WFEO MEETING REPORT
UNITED NATIONS CSD-15

A. INTRODUCTION

The Commission on Sustainable Development (CSD) of the United Nations met in New York from April 30th to 11th May 2007 to conclude its second implementation cycle. This cycle, CSD-14 and 15, focused on progress in the following areas: Energy for Sustainable Development; Industrial Development; Air pollution/Atmosphere; and Climate Change.

B. SCIENTIFIC AND TECHNOLOGICAL COMMUNITY

The CSD composition was detailed in the report on CSD-14 of 26th May 2006. The scientific and technological community includes, among others, scientists, engineers, and policy makers, and is represented by WFEO and ICSU (International Council for Science). Agreements with ICSU delegates, reached at CSD-14, allowed to voice the whole group's position through joint statements on the different issues of the Agenda, and to share in equal terms the time for interventions and the facilities assigned by the U.N. to the group.

C. PARTICIPATION OF THE WFEO DELEGATION

Appointed by the WFEO Executive Council, Messrs. Jorge Spitalnik (Chair, Energy Standing Committee) and Darrel Danyluk (CCPE, Canada) represented WFEO in this Session.

The position sustained by the WFEO delegation was to stress the eminently technical nature of the issues discussed in this cycle, that required a serious observance of scientific principles and engineering criteria when searching for solutions of sustainability and development, namely within the context of energy use and climate change. This position was agreed and followed by our ICSU colleagues. In Annex 1, the interventions of the group's representatives are included.

D. CSD-15 CONCLUSIONS AND RECOMMENDATIONS

The 15th Session of CSD ended without a consensus, particularly on ways and means to solve sustainable energy issues. The main actors setting up or influencing global policy decision-making -Governments and Civil Society- showed a lack of unified approaches on the issues at stake and on recognizing the limitations imposed by nature.

1. Governments, espousing the political and economic side of the issues, generally agreed on the need to

   - further diversify energy supply by developing advanced, cleaner, more efficient, affordable and cost-effective energy technologies, including advanced and cleaner fossil fuel technologies and renewable energy technologies, and
   - accelerate the development, dissemination and deployment of more efficient energy technologies with particular attention to increasing efficiency and productivity in the power and heat sectors.

   But they disagreed on the implementation of

   - time-bound targets for renewable energy,
   - early integration of energy policies into national planning,
   - a rapid increase of the share of renewable energy in the energy mix,
   - technologies for carbon capture and storage and enhanced oil recovery for reducing greenhouse gas emissions, and
   - nuclear energy as an energy source capable of meeting energy security needs while reducing CO2 emissions.

2. Civil Society, represented by nine Major Groups, formulated its positions on the basis of social justice aspirations, protection of the environment, and scientific and technological principles. The positions of different Groups did not necessarily converge, as shown as follows.

a) Women, Youth and Children, and Non-Governmental Organizations, some of the better organized and most influential Major Groups, showed in general common positions regarding energy and climate change, and plainly asserted their views on the need to:

- Implement time-bound, measurable targets for energy efficiency, energy savings, and strategies to expand the access to energy through decentralized power generation and energy service delivery;
- Increase the share of renewable energy in the energy mix by means of alternative energy technologies including wind and solar, small hydroelectric generators, modern bio-fuel systems, and energy efficiency mechanisms;
- avoid implementation of bio-fuel production programs that adversely affect food crops, biodiversity and water resources;
- drastically reduce reliance on fossil fuels for transportation, electricity generation and industrial development, as fossil fuels are not sustainable and have to be phased out;
- phase out nuclear energy sources, being considered an unsustainable energy choice given the wide-reaching and dangerous impacts of nuclear accidents and radioactive nuclear wastes, its health risks and its contribution to global warming;
- change developing countries' direction to avoid the technology lock-in of fossil fuels, by transitioning quickly to clean energy sources, and
- rapidly phase-out the billions of subsidies for fossil and nuclear energy, as well as radical restructuring of the energy portfolios of multilateral development banks loans for fossil fuel extraction.

b) The Scientific and Technological Community and the Business and Industry Group, on the other hand, considered that scientifically sound and thoroughly engineered solutions are the only way to address the issues of energy sustainability. Sustainable energy policies need to conform to realistic and factual conditions, such as:

- the use of all feasible energy resources will be required in order to meet the world's huge growth of energy demand, and this not only will include technologies for energy efficiency and conservation, and advanced renewables, but also for cleaner, less carbon-intensive fossil fuel energy techniques, as well as safe and secure nuclear energy systems;
- the optimal energy mix for any country will depend, among others, on its available natural resources base, population distribution, growth of energy demand, and the status of its technical and economic capacity;
- a great urgency exists to implementing measures for both mitigation and adaptation towards unavoidable climate change effects, including upgrading the world's infrastructure to withstand the impacts of extreme weather events resulting from climate change;
- decisions regarding the use of a given technology for sustainable energy supply require a thorough analysis of its technological, economical, and environmental feasibility;
- in the transportation sector, actions for promoting cleaner fuels and vehicles must be complemented by policies to reduce the overall demand for personal vehicle use by promoting public transport, although modifying unsustainable transportation energy consumption patterns will require politically difficult cultural adjustments, and
- there is a need for strong support for research and development in many areas, for instance, in lowering the costs of solar photo-voltaic devices, in producing bio-fuels from cellulose materials, in achieving efficient carbon sequestration schemes for fossil-fuel based generation, and in finding feasible mechanisms for hydrogen production, storage and distribution, that will require some time to become viable.

3. Diverging standings both between the main actors and, internally, among their own members provoked the unsuccessful outcome of the meeting.

Energy options to solve problems of sustainable development cannot be selected on the basis of doctrine or ideology. Scientifically sound and thoroughly engineered solutions are the only way to address the problems of energy sustainability and to implement measures towards already unavoidable climate change effects.

E. NEXT CSD SESSIONS

The next CSD cycle (CSD-16 and CSD-17, in 2008 and 2009) will focus on the following thematic issues: Agriculture, Rural development, Land, Drought, Desertification, and Africa.

We recommend continuing the WFEO involvement with the UN CSD due to the good exposure and prestige the Federation has gathered internationally by actively contributing to this Committee's affairs.

31st May 2007

Jorge Spitalnik
Chair, WFEO Energy Committee

Darrel Danyluk
CCPE Canada

Annex 1

CSD-15 - STATEMENTS BY WFEO AND ICSU DELEGATES

30th April 2007

Meeting the world's growing energy demands is such a massive challenge that essentially all energy sources must be on the table for consideration. This not only includes technologies for energy efficiency and conservation, and advanced renewables, but also for cleaner, less carbon-intensive fossil fuel energy techniques, as well as safe and secure nuclear energy systems. Decisions regarding the use of a given technology require a thorough analysis of its technological, economical, and environmental feasibility. This is the role that the S&T Community is committed to play both nationally and internationally, with all relevant stakeholders, towards implementing scientifically sound and thoroughly engineered solutions.

There is no simple or uniform solution to this challenge. The optimal energy mix for any particular country will depend upon the available natural resources base, population distribution, growth in energy demand, and the status of its technical and economic capacity.

Specifically tailored, economically feasible solutions are required for instance, in widely dispersed rural and island populations, or in countries with a large annual growth rate of energy demand. Failure to appreciate such differences has resulted in inadequate or limited outcomes, when implementing sustainable energy solutions in developing countries based on the experience of developed ones.

In the transportation sector, actions for promoting cleaner fuels and vehicles must be complemented by policies to reduce the overall demand for personal vehicle use, by promoting a public transport that meets people's everyday needs. In some countries, modifying unsustainable transportation energy consumption patterns will certainly require difficult cultural adjustments.

There is a need for strong support for research and development, in many areas, for instance in lowering the costs of solar photo-voltaic devices, in producing bio-fuels from cellulose materials, in achieving efficient carbon sequestration schemes for fossil-fuel based generation, and in finding feasible mechanisms for hydrogen production, storage and distribution. To help guide effective and coherent R&D investment strategies, the scientific and technological community has set up in 2006 an International Science Panel on Renewable Energies and is organizing an International Conference on Engineering for Sustainable Energy in Developing Countries, to take place next August in Rio de Janeiro, Brazil.

Industrial development is an important means of creating wealth and improving quality of life. However, industrial production is often a major source of air and water pollution, greenhouse gas emissions, and other environmental problems. Consequently, a technological transformation towards more sustainable industrial production systems is essential. Ensuring industrial competitiveness requires building the required infrastructure in terms of energy supply, transport availability, trained manpower and environmental regulatory systems. But the costs for complying with

sustainable restrictions are, in some cases, prohibitively high for developing countries. Thus, industrial development in developing countries must be assisted through strong affordable programs of capacity building and transfer of the cleanest available technologies.

Climate change is a fact, as confirmed by the latest reports from the IPCC. The S&T Community considers that strong measures need to be taken on two fronts. Firstly, in order to mitigate the impacts of global warming, massive reduction of greenhouse gas emissions must be urgently implemented. Secondly, strategies to adapt to the consequences of climate change need to be designed and implemented, both in relation to environmental impacts and socioeconomic consequences. Climate change is exposing the world's infrastructure to conditions it was not designed to withstand. Designing, building and maintaining resilient infrastructure that can adapt to the impacts of a changing climate becomes therefore an urgent undertaking. In addition, more research on understanding regional impacts of climate change, as well as strengthening global observation systems,are of prime importance. Science, engineering, and technology will be essential to act on such fronts, and there will be a need for a significant strengthening of relevant S&T worldwide.

Air pollutants and greenhouse gases have many common sources. It thus makes sense for all nations to explore strategies to simultaneously meet air quality control and climate change mitigation targets. There must be proactive efforts to disseminate advanced integrated atmospheric modeling tools, technologies for air quality monitoring and pollution prevention, and knowledge of best practices in air quality management.

The Scientific and Technological Community considers this CSD cycle to provide a unique opportunity to establish a global frame for addressing these extremely pressing interrelated sustainable development challenges. We are committed to work with all other stakeholders in this endeavor.

30th April 2007

In keeping with the Latin American presentations on the value of inclusive discussions and this morning's discussion on better exchanges with the major groups as included in your opening summary comments, we would like to identify an ideal opportunity for the international community to participate in detailed dialogue with the Scientific and Technological Community.

Our member, the World Federation of Engineering Organizations, WFEO, has partnered with UNESCO and a Brazilian Organization to host an International Conference on Engineering for Sustainable Energy in Developing Countries – a relevant topic. The dates are August 15th to August 18th in Rio de Janeiro, Brazil. Briefly, it covers three tracks of issues related to Energy from the Engineering perspective. These are:

- Demand side
- Supply side
- Political reality

As you will recall, these tracks have been pertinent to this afternoons discussions. We welcome participation of the International Community in Rio this August.

1st May 2007

Significant harm from climate change is already occurring, and further damages are a certainty. The two IPCC Reports so far published in 2007 have presented a clear scientific consensus (1.) climate change is a fact and it is largely due to human activities and (2.) observational evidence from all continents and most oceans shows that many natural systems are already being affected by regional climate changes, particularly temperature increases.

There is a great urgency to adopt policies and to implement measures on two fronts now. We must make best use of the short remaining window of opportunity to keep climate change from becoming a catastrophe. These two fronts are mitigation measures through reduction of emissions in greenhouse gases, and adaptation measures to reduce the harm from climate change that proves unavoidable, measures such as finding solutions for low-lying coastal zones and adjusting agricultural practises.

Science, engineering and technology will be essential in the fight on both the mitigation and adaptation fronts, and there will be a need for significant strengthening of these domains, including of relevant parts of the social and economic sciences, as well as health sciences. In this regard, extensive North-South and South-South cooperation,

including technology transfer, knowledge sharing and S&T capacity building, must be strongly supported. Otherwise, the widening North –South divide in science and technology will make most developing countries even more vulnerable to climate change.

More specifically, governmental support for research, including relevant international scientific cooperation programmes, aimed at improved projections of future climate and its long-term impacts, particularly at the regional level, as well as research on adaptation strategies, must be stepped up. Similarly, there is urgency for countries to enhance support for long-term observations of the earth and climate system, through the global observing systems now cooperating in the Global Earth Observing System of Systems.

In conclusion, Mr. Chair, governments assembled at this CSD-15 should ensure that the policy recommendations resulting from this session take into account the areas of science, engineering and technology -- essential for addressing climate change in a context of sustainable development. The Scientific and Technological Community is fully committed to work with all stakeholders concerned, not the least the other Major Groups represented here.

The scientific and technological community has the following remarks on the important relationship between Industrial Development and Energy.

1st May 2007

Our community is actively involved in the development and implementation of technologies used to generate energy. From the laboratories, to the generation facilities, to the distribution systems, our scientists and engineers design, build, operate and maintain the energy networks of the world.

We have this observation. The link between industrial development and wealth creation and elimination of poverty is real.

Industrial development today must be based upon practices with greater efficiencies in the use of our renewable and non renewable resources. For industrial development to be successful and sustainable, recycling and reuse of resources must become normal practice and energy must be used efficiently. Industrial development requires secure, sustainable energy and this specifically applies to the developing economies in the developing countries.

This need for energy requires that all sources of energy be considered. These sources include the carbon based energies (oil, coal, gas,) as well as nuclear, hydroelectric, solar, geothermal, tidal and others.

The selection of an appropriate source of energy is based on many factors. These are technical, economic, political, social and environmental. As an example important environmental and economic factors to consider is the life cycle impact of each energy source.

An example of this is related to the carbon based energy. It must evolve from its dirty nature to become a clean energy source. There are current technologies to move it in this direction, and our scientists and engineers are developing more.

One last comment relates to the added cost burden of these new technologies as they apply to the developing countries. For Industrial Development to succeed, the funding agencies must allow the developing countries to include the added cost of clean technologies in their energy systems.

2nd May 2007

The Science & Technology major group appreciates the fact that the Chair's draft negotiating text includes several points that our community has raised as key cross-cutting issues.

First, the document acknowledges the urgent need to increase support for research and development efforts, especially for R&D aimed at further advancing clean energy technologies. I emphasize that without strong support for R&D, it is likely that many of the issues we are struggling with today will remain unsolved for decades to come.

Second, the document acknowledges the importance of technology transfer programs as a key strategy for tacking all of the issues in this CSD cycle. Such efforts however, must take into consideration the financial implications of advanced technologies for developing countries, and the many controversies that remain in finding acceptable means of implementing technology transfer.

Third, the document acknowledges that the tremendous importance of building capacity in science and engineering education and training, especially in developing countries.

This last point is of particular importance as a long-term basis for meeting the goals of sustainable development. I imagine you are all familiar with the adage that if you give a man a fish, he eats for a day, but if you teach a man to fish, he eats forever. Well in this spirit, I suggest that we must do more than just give a man a solar panel. We must also give that man (or woman!) opportunities for education and training; opportunities that will allow him to be more than just a passive recipient of technology transfer; opportunities to design and implement the technologies and the policies that best suit the needs of his community.

These three points have been raised repeatedly by many of the government delegations here. So we hope these three points will remain as strong priorities in the final report from this CSD. And of course, we hope these will be more than just empty words on a page. These words must imply a commitment to action, and the science and engineering communities will continue to do their utmost to help governments implement these actions.

10th May 2007

Scientists, engineers, and technology innovators consider sustainable energy to be essential for sustainable development. Meeting the world's growing energy demands requires the use of all feasible energy resources. At the same time, addressing the challenge of climate change will require a transition to a low-carbon emission economy.

A critically important point, for all to understand, is that the goal of securing sustainable energy on a global scale, will only be met if there is strong, sustained support for research and development efforts, aimed at bringing new, affordable energy technologies to the market.

The optimal energy mix for any country will depend on many criteria, including the local resource base and socio-economic context. Thus, each country must explore a diverse portfolio of options, including energy efficiency, advanced renewable energy systems, cleaner fossil fuels, carbon sequestration, and advanced safe nuclear energy systems.

The scientific findings are clear: The IPCC confirmed that climate change is largely due to human activities, and observational evidence now shows that many natural systems are already being affected by climate changes.

We have a short window of opportunity to limit global warming to less than 2°C, which most scientists consider the limit for keeping climate change from becoming a global catastrophe with huge socio-economic costs, and with developing countries being the most vulnerable to harmful impacts.

More research on understanding climate changes and impacts at regional and local levels, and strengthening of global observing systems, are urgently required.

There is also a great urgency to adopt policies and to implement measures in both mitigation and adaptation.

Adaptation measures must be a pursued in both developing and developed countries, in order to reduce the harm from unavoidable climate change -- measures such as finding solutions for low-lying coastal areas and adjusting agricultural practices to changing climatological patterns.'

Likewise, adaptation of the world's infrastructure is necessary, to withstand the impacts of extreme weather events resulting from climate change.

The North-South gap in science and technology capacity continues to widen. Governments concerned in the developing world should increase public investments in education and research and development efforts. North-South and South-South S&T cooperation, as well as private-public S&T partnerships, should be enhanced significantly.

Strengthening science, engineering, and technology is also a foundation for industrial development. However, making industrial development truly clean and sustainable can, in many contexts pose a significant added financial burden. Developing countries should receive enhanced support from developed countries, for their efforts to make recycling and reuse of resources normal practice, as well as for enhancing energy efficiency in the industrial sector.

As for air pollution, it makes sense to pursue strategies to simultaneously meet air quality control and greenhouse gas emissions reduction targets. This goal will be aided by active dissemination of integrated atmospheric modeling tools, advanced air quality monitoring and pollution prevention technologies, and information on best practices in air quality management.

The Scientific and Technological Community is fully committed to work with all stakeholders concerned in addressing these pressing problems of sustainable development.

11th May 2007

CSD-15 clearly identified the two main challenges we are going to face in the near future that are:

1) the explosion of energy demand all over the world, mainly in the developing countries, and

2) the constraints imposed by climate change on greenhouse gases emissions that need to be drastically abated.

Based on the knowledge of the state-of-the-art of technologies for energy production and use, and on well grounded estimates of their development in the near future , we -scientists and engineers- can say at this stage that to successfully respond to such challenges, we cannot afford not to use all feasible energy sources at our reach.

The word feasible involves technological, economic, and environmental requirements, and is therefore a critical concept in this context, when we have such a short time to take decisions in energy matters and climate change effects.