge gap among municipal official bodies. The NGO works in the elaboration of municipal EE programmes and implements demonstration projects aiming at sustainable development. It also provides investigation on the EE potential in various sectors of the national economy and the environmental impact of energy conservation, training in this field, and rational use of energy. The projects developed and implemented by EnEffect are funded by the US Agency for International Development, the Commission of the European Communities, the United Nations, and the Global Environmental Facility, among others.

The *Association of Energy Engineers* is a NGO that acts as a Chapter of the Association of Energy Engineers in Atlanta. It was established in 1992 and has up to 40 regular and 10 corporate members.[205] Its main activities include providing policy advice, seminars, demonstration projects, studies, and training. The NGO supports the development of private

[203] Ministry of Finance of the Republic of Bulgaria 2002.

[204] GEF Bulgaria, not dated.

[205] Novem & EnEffect 2000, 42.

EE consulting services and assists its members in promoting their activities in the private consultancy market.
JICA EE Centre was established in 1995 with the cooperation of the Japanese International Cooperation Agency (JICA) and is affiliated to the Ministry of Economy. Its present activities are focused on the industrial sector and include consultations on rational energy consumption and control, optimization of energy management, improvement of production processes, and modernization of production facilities in Bulgarian industrial enterprises. The Centre has performed audits in some of the largest Bulgarian private enterprises with resources for and interest in energy conservation issues.
Techenergo, Sofia is a state joint-stock company specialised in activities of the energy sector. It imports and exports energy equipment. The company also provides engineering services and consultancy, performs energy audits, controls energy combustion processes in the energy sector, and serves different energy utilities.

Fields of competition: There has been significant delay in structural reforms in the Bulgarian infrastructure and energy sector. With the exception of some HPPs, all energy utilities are state-owned.[206] Privatization is a slow process that has not reached large generators and utilities yet. The Energy and Energy Efficiency Law (EEEL) adopted in 1999 and amended in 2001 began the restructure and liberalization of the energy sector and created an energy market. It aimed at separating electric power generation, transmission, and distribution in order to eliminate NEC's monopoly. The Law hoped to create the conditions for market competition by establishing new and independent market participants.
The National Power Transmission Company (NEC) was formerly called the National Electricity Company. It was the main actor on the electricity market, running the entire electricity supply. It owned the NPP Kozloduy, HPPs, TPPs, and the whole transmission and distribution system. Hence, NEC managed the whole electricity production, transmission, and distribution sector. It was the only agent responsible for electricity trade, import, and export.
In accordance with the 1999 National Energy Strategy and EU requirements, restructuring and de-monopolisation of the energy sector started in 2000. Electricity production and distribution were separated from NEC. The latter was renamed Transmission Company for it retained the transmission system, some large HPPs, the pumped-storage hydropower plant, and the Maritza East 3 TPP. The remaining generation capacities were excluded from the NEC structure and acquired a status of independent power producers to be privatized.[207]
According to the adopted Single Buyer Model, all independent power producers sell electricity to NEC. Being the country's only power transmission company, NEC is the only agent eligible to buy electricity from independent producers. It then sells it directly to high-voltage customers and to the seven newly established power distribution companies. These latter then sell power by retail to medium and low voltage clients. Thus, NEC continues to be the main actor on the Bulgarian electricity market, carrying out electricity generation, transmission, import, and export. The company will not be offered for privatization.
As a result of the NEC restructuring, the output of independent power producers increased from 11.4 percent of the total in 1999 to more than 50 percent in 2000.[208] However, it is still

[206] Bulgarian Government 2000.
[207] This includes TPP Maritza East 1, TPP Maritza East 2, TPP Rousse, TPP Varna, TPP Bobov Dol, TPP Maritza 3, 63 small HPPs, DH plants, and industrial Plants. NPP Kozloduy has also become an independent producer but will not be privatised because of its strategic importance.
[208] NEC 2000, 6.

arguable whether this approach of centralised purchase and sale does not retain the state monopoly in the sector. It has been claimed that a restructuring of this kind introduces organisational separation only but no real commercial relations. Following this argument, amendments to the EEEL allow a partial market opening to take place. This is achieved by authorising electricity generators free access to transmission and distribution networks and direct contracting with eligible consumers without NEC's interference. The latter is obliged to ensure transmission in return of a fee. This is expected to encourage competition among generators, where large industrial enterprises will be the first to benefit. By including power distribution companies in the category of eligible customers, a wholesale market in electricity will be created. The creation of a retail electricity market where customers will choose their supplier is the long-term goal of the domestic market development.[209]

Full market liberalization, understood as free determination of electricity prices, is unlikely to take place. With the establishment of a wholesale market in electricity, medium and low-voltage customers will buy electricity from power distribution companies. These latter have the recognised monopoly right to serve an assigned territory and will continue to be subject to regulation. NEC defines the transmission fee charged in exchange for the transmission net. Thus, even when customers will have the right to choose between alternative electricity providers, the electricity price will contain a regulated component.[210]

The Single buyer model preserves state control and planning over the energy sector, especially with regards to investments. Although the Law intended to promote commercialisation and competition in the energy sector, the energy strategy argues that it supported a 'non-market business model'[211] by maintaining full government control over electricity generation, transmission, and distribution companies.[212]

The new energy strategy calls for market structures and rules. These include the introduction of a permissive regime to build new capacities without the State's issue of construction permits and purchase obligation. The discontinuation of long-term power purchase agreements is also desired in order to allow investors to take independent market decisions and assume market risks. Under the previous Single Buyer model, private investors did not have direct access to end consumers and required government-supported long-term power purchase agreements to be concluded. This practice transfers risks to the Single buyer instead of placing it on those making the investment and entry decisions.[213]

The government programme announced in 2001 envisaged privatization in the energy sector to be completed in the period 2003-2005, with the exception of NEC and the NPP. Privatization in the energy sector was set up as one of the main priorities of the 2002-2003 strategy and is to begin with the power distribution companies. The power plants privatization will start with key electricity and heat generating plants. In the period 2003-2004 Bobov Dol, Rousse, and Varna TPPs will be privatized. This will take place after the establishment of market rules, since their absence has prevented investors from participating in the privatization of the energy sector.[214] Further measures are necessary in order to allow foreign producers to have access to import and export deals.

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[209] MEER 2002, 16-17.

[210] MEER 2002, 16-17.

[211] MEER 2002, 3.

[212] MEER 2002, 4.

[213] World Bank 2001b, 162

[214] World Bank 2001b, 19.

Mining: The restructuring in the mining sector closed unprofitable mines and called for the improvement of the more viable ones in order to make them more attractive for investors. The mining sector has been preparing for privatization by separating or merging mining and district heating companies, such as the Pernik mines and Pernik DHC.[215] Imported coal is bought at market prices and domestic coal has partially liberalised prices. Six state companies and the briquette factory sell at state regulated price levels and the rest apply contractual prices.[216]

Gas market: The state-owned Bulgargaz, the only owner and operator of the national gas transmission system, controls the natural gas market in Bulgaria. It also owns the natural gas storage 'Chiren' with a capacity of over one billion m³. Bulgargaz controls gas import, transmission, storage, distribution, and trade. The establishment of regional gas distribution companies to supply households was the initial and most significant step towards breaking up the Bulgargaz monopoly. Deregulation of the internal and external energy markets for natural gas and privatization are the next steps, according to the energy strategy. Allowing large users to contract domestic or foreign supply directly could accelerate the opening of the gas market. However, the transmission fee is yet to be defined.[217] Bulgargaz is likely to retain ownership of the gas transmission system and the right to direct contracting of natural gas supplies. The company can also give third parties access to eligible consumers.
Privatization of Bulgargaz is envisaged in stages. Shares of the company will be sold but the state will retain control over the major share. Privatization of Bulgargaz is to be completed in 2010 and the Bulgarian gas market will be fully integrated with the rest of Europe.[218] At the moment, Bulgargaz is only expected to contribute its network assets as minority stakes in future joint venture companies with foreign and domestic partners.[219]

Market prices: Liberalization of the energy sector has been partial. Electricity, indigenous coal, and household heat prices continue to be fixed below their costs. Bulgaria and the IMF have agreed on a programme for the liberalization of energy prices. However, due to the high social costs involved, its implementation has been significantly delayed. As an example, in 1999 electricity prices were increased by 14 percent instead of the 30 percent rise that was agreed on with the World Bank and the IMF.[220]
The government declared in its programme the development of a competitive energy market as a top priority for the energy sector. It emphasized the normalisation of energy prices in conformity with their full economical costs and the cessation of subsidies for producers. Further increase in electricity prices for households is envisaged in order to level prices for domestic and industrial consumers. In the beginning of 2002, household tariffs were about 16.2 percent lower than industrial ones. In practice, firms still subsidise households.[221]
According to the strategy, new market prices will create energy saving incentives and proper patterns of energy consumption. The price of electricity for the population will be twice as

[215] Bulgarian Government 2000.
[216] MOEW and Energoprojekt PLC 1998, II-12.
[217] Dnevnik 2002a.
[218] Lynch 2001, 13-14.
[219] IEA 1999a, 124.
[220] IEA 1999a, 130.
[221] Nenova 2002.

high as heat and natural gas tariffs.[222] This measure will be complemented with new forms of social aid, in order to make energy prices affordable for all citizens.
Gas and electricity tariffs are presently lower for households than for industrial consumers. Energy policy calls for household tariffs to rise faster than industrial ones. Household gas prices are based on import costs and cover Bulgargaz's transmission and operation costs. Gasoline prices were freed on July 1999.[223] The amendments to the EEEL allowed large industrial gas consumers and gas distributors to negotiate directly with suppliers of imported gas since January 2002, although it will not be in practice until transmission fees are defined.
Heat prices are established according to different consumer types. Heat prices for companies are liberalised and cover the full production cost of the generation plant and a certain rate of profit, which is why prices can differ among suppliers.[224] Heat prices for households are limited and still subsidised although they should have been eliminated in 2000.[225] The budget subsidises the difference between the full production cost and the limited price, approximately 40 percent of the total cost.[226] The population's low income prevents the liberalization of a significant number of consumers who, unable to pay their bills, have chosen to disconnect from the grid. This was practiced by more than 30 percent of the consumers since 1998.[227] Nevertheless, further increase in heat prices for households is expected in order to eliminate subsidies from the budget.

Coal: Some state-owned mines sell coal at state-regulated prices. The briquette factory at Maritza East also sells briquettes to consumers at state-regulated prices. The present price of briquettes is 80 BGN/ton net of VAT.[228] Although at present coal and briquette prices are subsidised, the Bulgarian energy strategy calls for phasing out these subsidies. In addition to the state-owned mines there are some coalmines that sell their products at contracted prices.

Description of sub-sectors

Lighting: Street lighting systems were considered as part of the national power-engineering infrastructure until 1999, when the Energy and Energy Efficiency Law was amended. This law established that energy infrastructure networks and equipment became municipal property.[229] This change was well accepted since street lighting serves the resident population. The change in ownership is a tool to encourage investments and improve the system's operation. At present almost 90 percent of lighting fittings for street lighting use high-pressure mercury-vapour lamps, which predetermine their low energy efficiency. The remaining 10 percent of lighting fittings are high-pressure sodium-vapour lamps and compact luminescent lamps.[230]
However, there is ambiguity over the municipal ownership of street lighting systems, since they have also been included in regional power distribution companies. Thus, it is a question as to the ownership of the street lighting systems. Some argue that including street lighting in the power distribution companies' capital does not mean that they have lost their status as

[222] MEER 2002, 12.
[223] IEA 1999a, 124.
[224] EnEffect 2001, 20.
[225] Alexandrova and Mihailova 2001.
[226] IEA 1999a, 154.
[227] World Bank 2001b, 152.
[228] MEER, not dated.
[229] EnEffect 2001, 11.
[230] MOEW 1998, 25.

municipal property.[231] In some cities, street lighting systems are not included as assets of power distribution companies or are only partially considered. In this case they are property of the municipality and this latter should cover the costs of operation and maintenance. However, no money for maintenance and repair has been provided to municipal budgets.
It has been suggested that the draft-law prepared in 2001 to amend the Energy and Energy Efficiency Act contained texts that explicitly defined municipalities as owners of street lighting systems. It was envisaged that power distribution companies would transfer their ownership rights to municipalities free of charge. However, until the transfer of ownership of networks and equipment is completed, the power distribution companies will be on charge of their operation and maintenance with municipal funds.[232] If street light ownership were transferred to municipalities, their administrations would require the expertise to manage the system. In case this transfer was made free of charge, an arrangement would be needed for the municipalities' overdue debts to power distribution companies.
On 31 March 2001 the Law on Organisation of the Territory replaced the former Law on Spatial and Settlements Organisation. Under the latter, municipalities constructed street lighting systems with their own funds and then transferred them free of charge to power distribution companies for operation and maintenance. Presently, municipalities have neither the right to invest in the development of street lighting systems, nor their ownership according to the Energy and Energy Efficiency Act.[233]

Hospitals: In 1991, hospitals and dispensaries were state-established and had different municipal, regional, or state scopes. All health care establishments were transformed into public entities in order to distinguish them from the emerging private ones. There was no state and municipal divisions for public hospitals. This practice was introduced with the new Law of Health Care Establishments in Bulgaria.[234] The health care reform found hospitals with 20-year-old equipment and buildings lacking repair. Large state hospitals liquidated themselves.[235]
In order to improve the health care system, a considerable change in the structure of ownership of hospitals and health establishments was made through the Law on Health Care Establishments enforced in 1999. Changes also aimed at improving financing and operational modes through a new registration regime. It was established that health establishments would be founded according to the Commercial Law or the Law for Cooperatives.[236] The deadline for their registration was 1 September 2000. It was stated that public health establishments that were not transformed would be closed down and liquidated by the Council of Ministers.
Changes in the status of health care establishments took place and a majority of them were registered under the Law on Commerce and the Law on Cooperatives. In compliance with these Laws, the majority of them were transferred to municipalities. However, municipalities had difficulties to finance the hospitals adequately and problems with liabilities and provision of basic medical and sanitary equipment appeared. This complications lead to considerable problems in the planning and spending of municipal budgets. Health establishments are: [237]

- District when treating citizens from neighbouring municipalities;

[231] MOEW 1998, 25.
[232] MOEW 1998, 11-13.
[233] MOEW 1998, 13.
[234] Bulgarian Ministry of Health 2000.
[235] Kultura News 2001.
[236] Republic of Bulgaria National Assembly 2000.
[237] Republic of Bulgaria National Assembly 2000.

- Regional when treating citizens from municipalities of one region;
- Inter-municipal when treating citizens from different regions;
- National, when carrying out country diagnosis, scientific research work, implementing modern medical technologies, or developing and implementing national health policy.

According to Art 37 (3) the state and the municipalities shall found health establishments for hospital care and dispensaries as limited liability companies or joint stock companies. The owner could be the municipality, state, or other joint form of state and municipal management of the capital. The majority of transformed hospitals became municipal. Health care establishments with specific or strategic roles for the national health care system are subject to joint management by the state and the respective municipality. Under this provision, the Law lists 26 regional hospitals. They are transformed into joint stock companies with 51 percent state-share, managed by the Minister of Health, and 49 percent municipal share. Only a small part of the transformed health care establishments was envisaged for entire state-ownership. These include nine pulmonary hospitals, national medical centres, and university hospitals.
After the registration period for the healthcare establishments as commercial companies, the Ministry of Health started keeping record of healthcare establishments with permission for medical activity. According to the Ministry, there are a total of 245 establishments with this permission. From this total, municipalities have the jurisdiction of 118 municipal hospitals, 50 dispensaries, and 26 untied regional hospitals. The state has jurisdiction over 29 national diagnostic and treatment structures affiliated to the high medical schools.[238]

Financing of health care establishments is specified in Article 96 of Chapter XII of the Law. It is stated that the National Health Insurance Fund, state and municipal budgets, voluntary health insurance funds, and local and foreign corporate bodies and individuals can finance health establishments. Health services for Bulgarians and insured foreign individuals is free of charge if compliant with the regional division of health care and if financed by the state budget. The revenue of health establishments is formed by:

- Direct payments under contracts for provided medical care by individuals and corporate bodies out of the ordinary practice;
- Reimbursement of expenses made by a third party;
- Expedient subsidies from the republican budget when stipulated by the Law for the state budget;
- Expedient subsidies from the municipal budgets when provided by them;
- Rentals of equipment, premises, and offices according to the acting legislation;
- Donations, wills, among others.

Hence, the state and the municipalities finance the state or municipal health establishments through expedient subsidies approved by the law for the state budget and by municipal budgets. It was stated that public health care establishments that used to be financed by municipal budgets until 2000, would be financed from the same source during 2001. The financing mechanism of hospitals for 2001, the first year after their transformation, was defined with the Law for State Budget. It imposed funding to be distributed from the

[238] Bulgarian Government 2000.

municipalities and the Health Ministry after approval by the Ministry of Finance. The governing bodies of each hospital conclude financing contracts with the respective municipality that allocates the subsidies. It is envisaged that the state National Health Insurance Fund will distribute the budget funding for hospitals.
Registered under commercial terms, hospitals are formally independent commercial companies and should therefore make independent decisions on investment. However, the municipality is the owner of the capital of these medical establishments and must provide them with subsidies and investments. The restructuring of the health care system and the new modes of ownership raised ambiguities concerning investment.

District heating: There are 21 district heating companies (DHC) in Bulgaria. They are formed at a regional basis and report to the Ministry of Energy and Energy Resources. Some work as combined heat and power generation plants (CHP) that supply electricity to NEC. District heating is provided in most Bulgarian cities and heating is supplied to 18 percent of the Bulgarian population.[239] They are state-owned, with the exception of Sofia DHC that accounts for 60 percent of the DH industry. [240] Transfer of ownership to municipalities and privatization of the economically viable DH companies is being considered.[241] The process of gasification in residential sector in the biggest cities like Sofia and Varna stared in 2004. Previously natural gas was offered to the population in smaller cities and the share of residential customers is still not sufficient.

District heating systems in Bulgaria were built between 1970 and 1990 and are still in poor technical condition with negative financial results. Lack of resources is linked with low fixed prices for household heat that do not cover production and delivery costs. When cessation of subsidisation was postponed, instead of establishing commercially operating business companies, DHCs came near to financial collapse.[242] The failure to pay heat and electricity bills is notorious in Bulgaria, not only among citizens but also with budget-financed organisations and big state owned enterprises. Moreover, a considerable number of consumers chose to disconnect from the system. In the current system the producers get subsidies considerably lower than their needs. 'In that way the DHCs subsidise the consumers on the account of their own decapitalization'.[243]
The outdated equipment and facilities cause transmission losses of 16 percent.244 Lack of appropriate metering and regulating equipment leads to bills that are based on heated area and not on measured consumption. Consumers also lack measures to control their own consumption, a prerequisite for the rationalisation of heat consumption. According to the Energy Strategy, metering devices are to be installed in all district heating companies. Metering devices in the Sofia DHC are now in use. 245 Later, the government introduced the concept of household-level metering by creating a legal requirement for households to install HCAs (for heat metering) by September 2002. All newly constructed buildings foreseen to be

[239] MOEW 1998, IV-13.
[240] IEA 1999a, 154.
[241] Novem & EnEffect 2000, 41.
[242] MEER 2002, 4.
[243] MEER 2002, 24.
[244] Novem & EnEffect 2000, 14.
[245] MEER 2002, 22.

connected to DH are implemented with horizontal floor distribution of the building heating systems and equipped with apartment heat meters.

An action plan for restructuring commercial DHCs has been approved and since then Joint stock municipal DHCs have been gradually privatized. It aimed at establishing joint stock companies with municipal participation, considering that it is convenient that DHCs remain within municipal scope. Privatization of district heating systems in Bulgaria was recently set in motion, but the sector for the most part remains under the control of municipal or state ownership. The price of district heat in Bulgaria is moderately high, and is not subsidized. Electricity appears to be a major competitor to district energy, even though its actual cost is twice as great. Refurbishment and regeneration of district energy systems in the big cities is proceeding under sovereign financing arrangements provided by the government of Bulgaria. The World Bank and the European Bank for Reconstruction and Development service this arrangement under mutually beneficial terms.

District heating sector is in a process of privatization since 2004 and process is still not completed. Till the end of 2005 a total number of 10 out of 21 DH companies were transferred to 100% private property[246]. The first DH company with private participation was build in 2002 in the city of Stambolivski. Later a few more small-scale DH companies received licenses for heat production and distribution.

Tariff reform in DH sector continued almost a decade. In the beginning there was a unified tariff for all DH companies, which was not sufficient to cover the real production and transportation costs. On a later stage separate prices for different DH companies were introduced. Tariff increases were introduced periodically, however they did not at all lead to diminishing of the level of subsidies since the enterprises continued to make losses for a number of factors, such as lack of investments for improvement of the efficiency of the systems, poor accounting and collection practises, disconnection of growing number of subscribers because of the price increases. In 2002, started the pricing reform focusing on the phase-out of subsidies, which practically happened in 2005, when all the prices were liberalized. After removal of subsidies only the low-income people remain receiving financial support for energy needs by the social safety net program. Since 2002 the State Energy Regulation Commission (SERC) is responsible for electricity, natural gas and district heating tariff setting and regulation.

[246] Alliance to Save Energy, Regional Urban Heating, Policy Assessment, 2007

Addressing the problems

Major barriers for investments in energy efficiency signalled in Bulgaria include:

- *Currency board restrictions* limit the capital available for decentralised public-owned entities. Aiming at financial stabilisation, the currency board imposes a rigid public expenditure policy and limits options for financing of the budget deficit. It limits the state initiative for investing in different undertakings, including EE. The only EE fund available in Bulgaria was dismantled namely because of the currency board prescription.
- *Delay in privatization and insufficient market based legal framework*: Privatization practice in Bulgaria has been delayed because of political reasons. Restructuring of large state-owned energy-intensive industries is still taking place. The absence of well-defined regulatory framework and market rules hinders the attraction of EE investment.
- *Persistent subsidizing of energy prices* continues, distorting market signal and avoiding incentives for conservation measures. There is low awareness of energy saving measures to increase competitiveness of the national production.
- *Formation of municipalities' budgets and non-payment*: The government approves municipalities' budgets according to the expenses made during the previous year. Resources allocated are usually insufficient and savings are deducted from the amount of subsidies allocated for the next year, including energy. Delay or non-payment of energy bills is tolerated, preventing energy enterprises from receiving the operating revenues needed for their operation.[247]
- *Lack of incentives for end users to save energy* derived from low energy prices in comparison to their production costs, as well as unresolved ownership issues concerning municipal and public property.
- *Lack of knowledge and institutional capacity* to prepare and implement EE programmes. EE is a new field of knowledge in Bulgaria and its development has been rather slow. Municipalities have the jurisdiction of the majority of public buildings such as hospitals, kindergartens, and schools. These authorities lack both the financial resources and the expertise to implement EE projects. Cooperation with other institutions providing technical advice is inefficient and unpopular.

[247] EnEffect 2001, 2.