Sustainable Development: The Road towards the 2007 Session of the Commission on Sustainable Development (CSD-15)

A. Introduction

1. Some countries argue that nuclear power is fundamentally incompatible with sustainable development. Others argue that nuclear power is essential to their sustainable development strategies. Much of the discussion has taken place within the UN Commission on Sustainable Development (CSD), which in 2006 and 2007 focused on energy for sustainable development, industrial development, air pollution/atmosphere and climate change. Given the frequency with which the phrase 'sustainable development' appears in institutional statements of visions, missions, goals and objectives, a decision by the CSD that nuclear power is inconsistent with sustainable development could constrain nuclear power in unexpected ways.

B. Sustainable Development

2. Sustainable development was defined in 1987 by the Brundtland Commission, known formally as the World Commission on Environment and Development, as "…development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987).

3. Extensive literature on sustainable development has developed since 1987, generally dividing the concept into three 'pillars': economic, environmental and social. A full review of the literature is beyond the scope of this summary, but the central important features are summarized in this section.

4. The original Brundtland definition emphasized two points: the importance of economic development (to satisfy needs) and the significance of the natural environment (both as resource provider and waste absorber). The latter is formulated as a social directive for intergenerational linkages rather than as a direct resource use and environmental protection principle. Subsequent elaborations and analyses have converted the simple Brundtland concept into a sophisticated system with three pillars – one each for the economic, environmental, and social aspects of sustainable development (Pearce et al. 1989; World Bank 1992, 2003).

5. Starting with the economic pillar, there is a broad consensus about the key importance of energy for economic development. The minimum requirement often referred to is to satisfy the energy requirements associated with basic human needs. The requirement to promote development recognizes that the *availability* of abundant energy has supported the process of industrialization in many countries in the past and it will be crucial for the economic take-off of many less developed countries in the future. The price of energy is crucial and has several implications. *Affordable* energy fosters industrial competitiveness on the production side and affordability (an important social aspect of sustainable development) on the consumption side. Yet the efficient allocation of society's scarce resources requires that energy prices reflect energy's full social costs. Distorted energy prices due to

general subsidies or ignored external costs lead to careless and wasteful use of energy and suboptimal allocation of resources. Another important requirement for sustainable development is that energy be provided in forms so that it is *convenient* and *comfortable* to use. This fosters the adoption of advanced technologies on the production side and enhances the quality of life on the consumption side.

6. The next fundamental criteria for energy imply that it is *safe to produce* and *safe to use*. Setting aside the environmental aspects for the moment (which are discussed below), processes from extraction and mobilization to final use in all energy chains involve various sorts of risks to humans and capital assets (e.g. coal mining disasters, refinery accidents, nuclear installation incidents, etc.). The nature and magnitude of these risks and the human and technical possibilities to reduce them vary considerably.

7. Additional economic criteria for energy provision to support sustainable development include *security* (i.e. that the sources and delivery lines are trustworthy and sufficiently diverse to allow substitutions and rearrangements at low cost if a source or delivery line fails), *reliability* (energy is available without supply discontinuities like closures, shutdowns, or blackouts), *dependability* (the quality of energy is constant and corresponds to prevailing standards (e.g. voltage, calorific value, and chemical composition), and *flexibility* (energy is available when needed and in the quantities needed).

8. The environmental pillar of sustainable development has two major components in the context of energy: resource depletion on the input side and human health impacts and environmental degradation on the output side. Depletion fears in the 1970s triggered the 'zero-growth' debate about whether, and to what extent, the world's populations, resource use, and economies could grow indefinitely in a finite world. This debate provided the key motivation for establishing the WCED. Subsequently it was recognized that even if non-renewable resources (in the case of energy, this primarily implies fossil energy sources) were available in huge quantities, their environmental and health impacts would require profound changes in many conversion and utilization technologies or direct limitations of their use (Pearce and Turner 1990, Perman et al. 1996).

9. On the *depletion* side, the broadly accepted *weak sustainability* criterion implies the principle of non-declining total capital to be passed down to future generations (which links to the social pillar in setting a standard for intergenerational equity). This allows the use of non-renewable energy sources as long as that use is compensated for by equivalent increases in man-made, human and social capital. This also links back to the economic pillar because it requires the *efficient use* of non-renewable energy sources, which can be achieved if prices reflect true social costs, including the scarcity rent, and the timely development of inexhaustible sources of energy.

10. With respect to *environmental degradation*, the ultimate sustainability criterion is to reduce all emissions from energy conversion and use to the level that corresponds to the absorbing capacity of the receiving environmental component (Pearce 1991). Different energy sources and their associated conversion and utilization technologies differ widely in the nature and amount of harmful substances they emit into air, water, and soil and in the other impacts they impose on humans, landscapes, and other components of the biosphere.

11. The original concern of sustainable development in the social pillar was *intergenerational equity*, i.e., the availability of non-renewable resources and a clean environment to future generations. Over the years, a whole suite of intragenerational equity and other current social concerns have been added. Proponents argue for including in the social pillar diverse matters like poverty alleviation, gender equity, education, participation, transparency, accountability, and many others. Energy contributes to improvements in many of these social components of sustainable development indirectly. The most

important sustainable development concerns directly related to energy include *accessibility* (the actual availability of energy), especially access to modern forms of energy, typically distributed via commercial channels, and *affordability* (the ability to pay for the required energy) (UN-Energy 2005). These two factors are the main determinants of energy-related intragenerational equity, i.e. measures of progress in reducing disparities in energy use across different social groups within a country and among nations globally.

C. The Commission on Sustainable Development

12. Five years after the Brundtland Commission's report, the United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro. Among other things, UNCED produced the UN Framework Convention on Climate Change (UNFCCC), the Rio Declaration on Environment and Development and *Agenda 21*. *Agenda 21* is a comprehensive programme of action for sustainable development. It is effectively UNCED's translation of the Brundtland Commission's definition into more specific policy directions. It has 40 chapters on all aspects of sustainable development and covers energy issues, but has no separate chapter dedicated to energy (UNCED 1992).

13. *Agenda 21* called for the creation of a Commission on Sustainable Development (CSD) to ensure effective follow-up of UNCED, enhance international cooperation, and examine progress in the implementation of *Agenda 21* at the local, national, regional and international levels. The CSD was formally created in December 1992 by the UN General Assembly. It was established as a functional commission of the Economic and Social Council and is composed of 53 members elected for terms of three years. Thirteen members are elected from Africa; eleven from Asia; ten from Latin America and the Caribbean; six from Eastern Europe; and thirteen from Western Europe and 'other'. Additional States, United Nations organizations, accredited inter-governmental and non-governmental organizations can attend sessions of the CSD as observers. The CSD meets annually for a period of two to three weeks. The Division for Sustainable Development in the UN Department of Economic and Social Affairs provides support. The CSD reports to the Economic and Social Council and, through it, to the Second Committee of the General Assembly.

14. The role of the Commission, as a high level forum on sustainable development, now includes:

- reviewing progress in the implementation of recommendations and commitments contained in *Agenda 21* and the Rio Declaration on Environment and Development,
- elaborating policy guidance and options for future activities to follow up the Johannesburg Plan of Implementation (JPOI), the final document produced by the 2002 World Summit on Sustainable Development (WSSD), and
- promoting dialogue and building partnerships for sustainable development with governments, the international community and the 'major groups' identified in *Agenda 21* as key actors outside central governments who have major roles to play in the transition towards sustainable development. The major groups recognized by CSD are women, children and youth, indigenous peoples, non-governmental organizations, local authorities, workers and trade unions, business and industry, scientific and technological communities, and farmers.

15. Energy was addressed for the first time at the ninth session of the CSD (CSD-9) in 2001. CSD-9's decision on energy (UN 2001) is thus the first dedicated effort by the CSD to further translate the Brundtland Commission's definition of sustainable development into specific policy directions with respect to energy. Nuclear power was a particularly controversial topic during the extensive preparatory process for CSD-9 and at the two-week meeting. The debate between countries that consider nuclear power an essential component of their sustainable development strategies and those that consider nuclear power fundamentally incompatible with sustainable development was long and thorough. It reached two main conclusions:

1. Countries agreed to disagree on the role of nuclear power in sustainable development. CSD-9's final text observed that some countries view nuclear power as an important contributor to sustainable development and others do not, and summarized briefly the logic of each perspective.
2. Countries agreed that "The choice of nuclear energy rests with countries."

D. The World Summit on Sustainable Development

16. The extensive debate at CSD-9 on nuclear power was not repeated the following year at the World Summit on Sustainable Development (WSSD) in Johannesburg. With respect to energy, the WSSD's concluding Johannesburg Plan of Implementation (JPOI) begins with an explicit call to governments, as well as relevant regional and international organizations and other relevant stakeholders, to implement the recommendations and conclusions of CSD-9 (UN 2002). A new feature of the JPOI was the inclusion of a 'positive list' of technologies: renewable energy resources, efficiency improvements, and advanced energy technologies including cleaner fossil fuel technologies. The JPOI calls for a series of actions to promote the widespread availability of clean and affordable energy, specifically the promotion of the technologies on the positive list.

17. The word 'nuclear' never appears in the JPOI. Upon the adoption of the JPOI, three States took the floor to state for the record that they did not consider nuclear power to be an advanced energy technology and thus they did not consider nuclear power part of the JPOI's positive list of technologies. One State took the floor to state that it did consider nuclear power to be an advanced energy technology and part of the JPOI list. Subsequent to the WSSD, the first CSD document to explicitly address this issue, the Secretary General's report to CSD-14 (next section), does include nuclear power in the category of advanced energy technologies. The report addresses only four topics in its section on "other advanced energy technologies" (i.e. other than advanced clean fossil fuel technologies): nuclear power, fuel cells, hydrogen and the need for increased funding for research and development (UN 2006a).

18. The JPOI also reaffirmed that the CSD is the high-level forum for sustainable development within the UN system. However, it called on the CSD to focus on a limited number of issues and only undertake negotiations once every two years. This would shift the balance away from annual negotiations of new or more refined objectives and guidelines and more in the direction of reviewing progress, sharing experience, integrating efforts, developing innovative implementation mechanisms, and engaging broader participation in implementation.

19. In response the CSD now operates on two-year cycles. The first year in each cycle is a 'review session', in which the CSD assesses progress and focuses on sharing experience, coordinating efforts

and other implementation issues. The second year in the cycle is a 'policy session', in which the CSD negotiates new policy decisions to guide future efforts.

E. CSD-14

20. The first CSD cycle following the WSSD, CSD-12 and CSD-13 in 2004 and 2005, addressed water, sanitation and human settlements. The second cycle, CSD-14 and CSD-15 in 2006 and 2007, addressed energy for sustainable development, industrial development, air pollution/atmosphere and climate change.

21. CSD-14 took place in New York, 1-12 May 2006. As the first meeting in the two-year cycle, CSD-14 was a review session. It was structured to assess progress and advance implementation in the four areas listed above: energy, industrial development, air pollution and climate change. The preparations and programme encouraged participants to identify success stories in the implementation of relevant sections of the JPOI and *Agenda 21*, to share these at CSD-14, to learn from the success stories of others and to forge new partnerships.

22. The main programme included, among other segments, a three-day high-level ministerial segment with about 50 ministers, a Partnerships Fair, a Learning Centre, and a full day devoted to progress and implementation issues associated with small island developing states (SIDS). Many SIDS are particularly vulnerable to climate change and unable to afford needed adaptation measures.

23. In the high-level segment ministers stressed, with respect to energy, the urgency of concrete actions to increase access to energy by the poor in developing countries, particularly in Africa, and the priority that should be given to poverty eradication in developing countries. Many called for an integrated approach to energy, industrial development, air pollution/atmosphere and climate change as "an action-oriented basis for deliberations at the Commission's fifteenth session" (UN 2006b).

24. The Partnerships Fair provided a venue for those involved in, or interested in, recognized CSD partnerships to network, identify partners, create synergies among initiatives and learn from each other's experiences. The Learning Centre provided teaching and training at a practical level on the aspects of sustainable development covered by CSD-14, all directed at advancing the implementation of *Agenda 21* and the JPOI.

25. All presentations and discussions are either summarized or directly accessible through the CSD-14 website: http://www.un.org/esa/sustdev/csd/csd14/csd14.htm. A summary of the Agency's contributions to CSD-14 is available at http://www.iaea.org/OurWork/ST/NE/Pess/CSD-14.shtml. The Agency's brochure for CSD-14, Nuclear Power and Sustainable Development, is available at http://www.iaea.org/OurWork/ST/NE/Pess/index.shtml.

FIG. 1: Former UN Secretary-General Kofi Annan addresses the high level segment of CSD-14.

26. As a review session CSD-14 produced no formal agreed conclusions. The formal record includes instead a chairman's summary, which was discussed and revised during the second week of the session but never adopted as a consensus view (UN 2006b).

27. Of the four topics on CSD-14's agenda, energy dominated the discussions, but nuclear power was not extensively discussed. Several delegations mentioned the role of nuclear power in their energy strategies. Others cited concerns about nuclear power. Some of the major groups were more outspoken. Women and NGOs called for a phase-out of nuclear technology. NGOs objected to the IAEA's role in "facilitating the nuclear industry". Children and Youth argued that nuclear power was neither clean nor renewable nor sustainable. The Scientific and Technological Communities were more supportive of nuclear power while noting the need to address waste disposal, safety and proliferation.

F. CSD-15

28. A one-week Intergovernmental Preparatory Meeting (IPM) was convened in New York in February and March 2007 to prepare for the fifteenth session of the CSD (CSD-15). The objective of the IPM was to bring forward the issues raised during the review year (CSD-14) and help translate and focus them into policies and actions that could be agreed upon at CSD-15.

29. Based on initial IPM deliberations, a preliminary draft document was distributed by the Chair that sought to articulate areas of potential agreement. Following further discussion, a revised draft was circulated to serve as the starting point for negotiations at CSD-15.

30. CSD-15 took place in New York from 30 April to 11 May 2007. A newly revised draft negotiating text, referring to "cleaner and advanced fossil fuel technology", which excludes nuclear power, was distributed during the first week. However, despite intense subsequent negotiations, CSD-15 could not agree on a new negotiated text. Thus the 2001 CSD-9 decision on energy and the 2002 JPOI, as described above, remain the operative CSD texts on energy. The points of disagreement at CSD-15 included the relative emphasis to be given to fossil fuels and renewables, and the possible introduction of new review procedures, voluntary time-bound targets for progress, and new energy standards and labeling. After the session, the CSD secretariat circulated a 'Chair's summary' of CSD-15.

31. It did not prove possible within CSD-15 to agree new policy decisions to guide future efforts in the areas of energy, industrial development, air pollution/atmosphere and climate change. However, CSD provided opportunities for sharing experiences, forming new partnerships, and replicating and scaling up examples of successful projects. In addition to the formal negotiations, CSD-15 included formal panels and 'dialogues' with UN agencies, the CSD major groups, independent experts and member states.

32. All presentations and discussions at CSD-15 are either summarized or directly accessible through the CSD-15 website: http://www.un.org/esa/sustdev/csd/csd15/csd15.htm.

FIG. 2: UN Secretary-General Ban Ki-moon addresses the high level segment of CSD-15.

REFERENCES

IAEA et al. (International Atomic Energy Agency, United Nations Department of Economic and Social Affairs, International Energy Agency, Eurostat, and European Environment Agency) 2005, Energy Indicators for Sustainable Development: Guidelines And Methodologies, STI/PUB/1222, IAEA, Vienna, April 2005.

IAEA (International Atomic Energy Agency), 2006: Nuclear Power and Sustainable Development, IAEA, Vienna, April 2006.

IISD (International Institute for Sustainable Development), 2006: *Earth Negotiations Bulletin*, Vol. 5, No. 238, 15 May 2006 (http://www.iisd.ca/download/pdf/enb05238e.pdf).

Pearce, D. (ed.), 1991: Blueprint 2. Greening the World Economy, Earthscan Publications, London.

Pearce, D.W. and Turner, R.K., 1990: Economics of Natural Resources and the Environment, Harvester Wheatsheaf, Hemel Hempstead, UK.

Pearce, D., Markandya, A. and Barbier, E.B., 1989: Blueprint for a Green Economy. Earthscan Publications, London.

Perman, R., Ma, Y. and McGilvray, J., 1996: National Resource and Environmental Economics, Addison Wesley Longman, Harley, UK.

UN (United Nations), 2001: Report of the Ninth Session. Economic and Social Council Official Records, Supplement No. 9, Commission on Sustainable Development, Rep. E/2001/29, E/CN.17/2001/19, New York.

UN (United Nations), 2002: Report of the World Summit on Sustainable Development, Johannesburg, Rep. A/CONF.199/20, New York.

UN (United Nations), 2006a: Energy for Sustainable Development, Industrial Development, Air Pollution/Atmosphere and Climate Change: Progress in Meeting the Goals, Targets and Commitments of Agenda 21, Report of the Secretary-General, Commission on Sustainable Development, Fourteenth Session, UN Advance Copy Unedited Rep. E/CN.17/2006/3. New York.

UN (United Nations), 2006b: United Nations Commission on Sustainable Development, Report on the fourteenth session (22 April 2005 and 1-12 May 2006), Economic and Social Council Official Records, 2006, Supplement No. 9, E/2006/29(SUPP), E/CN.17/2006/15(SUPP)

UNCED (United Nations Conference on Environment and Development), 1992: Agenda 21, UN, New York.

UN-Energy, 2005: The Energy Challenge for Achieving the Millennium Development Goals, United Nations, New York.

WCED (World Commission on Environment and Development), 1987: Our Common Future, Oxford University Press, Oxford.

World Bank, 1992: World Development Report 1992. Development and the Environment. Oxford University Press, New York.

World Bank, 2003: World Development Report 2003. Sustainable Development in a Dynamic Word. IBRD (World Bank), Washington, D.C. and Oxford University Press, New York.