

PART I Chairman's Summary

I. Opening of the Session: Report on Inter-sessional Events

1. The 14th session of the Commission on Sustainable Development (CSD) was opened on the morning of 1 May 2006 by the United Nations Under-Secretary-General for Economic and Social Affairs, Mr. José Antonio Ocampo, who read a message from the Chairman, H.E. Mr. Aleksi Aleksishvili, Minister of Finance of Georgia, informing delegates that he was unable to attend due to a national emergency in his country. The Commission elected Mr. Azanaw Tadesse Abreha of Ethiopia as Vice-Chair and invited him to serve as Acting Chair for the morning meeting.

2. The Acting Chair read out the opening statement of the Chairman, in which he emphasized that, the thematic cluster for the 2006/2007 cycle—energy for sustainable development, industrial development, air pollution/atmosphere, and climate change—are unparalleled in their importance for achieving sustainable development goals. The issues are complex and inter-linked and because of this, Chairman Aleksishvili and the rest of the Bureau had devised an organization of work for this review session following a more integrated approach than in previous sessions. He called for a frank and fruitful exchange of ideas on the barriers and constraints as well as progress made on the thematic cluster of issues, which would provide a sound basis for policy considerations next year.

3. In considering the provisional agenda and organization of work of the session, a delegation speaking for the Rio Group and the Caribbean Community (CARICOM), expressed their concerns over the organization of work recommended by the Bureau and the documentation for CSD-14. They indicated their preference for a balanced allocation of time for each of the four issues in the thematic cluster. The organization of work was adopted by consensus on the understanding it did not constitute a precedent for future sessions.

4. In his opening remarks, the Under-Secretary-General for Economic and Social Affairs, Mr. José Antonio Ocampo, noted a number of noteworthy achievements since the 2002 World Summit on Sustainable Development (WSSD), but recognized that much work lies ahead. He highlighted a few priority areas, which included: access to modern energy services, energy security, renewable energy technologies, emissions limitation and adaptation to climate change, cleaner production methods, and modern industrial development in a globalizing world, noting the inter-linkages among all the issues in this two-year cycle. He concluded that history has shown that environmental issues cannot be postponed until later in the development process.

5. Reports on twelve inter-sessional events held between June 2004 and April 2006 that contributed to the Commission's fourteenth session were presented by delegations. A list of these reports is given in an annex to the present report.

II. Overall Review: General Statements

6. In their statements on the overall review of progress in the implementation of Agenda 21, the Programme for the Further Implementation of Agenda 21, the Johannesburg Plan of Implementation (JPOI) and the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States (SIDS), delegations welcomed the review session as an opportunity to further identify new, dynamic ways to promote the integration of the three components of sustainable development—economic development, social development and environmental protection—as interdependent and mutually-reinforcing pillars. Some delegations noted the need for long-term integrated approach to achieving sustainable development goals.

7. The thematic cluster of issues for this implementation cycle—energy for sustainable development, industrial development, air pollution/atmosphere, and climate change—holds paramount importance for the achievement of sustainable development. They are complex topics and are intricately related. CSD-14 should identify the barriers and constraints that all countries, particularly developing countries, are facing in implementing the agreed goals and targets in these areas. The relevance of Principle 7 of the Rio Declaration on common but differentiated responsibilities of States was stressed by many. The importance of an integrated but balanced consideration of the issues was recognized by all delegations. Developing countries reiterated their concerns expressed in a letter to the Chair of CSD-14 calling for equal and balanced treatment of the four themes in the programme of work and a balance in the documentation, in accordance with the decisions of CSD-11.

8. Many speakers noted that progress had been achieved in some areas under review, but acknowledged that progress has been slow and uneven. In many areas, natural resources are increasingly being depleted, economic growth is slow and social conditions are worsening. It was stressed that poverty eradication remains a global priority and an overarching objective of sustainable development. Linked to this, the concern was expressed by many that implementation of the internationally-agreed development goals, including those contained in the United Nations Millennium Declaration, and reaffirmed in the 2005 World Summit Outcome, and other major UN conferences, may not be on track to be achieved by the 2015 target date.

9. A number of speakers urged that the exchange of experiences at this session should focus on ‘success factors’ which have contributed to effective programmes, projects and policies. They also called on delegations to bear in mind the costs of inaction on these critical issues.

10. Most speakers highlighted the particular conditions and special needs of the developing countries, especially those in sub-Saharan Africa, the small island developing States, the least developed countries, and land-locked developing countries. In many cases, these special needs have been further complicated by the tragic impacts of natural disasters, including severe weather events.

11. With regard to Africa, as a cross-cutting issue on the agenda of all CSD sessions, many speakers stressed the enormous challenges facing this continent in its efforts to achieve sustainable development, including in the thematic areas under review at CSD-14.

Representatives from African countries called for effective partnerships with their development partners, including through regional development initiatives such as NEPAD.

12. Another cross-cutting issue of special concern to this CSD session is the sustainable development of Small Island Developing States (SIDS). Representatives from SIDS welcomed the decision of CSD-13 to devote one day of every review session to a review of the implementation of the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, focusing on that year's thematic cluster, as well as on any new developments regarding the sustainable development efforts of SIDS. They stressed that mitigation and adaptation must proceed in tandem, as doing one without the other made little sense.

13. Most countries cited the need for more financial resources, technology transfer and capacity building—the means of implementation—as the most crucial cross-cutting issue necessary for sustainable development and comprising the major challenges and constraints for developing countries. They called on the international community to fulfill its commitments in these areas, including the Monterrey commitments. It was pointed out that, although development aid had reached an all-time high, it remained at a historically low level as a share of donor country income. Concern about inadequate funds for the Global Environment Facility (GEF), especially for its fourth replenishment, was also expressed by many countries.

14. Speakers highlighted other cross-cutting issues that needed to be addressed including changing unsustainable patterns of consumption and production, gender equality, health, and protecting and managing the natural resource base of economic and social development. An integrated approach to the planning and management of land resources, combating desertification, conservation and sustainable use of biological diversity, managing fragile ecosystems, promoting sustainable agriculture and rural development, and the environmentally sound management of toxic chemicals and hazardous and solid wastes were all issues identified as deserving adequate attention.

15. Some delegations stressed that good governance at all levels and trade liberalization is fundamental to achieving sustainable development. On governance, it was considered essential that institutional and regulatory structures should be transparent and accountable and fight corruption.

16. On trade liberalization, they felt that an open and non-discriminatory multilateral trading system is needed so that all countries, including developing countries, can attain sustained economic growth and self-sufficiency. They called for the successful and timely conclusion of the Doha Development Round of trade negotiations.

17. In identifying lessons learned and best practices to achieve the JPOI goals, the usefulness of a matrix to help organize such information was noted. Also stressed was the importance of basing an objective analysis on concrete data. Several speakers supported the further development and expansion of partnerships, as concrete additional tools for the implementation of sustainable development goals and targets. It was noted, however, that only a few of the numerous partnerships which have been implemented in developing countries since WSSD have

actually resulted in any significant transfer of technologies, financial resources or capacity building. The private sector was encouraged by many speakers to participate in these ventures, along with governments, international and non-governmental organizations. A report was presented on the work of the Mountain Partnership, established at the WSSD, which highlighted some key challenges that have emerged in coordinating the more than 130 stakeholders involved. There was one country announcement that a global partnership on bio-energy would be launched at this CSD session.

18. Several speakers referred to the successful conclusion of the previous CSD cycle (2004/2005), which focused on water, sanitation and human settlements. They expressed their support for follow-up measures and noted with appreciation the secretariat's work in developing the Water Action and Networking Database (WAND) to facilitate implementation of the water goals.

19. It was noted by many delegations that CSD-14 was taking place at a time of ongoing reforms in the United Nations. Developing countries, in particular, expressed the view that the United Nations provided an essential platform for them to raise issues that not only concern them but are essential to their survival. It was also stated that the CSD is an extremely important part of the United Nations system for all countries, particularly developing ones. Some delegations noted that the CSD had undergone a critical shift in its work since the WSSD with its focus on action and demonstrating results, which could serve as an example elsewhere in the United Nations system. It was also suggested that, in moving from this review session to the adoption of policy decisions next year, it would be important to start discussions now on appropriate follow-up arrangements that could be agreed at CSD-15.

III. Thematic Discussions: Energy for Sustainable Development, Industrial Development, Air Pollution/Atmosphere and Climate Change

Note: The following summary represents views expressed during the interactive thematic discussions; it does not reflect a consensus.

A. Introduction

20. Achieving sustainable development goals requires energy use and industrial development but, in turn, they are major contributors to air pollution, atmospheric problems and greenhouse gas (GHG) emissions. Despite some progress in diversifying the energy supply, fossil-fuel based energy resources will continue to play a dominant role in the supply mix for the foreseeable future. Efforts to develop cleaner energy methods, technologies, including advanced fossil fuel technologies, and measures are important for achieving Agenda 21 and JPOI goals.

21. Access to energy is critical to achieving sustainable development goals and the Millennium Development Goals (MDGs), in particular the MDG target on poverty reduction. Ensuring access to modern energy services for cooking and heating can have multiple benefits including lower indoor air pollution and improved health, better education and income opportunities for women and children, and more efficient use of energy resources. Access to

electricity at central points in rural and remote communities such as in schools, clinics and hospitals would also contribute significantly to achieving these goals. Affordability is an important aspect of the access issue, including in urban areas.

22. Energy efficiency provides a win-win opportunity with many benefits including greater industrial competitiveness, better energy security and substantial reductions in carbon dioxide and other GHG emissions in a cost effective way. There is considerable scope for improving energy efficiency in households, the transport sector and industry, including the energy industry, and by changing consumption and production patterns, behaviors and lifestyles.

23. There was overall agreement that a judicious mix of energy from all sources will be needed in order to meet the rising global energy demand with optimal efficiency, with advanced, cleaner fossil fuel technologies playing an important role. The importance of developing renewable sources of energy was highlighted, while some participants also noted that it will be some time before renewable energy sources are able to deliver the large amounts of energy required for bulk energy needs for most countries. Appropriate policies and incentives and providing more resources for research and development can shorten this time.

24. Establishing a strong and competitive industrial sector for economic growth and social development was strongly supported. Particular emphasis was given to the contribution that industrial development has made to poverty reduction. The wealth of experience shared illustrated that there is no “one-size-fits-all” pattern of industrialization. Industrial development needs to be built upon the country’s specific development conditions and needs, which also shape the policies and measures taken to advance industrial development in the context of sustainable development.

25. There are a wide range of sources of air pollution, including indoor air pollution, transport systems, energy generation plants, industry, agriculture, and waste management. Sources, levels and scales of air pollution vary greatly among countries, requiring that the specificities of each be taken into account in efforts to mitigate air pollution. It was noted that the level of ambient air pollution in rural areas of developing countries, which is often found to be much higher than assumed, can be aggravated by wind-transported air pollutants from urban and industrial areas.

26. Climate change, it was noted, needs to be seen in the broader context of sustainable development. Most countries noted that climate impacts such as higher temperatures, sea-level rise, extreme weather events, spread of diseases and melting ice-caps will affect not only the environment but also social and economic systems, thus threatening agricultural production and food security, fisheries, coastal zone management and public health. The importance of integrating mitigation measures into energy and other sectoral policies in order to exploit synergies and complementarities was emphasized.

27. There was an urgent sense expressed by most countries that climate change has adversely impacted the poorest and most vulnerable, including indigenous people, who have contributed least to climate change. Since climate change can exacerbate poverty, its impacts could undermine the achievement of the MDGs and poverty alleviation efforts. Adaptation, therefore,

becomes an urgent requirement for vulnerable countries, least developed countries (LDCs) and Small Island Developing States (SIDS).

B. Obstacles and Constraints

1. Energy for Sustainable Development

28. Obstacles to improving access to modern energy services, including modern cooking and heating fuels and electricity, include high equipment costs, at times increased by tariffs, insufficient human and technical capacity to sustain and maintain equipment, inappropriate subsidies, and an inability or unwillingness to pay for services. These obstacles are particularly acute in some least developed countries (LDCs) and SIDS. The high cost of extending connections to the national electricity grid to poor communities, especially in rural and remote areas, poses a constraint to improving access to electricity.

29. Recent high energy prices have added to these constraints, and contributed to increasing concerns about energy security. Escalating energy prices have an especially negative impact on energy importing and vulnerable countries, particularly LDCs and SIDS, and some countries of Africa due to their heavy reliance on imported fossil fuels.

30. Insecure land tenure, including in informal settlements, was identified as a key barrier to expanding the provision of electricity in urban areas. In rural areas, the problem of how to scale up service delivery was identified as critical.

31. Women face particular barriers with regard to high costs of energy, lack of training and education as well as lack of awareness about energy options. Data disaggregated by gender is often not available, making assessment of needs and evaluation of projects aimed at women and children difficult.

32. Barriers to improved energy efficiency include weak energy regulations and enforcement, lack of public awareness, lack of incentives, lack of technology, technological knowledge and capacity, lack of financing, fragmented government decision-making, and lack of competition among energy suppliers.

33. Developing countries lack information on renewable and advanced energy options. The high capital costs associated with renewable energy technologies and the absence of affordable financing constitute important barriers to the use of modern, efficient and sustainable energy technologies, particularly in developing countries.

34. The lack of appropriate institutional and legal frameworks, including the lack of accountability and transparency, and inadequate capacities are barriers to the promotion of renewable and advanced energy technologies, including advanced fossil fuel technologies. Without such frameworks, it is not possible to create an enabling environment, stimulate markets and provide the necessary incentives.

35. Insufficient research and development funding and low levels of appropriate technical skills affect the ability of developing countries to innovate, absorb and use advanced energy technologies, including advanced fossil fuel technologies.

36. Insufficient attention has been given to evaluating and publicizing the benefits of improved energy efficiency, renewable energy and other energy policies and to evaluating policy effectiveness and the costs of not taking action to address energy needs.

2. Industrial Development

37. Intense global competition in low-technology, high-volume manufacturing was identified as constraining industrial development in a number of developing countries, particularly small developing countries and SIDS. The least developed countries are particularly vulnerable given their high degree of market specialization, although these developments have encouraged some countries to pursue greater product diversification and targeting of high-value-added niche markets.

38. An inadequate enabling environment in many countries, in addition to constraining domestic investment, may inhibit foreign direct investment that tends to concentrate in a few countries and focus on extractive industries.

39. Tariff escalation and trade barriers – including non-tariff barriers – to industrial products of particular interest to developing countries, notably the least-developed countries, are constraints on their industrial development.

40. Lack of good governance at the international and national levels, in both the public and private sectors, was seen as an impediment to industrial development.

41. The dynamics of global competition, combined with technological change, have meant that industrial sectors in many countries are undergoing restructuring, thus increasing requirements for capital, new equipment and new skills.

42. The industrial sectors of many countries are becoming less labor-intensive, so the job-creating benefits of industrial development become harder to realize, especially for low-skilled workers.

43. Competitive pressures can cause industrial enterprises to utilize the cheapest energy sources and other inputs, even if they are the more polluting. The fear of losing global market share may drive producers into choosing unsustainable options, including in terms of working conditions.

44. The unreliability of energy supply, particularly in the least developed countries, constrains industrial development by increasing the cost of energy and reducing energy efficiency, resulting in high energy costs per unit of production.

45. The use of obsolete technology is a barrier to achieving the quality standards required in export markets. Both technology to produce high quality products and foreign certification of that quality are expensive.
46. Institutions providing technical support to industries are weak or non-existent in many countries, making it difficult for domestic enterprises – particularly micro-, small- and medium-sized enterprises (MSMEs) – to meet the quality and technical standards in major export markets. Such support includes standards and metrology, quality assurance, testing and certification, and market intelligence.
47. Access to trade and investment finance is often inadequate, with MSMEs especially disadvantaged. MSMEs often are not convinced of the financial gains from investment in cleaner production technologies, making it difficult to establish revolving funds to promote commercial lending for cleaner technology purchase.
48. Africa, it was noted, faces particular constraints to its industrial development, including lack of access to markets, weak infrastructure, high taxes, heavy regulation, and institutional weakness, loss of valuable talent to brain drain, inefficient production methods and inadequate product quality. The inertia of development partners was also seen as a constraint.
49. In many developing countries there is a strong dichotomy between the modern sector – where large producers are linked to global supply chains – and the vast informal, traditional sector, which has been largely untouched by modern technologies and international market disciplines.

3. Air Pollution/Atmosphere

50. Inadequate public understanding of the health impacts of air pollution, as well as lack of political will, constitutes a barrier to effective action to combat air pollution.
51. Fragmented responsibility for regulating, monitoring and enforcing emission controls among uncoordinated agencies makes an integrated, intersectoral approach to combating air pollution difficult.
52. The efforts of many countries in monitoring air quality and reducing air pollution are also hindered by a lack of technical information and data, appropriate technology, technical capacity, and research and development capabilities, as well as the substantial cost of monitoring and abatement technologies. Failure to share the results of the monitoring of specific air pollutants with the general public and to include all stakeholders in the decision-making process is an obstacle to improving air quality.
53. The rapid growth of private vehicle ownership in some developing countries, driven by population growth, economic growth and urbanization, is leading to increased urban air pollution. In others, a fleet of old vehicles produces high levels of pollution. The higher cost of new vehicles with better fuel efficiency and pollution controls can be a constraint to more rapid turnover of the vehicle fleet.

54. Small countries without national vehicle production have difficulty to influence manufacturers concerning vehicle emission characteristics.
55. Poor quality fuels, particularly with high sulphur content, hamper the introduction of clean vehicle technologies such as catalytic converters, particularly in developing countries.
56. The long-term health effects of octane-enhancing additives, such as methylcyclopentadienyl manganese tricarbonyl (MMT), are still not adequately known.
57. With respect to industrial air pollution, many countries face difficulties in regulating emissions from small- and medium-size enterprises, which collectively have a major impact.
58. There is also a lack of enforcement in some countries for controlling illegal trade in ozone-depleting substances. Financial resources for ensuring compliance with international obligations are inadequate.
59. The long-term nature of capital equipment turnover in industry, particularly in the power sector and heavy industry, “locks in” polluting infrastructure and equipment for decades.
60. Traditional biomass cooking and heating, in particular, result in indoor air pollution that harms the health of women and children, while consuming their time in gathering fuel wood that could be used in income generating activities and school.
61. The dispersed nature of indoor air pollution sources and affordability pose obstacles to the adoption of cleaner domestic fuels and improved cooking facilities.
62. Poverty can be a barrier to mitigating air pollution since it compels people to engage in polluting activities to generate income, such as open-air burning of automobile tires to retrieve recyclable metals.
63. The lack of clear authority for regulating air pollution from international shipping and aviation is an obstacle to reducing pollution from those sources.
64. The lack of scientific research on the health impacts of many pollutants, as well as the limited research and development capabilities of many developing countries for improving their air pollution monitoring and abatement capabilities, is a serious barrier to reducing the health impacts of air pollution.

4. Climate Change

65. Rapid and more frequent climatic changes are now becoming increasingly apparent to most countries, and the next 5 to 20 years are expected to show more examples of adverse impacts, while current investments to mitigate the causes are said by some to be negligible. The high cost of scaling up needed investments and motivating action by all countries to respond to climate change was noted as a major constraint.

66. The lack of clear market signals discourages private sector investment. Furthermore, there is a lack of urgency in some quarters on the need for more forceful mitigation and adaptation measures, which in turn constitutes a barrier to fostering the private sector's increased participation in concerted global action to address the problem.

67. Both mitigation and adaptation are necessary components for a comprehensive long-term response. Inadequate capacity to develop and implement adaptation plans is a constraint especially for those countries with a high vulnerability to climate change impacts, which threaten the very survival of some SIDS.

68. Diverting resources to cope with climate-related emergencies, including natural disasters, in developing countries, where these resources could otherwise be devoted to other investments and development needs, poses a major constraint to achieving Agenda 21 and JPOI goals.

69. The relatively high costs of CDM projects involving renewable energy is a barrier to their greater use, some noted.

70. Inadequate data-gathering, analysis and prediction is an obstacle to understanding and addressing climate impacts. This includes data on: (a) climate change impacts at the regional and national levels; (b) the short-term and long-term costs of inaction; and (c) impacts on LDCs and SIDS. Africa, in particular, faces constraints due to data and information gaps.

71. Lack of financial, technical and institutional capacities in developing countries, particularly LDCs and SIDS, to address climate change and mitigate its adverse effects is a major obstacle to achieving economic growth and alleviating poverty.

72. Inadequacy of funding currently available under the multilateral mechanisms to support adaptation measures in vulnerable countries was noted by many as a major constraint.

C. Lessons Learned/Best Practices

1. Energy for Sustainable Development

73. Including energy access in strategies and plans at the national and regional levels has ensured greater emphasis on access issues within national priorities and budgets, as well as greater regional cooperation. Energy efficiency goals have also been included in some national strategies for achieving the MDG goal of poverty alleviation.

74. Sound and predictable legislation, regulatory frameworks and tax policies have been instrumental in promoting private investment in the energy sector and improving access to modern energy services for cooking and heating and electricity in rural and urban areas.

75. Alternatives to traditional biomass cooking and heating, such as liquefied petroleum gas (LPG) or improved biomass cook stoves, have provided notable economic and social benefits at

relatively low cost. The required investments have been relatively modest, and have attracted donor financing when they were given priority in development and poverty reduction plans (PRSPs).

76. Renewable energy technologies, including modern cook stoves, bio-gas digesters, bio-fuels, geothermal, wind, solar photovoltaic panels and mini-hydroelectric facilities have been successfully employed to provide access to modern energy services in a number of countries, including in rural areas as well as in some SIDS.

77. Stakeholder and community involvement, particularly by women, has proven an essential ingredient for successful policy and regulatory development and implementation. Projects and activities that have involved women beneficiaries in their conception, design and implementation have had a greater chance of success.

78. Energy access projects that included income-generation components have produced positive results. Including the social benefits of avoiding premature deaths and poor health of women and children, as well as improved education and income opportunities in cost-benefit analyses has provided for more accurate assessments of project potential and viability.

79. Success in providing access to electricity in rural areas has involved in some cases granting concessions to the private sector, and, in others, direct public management with costs shared by government, donors, communities and households. Both approaches utilized decentralized, off-grid electricity systems often with renewable energy technologies.

80. Energy efficiency has been shown, in many cases, to be the cleanest and cheapest energy resource and contributor to reducing air pollution and GHG emissions. The social benefits of improved energy efficiency, including job creation and reduced public health costs, have also been recognized. Among measures found to be effective in promoting energy efficiency are mandatory performance standards, appliance and building standards and labels, financial incentives for technology improvements, and elimination of perverse incentives whereby energy utilities maximize profits by maximizing electricity sales.

81. Demand-side management programmes to improve energy efficiency and reduce unnecessary demand have been enhanced with the active involvement of non-profit organizations and energy service companies. Measures and regulations that provide or strengthen market signals have been very effective in encouraging energy efficiency. Maintenance and servicing of equipment are important for maintaining energy efficiency.

82. Energy efficiency and sustainable consumption and production (SCP) activities in some countries have included more sustainable products, sustainable procurement, sustainable lifestyles and sustainable buildings, which are considered mutually reinforcing and synergistic.

83. Standards and labeling programmes for appliances, buildings and other products have been cost-effective in improving energy efficiency. "World best" standards can be easily used to establish national standards. Energy efficiency achievements have been most notable in countries that have made it part of their national economic development strategy.

84. Economic incentives and disincentives have been effective in some countries in encouraging energy efficiency in industry. Negotiated targets for industrial energy use have also been successfully employed in several countries, as have energy efficiency codes for buildings.

85. Efforts to reduce natural gas flaring and venting and promote energy efficiency investments in the petrochemical and refinery industries, in some cases through cooperation among government, industry and NGOs, have produced positive results.

86. The development of natural gas resources and infrastructure has contributed to diversifying the energy supply mix in some countries, as well as helping to reduce air pollution and greenhouse gas emissions.

87. The development and application of advanced fossil fuel technologies, such as carbon sequestration, are beginning to be applied in several countries. Partnerships have provided important opportunities for international cooperation, exchange of information and technology transfer.

88. Energy planning, legislation and technology choices that conform to local and national conditions, capacities and circumstances have proven to be most effective. Experience with the introduction of other innovations such as cell phones and other information technologies may provide valuable lessons for electrification.

2. Industrial Development

89. Social and political stability, the rule of law, a predictable policy and regulatory framework, adequate education and training of the labour force, and investments in power, water and transport infrastructure have proven crucial to industrial development.

90. Given favorable international conditions and a suitable domestic enabling environment, industrial development has made an important contribution to poverty eradication.

91. More sustainable use of natural resources in industry has resulted in reduced costs, increased competitiveness and reduced environmental impacts. Resource pricing that reflects the full costs of resource extraction has proven critical. Industrial development was shown to work best when it takes into account the carrying capacity of the environment.

92. Large industrial enterprises with substantial supply chains have been able to increase their own competitiveness by using their technical capabilities to assist their suppliers in improving energy and resource efficiency and sharing the financial gains.

93. Availability of technical support services has proven particularly important to MSMEs, which would otherwise be at a competitive disadvantage given high transaction costs and other fixed costs, such as those related to marketing, new market development, and certification.

94. As technology and management needs are often specific to a particular industrial sector but common within that sector, industry associations have played a valuable role in building members' capacities. Workers and their organizations have also contributed importantly to the improved environmental and social performance of enterprises, including on the job health and safety. In this regard, ILO core labor standards were identified as being instrumental.
95. The welfare of workers has been enhanced during times of industrial restructuring through retraining, redeployment, and social protection measures.
96. With increasing globalization, companies that comply with norms for corporate social and environmental responsibility have in some cases been able to gain easier access to global supply chains.
97. Efforts to change unsustainable patterns of consumption and production have benefited from addressing industrial production and consumer behavior in an integrated way. Industrial ecology (symbiosis) has proven a useful method to reduce resource consumption and waste generation by using one company's waste as another company's input. The 3Rs concept – reduce, recycle, reuse – is another integrated approach that has also been used.
98. Education and awareness-raising campaigns building on local cultural values have helped change consumer behavior toward more sustainable lifestyles and have assisted people in making informed product choices. The consumption choices of government agencies have proven to have an important influence on the development of markets for more sustainable products.
99. Industry has been increasingly active in designing and producing improved products to meet consumer preferences for greater energy efficiency, recyclability and a smaller ecological footprint.
100. Corporate social and environmental responsibility has gained in importance with globalization. Many companies have already integrated this concept into their business operations, including through sustainable supply chain management, sustainable product development and engaging in community-driven public-private partnerships.

3. Air Pollution/Atmosphere

101. Air pollution has been effectively reduced through an intersectoral approach including policies covering energy, transportation, waste management, health and climate. Effective policies to address air pollution have built on the interlinkages between air pollution, climate change, industrial development and energy for sustainable development.
102. The modernization of thermal electric power plants and fuel switching from coal to natural gas has improved local and regional air quality in many cases.
103. International cooperative mechanisms such as conventions and international legal agreements have been shown to be effective in addressing transboundary and long range air pollution.

104. Establishment, monitoring and enforcement of air quality standards are important measures that are increasingly being taken to mitigate air pollution and protect public health and the environment.

105. Many municipalities have reduced congestion and air pollution through the construction of pedestrian walkways, separate bicycle and bus lanes, as well as modern, below and above ground, urban mass rapid transit (MRT) systems.

106. In reducing energy consumption and air pollution and GHG emissions from motor vehicles, countries have made progress in (1) improving fuels and vehicle fuel efficiency and emission standards; (2) requiring catalytic converters and vehicle inspection and maintenance; (3) phasing out leaded gasoline; (4) introducing hybrid and flex-fuel vehicles in some countries; and (5) implementing long-term measures to promote a modal shift from road to rail transport.

107. Elimination of leaded gasoline in many countries has been a recent success story, notably in sub-Saharan Africa.

4. Climate Change

108. An integrated approach to climate change was found to be essential for an effective and comprehensive response to this phenomenon and for achieving Agenda 21 and JPOI goals, as climate change will impact all the three dimensions of sustainable development.

109. Mainstreaming climate change concerns, including mitigation, adaptation and response measures as well as climate change risks and impacts, into national development planning, PRSPs and sustainable development strategies has worked well for several countries. National sustainable development strategies can serve as instruments for integration, including the incorporation of social impacts of climate change into response measures. Time-bound targets as well as financial incentives and other policy measures have been effective in some countries.

110. National institutional capacity building by several developing countries has been part of their recent efforts toward national climate risks assessments and the development of climate change mitigation and adaptation strategies.

111. Leveling the playing field in the energy sector, in part by reducing distorting subsidies, was found to be important for promoting renewable energy and reducing GHG emissions.

112. International partnerships, including WSSD partnerships, have contributed to climate-related capacity building activities in some countries. These have included efforts to enhance energy efficiency, renewable energy, cleaner fossil fuel and carbon sequestration technologies.

113. While adaptation is a significant component of the response to climate change, it has limits and cannot be considered a substitute for mitigation. However, adaptation remains an

urgent need for vulnerable countries, particularly LDCs and SIDS. The co-benefits of some mitigation measures have yielded positive development outcomes.

114. The impacts of recent severe weather events in various parts of the world have demonstrated the value of current investment in preventive measures as a way to avoid large expenditures on emergency measures later on.

D. Means of Implementation

115. Developing country government funding even if supplemented by ODA was seen as insufficient to meet the large energy investment needs of developing countries, and in particular African countries. Private sector funding is also essential. Government's role has been critical to success in many cases, creating a policy environment conducive to private sector involvement through sound legislation, clear and transparent rules, predictable tax policies, and risk-sharing mechanisms. The public sector has also provided seed money as leverage to attract private sector funds. It was noted however that even when a government has done its best to create conducive framework conditions, investment has not necessarily been forthcoming.

116. It was noted by some countries that industrialized countries are currently not meeting their ODA commitments. Meeting the international commitments on ODA, including those agreed in Monterrey, opening up new trade opportunities through the removal of trade barriers to industrial and agriculture products and implementing debt relief measures were cited as critical for developing countries, in particular in Africa, the least developed countries and SIDS, to meet the goals and targets in the JPOI on energy for sustainable development, industrial development, air pollution/atmosphere and climate change.

117. The positive impact that greater donor cooperation at the national and local levels could yield for harmonizing ODA with national development priorities and improving the predictability and effectiveness of ODA flows was highlighted. Many investment projects, particularly in the energy sector, are capital-intensive and call for stable financing over an extended period.

118. Loans and targeted subsidies can provide solutions to high upfront costs of access to modern energy services by the poor. Financing options include micro-finance schemes revolving funds and loans with extended payback periods. In-kind contributions could also be an option.

119. Targeted energy subsidies continue to be needed to ensure energy access for the poor. With higher world energy prices, however, many governments are facing a difficult choice of whether to cut energy subsidies, at the risk of public discontent, or reduce other budgetary expenditures. It was estimated that the increase in energy import bills in 2005 of heavily-indebted developing countries was several times greater than the total debt relief agreed at the G8 Gleneagles Summit.

120. Microfinance and other small-scale financing schemes may also be able to encourage local entrepreneurs, including women, to start businesses for provision of decentralized energy services as well as other micro-, small- and medium-sized enterprises (MSMEs).

121. Sinking funds have been used by some countries to provide grants to industry for investment in cleaner production technologies, but these are unsustainable without government or donor replenishment. Workable revolving funds would depend on convincing enterprises, particularly MSMEs, of the business sense of such investments. An initial focus on “no cost” and “low cost” cleaner production options can be helpful in this regard.

122. Public-private partnerships, including the WSSD Partnerships, have had success in leveraging scarce public and private sector resources, promoting multi-stakeholder involvement and facilitating technology diffusion. The synergies of cooperation between public, private and finance sectors need to be encouraged.

123. The World Bank has inaugurated a Clean Energy and Development Investment Framework which is designed to guide financing for energy access, incremental costs of low-carbon energy technologies, and climate change adaptation.

124. Investments in energy efficiency and renewable energy projects have often had particular difficulty attracting commercial financing. The Global Environment Facility (GEF) has been working with the banking sector in several countries to support an extension of financing to such projects. Partial loan guarantees were cited as one form of innovative financing to leverage private lending for energy efficiency and renewable energy investments.

125. Ensuring adequate funding for the GEF and streamlining its procedures could enhance its effectiveness.

126. The Clean Development Mechanism (CDM) could also foster investment by the private sector in the financing of energy efficiency and renewable energy projects. Improving and simplifying CDM procedures could help to address community energy and sustainable development needs. Capacity building efforts would enable developing countries, particularly African countries and SIDS, to benefit more fully from the CDM. Likewise, international financial institutions, including the International Finance Corporation and regional development banks could be involved.

127. Developing countries, particularly African countries and SIDS, could benefit from increased international cooperation in terms of technology transfer and institutional and technical capacity-building, including support from multilateral financial institutions.

128. The transfer and dissemination of environmentally sound technologies at affordable prices is important for helping developing countries achieve sustainable development. Protection of intellectual property rights, strengthening science and technology cooperation and promotion of R&D in developing countries can be effective in promoting technology development, adaptation and transfer. Government and market incentives for clean technology adoption and the efficient use of energy and other natural resources would facilitate such transfer.

129. Global supply chains and other linkages between large and small enterprises, e.g., mentoring programmes, can be an important conduit for the transfer of sustainable production and product technologies and promote cleaner production of companies in developing countries involved in such supply chains.

130. The continued need for training, capacity building and promoting greater awareness regarding the advantages of energy efficiency in industry, governments and households was highlighted. Capacity building and training aimed specifically at decision makers would enable better decision-making on public transport and infrastructure projects in developing countries.

131. At the enterprise level, capacity building and training in a number of areas would be beneficial. In the energy sector, developing feasible business plans as well as maintenance, operation and repair of energy technologies was thought to be important. In the industrial sector, managerial training for MSMEs in a range of skills, including operations management, marketing, financial management, and negotiation with customers and suppliers was highlighted. Technical training of engineers and workers is also considered critical to MSME competitiveness. A number of development co-operation efforts are providing some of these needs, and the private sector has also been an important actor through cooperation along supply chains.

132. Public education and awareness-raising are key contributors to promoting sustainable consumption and production patterns, along with legislation, regulation and voluntary efforts by households, business and industry, and the public sector. A Task Force on Education for Sustainable Consumption has been launched to provide a bridge between the Marrakech Process on Sustainable Consumption and Production and the UN Decade of Education for Sustainable Development.

133. Strengthening South-South cooperation in the fields of renewable energy and advanced fossil fuel technologies was seen as a particularly promising option for information and data sharing on these technologies for the benefit of other developing countries. Such cooperation would benefit from effective assistance through capacity building and technological research and diffusion. North-South assistance and involvement of the donor community in support of such South-South cooperation could greatly facilitate this enterprise. The Bali Strategic Plan for Technology Support and Capacity Building was mentioned as helpful in guiding cooperation on technology and capacity-building.

E. Continuing Challenges

134. The importance of addressing the four themes of this cluster in the context of national sustainable development strategies (NSDS) and poverty reduction strategies continues as an urgent priority. Breaking down general and long-term targets and goals into specific and short-term elements can help to assess needs, identify priorities and attract investment and donor support.

135. The continuing need for applying better methods for identifying and assessing the social benefits of sustainable development projects, in particular health benefits, in order to improve project design, build public support, and mobilize funding was recognized.
136. Securing private sector financing for investment in the energy and industry sectors, in particular for energy efficiency, renewable energy and cleaner production, remains a major challenge.
137. Good governance, anti-corruption measures and facilitating an enabling environment are critical for attracting private sector investment.
138. Enhanced international cooperation is needed in research and development on new cost-effective and sustainable industrial and energy technologies and in the broad dissemination of information on those technologies.
139. Countries face a continuing challenge in decoupling economic growth from GHG emissions.
140. International cooperation and technical assistance have supported a variety of demonstration projects, including energy audits and cleaner production systems, but sustaining and replicating those initiatives remains a challenge, in part due to lack of commercial funding.
141. There is a continuing need to change unsustainable patterns of consumption and production, with developed countries taking the lead. The Marrakech Process, including the innovative and action-oriented Task Forces that resulted from the 2nd International Experts Meeting in Costa Rica, continues to make an important contribution to promoting sustainable production and consumption.
142. Enhanced policy coordination and integration and involvement of all stakeholders, including through partnerships, is important for cost-effective efforts to address energy for sustainable development, industrial development, air pollution, and climate change.
143. Strengthened capacity-building, education and awareness-raising, in particular among women and youth, have played an important role in planning and implementation at local and national levels.
144. The transition to cleaner energy technologies at affordable cost remains essential. Global energy needs are so large and energy prices so volatile that all energy options will need to be explored, while preserving the integrity of the environment and ensuring socio-economic development.
145. Energy security, including for producers and consumers, remains a continuing challenge.
146. The institutional, legal and technical barriers to the cost-effective employment and diffusion of carbon capture and storage and carbon sequestration technologies will need to be addressed.

147. For the share of renewable energy to be increased in the total energy supply and for energy efficiency to be promoted, further effort is needed on market support, through innovative financing mechanisms, increased investments, accelerated R&D, adequate legislation, education, awareness raising and information and data exchange.

148. Overcoming the cost barrier in order to make renewable energy technologies economically competitive can be achieved through the scaling up of their production and deployment. Directing more carbon-abatement investment funds to small-scale rural renewable energy projects remains a significant challenge.

149. Nuclear energy technologies were identified by some as a possible supply option in interested countries, and for them 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.

150. More technological cooperation is needed on advanced energy technologies, including advanced, cleaner fossil fuel technologies.

151. Further and more effective cooperation among petroleum companies to eliminate gas flaring and venting would make an important contribution to reducing greenhouse gas emissions, conserving energy resources and ensuring a larger energy supply.

152. Concerted efforts are required to facilitate access to modern energy services, including fuels for cooking, heating and electricity. Problems such as how to scale-up energy service delivery, paying for high up-front costs, and raising awareness about energy options for the poor are major challenges for achieving sustainable development goals.

153. Expansion of modern energy services such as improved biomass and cleaner cooking fuels is an important priority to mitigate indoor air pollution to protect the health of women and children and to preserve the environment.

154. Gender considerations and addressing the energy needs of poor and rural women and children need to be an integral part of energy planning and energy projects. There is a need to put women at the center of decision-making and management. Combining energy access with income generation projects and measures can have added benefits for women and their communities and contribute to overall sustainability.

155. Ensuring that developing countries benefit economically by involvement in the production and trade of bio-fuels is an important challenge.

156. Greater regional alignment of standards and labeling for consumer appliances, fuel quality and vehicular pollution controls is critical.

157. Increased focus on energy efficiency in the transport sector, including consideration of bus rapid transit systems and vehicle fuel efficiency standards will be needed.

158. While there are opportunities to achieve greater energy efficiency through tariff measures, these need to be balanced against accessibility and affordability concerns, particularly for the poor.

159. Innovative ways to upgrade vehicle fleets need to be devised so that the poor are not priced out of the market and left without adequate transport services for access to employment, health care and education opportunities.

160. Better coordination among national energy, transport, land-use ministries, and between government and the private sector is needed. Better land use planning such as by locating residential, commercial and employment centers with a view toward energy savings needs attention.

161. Consideration of the biodiversity aspects in planning energy policies could help to minimize the negative impacts of energy provision on biodiversity, forests and agricultural lands.

162. Ensuring an open global trading system for agricultural, industrial, and environmental goods, such as energy efficiency and renewable energy products, remains a challenge.

163. The removal of trade barriers to industrial and agricultural products of importance to developing countries, in particular the least developed countries and SIDS remains to be achieved. These barriers make it difficult to achieve the internationally-agreed development goals, including those contained in the United Nations Millennium Declaration, and reaffirmed in the 2005 World Summit Outcome, and other major UN conferences. The successful conclusion of the Doha Development Round would in principle make an important contribution to this end.

164. Trade-related capacity-building is needed for developing countries, especially LDCs, to fully reap the benefits from trade. Among the priority areas mentioned were: trade diversification; negotiation with large multinationals; information on international product standards; testing and certification; customs streamlining.

165. Improved understanding is needed of ways to create a domestic enabling environment for investment, entrepreneurship and job creation, in particular in the energy and industry sectors, based on analysis of key obstacles. The creation of an Investment Climate Facility (ICF) for Africa to help improve frameworks for domestic and foreign investment could be a positive step forward.

166. Globalization and technological change will continue to pose a challenge to governments, enterprises and workers to adapt to changing skill demands, to secure adequate retraining and reemployment opportunities for those displaced in the process and to provide new job opportunities for unskilled workers.

167. Further attention to international cooperation is needed in providing energy audits and technical assistance for adoption of cleaner and more efficient production methods, including through national cleaner production centres.

168. The continued need for training, capacity building and promoting greater awareness about the advantages of energy and resource efficiency in industry, governments and households was highlighted.

169. Corporate social and environmental responsibility as a permanent feature of business culture and adopted by a broad cross-section of the international and national business communities as basic rules of good business was recognized by most countries as essential to the achievement of sustainable development goals.

170. Private sector companies interested in pursuing corporate social and environmental responsibility initiatives could benefit from information-sharing and networking services that would help them to identify promising projects in developing countries in which they might choose to invest.

171. Agriculture continues to be important to employment and GDP in many developing countries, and there is need to strengthen linkages between agricultural and industry, for example, through development of the agro-processing sector, including modern biofuels, and production of inputs for more sustainable agriculture.

172. Addressing indoor air pollution and its health impacts on women and children from the use of traditional biomass for cooking and heating remains an enormous challenge.

173. Enhanced sub-regional, regional and international cooperation and exchange of experience and information are needed to support and enhance the efforts of countries, particularly developing countries, to address air pollution in a comprehensive and integrated approach taking into account the impacts of the energy sector, industry, waste management, transportation and agriculture, and a variety of measures, including legislation, monitoring, enforcement, incentives, technical support and education and training.

174. Further enhancement of synergies and cooperation among relevant international institutions, including UN agencies and programmes, will assist in action to implement sustainable development goals.

175. Innovative approaches to urban planning, including land use planning, public transportation systems and traffic management, are needed to manage urban air quality, with the involvement of all stakeholders in decision-making and implementation.

176. Methods to address air pollution from international shipping and aviation need further consideration and development.

177. Continuing challenges relating to protection of the stratospheric ozone layer under the Montreal Protocol include the illegal trade in stratospheric ozone depleting substances and

finding safe, affordable and environmentally sound alternatives to substances such as methyl bromide and HFCs.

178. Given the ongoing need for mitigation and adaptation measures by LDCs, SIDS and other vulnerable developing countries, a global risk assessment could help raise awareness of the scale and scope of the challenges posed by climate change, within the scope of existing frameworks and in the context of the UNFCCC.

179. There is a continuing need to build resilience and reduce the vulnerability of developing countries, particularly LDCs and SIDS, including through the development and dissemination of drought-resistant crops and other adaptation technologies.

180. The dual-track process of international discussions on climate change continues to require support from all countries.

181. The responsibility of developed countries to take the lead in actions on climate change in line with the principle of common but differentiated responsibility was highlighted.

182. The international community faces the continuing challenge of the kind of incentive structure that might be considered to assist countries that adopt policies and take measures to protect their forests and the environmental services they provide.

183. Enhancing public awareness of climate change issues can help to influence personal behavior as well as build support for public measures.

184. Addressing the special needs and situations of vulnerable countries, including LDCs and SIDS, with regard to technology transfer, financing and capacity building activities for mitigation and adaptation to climate change continues to have great urgency for these countries. While SIDS contribute the least to greenhouse gas emissions, they face the greatest risks from climate change.

185. The Clean Development Mechanism and Joint Implementation of the Kyoto Protocol are promising vehicles for enhancing support to national efforts to expand the use of renewable energy, energy efficiency and advanced and cleaner fossil fuel energy technologies, including through technology transfer. Action is required, however, on the high costs of the CDM project cycle, some noted.

186. Enhanced international action and cooperation under the UNFCCC and the Kyoto Protocol is important for many countries.

187. Strengthening the Global Climate Observing System (GCOS) can make an important contribution to assessing and responding to climate change.

IV. Regional Discussions

188. The Regional Discussions were based on the outcome reports of the Regional Implementation Meetings (RIM), organized by the regional commissions in collaboration with DSD/DESA prior to CSD-14 and the presentations of invited panelists

Africa

189. Participants emphasized that poverty eradication is a requirement for achieving sustainable development. With respect to energy for sustainable development in ECA region, inadequate policy and legal frameworks and the overall low production of energy were identified as challenges and constraints. While tariff and non-tariff barriers to trade hampered progress in industrial development, advances had been made in the integration of rural development strategies into broader development planning. The meeting underlined the leadership of the African Union and, in particular, the pivotal role of NEPAD.

190. Although biomass continues to supply most of the energy used by people in sub-Saharan Africa, a number of delegations pointed out that the continent possesses abundant energy resources, particularly hydropower and other renewable energy sources that can be developed with the assistance of international cooperation. Exploiting those resources, however, will require considerable additional investment, strengthening of legal and regulatory frameworks and stronger cooperation with partners. Given the serious energy challenges facing the region, there was agreement that energy issues had in the past been insufficiently prioritized both by African governments and development partners, as reflected in the absence of attention to energy in Poverty Reduction Strategy Papers (PRSPs). However, energy has been assuming new prominence on the continental agenda, as evidenced by the outcome of the First African Union Conference of Ministers Responsible for Electrical Energy, held in Addis Ababa, Ethiopia from 23-24 March 2006.

191. Concern was expressed at the low level of industrial development in Africa, which by all measures falls well below the world average. In moving forward, however, African countries would have the opportunity to avoid past problems with industrialization by adopting cleaner production technologies.

192. It was noted that the adverse impacts of climate change affect African countries particularly severely, given their vulnerability and low adaptation capacity. The situation of African SIDS, whose dependence on fossil fuel imports leaves them vulnerable to price shocks and slows the pace of sustainable development in rural areas, was also mentioned.

193. Given the special challenges faced by Africa, participants emphasized that expanding access to modern energy - in particular by rural electrification - industrial development, air pollution and climate change can be addressed through effective partnership, including enhanced and more efficient development aid, market access, support for capacity-building and transfer of technology. Initiatives to expand access to modern energy should incorporate the gender

dimension. The value of exchange of experiences between regions on issues such as trans-boundary air pollution was noted.

West Asia

194. Participants noted the wide disparity in development and energy resources between oil producing and non-oil producing states. Even though oil and natural gas are the largest economic sector in the region, over 20 per cent of the population of ESCWA member states still lack access to modern energy services. Providing energy for their own populations while ensuring that the international market is supplied with reliable energy will be a growing challenge.

195. Some delegations emphasized that meeting the global demand for affordable energy while reducing environmental impacts requires promoting both cleaner fossil fuels and renewable energy in a reasonable balanced manner. Advanced fossil fuel technologies, such as carbon capture and storage, will be important to reducing greenhouse gas emissions, and will require technology development and transfer, including through development cooperation and technical assistance. Various projects have demonstrated the potential of renewable energy sources for servicing the urban and rural poor, including solar water-heaters and small-scale photovoltaic applications. Large-scale wind farms and combined-cycle solar thermal power plants also have potential, but renewable energy still represents only 0.1 per cent of total energy consumption in the region. Obstacles to increased renewable energy applications include lack of political support, high costs and limited investment capital, and lack of awareness of new technologies.

196. A number of programmes to improve energy efficiency implemented in the region have led to the upgrading of local expertise. Policy options that have been used to improve energy efficiency and sustainability include: switching from oil to natural gas, upgrading technology and transfer of advanced fossil fuel technologies for exploration and refining, improved regional cooperation on electricity grid and pipeline connectivity, and vehicle inspection and maintenance programmes in the transport sector. Four priority areas were identified for consideration: poverty alleviation through improved access to energy, improved efficiency of energy use, further efforts to discover new resources, and increased use of more environmentally sustainable fuels.

197. There was a recognized need for improved monitoring and air pollution control programmes, supported by technology transfer, partnerships, and information sharing. In the area of industrial development, greater private sector involvement, enhanced waste management supported by product lifecycle assessments, a national clearinghouse for waste exchange, and information sharing on best practices were called for.

198. The need for substantial investments to meet increasing energy demand in the region was underscored, as was the important role of regional banks. Micro-credit schemes and other innovative financing methods are needed to support increased access to energy services in rural and remote areas. Delegations viewed regional and international funding as essential.

Europe and North America

199. The great disparities between countries in the region was noted, as was the range of experiences in terms of obstacles encountered, lessons learned, and best practices. Delegations noted the important role played by the ECE in the coordination and harmonization of policies for the region. Particular attention was drawn to the Convention on Long-Range Transboundary Air Pollution (1979) and its protocols as important instruments for reducing air pollution and promoting regional cooperation.

200. Though the countries in the region are very diverse, they all share a concern for energy security, which depends on the stability of supply, demand and pricing. In particular, the sustainable growth of industry depends on reliable, affordable, and sustainable energy supplies. Delegations expressed concern over the security of the transfer of oil and gas, noting that energy security and environmental security are closely linked. It was pointed out that energy security could be improved by increasing the share of renewable energy sources in the region. While access to energy is not a major problem in the region, energy poverty does exist.

201. In the fight against air pollution, delegations called for an integrated approach that builds on current progress and strengths and integrates energy efficiency, air pollution control and greenhouse gas emission reductions. The importance of regional cooperation, education, capacity building and increased participation of women and youth in energy planning and addressing environmental issues was stressed. Some delegations expressed concern over the difficulty of establishing market-based mechanisms for controlling air pollution and greenhouse gas emissions, and emphasized the need for broader participation in Joint Implementation (JI), the Clean Development Mechanism (CDM) and similar programmes.

202. With regards to industrial development, delegations emphasized the importance of improving the capacity of small and medium-sized enterprises (SMEs) to enhance energy efficiency and reduce pollution. The role of cleaner production centers in assisting SMEs was emphasized, as was the need for increased support for SMEs in technology transfer, eco-labeling, education, and industrial capacity-building. An energy tax, with revenues used to support SME capacity-building, was identified as one successful method for financing the sustainable growth of SMEs. Delegates also emphasized the importance of corporate responsibility in industry. There were also calls for plans for sustainable production and consumption and for a global convention on heavy metals. It was noted that, industrial development will continue to underpin sustainable development, creating both employment and social cohesion.

203. It was noted that there were different opinions on the role of nuclear energy in providing energy for sustainable development.

Asia and the Pacific

204. Participants noted that some of the countries in the ESCAP region are experiencing the fastest economic growth in the world, but there is still much poverty in several countries. Some 12 of the 15 cities in the world with the highest air pollution are in Asia. It was recognized that the dynamic, diverse, rapidly growing region must alter its development path toward sustainable

development underpinned by sustainable energy, if the world is to achieve sustainability. It was noted that in China, for example, rapid economic growth has been combined with progress toward sustainable development in recent years, supported by laws and regulations to improve environmental protection, natural resource management, and energy efficiency. It was also noted that the 2005 Seoul Initiative offers guidance to achieving sustainable economies and societies.

205. Some delegations stressed the importance of “green growth” for the region, combining economic growth and poverty reduction with environmental sustainability. However, there is concern that some countries may face an economic slowdown if the costs of energy resources, including oil, continue to rise. Some delegates said that rising oil prices are likely to increase demand for biomass energy, which could increase the burden on women.

206. There was general recognition that priority should be given to access to cleaner and affordable energy for all. It was also noted that low-cost energy technologies exist and need to be made available including through partnerships.

207. It was noted that the Pacific small island developing States (SIDS) face special challenges that need unique solutions. Regional cooperation through such programmes as the Pacific Plan is important for addressing such challenges as climate change, disaster reduction and energy security. National sustainable development strategies have been developed, serving as a valuable platform for dialogue with development partners. Many SIDS are exploring renewable energy.

208. The critical role of science and technology in enabling the region to balance environmental protection and social development with economic growth was stressed, particularly for ensuring energy security. Energy conservation, energy efficiency, transfer of advanced fossil fuel technologies, new sources of energy, carbon capture and storage and carbon sequestration are all important options. Some delegations emphasized the importance of energy diversification, but noted that this would require huge investments and international assistance. Special funds for innovation have been established in some countries with sustainable development as the highest priority.

209. Some delegations stressed that climate change requires responses from and cooperation among all stakeholders, not just governments. It was also noted that the agricultural sector will be the most affected by climate change, which could be a threat to food security.

Latin America and the Caribbean

210. Cleaner energy technologies and renewable energy were emphasized for addressing the serious problem of urban air pollution, as well as problems of climate change. It was noted that, despite some success stories, there had been no overall improvement in energy efficiency in the ECLAC region, in contrast to the steady improvements in other regions. A need was seen to diversify the energy mix of countries through incentives for cleaner technologies, such as internalization of the health costs of pollution.

211. Regional and national initiatives to assess and promote energy efficiency, renewable energy, sustainable transport and urban air quality were being implemented or developed in a growing number of countries, e.g., Argentina, Brazil, Chile, Colombia and Mexico, among others. The importance of involving all stakeholders was stressed. Targets for renewable energy were considered important measures to be established with appropriate support. There were also calls for inter-connecting national electricity grids to improve efficiency and promote greater use of renewable sources of energy.

212. The region offered a number of good examples of sustainable urban transport systems, including systems in Brazil, Santiago, Bogota and Mexico City, with innovative systems of bus rapid transit. For example, Brazil is using ethanol produced from sugar cane as motor fuel, reducing oil imports, air pollution and greenhouse gas emissions. Most cars produced in the country now have “flex-fuel” engines capable of using any mixture of gasoline and ethanol. Other countries in the region, such Colombia are progressively taking advantage of biofuels.

213. Industrial development in the region is facing obstacles that need to be addressed through regulatory reform. The importance of small and medium sized enterprises was noted, as a source of employment but also presenting difficulties for introducing cleaner technologies, which in turn could be addressed through international cooperation. There are a number of cleaner production centres in the region which can assist SMEs. Other cited initiatives to promote clean energy and address climate change include a national carbon fund for small and medium sized enterprises and energy efficiency labeling for appliances.

214. The tourism industry is very important in many countries of the region, notably in the Caribbean SIDS. Climate change impacts are of particular concern for this sector as well as for agriculture, housing and communications infrastructure. It was noted that there is already significant use of renewable energy in the Caribbean, notably solar water heaters, and fiscal incentives are being used to promote renewable sources of energy in the tourism industry. Adaptation to climate change and preparedness for natural disasters were considered important issues that need to be addressed, due the high vulnerability of Central American and Caribbean countries to the impacts of climate change.

215. Emphasis was given to energy poverty, inequality and vulnerability, as well as the particular impact on women of inadequate access to energy. There is a need for better data, disaggregated by gender, to analyse this problem and help identify solutions. There is a need to consolidate the principles of sustainability in national policies and development programs. In some countries of the region, innovative financial mechanisms, such as payment for environmental services, have been developed in order to recognize the multiple services provided by ecosystems such as absorption of CO₂ and protection of river basins.

V. SIDS Day

216. In accordance with decision 13/1 taken by the Commission last year, one day at each of its review sessions would be devoted to monitoring progress on implementation of the Programme of Action for the Sustainable Development of SIDS and the Mauritius Strategy. At CSD-14, the discussion was held on 9 May 2006.

217. Introductory statements were made by the USG of DESA, OHRLLS, the ASG of DESA and the Chairman of the Alliance of Small Island States. The importance of regular review of the SIDS Programme was underscored, as was the need to focus on its implementation. The OHRLLS High Representative suggested a strengthened role for the Inter Agency Consultative Group on SIDS, including consideration of the use of indicators for monitoring SIDS' progress. The importance of regional intergovernmental and other organizations and South-South cooperation were also identified as crucial for enhancing support for SIDS.

218. Speaking to the thematic cluster for CSD 14/15, the ASG of DESA underscored the fact that heavy dependence on imported fossil fuels for transportation and power generation remained a significant challenge to SIDS development. Strategies to improve energy efficiency and to develop innovative renewable energy sources would therefore contribute to reducing the vulnerability of SIDS and promoting wider access to modern energy services. Expanded use of renewable energy was also seen as an effective response to the challenge of climate change, which is important in view of the increasing threat of sea-level rise and climate-related natural disasters affecting SIDS.

219. The Chair of AOSIS underscored the importance of pursuing implementation of the Mauritius Strategy on the basis of global partnership. He highlighted the priority that SIDS attached to the mobilization of resources, technology transfer and capacity building for their sustainable development. The streamlining of measures to facilitate access by SIDS to resources in institutions such as the GEF also remained a priority.

220. Review of implementation of the BPOA and the MSI was conducted through three panelled discussions addressing the thematic cluster of issues. Panel One reviewed energy efficiency, energy access and the development and expanded use of renewable energy technologies in SIDS. The panelists discussed a number of issues: the challenges and impacts of different policy choices, such as privatization, on efficiency and cost-effectiveness in the energy industry; the advantages and challenges of increasing synergy between agriculture and energy policy, using the Mauritius experience in energy generation from bagasse as an example; and the successes and challenges in the development of renewable energy technologies in SIDS. It was noted that the privatization of energy utilities in the Caribbean had not brought the expected reduction in the price of energy services. In the prevailing environment of rapidly increasing oil prices, energy diversification was critical. Significant initiatives in wind, biomass, solar energy and cogeneration have been tested and proven viable in SIDS. Electricity generation from bagasse in Mauritius now represents 20% of energy use in the country, maintaining the value of sugar cane production in the light of the recent 36% loss of trade preferences in sugar exports.

221. Speakers highlighted the potential for the development of biofuels, while underscoring the need for concessionary financing for feasibility studies, supportive local policies and an enabling environment for project development, and strong political will for their implementation. Some delegations suggested that SIDS should consider preparing options for a non-fossil fuel future. The UN system was called on to support efforts to develop alternate energy sources and to promote energy efficient industries in SIDS. SIDS-SIDS cooperation was also cited as an effective means of developing renewable energy and energy efficiency options in SIDS.

222. Although many representatives of the donor community, including some developing countries, mentioned numerous projects, programmes and initiatives undertaken in partnership with SIDS in the area of sustainable energy, the need for further assistance for SIDS to achieve progress towards the MDGs was stressed. A major group representative called for the strengthening of negotiating skills and project writing capacity in SIDS.

223. Many delegations noted the importance of access to information on technologies that could be adapted to the varying needs of SIDS; one size did not fit all. Partnerships with the private sector and regional and international entities were considered useful for this purpose. The need for support from the international community in making financing available for energy investment was also highlighted.

224. Panel Two reviewed innovative strategies to enhance industrial development in SIDS. Panelists addressed energy efficiency in the tourism industry, synergies between the agriculture and tourism industries, and innovative technologies for building local industry using indigenous resources in SIDS. The success of coconut oil as a diesel fuel substitute on some Pacific islands was highlighted. The use of coconut fuel and solar energy on remote islands lacking electricity supply has facilitated the development of micro-industries and small business opportunities, with great benefit to local communities and economies. The advantages to rural development of expanded linkages between tourism and agriculture were also showcased.

225. It was recalled that SIDS have small economies, small markets and labour supply, restricted land for industrial development, and a limited range of facilities for specialized educational and training. These factors have presented major challenges to achieving efficiency and competitiveness in the development of indigenous industries. SIDS also continue to grapple with other compelling priorities for development with limited resources at their disposal. The importance of developing local renewable energy sources to SIDS dependent on fossil-fuel imports was underscored by many delegations, as industrial development requires a cost-effective and reliable energy supply. Delegations also emphasized the importance of the linkages between energy and resource efficiency in enhancing competitiveness.

226. Capacity building for research, data collection and analysis and other strategies that would support accurate assessments of industrial development needs is critically lacking. The use of centres of excellence for these purposes was encouraged, and it was noted that South-South cooperation could contribute substantially in this area.

227. Panel Three addressed efforts to mitigate air pollution and promote adaptation to climate change in SIDS. The panelists highlighted the vulnerability of SIDS to climate change and climate variability, and noted that SIDS had already begun to incorporate adaptation and resilience-building measures into their sustainable development strategies, addressing such areas as agriculture, insurance and disaster management. Adaptation initiatives being implemented included a regional approach to building codes and risk-reduction strategies in the insurance industry. It was also considered important for SIDS to work towards mainstreaming adaptation strategies in sustainable development planning. One delegation urged ongoing cooperation in

oceanography, climate impact monitoring, modeling, information sharing and distance learning in support of SIDS.

228. Delegations drew attention to the importance of financing feasibility and vulnerability studies for the development of sustainable energy plans. One delegation noted that it was not always in the best interests of SIDS to await private sector leadership in investment; and that given the size of SIDS, action to address sustainable energy often required government leadership. The need for a global approach to solidarity and shared responsibility in addressing sustainable energy and climate change was also underscored.

229. Delegations commented that this review had afforded an opportunity to appreciate the achievements, challenges and potential of SIDS in the thematic cluster. They were encouraged by the efforts of SIDS and their commitment to innovative action. The importance of reaffirming the commitment of resources from the international community was underscored by many SIDS. One delegation stressed the need for greater coherence in donor assistance and for greater attention and sensitivity to local conditions in the development of sustainable development projects. Some delegations supported the creation of a mechanism to help pair the needs of SIDS with donor resources, to help SIDS in accessing available financing. Some delegations also expressed continued support for strengthening the SIDS Unit in the Secretariat to support implementation of the SIDS Programme.

VI. Inter-active Discussion with Major Groups

230. At its fourteenth session, the Commission on Sustainable Development continued its tradition of including a multi-stakeholder dialogue segment as part of its official proceedings. The multi-stakeholder dialogue segment held on 3 May involved representatives of women, youth, indigenous people, non-governmental organizations, local authorities, workers and trade unions, business and industry, scientific and technological communities, and farmers. Lead organizations from each sector were invited by the CSD Secretariat to consult with their constituencies to prepare “dialogue papers” and to organize the participation of their delegations. This dialogue provided an opportunity for a focused discussion on the role of major groups in promoting implementation activities in relation to the thematic cluster, including in the areas of education, raising public awareness, disseminating information and knowledge, and fostering partnership initiatives.

231. The segment was organized into three blocks of 30 minutes each, comprised of short presentations from three major groups followed by interactive discussion among governments and major groups. Local authorities, indigenous people and farmers addressed climate change, air pollution and atmosphere; business and industry, women, and scientific and technological communities spoke to energy for sustainable development; and NGOs, trade unions, and youth focused on industrial development.

232. During the discussion, major groups and Governments highlighted the following:

Obstacles and Constraints

233. Transformation of the global energy system can be linked directly to industrial development. Taking into account the impact of complex and difficult political situations with regard to energy, environment, and increasing population, the unsustainable nature of the present energy regime and the privatization of basic energy services are seen as obstacles to sustainable industrial development. The proliferation of nuclear energy technologies is considered by a number of major groups to be unsustainable.

234. Regarding climate change, the modalities and procedures for activities under the Clean Development Mechanism generally fail to address issues of social and environmental justice, including rights to land and self-determination. A lack of market access and poor regional coordination present obstacles to ensuring climate-friendly farming practices.

Lessons Learned and Best Practices

235. Important lessons have been learned by some Governments with regard to developing supportive national policies that promote integration of gender concerns into energy projects, introducing income-generating energy technologies that make energy services affordable for women and increase their social status, and recognizing that such technologies are most successful when they address the needs of the people meant to use them. The case of a small hydropower project is one example of sustainable energy that did not displace people, provided employment, used local resources, partnered with the private sector, reinvested profits in the community, and has strong potential for replication in other rural areas.

236. An increase in networking among sectors has also proven to accelerate progress in implementation. Collaborating through a worldwide network of 675 local governments, many cities have established emissions reduction targets and implemented climate protection policies. A Climate Impact Assessment carried out by the Arctic Council in partnership with indigenous communities provides a specific example of regional participatory cooperation that can be replicated in other parts of the world. Overall, there is growing acceptance of a multi-dimensional approach to the interlinked aspects of climate change, atmosphere and air pollution, involving stakeholder participation in developing educational models and tools for training and capacity building to disseminate knowledge.

Means of Implementation

237. There remains an urgent need for capacity building in science and engineering, enhanced funding for research and development, and support for climate-related observational networks. While efforts are being made by some Governments to mainstream sustainable development education at all levels, to empower youth to pioneer new employment opportunities, jobs and services, and support long-term sustainability of industries, more progress is needed in this area. There is wide support for increased reporting on activities toward education for sustainable development.

Continuing Challenges

238. To meet rising energy demands and accelerated economic growth, Governments need to evolve, innovate and invest significantly to create a solid foundation of good governance without corruption, support frameworks that encourage competitiveness, employ a wide range of energy options and integrated energy policies, provide innovative finance solutions, and include all stakeholders in partnerships for sustainable energy development. Governments could increase support for development of clean and renewable technologies, and work toward enhancing collaboration with major groups to ensure participation of indigenous people, farmers and women in implementation of energy projects, climate impact assessments, and actions to implement mitigation and adaptation strategies related to climate change. Industrial policy should strive to include social aspects of worker education and training programmes, with a focus, inter alia, on sustainable consumption and production, generate decent and meaningful jobs, create new market opportunities, and ensure reliable access by the poor to energy services. Women in particular must be given greater access to education on affordable energy services and cleaner fuels.

239. All stakeholders, including farmers, local communities and local authorities, need to be included in all stages of decision-making and implementation processes related to eco-efficiency projects, development of biomass technologies, implementation of regulatory systems and climate change research.

VII. Partnerships Fair, Learning Center and Side Events

A. Partnership Fair

240. The fourteenth session of the Commission on Sustainable Development featured a Partnerships Fair (PF) in its official activities. The Fair was organised by the CSD Secretariat to provide an opportunity for registered partnerships to showcase progress in their activities, network with other partnerships, identify new partners and learn from each other's experiences. The programme of activities for this year's Fair included "Partnerships in Practice" interactive discussions sessions, partnership presentations, and partnerships information desks.

241. Between 1-9 May, there were 28 partnership presentations, 7 interactive discussion sessions, 25 information desks. Three of the interactive discussions focused on partnerships working in areas related to the CSD-14 thematic cluster. Specific issues covered included energy efficiency and cleaner industrial development; implementing climate change goals and commitments through partnerships; and improving access to energy for the poor. The other four discussions explored cross-cutting issues related to partnerships including: strategies for effective communication of partnerships information; benefits related to partnering with the private sector; building capacity through partnerships in SIDS and challenges related to partnership networking.

242. The presentations and discussions offered an array of partnership experiences: from initiatives that are promoting good governance and working to effect change at the national,

regional and international policy level to examples of partnerships working at the local level, delivering affordable alternatives to unsustainable energy sources, reducing GHG emissions, improving air quality and developing emission standards. The role of partnerships in engendering broad stakeholder engagement was recognised, noting the work of various initiatives that serve as a facilitating mechanism to bring together relevant stakeholders working towards sustainable development. The importance of strengthening the participation of the private sector in partnerships was underlined.

243. Partnership representatives stressed that the success of their initiatives was dependant on the existence of a supportive policy and regulatory framework; political commitment at high levels; public awareness and a sustainable resource base. Challenges identified ranged from difficulties faced in scaling-up pilot-projects to the national and regional level; to concerns over the time and resource intensive nature of coordination between partners.

244. The need for effective communication of partnership outcomes was stressed, with a focus on reporting demonstrable results. At the same time, it was acknowledged that the metrics of assessing partnership success remain a challenge, particularly in the cases of those initiatives which are focused on activities with qualitative outcomes such as capacity-building, training and public education.

245. A diverse range of participants –from governments, major groups, the UN system, and other organizations – combined with a focus on practical results-oriented dialogue created a positive learning atmosphere. All sessions featured dynamic and fruitful exchanges.

246. The Partnerships Fair presentation and discussion sessions were well-attended, averaging 35 people per session (ranging from 20 to 60). Overall feedback from partnership representatives who utilised the information desks was also positive.

B. Learning Centre

247. The Learning Centre offered 17 courses during regular meetings of the Commission at its fourteenth session (see annex __ for the list of courses). They offered participants the opportunity to obtain the best knowledge and know-how available on the given issues from top level academics and field parishioners in relation to the CSD-14 themes, as well as cross-cutting issues related to gender, financing and development strategies. Course instructors provided trends analysis, highlighted lessons learned, challenges faced and prospects for the future related to specific issues presented. They employed case studies, role playing and interactive discussions. Instructors represented a wide range of universities, research institutions, industries, non-governmental organizations and international institutions.

248. A total of 569 participants attended the Learning Centre at the Commission's fourteenth session. Class size averaged 35 participants with some courses attracting close to 50 people representing government delegates, non-governmental organizations, international institutions and individual experts attending the Commission session, including many repeaters. Summaries of the Learning Centre courses were made available on the CSD website on a daily basis, together with electronic copies of the presentations.

C. Side Events

249. Eighty nine side events and related activities organized by major groups, Governments, UN Agencies and other international organizations took place in the margins of the official meetings of CSD-14. The side events and related activities were focused on issues related to the main thematic cluster of the current implementation cycle and provided an opportunity for informal exchange of views, information and experience.