

# part I

## Energy at the World Summit for Sustainable Development

**E**nergy was one of the most intensely debated issues at the World Summit for Sustainable Development (WSSD) in Johannesburg in September 2002. In the end, agreement was reached that significantly advances the attention given to energy in the context of sustainable development. These developments followed years of efforts to focus on energy as an instrument for sustainable development after the United Nations Conference on Environment and Development in 1992 and are briefly reviewed here.

### The United Nations Conference on Environment and Development

The United Nations Conference on Environment and Development (UNCED) held in 1992, in Rio de Janeiro, Brazil brought to the fore global attention on environment and development issues, but did not explicitly address energy issues in their entirety. Agenda 21, one of the principal non-binding intergovernmental outcomes of UNCED, provides a blue print for sustainable development. Agenda 21 does not, however, contain a specific chapter on energy; but aspects of energy in relation to environment and development have been addressed in Chapter 9 of Agenda 21, in the section entitled “Protection of the Atmosphere”. The main emphasis of energy within Agenda 21 was,

*“...to reduce adverse effects on the atmosphere from the energy sector by promoting policies and programmes as appropriate, to increase the contribution of environmentally sound and cost-effective energy systems, particularly new and renewable ones, through less polluting and more efficient energy production, transmission, distribution and use.”<sup>3</sup>*

3. United Nations, “Agenda 21”, 1992. Chapter 9, paragraph 9.11. Available on the internet at <http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm>

Intergovernmental considerations at UNCED reflected the pressing concerns linked to the emerging issue of global climate. Although, the need for equity as well as the need for increasing energy consumption in developing countries was reflected in Agenda 21, the issue of universal access to energy services for almost one-third of the global population was not paid adequate attention.

While the role of energy in sustainable development is addressed in several Agenda 21 chapters dealing with human health, protection of atmosphere, transport, industry, agriculture and technology, energy issues and strategies were not comprehensively dealt with within Agenda 21.

Other significant outcomes of UNCED in addition to Agenda 21 are, the United Nations Framework Convention on Climate Change and the establishment of the United Nations Commission on Sustainable Development (CSD) with a mandate for effective follow up to UNCED.

UNCED was followed by a series of major international and UN conferences that considered energy in relation to many aspects of development. Relevant global forums focusing on energy related issues in the 1990s include the following: UN International Conference on Population and Development (1994), Global Conference on Sustainable Development of Small Island States (1994), World Summit on Social Development (1995), the Fourth World Conference on Women (1995), the UN Conference on Human Settlements (1996), World Solar Summit (1996) and the World Food Summit (1996).<sup>4</sup>

### The United Nations General Assembly Special Session

A review of the five-year progress of implementation of Agenda 21 by the United Nations General Assembly at its nineteenth special session (UNGASS-19) focused intergovernmental attention on energy for sustainable development for the first time. UNGASS-19 recognized the “need for a movement towards sustainable patterns of production, distribution, and use of energy and, emphasizing the overarching significance of energy for sustainable development” decided that energy and transport issues should be addressed at the ninth

session of the CSD.<sup>5</sup> UNGASS-19 also agreed that preparations for CSD-9 should utilize an “Ad Hoc Open-Ended Intergovernmental Group of Experts on Energy and Sustainable Development”. In order to provide relevant analytical input to the preparatory process for CSD-9, UNDP, UNDESA and WEC jointly published a report entitled, “World Energy Assessment: Energy and the Challenge of Sustainability.”<sup>6</sup> The report had the benefit of inputs from a number of international experts in energy as well as recommendations from a number of regional outreach meetings.

### The Millennium Assembly

At the Millennium Summit held in 2000 at the United Nations General Assembly, world leaders agreed to a number of fundamental development goals and associated targets (Annex 1). The Millennium Development Goals (MDGs) are to:

- eradicate extreme poverty and hunger,
- achieve universal primary education,
- promote gender equality and empower women,
- reduce child mortality,
- improve maternal health,
- combat HIV/AIDS, malaria and other diseases,
- ensure environmental sustainability, and
- develop a global partnership for development.

Notably there is no MDG on increased access to energy services, though energy-related indicators are used to measure progress made on environmental sustainability. None of the MDGs can be achieved without much greater access to improved quality and an increased quantity of energy services. Recognition of the importance of energy in achieving sustainable development led many governments to focus on achieving agreement on a clear energy goal that could be agreed upon at the WSSD in Johannesburg.

### The Group of Eight (G8) Renewable Energy Task Force

The Renewable Energy Task Force was established in response to an appeal by the Group of Eight (G8) industrialised countries at their meeting in Okinawa in 2000. Stakeholders were invited to join in a Task Force to prepare concrete recommendations to better encourage

4. A summary of the outcomes of some of these conferences with regards to energy is contained in a UNDP Report, see A.K.N. Reddy, R.H. Williams, and T.B. Johansson, “Energy After Rio: Prospects and Challenges”. (New York: UNDP) 1997.  
5. UNGASS, “Programme for the Further Implementation of Agenda 21”, (A/RES/s-192), 1997: paragraph 45.  
6. UNDP, UNDESA, WEC, “World Energy Assessment: Energy and the Challenge of Sustainability”. (New York: UNDP) 2000.

*Access to affordable energy services is fundamental to human activities, development, and economic growth.*

the use of renewables in developing countries.

The main recommendation made by the Task Force in 2001 was to reduce costs by expanding markets. As far as wind and photovoltaics are concerned, most current markets are in developed countries; expanding the market for these technologies will help to bring costs down, which is a prerequisite for their use in developing countries. The policies and actions that could bring this about include support for research and development and the use of portfolio standards and tariffs to enhance the market penetration of renewable energy technologies.

As far as biomass is concerned, most of the resources and markets are in developing countries. However, the available technologies are frequently inefficient. Thus the Task Force recommended that multinational development banks use innovative approaches to investments in R&D and market-based financing mechanisms.

### Commission on Sustainable Development

At the intergovernmental level, the ninth meeting of the Commission on Sustainable Development (CSD-9) held in 2001 succeeded in reaching consensus on key energy issues and actions needed to address them at national, regional and global levels. CSD-9 also contributed to a shared understanding of the challenges ahead and the significance of energy in terms of its central role in achieving the goals of sustainable development, recognizing the synergies created by the simultaneous pursuit of poverty eradication and mitigation of environmental impacts of energy.

The agreement reached at CSD-9 on energy for sustainable development recognizes for the first time that energy is central to achieving the goals of sustainable development and takes into consideration the fact that:

- nearly one third of the global population of six billion people, mostly living in developing countries, continue to lack access to energy services;
- wide disparities in the levels of energy consumption within and between developed and developing countries exist;
- current patterns of energy production, distribution and utilization are unsustainable.

Furthermore it was recognized that ensuring access to modern energy carriers for the two billion people

without access is one of the prerequisites for meeting poverty reduction goals.

Energy issues and options agreed upon at CSD-9 emphasized *inter alia*, the need for:

- increasing energy efficiency in all economic sectors;
- increased use of renewable energy;
- greater reliance on advanced energy technologies, including advanced fossil fuel technologies, and the sustainable use of traditional energy resources;
- developing appropriate energy services particularly in rural areas;
- integrating energy considerations in socio-economic programmes, especially in policy making of major energy consuming sectors, such as the public sector, transport, industry, agriculture, urban planning and construction;
- enhanced regional and international cooperation on energy for sustainable development;
- integrating energy considerations into bilateral and multilateral development cooperation and into lending policies of development banks;
- continuation of international dialogue on energy for sustainable development in the context of preparations for the World Summit on Sustainable Development.

On the issue of nuclear energy, it was agreed that the choice of nuclear energy rests with individual countries. While some countries considered nuclear power as a sustainable energy source with both economical and environmental advantages, other countries do not consider nuclear energy as compatible with the objective of sustainable development, and that risks related to safety, waste management and transport and stranded costs remain unresolved. For those countries that choose nuclear energy, the challenge lies in ensuring environmentally sound, socially acceptable, and cost-effective solutions and in addressing nuclear safety and spent fuel and waste management as well as public concerns on these issues.

Although CSD-9 recommendations are quite clear on actions needed at various levels- national, regional and global, not specifically provided for in those recommendations were mechanisms and means of implementation. Nevertheless, CSD-9 provided a solid basis for addressing energy for sustainable development and to build further international endeavours based on what was achieved at CSD-9.

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## The Eighteenth World Energy Congress

Economic growth, social progress, and environmental protection are the three inter-linked pillars of sustainable development. It is important to put people's needs and sustainable development at the centre of market reform, regulation, and technology diffusion.

The eighteenth World Energy Congress in Buenos Aires in October 2001 strongly reaffirmed the goals of energy accessibility, energy availability, and social and environmental acceptability that were established in the World Energy Council (WEC) Millennium Statement, *"Energy for Tomorrow's World—Acting Now!"* (WEC, 2000). Because the achievement of these goals is essential to sustainable development, WEC decided at the eighteenth Congress to focus its 2002-2004 work programme on the following objectives:

- achieving access to commercial energy for the two billion people in the world who do not now have it;
- developing stable regional trade policies, clear legal frameworks, and sensible regulations for energy development;
- keeping all energy options open, including the safe use of nuclear power and the promotion of renewables;
- increasing efficiency through competition and technology diffusion;
- implementing advanced, cleaner technologies to reduce the impact of human-induced emissions on the quality of human life and the natural world around us.

These goals are closely related. Trade and technology access and development drive economic growth that, among other factors, is the prerequisite for addressing poverty and expanding energy access. This in turn is closely linked to availability of energy services and energy acceptability.

More often than not, the financial requirements of energy projects are a bigger challenge than accessing the technology and know-how. Governments, regulators, and energy companies have made progress in these areas, but much more work is needed to address poverty, to improve skills and working conditions, and to reduce/control pollution. It is essential for all stakeholders to continue to work together on realistic market-driven solutions to specific problems. There is a crucial role for the creation of a mechanism that reduces transaction

costs between low-income consumers and suppliers of energy services.

## Progress in Implementing the United Nations Framework Convention on Climate Change

One of the most serious threats to the environment is climate change. The international response was the adoption of the United Nations Framework Convention on Climate Change in 1992. The objective of the convention is to "stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". Since some two thirds of all greenhouse gases originate in the production and use of energy carriers, mostly from fossil fuels, there is a strong link between climate change mitigation and the global energy system.

The highest decision-making body under the UNFCCC is the "Conference of the Parties" (COP) that meets annually. In 1997, at COP-3 in Kyoto, the Parties agreed to the Kyoto Protocol, which sets legally binding greenhouse gas emissions reduction targets for industrialised countries (called the Annex I Parties). The emission reduction levels are significant as a first step. Several mechanisms are included to help the Parties achieve their commitments, including emissions trading, joint implementation, and the Clean Development Mechanism (CDM). The CDM also has the objective of helping developing countries (non-Annex I Parties) achieve sustainable development. In 2001, at COP-7, the Parties agreed to the Marrakech Accords, which set out details for the implementation of the Kyoto Protocol. Since then, the ratification process has been under way. A large number of countries have ratified the Kyoto Protocol and whether it enters into force depends on whether and when the Russian Federation ratifies. The United States has declared that it will not ratify.

The Intergovernmental Panel on Climate Change (IPCC) provides the UNFCCC processes with scientific information on climate change impact, and adaptation and mitigation. Its Third Assessment Report, released in 2001, concluded, *"there is new and stronger evidence that most of the warming observed over the last fifty years is attributable to human activities"* (IPCC, 2001, p. 10).

COP-8 was held in New Delhi in 2002, and was characterised by discussions over broader commitments, increasing focus on adaptation, the meaning of sustainable

development and its relation to climate change, and the possible existence of a dichotomy between development and environment. No agreement was reached on formally negotiating broader and more ambitious commitments.

### The World Summit on Sustainable Development

The process leading up to the WSSD in Johannesburg in August/September 2002 consisted of a series of intergovernmental preparatory committee meetings, or “Prep Coms”. To provide greater clarity on important issues identified during the preparatory process. U.N. Secretary General Kofi Annan, in a key statement on 14 May, introduced the idea of a framework involving a select few key topics that would guide the Summit discussions. Calling it the “WEHAB Framework”, the Secretary General proposed highlighting the topics of Water, Energy, Health, Agriculture, and Biodiversity (WEHAB) for emphasis at the conference.

The WEHAB energy framework highlighted the linkages between energy and goals related to water, health, agriculture, and biodiversity, emphasising the interdependence among sustainable development issues (Figure 1). Development goals in the areas of water, health, agriculture, and biodiversity often cannot be met without energy inputs, and the policies adopted in these sectors similarly impact the availability and

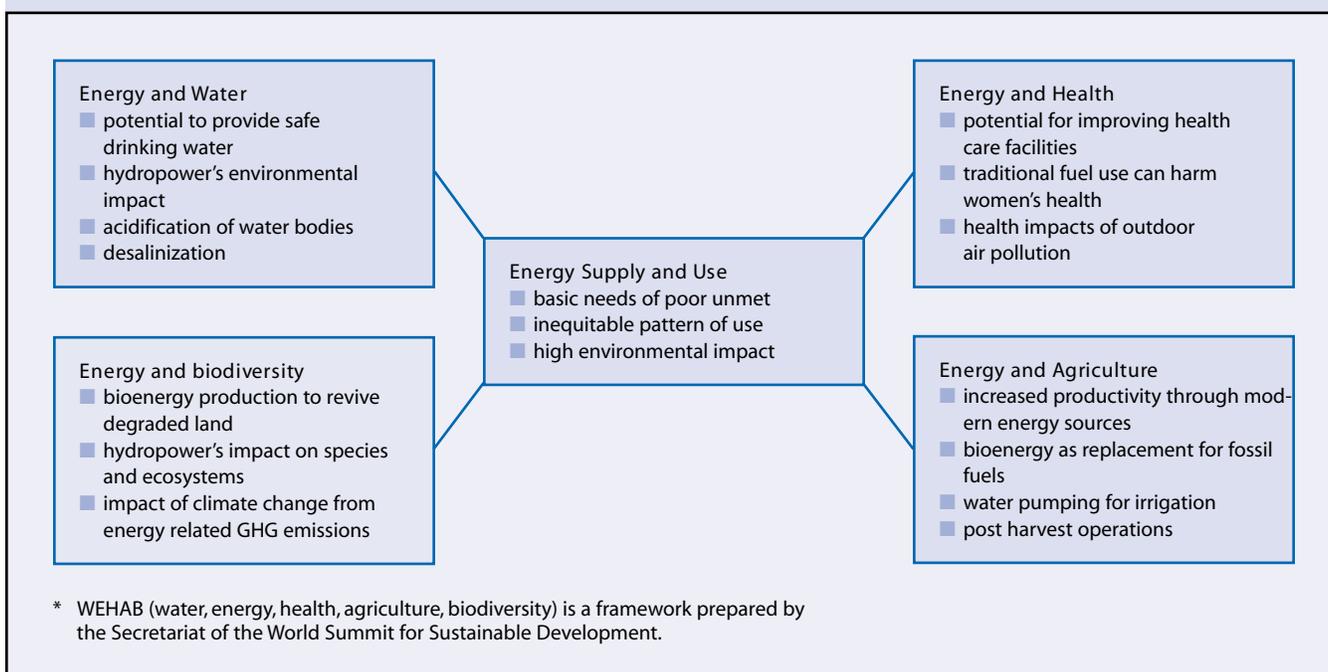
reliability of energy services.

The energy framework drew international attention to the fact that “there is currently no international nor intergovernmental process to host or facilitate dialogue on priority energy issues”. It recommended that concerted action and an energy dialogue at the international level are needed to support energy systems development consistent with sustainable development and to track progress on energy issues in relation to globally agreed development goals (WEHAB, 2002).

Energy was an intensely debated issue at WSSD and agreement on energy was not reached until the final day of the Summit. As such, it is an important element in, the final Plan of Implementation, the central outcome of the meeting. Compared to UNCED in 1992, energy, particularly the issue of access to energy services, moved from the periphery to centre stage. With an overall focus on poverty alleviation at WSSD, many of the non-environmentally derived issues linked to energy systems and services took on greater importance.

There was a strong effort to reach agreement on a global target on renewable energy, with some proposing that 10 percent of total energy supply should come from renewable sources by 2010. This ran into stringent opposition and deliberations were complicated by the

**FIGURE 1. EXAMPLES OF THE CRITICAL ROLE OF ENERGY IN WEHAB\* PRIORITY AREAS**



Source: Modified from WEHAB, 2002.

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fact that no clear definition of renewable energy was put forward, especially concerning the role of large hydro and biomass as sources of energy. Many countries voiced concerns that a target specifying energy supply sources was irrelevant or secondary to a supply or access target. There was no agreement on a target specifying increased access to energy services and no agreement on potential financing sources to support this.

The final texts on energy within the Plan of Implementation are found in paragraphs 9, 20, and 38 in the respective chapters dealing with poverty eradication (II), changing unsustainable patterns of consumption and production (III), and protecting and managing the natural resource base of economic and social development (IV) (United Nations, 2002). The introductory section of paragraph 9 urges the international community to:

*“take joint actions and improve efforts to work together at all levels to improve access to reliable and affordable energy services for sustainable development sufficient to facilitate the achievement of the millennium development goals, including the goal of halving the proportion of people in poverty by 2015, and as a means to generate other important services that mitigate poverty, bearing in mind that access to energy facilitates the eradication of poverty”.*

Subsequent items deal with access to modernised biomass, cleaner liquid and gaseous fossil fuels, enhanced energy efficiency, expanded use of renewable energy, and new and advanced energy technologies, including cleaner fossil fuel technology. Paragraph 9 calls for a greater focus on rural electrification as a means to address poverty and underscores the crucial role of policy and regulatory frameworks to achieve this. The overall focus is on increasing access to energy services. Paragraph 9 is particularly important to developing countries, where the majority of poor people live.

Paragraph 20 largely reiterates the conclusions of CSD-9 and calls for greater international financial co-operation to shift towards more sustainable patterns of consumption and production. This paragraph is relevant to all countries, most significantly the industrialised countries, where current patterns of energy production, distribution, and consumption are highly unsustainable. It emphasises diversifying the energy supply mix, increasing the use of renewable energy and low-emissions

technology, and enhanced international co-operation. Paragraph 20 calls on the international community to:

*“diversify energy supply by developing advanced, cleaner, more efficient, affordable and cost-effective energy technologies, including fossil fuel technologies and renewable energy technologies, hydro included, and their transfer to developing countries on concessional terms as mutually agreed. With a sense of urgency, substantially increase the global share of renewable energy sources with the objective of increasing its contribution to total energy supply, recognising the role of national and voluntary regional targets as well as initiatives, where they exist, and ensuring that energy policies are supportive to developing countries’ efforts to eradicate poverty, and regularly evaluate available data to review progress to this end”.*

Paragraph 38 deals extensively with climate-related issues and reaffirms the UNFCCC as the key instrument for addressing climate change, with the ultimate objective of stabilisation of greenhouse gas concentrations in the atmosphere. Further, the agreed text notes that,

*“States that have ratified the Kyoto Protocol strongly urge States that have not already done so to ratify the Kyoto Protocol in a timely manner”.*

Attention is given to energy and transport issues in paragraph 21, with emphasis on an integrated policy approach, energy efficiency and public mass transportation as well as affordability as means to support sustainable development.

Overall the agreement on energy detailed in the Plan of Implementation point to key areas for national, regional, and international co-operation on energy issues. Energy as a means to support the attainment of overall sustainable development objectives beyond the energy sector is clearly recognised, and the important role of the public sector in establishing supportive policy environments to facilitate this is a common thread throughout the Plan.

While the focus of the Johannesburg Plan of Implementation is on implementation, there are no provisions for new international financial agreements or commitments such as those agreed at UNCED. Instead, decisions taken at the summit-level International Conference on Financing for Development held earlier in 2002 (the “Monterrey Summit”) were viewed as

complementing WSSD decisions. The Monterrey Summit did not address the issue of energy but made general recommendations on mobilising international resources for foreign investment and other private flows.

In relation to energy, a total of 39 partnerships to promote sustainable energy programs in developing countries were presented to the United Nations Secretariat for WSSD, 23 with energy as a central focus and 16 with a considerable impact on energy. These partnerships included most prominently: the UNDESA/UNEP/US EPA-led Clean Fuels and Transport Initiative; the UNDP/World Bank-led Global Village Energy Partnership (GVEP); the LPG (Liquefied Petroleum Gas) Challenge led by UNDP and the World LPG Association; the Alliance for Rural Africa (AREA) led by Electricité de France (EdF); the Johannesburg Renewable Energy Coalition (JREC); the European Union Partnership on Energy for Poverty Eradication and Sustainable Development; and the UNEP-led Global Network on Energy for Sustainable Development (GNESD).

One of the main topics of discussion at the Commission for Sustainable Development in 2003 was the need to establish means of tracking, monitoring,

and reporting on progress made in the implementation of these partnership initiatives. Since they are voluntary partnerships, they do not involve binding intergovernmental commitments to support or fund them through new or additional resources. Described as “coalitions among the willing”, these partnerships do form an important new means of engagement between the private sector, civil society, and the development assistance community. They could have a significant impact in some areas of the world.

At its meeting in spring 2003, the Commission on Sustainable Development also adopted a multi-year work program for itself and decided to change its working methods. According to the new way of operation, themes will be taken up in two-year action-oriented "implementation cycles", consisting of a review and a policy session. In its review session, CSD will evaluate progress in implementing Agenda 21, the Programme for the Further Implementation of Agenda 21, and the Johannesburg Plan of Implementation. CSD will also focus on identifying constraints and obstacles in the process of implementation with regard to the thematic clusters. According to the multi-year program, CSD will again take up energy issues in its 2006/07 cycle. ■