

Commission on Science and Technology for Development
Thirteenth session
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Intersessional panel meeting on

**Improvements and innovations in existing financial
mechanisms for ICT;**

New and emerging technologies; and

**The follow-up to the World Summit on the Information
Society**

International Conference Centre Geneva
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Summary report prepared by the UNCTAD secretariat¹

¹ This paper summarizes the panel's discussions; it does not necessarily reflect the views of the UNCTAD secretariat.

Introduction

1. At its twelfth session held in May 2009, the Commission on Science and Technology for Development (CSTD) selected the following substantive themes for its 2009–2010 intersessional period:

- (a) Improvements and innovations in existing financial mechanisms for information and communications technology (ICT);
- (b) New and emerging technologies; and
- (c) Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at international and regional levels.

2. To help address these themes, a panel meeting was run by the CSTD secretariat and the Swiss Government, which took place in Geneva, Switzerland, from 9 to 11 November 2009. The aim of the panel meeting was to study in depth the various issues related to the substantive themes, with a view to contributing to considerations by the Commission at its forthcoming thirteenth session.

I. Organization of work

3. The CSTD panel meeting was attended by members of the Commission, other national representatives (non-members of the Commission), representatives of United Nations entities and other international organizations, representatives of non-governmental organizations (NGOs) in consultative status with the Economic and Social Council (ECOSOC), and representatives of civil society and business entities accredited to the World Summit on the Information Society (WSIS) (see the annex for the full list of participants).

4. The documentation for the meeting included issues papers prepared by the CSTD secretariat, and presentations and policy papers given by the participants. All the meeting documents are available online from the website of the Commission on Science and Technology for Development at <http://www.unctad.org/cstd>.

II. Theme 1: Improvements and innovations in existing financial mechanisms

5. One resource person² dealing with the first substantive theme presented the issues paper entitled “Financing mechanisms for information and communication technology for development”, noting that financing mechanisms remained crucial and that further efforts were needed to address the access gap, to develop new content and applications, and to build capacity.

6. While liberalization of ICTs worldwide had resulted in a dramatic growth of the sector in developing markets, there was still a great need for effective management of competition. In addition, in view of the rapid convergence in the ICT industry that had blurred the distinctions between fixed and mobile networks, regulatory reforms in licensing regimes, spectrum allocation plans and media content treatment were necessary, in order to bring national policies up to date with the current Information Society landscape. Furthermore, the emergence of cyber risks required the establishment of new bodies of

² Mr. David Townsend.

consumer protection law that were specific to the telecommunications competitive environment.

7. The lack of available and affordable transmission capacity in national and international “backbone” networks remained a significant barrier, resulting in unaffordable connectivity. Loosened restrictions on market entry, coupled with positive incentives, may encourage infrastructure investment in rural areas and small island States. Moreover, regulators and investors should recognize the gains of open access and infrastructure-sharing.

8. The discussion on universal service or universal access (US/UA) funds had traditionally focused on expanding access to basic voice services, and was thus regarded as outdated in view of the explosive growth of cellular (mobile) telephone coverage. US/UA funds had produced mixed results: while some had proved to be successful, others were not operational and were unable to disburse the very large sums that they contained. Policies may need to re-examine the objectives of US/UA funds, in meeting the needs of delivering ICT capabilities and services, and to improve the funds’ institutional management. Furthermore, US/UA funds were well suited to be involved in financing decentralized and community-based approaches to delivering ICT services.

9. The realm of ICT content and applications had experienced far-reaching developments since WSIS, which had most notably manifested themselves in sharp increases in broadband, multimedia content, and social networking and user-generated content. Although most social networking initiatives had not been financed by government or donor investments, there remained an important place for public investment in more “socially desirable” forms of ICT content and in applications that catered to the needs for training and learning, and to the production and dissemination of standardized information resources as well as indigenous and local culture and knowledge.

10. The need to channel financial resources towards ICT capacity-building was positively correlated with ICT access. The existing capacity-building models were outdated. Public policies and international coordination were necessary in order to better institutionalize capacity-building as a core element of ICT development strategies, as there was a lack of coordination and standardization, and very little direct linkage between sector revenues and the funding of capacity-building activities. It was suggested that it would be important to consider innovative ways of linking capacity-building to other forms of ICT content, such as taking into account the development in social networking and user-generated content.

Open consultations held by UNGIS

11. The representative of the International Telecommunication Union (ITU) and Chair of the United Nations Group on the Information Society (UNGIS)³ briefed the panel on the outcomes of the Open Consultations of UNGIS on Financing Mechanisms for Meeting the Challenges of ICT for Development, which were held in Geneva, Switzerland, on 8 and 9 October 2009. The meeting was hosted by ITU; it was jointly organized by the UNGIS Chair and Vice-Chairs, i.e. ITU, the United Nations Educational, Scientific and Cultural Organization (UNESCO), UNCTAD, the United Nations Economic Commission for Africa and the United Nations Development Programme. The meeting was open to all WSIS stakeholders. There were 147 participants, representing governments (49), international organizations (41), civil society (41), the private sector (11) and others (5). In response to

³ Mr. Jaroslav Ponder, ITU.

the call for contributions, more than 40 documents had been submitted to the UNGIS secretariat and posted on the UNGIS website (<http://www.ungis.org>).

12. The main objective of these open consultations was to create an opportunity to review progress, share views, and discuss new approaches at the national, regional and international level to the financing of ICTs for development.

13. There was wide agreement among participants that the financing of ICT for development remained a significant challenge. While there had been very positive developments with regard to financing infrastructure and access, especially with regard to mobile telecommunications, there remained important gaps that would need to be addressed in order to achieve an all-inclusive information society.

14. Areas in need of particular attention included the development of local content and applications, as well as raising sufficient resources to build the required capacity in developing countries. Too often, capacity development and relevant content were afterthoughts – behind heavy infrastructure and hardware investments. Financing these “soft” and less visible components – which are key to the use of the technologies – remained a particular challenge. In these particular areas, it had been more difficult to generate funds from the private sector, which highlighted the importance of continuous support to governments from bilateral and multilateral donor organizations.

15. Liberalization and opening up to competition had been important in order to generate private sector involvement, and to foster innovative business models as well as financing solutions.

16. Rural and remote areas still lagged behind in terms of connectivity – especially with regard to the Internet and broadband. It was not always possible to find sustainable business models for the investments needed, and this remained one of the challenges.

17. At the same time, the trend towards more open markets underlined the importance of developing the capacity of regulatory and other public authorities to monitor and regulate markets.

18. The importance of infrastructure-sharing was underlined by many speakers, as a way to reduce the costs involved in rolling out infrastructure.

19. It was noted that controversies over the universal access funds remained. Some of these highlighted important experiences enabling communication services in rural and/or isolated regions; others questioned their effectiveness. Again, financial resources needed to be supplemented by human resources (capacity development). An important question was whether such funds should also address mobile, Internet and even broadband access as a priority.

20. Participants emphasized the importance of continuously exploring new financing mechanisms, and leveraging the various types of competence of different stakeholders. The role of multi-stakeholder partnerships was underlined by many. Similarly, there was a need to draw on large-scale international financing sources, such as foreign direct investment or multilateral lending, as well as small-scale microfinance solutions. Each form of financial mechanism had its benefits and drawbacks, and may not be equally well suited in all situations and regional contexts.

21. Long-term investments and high-risk projects were considered as major challenges regarding financing mechanisms for development. As a rule, investors sought low-risk projects and investments and quick returns, especially in rural and remote areas.

22. The projects’ sustainability remained a challenge for financing ICT for development. In that context, it was important to involve local users and local content experts, and to

build applications that would work on existing infrastructure to ensure access and relevance for those most in need.

23. Although the financial crisis could be perceived as having negative impacts in the context of the financial mechanisms for development, it could also be seen as a challenge for structural changes in the economy as well as the emergence of new opportunities.

Discussion

24. Several participants were concerned with addressing the financing gap of building backbone networks in small island nations and low-density areas (such as rural areas) where private sector investment had poor returns. Governments could help the private sector to identify country-specific needs and the associated costs in addressing the problem.

25. In a matter related to addressing the access gap problem, one participant asked the panel whether satellite communication should have wider application in rural areas. One resource person responded that while it was technologically feasible and could be a cost-effective approach, its ultimate success depended on scalability, and whether there was sufficient demand to generate enough revenue to cover the cost.

26. Participants discussed the question of infrastructure-sharing, and the need for regulators to be fully aware of the potential benefits and market competition. Sharing arrangements – particularly when applied to rural and remote areas – may help bring down costs, and allow operators to better compete based on price, service offering and geographic coverage. One participant stressed the need to associate ICT infrastructure – particularly the laying of fibre-optic cables – to the provision of water, gas, and electricity infrastructure projects and suggested that, where appropriate, the building of ICT infrastructures should be timed with road- and pipeline-laying works. The laying of fibre-optic cables was seen as critical to economic development; the technology permitted transmission over longer distances and at higher bandwidths, and allowed for an enhanced and wider use of ICT applications.

27. One participant argued that in cases where a project rendered private sector involvement risky and unprofitable, there may be an argument for public sector funds to step in and bridge the gap. There were potential positive externalities and social gains in the form of tax income and job-creation to be tapped into. The financing decision should be based on considerations such as the economic and social impact of the project in question, giving priority to the ICT content and capacity-building initiatives that would most adequately address a society's needs.

28. One participant responded to the idea of decentralized and community-based approaches to engendering ICT services, pointing out the potential of ICT in facilitating microfinance⁴ – an important outcome of the Tunis Phase of the WSIS. Such services may foster local entrepreneurship and be beneficial to economic development. One participant presented the experience of the Philippines in facilitating small-scale entrepreneurs using ICTs and forging public and private partnerships. Participants suggested that decentralized approaches should be further examined by the CSTD.

29. Participants also reiterated the need to protect information and privacy on the internet, and called for financing mechanisms to play an important role in stimulating the

⁴ Paragraph 27(e) of the Tunis Agenda states: “helping to accelerate the development of domestic financial instruments, including by supporting local microfinance instruments, ICT business incubators, public credit instruments, reverse auction mechanisms, networking initiatives based on local communities, digital solidarity and other innovations.”

development of cybersecurity technologies and solutions, and in facilitating their implementation through strengthened national and regional cooperation.

30. Financing and building capacity in e-learning was perceived to be a challenging task. The resource person voiced concerns over the poor state of ICT education in schools. The education system was lagging behind in terms of teaching schoolchildren how to be creative. The need to develop ICT platforms and tools suited to the education process was acute. One participant emphasized the centrality of knowledge and knowledge-creation and argued for a transformation of ICT education in schools. One participant added that it was necessary to better utilize social networking tools in education.

31. It was noted that the dissemination of ITCs was one of the most important tools for improving socioeconomic standards, especially in developing countries. Universal access to technological resources was a way to diminish the gap in opportunities between people from different economic, social and ethnic backgrounds. Allied with formal education, digital inclusion was mandatory nowadays for the social and economic development of any society.

32. Social networking platforms were considered by many of the participants as providing great opportunities for information-sharing. One participant suggested using social networking tools such as Facebook to create a network where scientific results and findings could be shared and disseminated.

33. One participant highlighted the need to consider capacity-building as being closely related to the issue of content. For example, simply translating software into a local language may not be sufficient; it may also be necessary to provide training on using the software and on programming. One participant attached great importance to the role of ITU as WSIS action line facilitator in capacity-building and in providing an enabling environment to stimulate and sustain innovation in the ICT sector.

34. The use of e-government may prevent corruption and misinformation and facilitate citizens' participation in governmental processes. While government websites can be easily replicated from country to country, most national governments lack a centralized body that coordinates all government information resources and locally available content.

35. It was noted that concerted efforts at national and international levels were required to foster a socio-economically inclusive, people-centred Information Society. Governments could help correct market failures, maintain competition, attract domestic and foreign investment, and enhance ICT infrastructure and applications to maximize the socio-economic benefits of ICTs, especially for underserved communities.

36. One participant highlighted the importance of mobilizing international financial resources to assist developing countries in addressing their needs and priorities on the basis of areas identified in their national development plans for ICTs.

III. Theme 2: New and emerging technologies

37. Under the second priority theme, the CSTD secretariat⁵ presented an issues paper entitled "New and emerging renewable energy technologies for sustainable development", citing the development and deployment of renewable energy technologies as central to sustainable development.

⁵ Ms. Dong Wu, UNCTAD.

38. It was noted that about 2.5 billion people, especially in rural areas of sub-Saharan Africa and South Asia, still lacked access to modern energy services. They relied on biomass fuels such as firewood, charcoal, manure, and crop residues for cooking and heating. The energy poverty problem may have severe and adverse social, economic, environmental and gender implications.

39. Meanwhile, growing levels of per capita income would lead to greater energy consumption worldwide. The energy sector as a whole was a dominant contributor of greenhouse gas emissions – believed to be a key cause of climate change. It was therefore imperative to incorporate more renewable energy sources into the current and future energy consumption mix, in the interests of improving energy efficiency.

40. Green and renewable energy technologies were particularly appropriate for developing countries. For example, producing renewable energy locally could offer a viable option in rural areas where insufficient transmission and distribution infrastructure was a problem. The broadening of energy mix and fuel sources could increase national energy security by reducing the amount of absolute imports. Furthermore, an expansion of the national renewable energy sector could create local employment opportunities and provide economic opportunities for developing countries to commercialize, produce and export those technologies.

41. It was noted that the technical challenges associated with electricity generated from renewable sources were transmission and distribution, intermittency, and expensive and inefficient storage.

42. It had been widely recognized that public intervention was needed to stimulate innovation in renewable energy technologies. The reasons often cited were that (a) carbon-intensive technologies benefited from a competitive advantage since the external costs related to them were usually not reflected in the market price, and this price distortion reduced the transfer and the market penetration of renewable energy technologies; and that (b) the larger social benefits of the investment in renewable energy technologies could not be fully captured by individual firms. There was, therefore, a lack of incentive for the private sector to raise their investments to socially optimal levels. Hence, the current frontrunners in renewable energy technologies (RETs) had benefited from public policy interventions backed up by a legal and regulatory framework. In formulating sound RET policies, policymakers needed to take account of the local specific conditions, natural endowment and technological capabilities, as well as the national framework.

43. A number of developing countries – in particular, Brazil, China and India – had been successful in promoting the deployment of renewable energy technologies and also the development of indigenous capabilities. Some common elements underlying their success stories were: national development and energy strategies, large-scale and long-term infrastructure investment and financial supporting structures for technology transfer, development and deployment; reforms of legal and regulatory frameworks; large-scale and systematic training, capacity-building, and research and development (R&D) activities; supports for commercialization and export promotion, and public-private-international partnership and collaboration.

44. Intergovernmental forums such as the CSTD could provide a platform for the sharing of examples of good practice and promoting North-South and South-South partnerships. For example, an in-depth study of projects such as the Barefoot College of India, a bottom-up approach to technology transfer and local empowerment, might provide useful insights for strategies in promoting renewable energy technologies for development, as well as promoting South-South cooperation.

45. One resource person dealing with this theme spoke on the topic “Low-carbon development: the role of innovative capabilities”. He argued that while a wide range of

low-carbon energy technologies were available, creating incentives and building capabilities were key for successful deployment and development.

46. He noted that low-carbon development was context-dependent. Some middle-income countries already had an established, carbon-intensive energy system and would need to transition away from carbon-intensive growth – typically characterized by poor levels of energy efficiency in industry and heavy reliance on coal. Yet, many less developed countries did not have extensive modern energy systems. These economies were low-carbon societies that required improved access to electricity and new, low-carbon infrastructure.

47. Improving innovative capabilities is crucial for innovation in low carbon research, development, demonstration and deployment (R, D, D&D). The need for change is greatest in developing countries. While technology transfer is a recurring theme of international discussions, the emphasis has often leaned towards hardware and neglected the question of equipping countries wider capabilities such as knowledge and expertise behind the technology, considered to be paramount to the accumulation of technological capacity. Public policy has a critical role to play in incentivizing private firms to favour low carbon technologies.

48. The resource person drew findings from several case studies on wind, hybrid vehicles, and clean coal technologies. He concluded that there were complementary sources of capabilities, including localized innovation and external sources such as technology transfer. While there was no “one policy fits all” solution – as it varied by sector, stage of development etc. – there was a common need for new institutional capabilities for innovation, e.g. through joint R,D,D&D or low-carbon innovation centres. In particular, national and international policy environments, such as financial incentives, and regulations, could have a big impact.

49. It was noted that access to intellectual property rights (IPRs) was “necessary but not sufficient” for technology transfer. IPRs may be a barrier when a lack of access to IPRs might slow down the rate of “catching up” in specific technologies and result in high R&D and production costs. However, research had shown that Indian energy firms had been successful in gaining access to IPRs via acquisition and licensing, for example through R&D from the Netherlands and marketing in Denmark.

50. Another resource person gave an overview of RET deployment in developing countries, using examples from Israel. In stressing the need for international cooperation on energy, he proposed establishing a group comprised of scientific, engineering and financial experts to formulate a practical roadmap for developing a basket of technologies that could substitute for fossil fuels in power production and transportation.

51. One panellist provided an LDC perspective on the second theme. Rural Sudan has traditionally had strong energy reliance on fuel wood and biomass residues; however, the country is shifting to more efficient and eco-friendly sources of energy production, including solar, biomass, wind, hydro and geothermal. A major problem for rural people is the inadequate supply of power – such as electricity or petroleum products – for heating, cooking, cooling, water pumping and telecommunications. Women spend large amounts of their time collecting fuel wood and biomass residues in order to meet their households’ energy needs.

52. The Sudanese experience showed that solar technologies – in particular, solar lighting systems, PV pump systems, solar television for education, solar water heaters and solar cookers – had raised villagers’ living standards, and had brought about improvements in food and water safety, education services, healthcare and communications, and had had remarkable socio-economic and environmental impacts. Community-driven projects had offered training to women, and had enhanced their knowledge and skills in RETs. With the

proper training, rural women had become capable of operating and handling RETs to meet their household needs. The Sudanese RETs model had fostered rural development and contributed to the empowerment of women. The model was characterized by its use of locally available energy sources, materials and skills.

53. The panellist also provided an example of successful South–South cooperation. In 2003, Sudan had entered into an agreement with China to build its own solar PV production assembly line.

54. One participant gave an account of Jamaica’s experience in combining electrification programmes with stimulating energy uses in the productive sector. The country had so far installed solar and wind power facilities, and was exploring the option of converting biomass into energy and producing organic fertilizer generated from waste. It was pointed out that Jamaica’s new comprehensive electricity policy would incorporate a renewable energy policy to foster and protect capital investments in renewable energy sources such as solar, water, wind and biofuels. The country’s new policy would ensure the security of Jamaica’s energy supply, a sound infrastructure, and a well-defined energy sector governance framework, and would encourage industries to embrace the notion of a green economy and eco-efficiencies. In addition, the participant drew attention to the importance of sharing information and knowledge by setting up regional collaborative networks. The Caribbean Information Platform on Renewable Energy (<http://www.cipore.org>), which was launched in 2009, was the only online information and communication system in the region for exchanging information on renewable energy. This platform provides information on projects, as well as media galleries of renewable energy sites, developments and technologies, for the 13 participating Caribbean countries and territories.

55. Another participant gave an account of the latest United States innovation strategy. The strategy paper highlighted the tools necessary for successful innovation, ranging from investments in R&D to the human, physical, and technological capital. The United States strategy rested on the belief that competitive markets spurred productive entrepreneurship, and considered it imperative to create an enabling national environment ripe for entrepreneurship and risk-taking, allowing United States companies to be internationally competitive in a global exchange of ideas and innovation. The participant explained that the RET sector was of great national importance. It was one of the sectors where the market was unlikely to produce desirable outcomes on its own, and where government action was needed. He urged the CSTD, in collaboration with UNCTAD, to act as the torchbearer for innovation. He highlighted the usefulness of the Barefoot College example in shedding light on South–South cooperation, and urged the CSTD to promote South–South cooperation as well as North–South cooperation, and to strengthen its existing science, technology and innovation (STI) network so as to allow for an exchange of ideas and best practices.

56. One participant emphasized that the public would benefit from raised awareness and better understanding of RETs. The experience of the Philippines had shown that knowledge about RETs should not be solely confined to a few scientists and practitioners, and that it was possible to increase awareness and to educate local communities, including women and young people, about the benefits of RETs. He urged the CSTD to promote knowledge and understanding of RETs, with a view to broadening the diffusion of the technologies.

57. Two business representatives of the International Chamber of Commerce gave presentations on sustainable energy solutions provided in and by the ICT industry. One

business representative⁶ emphasized that the biggest gains could be obtained by reducing the power consumption of the hardware during the operational phase, as an essential part of a complete life cycle approach. Approximately 86 per cent of the energy use of a mobile network operator was in the network's mast sites and switching sites. Reducing the energy needs of that equipment was therefore a win-win business proposition, where cost savings during the operation period of the equipment would improve the return on a communication service provider's investment, and simultaneously would help to reduce its CO₂ footprint and energy balance. Other sustainable energy solutions included green energy control units, and the integration of solar and wind technologies to reduce the energy consumption of ICT networks by up to 90 per cent, making those solutions both suitable and affordable – also in developing markets and in rural settings.

Discussions

58. A number of participants urged the CSTD to examine the array of emerging material science technologies and their potential applications for the energy sector. The resource person pointed out, in particular, that nanotechnology-based advances and breakthroughs had great potential for cleaner and more efficient ways of generating, delivering and storing electric power.

59. The majority of the questions raised were about renewable energy production, storage and efficiency. The resource person argued that energy efficiency had to be examined both from the supply side, such as energy carriers, and from the demand side, which included buildings, households and firms.

60. The question of how to choose between a centralized and a decentralized energy system, and how to strike the right balance, was raised too.

61. There was general agreement on the importance of energy efficiency as a “low-hanging fruit” in climate mitigation strategies. Several participants asked how governments should be involved in the issue of efficiency gains, and whether efficiency gains were synonymous with cost efficiency. The resource person noted that barriers to implementing efficiency – in the form of split incentives between energy practitioners and financiers – still existed. Policy intervention was therefore required to provide the extra incentives, in spite of the short-term negative costs.

62. The resource person noted that energy storage was particularly important for achieving efficiency. Policymakers must keep pace with technological breakthroughs, and bear in mind that implementing changes to a national energy system could be a difficult task that required long-term planning and financial commitment. While it may be economically and environmentally sound to transition towards an integrated energy system, the technical difficulties and risks associated with RETs – such as intermittent generation and lack of implementation experience – needed to be overcome first.

63. The CSTD secretariat was encouraged to gather information on available solutions in the domain of low-cost energy storage technologies, in addressing the energy challenge. One participant highlighted the need to exchange country experiences and share national strategy at the next session of the CSTD. Several participants were in favour of setting up a clearinghouse that would facilitate the sharing of best practices and lessons learned in the field of RETs.

64. Some participants favoured an integrated approach to addressing the energy challenge, which would incorporate elements of both centralized and decentralized energy

⁶ Mr. Peter H. Hellmonds, Nokia Siemens Networks.

solutions. The resource person believed that a better understanding of the issues and a systemic and coordinated approach in addressing energy production, storage and distribution would be helpful. In addition, land scarcity and competing land-use considerations – a dilemma that concerned several member States – should be taken into account in making energy-related decisions.

65. One participant mentioned the usefulness of life cycle analysis in assessing energy impact, since many of the steps in the production process consumed energy. It would be useful to create a data warehouse of carbon footprint, water use, raw materials etc. and to introduce standardization. However, the resource person pointed out that there was no general agreement among scientists as to how such a life cycle analysis should be carried out.

66. It was noted that rural energy poverty had significant implications for the status of women and for their empowerment. The rural energy poverty problem was not gender-neutral. RETs had not been adequately examined from a gender perspective; the design, formulation and implementation of more gender-sensitive RET policies was needed. RETs could play a crucial role in elevating the status of women. A closer examination of how to empower women through RETs and RET-related gender concerns would help to better determine the barriers to equal access, use and control over energy resources.

67. Several participants pointed out the overlap that existed between ICT and energy efficiency, and highlighted the role of ICTs in improving energy efficiency and sustainability and in disseminating information as a means of reducing energy consumption. Concerns were raised with regard to measuring the impact of ICT and related industries on the environment. The tertiary sector was clearly a main driver of ICT-driven energy consumption. Participants stressed the importance of addressing ICT and climate change, and of finding ways to contribute to the outcome of the United Nations Climate Change Conference in Copenhagen, as well as the WSIS action line on e-environment.

68. One participant drew attention to the concepts of intelligent transport systems, and smart grids in decentralized energy systems – two ICT-based technologies with excellent potential for reducing carbon emissions – and encouraged their promotion. Intelligent transport systems make use of ICTs to transport infrastructure and vehicles, in order to reduce transportation times, transport-generated pollution and fuel consumption. Smart grids manage and control the delivery of electricity using ICTs.

69. The CSTD was urged to examine desirable arrangements for technical cooperation, including that related to technology and know-how, in the context of equipping developing countries with local RET manufacturing capacity. Participants underscored the importance of education and training. To encourage and facilitate international cooperation, UNCTAD was urged to further develop its STDev electronic platform, for exchanging information and building awareness on science and technology issues.

70. One participant argued that government policies should balance the dichotomy between long-term vision and short-term results. He contrasted the history of biofuel programmes in Argentina and Brazil, noting that Argentina had withdrawn its biofuel ambitions due to short-term pitfalls, while Brazil had adhered to its 30-year-old ethanol programme.

IV. Theme 3: Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the international and regional levels

71. The Special Adviser to the CSTD⁷ gave an overview of WSIS activities since May 2009 at the regional and international level. He shared some retrospective reflections on the WSIS process, and some insights on new developments and what the future may look like.

Reflections and challenges

72. Since the Tunis Summit, a number of new developments had emerged. Foremost among those new developments had been the “explosion” in the number of mobile phones. Today, more than half of the world’s population had a mobile phone, and between 80 and 90 per cent of the world’s population was within reach of a mobile network. The WSIS focused much more on the Internet and on collective access to the Internet in the developing world, and had not foreseen the incredible rise in the use of the mobile. The emergence of new social networking technologies had facilitated social and political mobilization and participation. Open and collaborative content development and delivery models had emerged, too.

73. In the field of information and communication technologies for development (ICT4D), there was a renewed focus on the largest but poorest socio-economic group, also known as the “bottom of the pyramid”, and new business and non-profit models targeting and serving that group had surfaced.

74. It was noted that ICT4D would regain importance, in the sense that there would be a renewed focus on ICT for democratic governance, for transparency, for accountability and for combating corruption. ICTs as a tool to combat climate change would become a new and important theme, too.

75. It was also noted that WSIS implementation would focus more on thematic approaches, and also on themes that had gained importance since 2005, such as child protection on the Internet, and the emerging problem of e-waste.

Discussions

76. The presentation received many positive responses from some participants, since it addressed issues beyond WSIS action lines. One participant noted that the presentation had not had a wide enough scope on the regional activities that had taken place. Bottom-up initiatives were not always on the radar of governments and international organizations, and were therefore not always captured in the annual reports to the CSTD. The initiatives that had been overlooked, for instance, included the Internet Governance Forum meetings.

77. The multi-stakeholder approach developed by the WSIS was reaffirmed by some participants. The approach was considered capable of tackling new and emerging technologies, and bottom-up phenomena such as social networking.

78. One participant explained that the introduction of domain names in non-Latin characters – a decision taken in Seoul by the Internet Corporation for Assigned Names and Numbers (ICANN) – was a significant way of making the Internet more inclusive.

79. One participant welcomed the broadening of the issue beyond the traditional scope of the WSIS. He urged the CSTD to build synergies with the WSIS Forum.

⁷ Mr. Charles Geiger, UNCTAD.

80. One participant recalled the need to address the three components of the Tunis Agenda: (a) Financial Mechanisms for ICTs; (b) Internet Governance; and (c) Implementation and Follow-Up. The participant explained that the scope of work of any mechanism for WSIS follow-up falls within these components.

81. Participants believed that the WSIS implementation mechanism still had room for improvement; the various United Nations agencies that moderated and facilitated the WSIS themes and actions lines should focus on implementing concrete and measurable outcomes.

82. One participant underlined that an enabling environment supportive of retaining a country's pool of talent was essential for the development of national innovative capacity. The problem of "brain drain" faced by many developing countries adversely affected STI development.

83. Strengthening the use of ICTs in STI development with regard to access to information and scientific literature was an important issue. Collaborative tools could benefit scientists by increasing the dissemination, sharing and use of scientific findings not yet publicly available.

84. One participant drew the panel's attention to the impending review in 2010 of the Millennium Development Goals. In line with article 10 of the Tunis Agenda, ICTs and STI should be further promoted as useful tools for achieving the Millennium Development Goals.

85. One participant felt that the United Nations system as a whole, and especially the CSTD, should continue in their efforts to advise governments on the potential of ICTs for achieving national social and economic goals. Capacity-building was the single most important requirement for mainstreaming ICTs into policy planning.

86. Participants consulted informally on how best to structure the thirteenth session of the CSTD to be held in May 2010. There was support from some participants for the idea of wider consultation on the draft resolutions, allowing an exchange of views before the opening of the session. There was general agreement that a drafting group for the draft resolution(s) should be established well in advance, but only during the week in which the session would be held, and that the format should be open to all interested members. At least two days of the annual meeting should be reserved for and devoted to consultations on draft resolutions. Another participant suggested the creation of small working groups that could meet informally and report to the Commission, ensuring continuity and enhancing efficiency in the Commission's work.

87. In addition, the format of the discussion on the five-year progress in the implementation of the WSIS was discussed informally. One participant proposed that various United Nations agencies be invited to engage in a half-day broad-based and open discussion that would involve all stakeholders, for comments on the implementation mechanisms and how they could be improved. There should be synergies between the WSIS Forum and the annual meeting of the CSTD, as it is now a tradition to run the events back-to-back.

88. One participant believed that the CSTD should compile – in the form of a dynamic calendar of events and seminars – all ICT-related efforts and meetings attended by participants, and should facilitate communication between the different meetings. A synthesis of meeting reports and documents would be very helpful.

89. The Head of the CSTD secretariat informed the panel that a discussion forum may be created so as to allow participants to discuss the draft proposals for the resolutions ahead of the thirteenth session. In addition, every effort would be made to ensure that an equal amount of time is devoted to the traditional mandate and the WSIS follow-up mandate at the session.

90. One participant spoke about the busy schedule of meetings in Geneva in April and May, and also pointed out the difficulties for participants from developing countries to travel to Geneva to attend any possible meeting ahead of the session.

91. The panel was informed that, as a contribution to the Annual Ministerial Review of ECOSOC in 2010 on “Implementing the internationally agreed goals and commitments in regard to gender equality and empowerment of women”, the CSTD would organize a panel during its thirteenth session. The outcome and recommendations arising from those discussions would be forwarded to ECOSOC.

92. It was noted that the thirteenth session of the CSTD would be held in Geneva, 17–21 May 2010.

V. Findings and suggestions

93. The following main findings and suggestions were highlighted by the panel, and were put forward for consideration by the Commission at its thirteenth session scheduled to take place in Geneva from 17 to 21 May 2010.

A. Main findings

(a) Financing of ICT for development remains a significant challenge. Growing private sector investment in the ICT sector does not obliterate the need to address the remaining access gap, develop local content and applications and build capacity.

(b) The challenge remains of developing financial mechanisms so as to foster the dissemination of ICTs in developing countries. Many solutions have been proposed, some have been implemented, but the overall results are limited so far.

(c) Infrastructure-sharing can be an effective way to reduce the costs involved in rolling out “backbone” networks.

(d) The lack of available and affordable ICT in low-density areas in developing countries needs to be tackled.

(e) The Internet is increasingly susceptible to cyber risks and privacy concerns, which national regulators and investors should address.

(f) The objectives of universal service or universal access funds deserve to be re-examined, taking account of a changing information society landscape where access to mobile telephony, the Internet and even broadband may become crucial.

(g) Public investment in more “socially desirable” forms of ICT content and applications, such as e-learning and e-government, is needed.

(h) Public policies and international coordination are necessary in order to bring current capacity-building models up to date.

(i) The potential of social networking and user-generated content for information-sharing should be further explored.

(j) Financing mechanisms may range from large-scale financing sources to small-scale microfinance solutions. Each form has its unique benefits and drawbacks, and its success is often context-dependent.

(k) Involving local users and local content and building local capacity may contribute to the sustainability of ICT projects.

(l) National development plans are vital to identify needs and priority areas for financing ICTs.

(m) The development and deployment of renewable energy technologies are central to sustainable development.

(n) The energy poverty problem in developing countries has adverse social, economic, environmental and gender implications.

(o) RETs, although afflicted with technical challenges such as intermittency and expensive energy storage, may particularly benefit developing countries and contribute to improved power supply, energy security, and energy-related economic development.

(p) There is a lack of private sector R&D efforts in RETs; public intervention that takes into consideration local conditions, natural endowment and technological capabilities is needed to stimulate innovative capabilities in RETs.

(q) North–South and South–South transfer of technology and the corresponding know-how can play an important role in the development and deployment of RETs.

(r) Efforts at building local innovative capabilities are also essential. Institutional capabilities for innovation are crucial.

(s) Access to IPRs is a necessary but not sufficient condition for successful technology transfer.

(t) A number of developing countries have successfully deployed RETs and developed indigenous capabilities, owing to long-term energy strategies, sound financial supporting structures and regulatory frameworks, and systematic training and capacity-building.

B. Suggestions

(a) Recognizing the need to mobilize additional resources for developing countries;

(b) Channelling financing from bilateral and multilateral donor organizations and the private sector for ICT content and capacity-building;

(c) Promoting the development of a payment platform for developing countries to offer a cost-effective, bank-independent and secure alternative to credit card and ATM networks;

(d) Providing a valuable framework for developing countries to build effective response systems to cybercrime threats;

(e) Encouraging the financing of decentralized and community-based approaches to delivering ICT services;

(f) Providing a platform for the sharing of examples of good practice and for promoting North–South and South–South partnerships on RETs;

(g) Setting up a clearinghouse on science, technology and innovation, with a view to sharing national experiences and best and effective case studies;

(h) Raising awareness and strengthening education on RETs;

(i) Conducting studies on ICT and climate change;

(j) Enhancing networks of scientists, scientific organizations and communities, building on social networking models;

- (k) Conducting studies on energy efficiency, examining the issue from a developing-country perspective;
- (l) Mainstreaming a gender perspective into RETs;
- (m) Promoting an integrated and sustainable multi-national collaborative approach to addressing the energy challenge;
- (n) Strengthening the WSIS e-environment action line to incorporate ICT and the environment linkages;
- (o) Promoting ICTs and STI as useful tools for achieving the Millennium Development Goals;
- (p) Timely preparation and organization of the thirteenth session of the CSTD, including starting the preparation and organization of the thirteenth session of the CSTD as soon as possible, including the elaboration of a working days arrangement that allows for most effective preparation of the session;
- (q) Creating an online discussion forum for participants to disseminate and discuss draft resolutions ahead of the annual meeting;
- (r) Allocating sufficient time to the deliberation of each component of the CSTD mandates, including the Commission's mandate to undertake discussion, in 2010, on the five-year progress in the implementation of the WSIS.

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