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Intersessional panel meeting on

Science, technology and innovation for sustainable cities and peri-urban communities

Internet broadband for an inclusive digital society

Follow-up to the World Summit on the Information Society

Ministry of Foreign Affairs of Peru
Lima, 7–9 January 2013

Draft summary report prepared by the UNCTAD secretariat[1]

[1] This report summarizes the intersessional panel's discussions; it does not necessarily reflect the views of the UNCTAD secretariat.

I. Introduction

1. At its fifteenth session held in May 2012, the Commission on Science and Technology for Development (CSTD) selected the following substantive themes for its 2012–2013 intersessional period:

- Science, technology and innovation for sustainable cities and peri-urban communities
- Internet broadband for an inclusive digital society
- Progress made in the implementation of and follow-up to the outcomes of the World Summit in the Information Society at the international and regional levels.

2. To help address these themes, a panel meeting was organized by the CSTD secretariat and the Ministry of Foreign Affairs of Peru, in Lima, from 7 to 9 January 2013. The aim of the panel meeting was to study various issues related to the substantive themes, with a view to contributing to considerations by the Commission at its sixteenth session, scheduled for June 2013.

3. In addition to the three substantive themes mentioned above, the intersessional panel dedicated a session on 9 January to discussing issues related to the 2013 Annual Ministerial Review of the Economic and Social Council of the United Nations.

II. Organization of work

4. The CSTD panel meeting was attended by members of the Commission, representatives of international organizations, representatives of non-governmental organizations in consultative status with the Economic and Social Council, representatives of civil society, the technical and academic community, business entities and other observers.[2]

5. The documentation for the meeting included papers prepared by the CSTD secretariat, presentations and policy papers submitted by the participants. All meeting documents are available on the Commission on Science and Technology for Development website (www.unctad.org/cstd).

III. Theme I
Science, technology and innovation for sustainable cities and peri-urban communities

6. The CSTD secretariat[3] introduced a paper on this theme. The presentation highlighted that the next wave of urbanization would occur primarily in developing countries, increasing the world's urban population from about one half to two-thirds of the total by 2050. Rapid urbanization represented a multidimensional challenge for cities of developing countries due to the following:

[2] See the annex to the present report for a complete list of participants.
[3] Ms. Anne Miroux, UNCTAD.

(a) Unplanned urban growth was a symptom of urban sprawl, which meant low-rise, inefficient development of land. Low density sprawl made it more difficult and costly to provide infrastructure and transport services.

(b) Traffic congestion, one of the consequences of urban sprawl, caused significant economic loss by making people spend time waiting in their cars or public transport and wasting fuel. Moreover, in cities that heavily depended on cars, it was not easy to put into operation habitual changes.

(c) Cities in developing countries were experiencing energy, water and food shortages as a result of rapid population growth. Their immediate environment was at risk of being degraded to the point of no return.

(d) Growing cities were confronted with a building shortage. One-third of the urban population of developing countries, close to 1 billion people, lived in slums today. Technologies were available to make buildings more efficient, but deployment had been slow.

(e) The poor infrastructure of cities in developing countries left them exposed to natural risks.

(f) Lastly, peri-urban zones located on city fringes were threatened by unplanned urban encroachment.

7. The United Nations Conference on Sustainable Development (Rio+20) that took place in June 2012 identified key sectors of action and follow-up to frame the topic of sustainable cities and human settlements in its outcome document. Among the key issues, the document mentioned housing, transport, energy, water, urban planning, waste management, disaster risk reduction and the needs of rural regions.

8. Cities that use science, technology and innovation could achieve wider economic, social and environmental benefits in the long run. Cities in both developed and developing countries were successfully applying various options that were readily available.

9. Improving sustainability was a cross-sectoral issue. The way that cities were designed and built had lasting impacts on mobility, energy consumption, waste management, resilience against disasters and interaction with the wider region. It was necessary to establish integrated institutions for cross-sectoral coordination at the city level and to identify cross-sectoral sustainability goals. Sustainability was also a multi-stakeholder issue that required a coalition of key stakeholders including national and regional governments, municipalities, citizens, non-governmental organizations and the private sector.

10. Mainstreaming sustainability into urban development plans could avoid costly and difficult policy adjustments later on. The earlier cities mainstreamed sustainability, the higher would be the benefits in terms of generating new sources of employment, improving competitiveness, enhancing social cohesion and maintaining a healthy and liveable urban environment.

11. Sustainable technologies required sound business models for widespread adoption. Policymakers, especially those in local governments, should establish the necessary legal, regulatory and institutional framework that allowed science, technology and innovation entrepreneurship to flourish in their cities. Targeted public incentives such as removing subsidies from unsustainable practices, smart taxing and feed-in tariffs could accelerate the transition towards more sustainable business models.

12. Finally, international exchange of knowledge and learning between partner cities could also be a catalyst for the application of science, technology and innovation.

13. One speaker[4] for the theme discussed the challenges of current urban growth patterns and the consequences of growth of the informal sector in cities. Haphazard growth resulted in dependence on motorization, congestion, pollution and in increased vulnerability. Low-density and informal urban growth made it harder to provide public services. Informal settlements and peri-urban development were special challenges. At the same time, many science, technology and innovation options were available to address these challenges, including options that were not necessarily representative of high technology, such as institutional innovation. Several cases on the application of geospatial tools, simulation and visualization techniques, sensors and collaborative planning showed how these options helped improve building and street designs for higher efficiency and raise energy standards in Chinese cities.

14. Although many science, technology and innovation options were readily available, political and institutional barriers could prevent their use. Lack of collaboration between urban departments such as planning, housing and transit could hamper effective project work. In this context, leadership of the mayor's office could solve organizational gridlocks. Field work was also a valuable method to gather lessons on how to improve cities. Finally, financing could be a barrier for sustainability, since the upfront costs of solutions driven by science, technology and innovation could be higher even though they could pay off in the long run, as was the case with more efficient energy installations.

15. One speaker[5] specializing in urban transport highlighted the issues of congestion, safety, inadequate financing and corruption facing cities of Latin American countries. The speaker proposed avoiding travel when possible, shifting to public transport and improving transport vehicles for more sustainable mobility. Cities needed to be designed in a way that supported pedestrian and bicycle traffic. People were more likely to walk and bike for shorter trips. Integrating different modes of transport was also important. Management technologies for travel demand such as congestion charging, fuel pricing and parking schemes could be useful to discourage automobile dependence. The three main objectives of transport planning in cities should be enabling equity in transport, facilitating access and increasing safety.

16. One speaker[6] provided information on how education and environmental awareness campaigns run by the speaker's non-governmental organization in Cajamarca, Peru, improved recycling and waste collection, and helped recover dump areas. The non-governmental organization worked closely with ministries and municipalities, which put into effect relevant laws and incentives on sustainable waste management that strengthened the impact of awareness and capacity-building campaigns.

17. Another speaker[7] proposed several technologies for urban farming as a livelihood/survival strategy for developing country cities. The lack of legal and institutional frameworks, quality planting material and seed production facilities, services and financing opportunities and access to soil, land and water, as well as the difficulty in accessing urban food chains, were the main challenges of urban agriculture. Several countries such as Argentina, Brazil, Colombia, Egypt and the Democratic Republic of the Congo had policies to integrate urban and peri-urban agriculture into urban planning.

18. Another speaker[8] emphasized the need to conduct city-driven socio-environmental research for more informed public policies. The impact of urban ecology (flora and fauna)

[4] Ms. Elizabeth Deakin, University of California at Berkeley.
[5] Mr. Carlos Felipe Pardo, Fundación Despacio.
[6] Ms. Albina Ruiz, Healthy City Group.
[7] Mr. Alberto Pantoja, Food and Agriculture Organization of the United Nations.
[8] Mr. Vladimir Gil, Catholic University of Peru/Columbia University.

on human health was one policy issue for such research. There was also a need to monitor water, air, sound and soil quality and to establish early warning systems for extreme events that would then be made available at the level of subnational governments. The speaker presented a study that assessed lead exposure from soil in Peruvian mining towns as an example of research that supported informed decisions on planning and public policy. There should be an emphasis on government funding, while alliances with universities and municipalities were necessary for conducting relevant applied research.

19. Another speaker[9] discussed ways to establish "innovation ecosystems" that built capacity in science, technology and innovation for sustainable urbanization. Rising income and population in emerging markets would lead to unsustainable resource shortages (water, air, food, energy, health care) if consumption patterns remained the same. Integrating both high and low technologies into a working system of solutions was key for sustainability. The speaker emphasized the importance of financing to deploy existing technologies and gave the example of the Little Rock Accord, signed by the Club of Madrid and the P80 Group Foundation in December 2012, which aimed at mobilizing pension and sovereign wealth funds for investment in technologies that addressed climate change and resource shortages. Four broken circuits of innovation also needed to be taken into account:

(a) Technology did not solve problems unless it moved from inventors to beneficiaries;

(b) Pilot projects did not provide benefits unless they were scaled up;

(c) The availability of finance did not solve problems if finance was not directed at scaling up successful pilot projects and moving technical solutions to beneficiaries;

(d) Patent holders, inventors, entrepreneurs and foundations could not solve global problems from a single location. New business and financing models were needed to apply technology in different locations.

20. Following presentations highlighting sectoral issues such as transport and waste management, one speaker[10] provided an economic perspective on the topic. Rising incomes and the concomitant, concurrent increase in consumption were more important issues than rising populations. In the context of scarce financial resources, it was important to undertake a valuation of the social/private benefits and costs of each urban sustainability measure, since there would always be groups that opposed them. Incentive structures needed to be put in place to relax financial and managerial resource constraints, thereby reducing the cost of solving urban problems. For instance, resources such as water for agriculture needed to be priced at the right level so as to prevent irrational consumption.

21. Urban planning had to deal with the consequences of poverty, such as the growth of slums. In terms of technology in the buildings sector, thinking had to go well beyond "greener" buildings and focus on how to provide affordable shelter to address the shortage of buildings, taking into consideration as well the potential of public–private partnerships.

22. The speaker also provided some statistics on infrastructure and urban density to demonstrate the importance of urban public policy for economic growth:

(a) According to the World Bank, in Latin America, if the infrastructure levels of countries were to rise to the levels of Costa Rica (which was currently leading in the region

[9] Mr. Alfred Watkins, Global Innovation Summit.
[10] Mr. Miguel Palomino, Peruvian Economy Institute.

in terms of city infrastructure), the annual growth rates of gross domestic product (GDP) for these countries could improve by between 1.1 and 4.8 percentage points;[11]

(b) The Federal Reserve Bank of New York had identified that duplicating density in a city increased productivity by between 2 and 4 per cent.[12]

23. One speaker[13] provided comprehensive feedback on the paper prepared by the CSTD secretariat on this theme, making the following observations:

(a) Growing wealth in developing countries was a key issue in terms of the sustainability of cities, as was the case for growing population.

(b) Science, technology and innovation in the context of cities included low technology as much as high technology solutions. For instance, biking was one of the most sustainable means of urban transport as it consumed the least amount of energy in comparison to walking, subways, buses and cars.

(c) Design was a critical aspect of sustainable cities. It had to be in harmony with engineered systems in order to make cities attractive for living.

(d) Intersectorality was a key component of designing and building sustainable cities.

(e) Cities were dense environments where interaction between people led to greater innovation.

(f) Cities underwent constant urbanization and often also reurbanization in many developed countries.

(g) Accelerating inter-city learning could lead to positive results. For instance, the development of bus rapid transit in Curitiba, Brazil, led to the same system being implemented in cities across the world.

24. Another speaker[14] presented urban trends and forecasts on Latin America and the Caribbean. The region was experiencing high levels of urbanization. The importance of urban areas was growing continuously in the macroeconomic context of countries in the region. In 2015, there would be nine megacities in the region with a population of more than 5 million people. At the same time, an increasing number of people were living in slums. The United Nations Economic Commission for Latin America and the Caribbean (ECLAC) had developed an urban road map that proposed a series of fiscal, regulatory and technological measures as a way to achieve green growth in the region's cities and allow for the development of urban green economies.

Discussion

25. Participants mentioned that the discussion on the theme as well as future reports should focus more on the needs of developing countries and especially least developed countries (LDCs). In view of the growing population of slums, it was important to identify ways to improve the lives of those living in slums. It was imperative to address underlying socioeconomic factors, such as land values and the maintenance costs of buildings, that made it difficult for populations in developing countries to sustain their livelihoods in cities. Sustainability needed to be promoted through targeted policies.

[11] http://elibrary.worldbank.org/content/workingpaper/10.1596/1813-9450-3400.
[12] http://www.newyorkfed.org/research/staff_reports/sr440.pdf.
[13] Mr. Peter Engelke, The Atlantic Council.
[14] Mr. Ricardo Jordan, ECLAC.

26. One participant drew attention to a study conducted in Europe on the concept of "Smart Cities" which focused on six characteristics: economy, people, governance, mobility, environment and living. The underlying requirements to put in place innovation models in developing countries should be studied in greater detail, including aspects of funding, long-term planning and networking. Another participant provided information on the application of the Smart Cities concept in the Philippines, which together with the Smarter Countryside initiative formed a development programme to leverage technology and innovation for enhanced quality of life and inclusive socioeconomic development in the country.

27. Another participant underlined the importance of looking at urban and peri-urban zones holistically, since peri-urban zones were key resource providers of cities. Urban health and safety issues were other important topics of discussion for sustainable cities, including cook stove technologies, air and noise pollution which resulted in diseases. Changing the behaviour of populations through education, for example, to reduce dependency on automobiles was also a key issue in which universities should be closely involved.

28. One participant pointed out the importance of learning from traditional methods for sustainability, such as local water management systems where water was treated as a commodity that could be rented, sold, owned and traded. Another participant supported this point of view by stressing that cities needed to put in place a culture of science that made use of local and indigenous knowledge.

29. One speaker confirmed the need for urban planning at the regional level, especially in the context of developing countries where so-called "floating families" lived in informal peri-urban settlements but worked in downtown urban zones. Technologies such as open source software and cheap mobile phones could enable the participation of all stakeholders to provide inputs into broad, regional planning. Other speakers stressed the role of education, the need to address corruption, as well as technology transfer and technical cooperation between countries. Participants acknowledged the importance of bilateral cooperation between countries as well as public–private partnerships for greater access to technology.

30. Another participant mentioned three trends that should be taken into account when designing future cities:

(a) The implementation of new technologies should draw from research on market trends. For example, young people today were less interested in owning a car than previous generations.

(b) Since a high level of economic activity was taking place in slums, they should not be excluded from urban public services.

(c) Technology, and especially information and communication technologies (ICTs), were creating labour market shifts and resulting in increased self-employment and working from home.

31. Several participants pointed out that science, technology and innovation was needed to cope with different types of urban vulnerability, including earthquakes and the effects of climate change such as droughts that resulted in displacement of people. Financial and technological limitations needed to be overcome through political will and technical cooperation that helped improve resilience.

32. Finally, one participant raised the issue of governance as a key factor and mentioned that in Brazil a Ministry of Cities had been formed in 2003. In some cases, the simplest technology could be the best solution, as in the case of use of text messaging (i.e. SMS) for the early warning of citizens about natural disasters which had dramatically reduced the

number of deaths. The participant also provided information on the widespread use of biofuels for mobility in Brazil and an affordable housing programmes launched by the Government.

IV. Theme 2
Internet broadband for an inclusive digital society

33. The CSTD secretariat[15] presented a paper on the second priority theme. The presentation noted that there had been a precipitous growth in broadband networks and services over the past decade. This growth had been sparked by a combination of continuing rapid technological development across the ICT landscape and a commensurate, spectacular rise in popular applications and services.

34. There had been continuous mass transformation in the market for end user devices that connected to broadband networks. The separation between computers and phones had become entirely obsolete and the range of consumer and business equipment that could connect to the Internet continued to expand.

35. The disparities between LDCs and the rest of the world in terms of Internet penetration were clear, with only 6 per cent of populations in LDCs online as of 2011. This proportion was expected to more than double by 2015, but the absolute gap with higher income countries was likely to grow even further.

36. Recent research and reports had shown a positive correlation between broadband penetration and income growth. Broadband deployment could produce economic benefits such as output and employment growth, consumer surplus and firm-level efficiencies.

37. Beyond its economic impacts, broadband ICTs also produced social benefits that were valuable. Important social benefits could be found in the areas of education, health care, gender equality, indigenous cultures, information access, e-government and political activism.

38. True access to broadband was measured by the usefulness of such access to end users – individuals, households, businesses and institutions – and the specific activities that they were able to accomplish by utilizing broadband communications. Therefore, it was important to understand the features and components of what had been called the broadband ecosystem, namely, the interrelated elements that must be in place at multiple levels for broadband services to deliver their potential. The main components of this ecosystem were public policy and regulation, infrastructure and services, devices and applications, finances and human resources.

39. Despite the fact that there was wide recognition among stakeholders about the importance of expanding and accelerating broadband ICTs in developing countries, there was a series of challenges that hindered such growth and needed to be addressed. These challenges required intersecting responses, encompassing the full spectrum of the ecosystem's components. Some of the main barriers to the development of ICTs were high cost of capital investment in infrastructure, low revenue potential, low demand from users and lack of awareness, skills and training on the use and value of broadband.

40. It was possible to classify emerging international trends in broadband development policies in order to address these challenges under four categories: (a) enacting a national broadband policy framework and ensuring coordination; (b) promoting market-based

[15] Represented by consultant Mr. David Townsend, UNCTAD.

development; (c) promoting policies focused on augmenting market forces beyond the market; and (d) ensuring policies oriented towards enhancing broadband value.

41. A comprehensive strategy framework for promoting national development of broadband-based ICTs must take into account multiple interrelated concepts such as building upon a clear and shared understanding of principles and concrete objectives, and creating, planning and implementing through a shared vision and the coordinated initiatives of a wide range of stakeholders. Strategies should also go beyond policy foundations to identify tasks, activities, targets, responsibilities and time frames in which to achieve concrete results.

42. One speaker[16] made a presentation on the topic of broadband for an inclusive digital society. Among the salient points noted were the following:

(a) The current development of the Internet backbone allowed the expansion of broadband in all countries. The number of Internet users had expanded from 361 million to 2.4 billion worldwide in the last 12 years. There had also been an important growth in terms of the number of users in regions such as Africa, Latin America and the Middle East;

(b) The shift made in the debate on the digital divide from access to actual use of the Internet;

(c) The WSIS Forum had been the first global intergovernmental forum where Internet issues had been addressed in a multi-stakeholder setting and first principles had been agreed;

(d) The need to bridge the broadband divide because of the increasing contribution of broadband to education. It was now clear that in order to ensure that the use of ICTs in the classroom led to improvements in teaching and learning outcomes, a more comprehensive ecosystem that went beyond infrastructure was required to include appropriate teaching methodologies, skilled teachers and adapted teaching and learning materials conducive to ICTs.

43. One participant mentioned that although the role of universities was mentioned in the report, it should be stressed further. Another aspect that should be included in the paper was culture, as museums, libraries and archives should be accessible to the broad population and to developing countries. In addition, freely available data was the next step forward in the World Wide Web. Developing countries should have access to essential research results through open access to data.

44. Another participant noted that it was important to highlight the work of the Broadband Commission for Digital Development set up by the International Telecommunication Union (ITU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The Broadband Commission had prepared several reports and country cases that could enrich the secretariat's paper considerably. It would also be beneficial for the discussion to develop further the topics of education and science, and their relationship with broadband ICTs, in the report.

45. One speaker[17] of the theme presented on the topic of access to broadband, with a focus on demand stimulation strategies. She mentioned that despite the clear benefits of broadband access for development, critical gaps remained that needed to be addressed in order to ensure that the benefits of broadband and ICTs were available to all and were realized. To overcome these gaps, it was crucial to provide an enabling regulatory and

[16] Mr. Jānis Kārkliņš, UNESCO.
[17] Ms. Sonia Jorge, Pyramid Research.

policy environment focused on open markets and fair competition. There were also other barriers such as the cost of devices and services, lack of infrastructure, literacy rates and cultural and social concerns that affected the ability to access and use mobile technology.

46. The speaker noted that while there had been tremendous developments in the sector, particularly with increased access to mobile phones, broadband penetration had a long way to go. In Africa and the Middle East, despite growth in mobile connectivity, broadband uptake would only reach about 8 per cent in 2017, with 2.5G being the dominant technology. In the case of Latin America, mobile broadband penetration was expected to reach 11 per cent in 2017, with fixed broadband at about 15 per cent. In Latin America, although technologies were more available than in other regions, this did not always translate into access and use.

47. Governments across different regions were developing ICT policies and national broadband plans to drive investment and development in this sector. Demand stimulation strategies were critical to ensure the development of digitally literate consumers that were able to afford and use ICT to its fullest potential. Demand stimulation strategies helped affordability through (a) service and device subsidies, and low-cost smart devices; (b) the promotion of public sector demand through e-government services, locally relevant content, universal access funds and ICT platforms across sectors; and (3) the promotion of private sector demand by developing relevant local content and through attractive services, marketing strategies and infrastructure investment.

48. Specific examples of national policies could be found across regions: Rwanda and Uganda in Africa, Colombia and Brazil in Latin America, and Viet Nam and Malaysia in Asia. Using different models and strategies in terms of priorities, scope and funding, these countries were implementing national policies and plans to provide broadband access and build strong digital ecosystems.

49. Policy experience showed that three key focal areas could ensure continued expansion of access to the broadband ecosystem: (a) coherent and holistic national policies and plans with clear targets and strong government commitment, (b) clear regulatory frameworks promoting competition and investment in the ICT sector and (c) coordinated demand stimulation strategies to ensure that consumers adopted and benefited from broadband access.

50. Another speaker[18] introduced the digital broadband initiative for Latin American countries. The digital divide in Latin America was increasingly being affected by access conditions (affordability and price) and effective penetration of broadband. The three main challenges for the development of broadband in the region were low penetration of broadband Internet, high prices for services and devices, and limited digital literacy and scarcity of local content. To overcome these challenges, Governments needed to take action in the areas of development of public policies, implementation of regulatory frameworks to achieve universal access, deployment of infrastructure and strengthening of private and public sector capacities. The interventions should be adapted to the socioeconomic conditions of countries in the region.

51. Another speaker[19] discussed the Internet economy and policies to make it grow. Internet economies were growing, but much of the work in terms of providing suitable policy frameworks still remained to be done. It was important to have policy frameworks that enabled both foreign and sector-based investment. The deployment of infrastructure as

[18] Ms. Claudia Suaznabar, Inter-American Development Bank.
[19] Mr. Patrick Ryan, Google.

well as appropriate strategies that promoted the use of such infrastructure would be critical parameters in ensuring a competitive market.

52. The economic impact of the Internet in 2009 ranged between 3 and 7 per cent of GDP in selected markets. It was expected that greater use and access to the Internet would help create 3.2 new jobs for each lost job in developing countries.[20] The real value of the Internet economy for countries was the contribution it could make to small and medium-sized enterprises.

53. There were specific policies and best practices that could help promote growth. Two examples were Internet exchange points and policies on the right of way. Internet exchange points helped to exchange local traffic. Local Internet exchange points contributed to keeping costs down and to enabling content for users and new industries. Right of way policies could help organize the sharing of infrastructure between competitors.

54. One participant noted that Internet infrastructure was perhaps the most expensive aspect of any broadband plan, making it important to control these expenses. This called for longer term planning for the use of and updates to existing infrastructure and networks to ensure the supply of more complex and integrated services. Without this, the demands of consumers and businesses could not be met.

55. Another participant suggested that since there was an urban–rural gap in terms of access and penetration of the Internet, it would be important to strengthen the synergies of the paper under this theme with the paper on theme 1, science, technology and innovation for sustainable cities and peri-urban communities. The paper should further develop the importance of the Internet for small and medium-sized enterprises, local content and entrepreneurship.

56. Another speaker[21] presented a talk entitled "The global village". Despite the growth in basic connectivity, fast broadband remained out of reach for most people worldwide. A possible mechanism to increase access to the Internet was to improve the frequency allocation of the electromagnetic spectrum. Governments should therefore explore new models for spectrum allocation and regulation.

57. One speaker[22] shared the advances and efforts of Telefónica in connecting Peru to the Internet. There was a penetration gap in the access to broadband Internet in Peru, which was intensified by the geographical characteristics of the country. The penetration strategy of Telefónica to promote access was based on products and services, the transport network, access and applications. The company's network connected all regions, 97 per cent of the counties and almost 30,000 populated centres in Peru, putting special emphasis on connecting distant rural areas.

58. Another speaker[23] presented on the current situation and future perspectives of access to broadband Internet in Peru. In Peru, the penetration rate of broadband Internet varied across the country's departments, from 7 per cent in Lima and Callao to levels below 5.13 per cent in the rest of the departments.

59. To overcome these disparities in terms of deploying infrastructure and facilitating access, the long-term plan of Peru focused on four areas: greater access to broadband Internet, greater competition in mobile telephony, promotion of competition in access to broadband Internet and development of digital radio and television broadcasting services.

[20] www.valueoftheweb.com.
[21] Mr. Paul Mitchell, Microsoft.
[22] Mr. Rainer Spitzer, Telefónica.
[23] Mr. Raúl Pérez Espejo, Ministry of Transportation and Communication of Peru.

The plan also included providing free Internet to schools, health centres and police stations in districts that were below the poverty line.

60. One participant encouraged presenters to also look at the paper in the context of LDCs, especially in terms of ICT infrastructure and how to bridge the gap between developed countries and LDCs in order to enable LDCs to benefit from broadband services. The participant also encouraged the secretariat to consider exploring the provision of services in rural areas in its paper.

61. Another speaker[24] shared progress on ICTs in Rwanda. In keeping with the vision of Rwanda to transform the country into a knowledge-based middle-income country by 2020, several ICT initiatives had already been launched and significantly impacted Rwandan lives in areas such as health, financial services, e-government and agriculture. However, there still seemed to be a substantial urban–rural gap in terms of access to Internet services.

62. The greatest challenge that most developing countries faced in bridging the digital divide was affordability. In the case of Rwanda, though efforts were being made to reduce the digital divide, few Rwandan people could afford ICT services. Despite the well-known benefits of ICTs, in relative terms, countries and individuals suffered from the lack of broadband availability and affordability and the low quality of access. Access to broadband was very expensive in developing countries, especially landlocked countries. Therefore, there was a need to close the gap at both the international and national levels. To enable this, action must be taken at policy level to leverage existing technology, applications and infrastructure for inclusive growth.

63. One participant commented on the development of ICTs in Brazil, noting that Brazil could achieve a share of its policy goals in terms of ICT access well before its policy deadlines. Despite this, the imperative of narrowing the digital divide remained. Brazil was tackling this divide by implementing several initiatives such as investing in broadband infrastructure, establishing market incentives to companies to provide broadband services and promoting ICT capabilities.

64. Another speaker[25] discussed the purpose of broadband, the potential security and privacy problems of the Internet and the potential benefits of sharing information. There were important security and data privacy concerns in relation to the location of servers. First, it was necessary to legalize sharing, which could reduce the digital costs, and then focus on practical issues such as access to broadband.

Discussion

65. Participants debated about questions of price, cost, affordability of broadband services and velocity of connections, and how these aspects hindered universal access. One speaker added that the market was still evolving in defining the business model of broadband services. However, it was important to consider that companies needed to make a profit in order to invest. Another speaker added that since information had a price, someone had to pay for its creation. Thus far the solution had been that revenues from advertisement covered the cost of information; however, there was still no agreement about the sustainability of that model.

66. One participant mentioned that to reduce the digital divide, it was necessary to overcome poverty and inequality between and within countries. Furthermore, to take

[24] Mr. David Rugamba, Rwanda Development Board.
[25] Mr. Richard Stallman, Free Software Foundation.

advantage of broadband development, efforts in education to reduce illiteracy, including digital illiteracy, were needed.

67. Several participants commented on the importance of local content for development. One participant asked about the time lag between broadband investment and local content development, and which should come first. Also, the price of broadband services was a factor that hindered local content development.

68. Participants debated about the measurement of the impact of broadband. Data and methods to evaluate the benefits of broadband were still in development. There was no perfect methodology. One participant suggested avoiding the term "impact" until more appropriate evaluation methods had been developed. One speaker added that quantifying the benefits of ICTs was important to promote public investment in this area.

69. Several participants debated about security issues related to the storage of information on the Internet (i.e. cloud computing), and about the responsibility that Internet companies had in this regard. One speaker added that there should be country- and/or local-specific clouds to store data locally and reduce the risk of unauthorized control over data. Internet exchange points could contribute to this by becoming hosts of domestic clouds. Another speaker added that storing information on the Internet also prevented data loss in case of theft or loss of infrastructure.

V. 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

70. The CSTD Vice-Chair reviewed the CSTD mandate on the implementation of and follow-up to the outcomes of the WSIS in the context of recent Internet-related events and United Nations General Assembly resolutions. The Vice-Chair provided an overall outline of the preparatory process for the ten-year WSIS review (WSIS+10), noting that a decision on the modalities of the review was anticipated in 2013. Possible roles for the CSTD included preparing an overview of the process and a review study. General Assembly resolution 67/195 invited the Chair of the CSTD to establish a working group on enhanced cooperation (WGEC) to seek, compile, and review input from member States and all other stakeholders, and make recommendations, reporting to the seventeenth session of the CSTD in 2014. The Vice-Chair offered proposals for the structure, activities, schedule and meeting method of the WGEC, and noted that the CSTD required additional resources. The multi-stakeholder nature of the WGEC would allow for the discussion of mutually agreed topics in an open, transparent manner, and making recommendations by consensus.

71. One speaker on this theme[26] introduced the first WSIS+10 review event, scheduled to be co-organized by UNESCO, ITU, the United Nations Development Programme and UNCTAD, and held in February 2013, at the UNESCO headquarters in Paris. The theme of the event would be "Towards knowledgeable societies for peace and sustainable development" and it would review emerging trends in the information society. The outcome of the event would not be negotiated but developed in a collaborative way with all stakeholders. All stakeholders would be involved and invited to the event. Multi-stakeholder recommendations of the WSIS+10 review in Paris and the event to be led by the ITU in 2014 were expected to feed into the overall WSIS review process. The 195

[26] Mr. Jānis Kārkliņš, UNESCO.

member States of UNESCO would examine the recommendations in the UNESCO field of competence at its thirty-seventh General Conference to be held in November 2013.

72. Another speaker[27] described a range of activities conducted by ITU related to the implementation of and follow-up to WSIS, including the WSIS Forum 2012 and preparations for the WSIS Forum 2013. ITU activities in measuring the information society included the maintenance of the ICT Development Index and the ICT Price Basket, and the organization of several related meetings, as well as contributions through the Partnership on Measuring ICT for Development, which monitored 10 WSIS targets and 49 indicators to assess the global information society. The ITU plan of action for the WSIS+10 review had started with the WSIS Forum 2012 and was continuing with the ITU annual reporting to the CSTD and subsequent WSIS forums, as well as the ITU contribution to the WSIS+10 event to be held at UNESCO headquarters in 2013. ITU would host a high-level meeting on the overall WSIS+10 review in 2014 and report on the outcomes of the overall review process to the eighteenth session of the CSTD. ITU expected outcomes of the WSIS+10 review to include a negotiated forward-looking outcome which would set an agenda beyond 2015, as well as several evaluation and assessment reports. ITU had prepared templates for action line facilitators and country reporting. Other stakeholders were also organizing themselves already, such as the Association for Progressive Communications, which was preparing a review of civil society and the impact of WSIS processes, and of the role of ICT use in enabling the acceleration of WSIS outcomes.

73. One speaker for this theme[28] commented on the overall WSIS+10 review, proposing that it should go beyond counting indicators like subscribers and projects, and towards measuring the various societal impacts of ICTs and providing an aspirational vision. The information society was about human development, not technological development. The pace of ICT adoption in the world today was faster than the adoption rate of any other type of technology. As the role of business now dominated the Internet, the review should properly include those dimensions, and with ICTs changing so quickly, the review should not measure how far we had come from the past but rather how we were heading to the future, emphasizing the human impact.

74. One speaker for this theme[29] recalled the WSIS Internet governance principles: Internet governance should be multilateral, transparent, democratic and multi-stakeholder in nature. This multi-stakeholder nature should be applicable to the broad concept of Internet governance and not only exclusively to Internet critical resources. This multi-stakeholder nature as an Internet governance principle had been a part of the Internet Corporation for the Assignment of Names and Numbers since 1998, predating the WSIS debate in 2003, and it was still relevant today. Substantial progress had been made since 2003. When Internet governance entered the agenda of Governments, many Governments did not have a strong position on these issues. Since its creation, the Internet Corporation had acknowledged an enormous responsibility in managing these critical Internet resources and coordinating addresses and the domain name system at the global level. The speaker advocated that all of these issues should be treated in a multi-stakeholder model, in a bottom-up and consensus-driven approach. There were successful national multi-stakeholder models, with the principle of multi-stakeholder Internet governance being embraced by Governments such as that of Brazil.

[27] Mr. Jaroslaw Ponder, ITU.

[28] Mr. David Souter, ICT Development Associates.

[29] Mr. Rodrigo de la Parra, Internet Corporation for the Assignment of Names and Numbers.

75. Another speaker for this theme[30] reported that Latin America was an emerging market for ICTs and represented a high percentage of worldwide spending on ICTs, currently growing at a rate of 8 to 9 per cent. There was a critical mass in use and development of ICT applications in Latin America and several activities were under way in support of WSIS follow-up, further supported by work from a joint project between ECLAC and the European Commission. ECLAC contributed to the work of the Partnership on Measuring ICT for Development. ICTs were a key element to support social inclusion in Latin America. During the last decade, Latin America had made strides in the reduction of poverty, but still faced challenges in terms of productivity, innovation and knowledge creation. Currently ECLAC and the European Union were working on a plan of action for Latin America and the Caribbean, known as eLAC 2015, which was in line with the Millennium Development Goals and WSIS. The plan's long-term vision, towards 2015, stated that ICTs were tools for economic development and social inclusion. ECLAC acted as the technical secretariat of this regional plan of action, monitoring advances, publishing information bulletins and exchanging information among the stakeholders.

76. Another speaker[31] noted that the phrase "e-commerce" emerged in the 1990s and that through the WSIS process, we had learned to think differently about social and economic issues and the impact of those issues on all stakeholders. The concept that we must involve all stakeholders was now taken for granted, which represented a phenomenal social change. Businesses were behaving differently in their interactions with governments, intergovernmental organizations and regional groups. Businesses were working at the national level on national broadband strategies, and were also working at regional and global levels. National and regional initiatives under the Internet Governance Forum had emerged alongside an increased demand for more spaces to talk about these issues and for more meaningful discussion.

77. Another speaker for this theme[32] provided an overview of the Latin American and Caribbean Internet Addresses Registry, which was created by a community of Internet pioneers in Latin America and the Caribbean. The organization had almost 3,000 members including public and private entities, from big carriers to others, which had Internet Protocol addresses directly allocated to them by the Internet Addresses Registry. Policies were defined through a bottom-up system. The Internet Addresses Registry had enhanced cooperation in its own policy development, as it did not distinguish among participants and had allowed for influence and participation by governments.

78. Another speaker[33] said there had been remarkable WSIS achievements and noted the innovation and openness of WSIS. WSIS offered an unforeseen opportunity for governments to learn about and broaden their understanding. The goals of WSIS were ambitious and a multi-stakeholder, cross-fertilization approach was required, as well as improved cooperation among stakeholders, each within their own mandates. The 2005 Tunis Agenda created two tracks – the Internet Governance Forum and enhanced cooperation. While initially separate, there had been increasing convergence between them. Enhanced cooperation took place within and between entities and was a distributed process. The Internet Governance Forum enhanced cooperation and had proven to be extremely useful in national and regional Internet Governance Forum meetings, which had validated the concept of involving multi-stakeholders. It helped governments reach better decisions, involving relevant stakeholders.

[30] Mr. Mario Castillo, ECLAC.
[31] Ms. Marilyn Cade, Mcade, LLC.
[32] Mr. Andrés Piazza, Latin American and Caribbean Internet Addresses Registry.
[33] Ms. Constance Bommelaer, The Internet Society.

Discussion

79. In discussing WSIS+10, one participant commented that we should not forget that this was about human development, not about development of technology – the focus should not be limited to the documents from 2003 but should be on what was important now for people in looking to the future. It was important to build to the extent possible on existing mechanisms and structures that were already decided, working, known and familiar, and not try to "reinvent the wheel" or create duplicate processes or inefficient structures. We were not at the same point as we were in 2003. We had established structures that worked with the WSIS Forum, the Internet Governance Forum and the CSTD and its mandate, and a set of defined actions by specialized entities and entities outside the United Nations and intergovernmental organizations.

80. Another participant said that for WSIS+10 we needed to anticipate processes and be transparent about who was doing what in the processes, what the contributions were of different entities and how these processes would feed into the final process. While there was important information on the WSIS and General Assembly websites, a more graphic and clearer mechanism could provide a better idea of what was happening. This information, especially regarding the enhanced cooperation process, must be updated online in a clearer way.

81. Several participants recalled that the CSTD had had an important role in the WSIS process since the outset and that after WSIS, the CSTD had had a responsibility to review and assess progress on the implementation of WSIS outcomes at the international and regional levels. They noted that the CSTD was the only United Nations body which had the task of overseeing overall implementation of WSIS outcomes so it must take the task of the overall review seriously and continue assisting the Economic and Social Council in the process.

82. Several participants noted that the decision regarding the WSIS+10 modalities seemed to be late if the overall meeting was to take place in 2014, and asked what could be done now to facilitate this process. They noted that there were only two or three regular CSTD meetings before 2015, which might not be sufficient to give substantial assistance to the Economic and Social Council for the WSIS review. They said it was important that the CSTD prepare, deliberate and make recommendations to the Economic and Social Council at its next session on how the WSIS review could be done reasonably and effectively. Several participants asked whether it would be possible to task the CSTD secretariat already with preparing a high quality review document, similar to the midterm review, which would take into account ICT developments, all contributions received and findings of meetings and reports, including meetings of UNESCO and ITU.

83. One participant noted that having WSIS events in Geneva and Paris prevented participation from developing countries unless there was the possibility of funding participation. Issues related to WSIS follow-up included transparency and democratization in Internet governance. A company registered by the Internet Corporation for the Assignment of Names and Numbers had blocked a number of cultural websites because the Government of the United States of America applied coercive national measures unilaterally. A group of member States, including Cuba and some in Africa and the Middle East, could not access some Google facilities or applications or Microsoft certification.

84. Several participants welcomed the establishment of the WGEC and affirmed the importance of openness and multi-stakeholders, including for the WGEC. One participant recalled that Europe experienced demonstrations regarding the Anti-Counterfeiting Trade Agreement, with the underlying criticism that the process had not been inclusive enough. In the process for the World Conference on International Telecommunications, there had been a strong call from the media and the general public for more transparency and the ITU had

acted upon this. One participant suggested that perhaps at some stage the CSTD could conduct a study on how the WSIS process had affected decision-making in the Internet sphere.

85. One participant, pointing to the Working Group on Internet Governance established under the Secretary-General to deal with Internet governance between the two phases of WSIS, noted that having multi-stakeholders did not simply mean working together. It meant working together on an equal level, which was the case in the Working Group on Internet Governance. Similarly, one participant who belonged to the CSTD Working Group on Improvements to the Internet Governance Forum commented that the wide and diverse composition of the Working Group on Improvements allowed them to undertake their task with wisdom and expertise across stakeholder groups. Like the Working Group on Improvements, with its varied expertise, the new WGEC could achieve its task.

86. Several participants expressed support for the ideas conveyed by the Chair and the Vice-Chair of the CSTD regarding the WGEC, including its proposed composition. Many participants expressed the interest of their Governments in becoming members of the WGEC.

87. Several participants expressed concern regarding the timing and did not want to see time lost in determining the composition of the WGEC, pointing out that the subject and items to be discussed within the group were more important. They noted that the presented model was similar to that of the Working Group on Improvements to the Internet Governance Forum, which had taken many hours to compose. One participant noted that the General Assembly resolution required the WGEC to submit its report at the seventeenth session of the CSTD in 2014. Therefore, to enable the WGEC to be composed quickly, the resolution specifically asked the CSTD Chair to take into account already scheduled meetings, which could be considered to include the intersessional panel as it was the only CSTD meeting on the calendar before the CSTD session in June. The participant felt that the intersessional panel must make progress on the WGEC composition and working plan.

88. Many other participants stated, however, that the WGEC could not be formed until the next CSTD session was held. One participant said that they might be able to decide on the composition, but negotiations on the actual membership could not take place on the Internet and that there had to be consultations at the CSTD. One participant noted that the intersessional panel was an information-sharing and preparatory meeting for the full commission in June; it was not a negotiation session or a decision-making forum.

89. Another participant recalled that in 2010, on the third day of the intersessional panel, there had been a first, informal meeting of the Working Group on Improvements to the Internet Governance Forum and that it was not unusual for an intersessional panel to go beyond preparing and to move things forward. The model for the Working Group on Improvements worked quite well in the end and it was conducted in a transparent and balanced manner. One participant countered that transparency was totally lacking in the Working Group on Improvements. The participant noted that the CSTD was an intergovernmental organization and the resolution clearly stated that the Working Group on Improvements should be balanced between Governments and other entities – they were not equal. The CSTD Working Group on Improvements had “invitees” from non-governmental stakeholder groups that were not equal participants. The participant also noted that invitees should be drawn equally from developed and developing countries and that this was a major problem. There must be some method by which the Working Group on Improvements could collect funds for travel. The Chair’s report of the Working Group on Improvements to the Internet Governance Forum was presented untouched to the Economic and Social Council, as a CSTD document, without being amended by the CSTD and that the delegates were told that the CSTD had no right to change the report. This was not

correct because the CSTD was an intergovernmental organization that should get the views of Governments. There should be real transparency and real consensual recommendations.

90. Several participants felt that the proposed timeline for WGEC composition and meetings was somewhat ambitious and that the Chair should be pragmatic about beginning the process carefully, by seeking inputs on composition and structure from all member States and stakeholders. They noted that for the WGEC to achieve its task, a cautious approach and time were needed to identify relevant experts in the respective groups. Internet governance and enhanced cooperation were very important and had been discussed for more than seven years in the Internet Governance Forum and other forums. The topic of enhanced cooperation was fairly different from improvements of the Internet Governance Forum and would attract more attention from a wider variety of stakeholders.

91. One participant proposed that the secretariat could prepare some type of initial document that could be used for the WGEC. Compiling previous statements and experiences on enhanced cooperation, such as the open consultation held by the CSTD in 2012, could be an initial document for the WGEC. While the formal announcement of the Working Group should be made at the sixteenth session, work could begin before the session. Additionally, the period between the sixteenth and seventeenth sessions should be one of intensive work for the WGEC and it would be necessary to be prepared for the resources that would be required. Regional videoconferences or teleconferences could enable interaction.

92. One participant highlighted the reference to the role of freely available data – open data – in the ECLAC plan of action for 2015. The development in a short time of billions of links could open up real potential for development, as having this data linked was a different approach compared to the web as it was currently. Developments such as linked open data should not be overlooked and should be considered in the future by the CSTD.

93. The Chair of the CSTD distributed a note on the composition of the WGEC, in which he proposed that the WGEC be composed of 22 member States (four per regional group plus the two that had hosted the WSIS), with the invited participation of five representatives each from the business community, civil society, technical and academic community, and international and intergovernmental organizations. The Chair noted that he wanted the WGEC to be established before the sixteenth session of the CSTD. He also wished it to have a Chair in place who could suggest an agenda for the first meeting of the WGEC.

Session on the 2013 Annual Ministerial Review of the Economic and Social Council

94. During the 2012–2013 intersessional panel of the CSTD in Lima, one of the sessions explored issues related to the 2013 Annual Ministerial Review of the Economic and Social Council, which would focus on the role of science, technology and innovation, and the potential of culture, for promoting sustainable development and achieving the Millennium Development Goals.

95. One speaker for this theme[34] noted that the timing of the CSTD intersessional panel marked the commencement of work by the General Assembly to elaborate sustainable development goals. Efforts to accelerate the achievement of the Millennium Development Goals were also an ongoing high priority for Governments and the United Nations system as a whole. Superimposed on these initiatives was an intergovernmental focus on

[34] Mr. Neil Pierre, Department of Economic and Social Affairs, United Nations.

strengthening the Economic and Social Council itself, as the principal forum for collective dialogue on global development challenges.

96. The speaker provided an overview of the national voluntary presentations of the 2013 Annual Ministerial Review, which enabled countries to track their progress in implementing internationally agreed development goals, including the Millennium Development Goals. Four countries – Bulgaria, France, Thailand and Viet Nam – were participating in the national voluntary presentations of the Annual Ministerial Review.

97. The speaker listed the main messages from the intersessional panel and noted that the regional preparatory meetings of the 2013 Annual Ministerial Review, currently under way, were expected to facilitate discussions. The main messages from these regional consultations were expected to feed into the report of the Secretary-General on the Annual Ministerial Review theme and the report of the Secretary-General on the Economic and Social Council and the post-2015 development framework. These processes aimed at strengthening the ability of the Economic and Social Council to provide high-level advice and policy recommendations on science and technology for development and to advance understanding on essential elements on the present global development agenda.

98. Another speaker on this theme[35] presented an overview of CSTD inputs on the contribution of science, technology and innovation towards achieving the Millennium Development Goals for the 2013 Annual Ministerial Review of the Economic and Social Council. Science, technology and innovation had a major role in meeting many of the Millennium Development Goals, including those related to poverty, innovation, employment, education, technology and the environment. The United Nations Millennium Project produced 10 task force reports with 10 key recommendations, two of which were related to science, technology and innovation.

99. The speaker noted that although the CSTD had recommended targeting 1 per cent of GDP for spending on research and development, only a handful of developing countries had been able to meet this target up until now. In fact many countries invested 0.1–0.2 per cent of GDP on research and development. There were many reasons for this, including low human capacity in science, technology and innovation in developing countries and inherent difficulties in countries to ensure immediate returns to their investments.

100. Pointing to the fact that real development had yet to reach the people that needed it most, the speaker also noted the need to explicitly integrate issues of poverty reduction through employment generation, among others, into the discourse on the Millennium Development Goals. More focused science, technology and innovation interventions were required and they must improve the capacity of developing countries to absorb technology and enhance employment in the manufacturing industry. Such interventions could contribute, inter alia, to improvements in agricultural productivity of specified crops.

101. Another speaker for this theme[36] presented issues of science, technology and innovation in Latin America and the Caribbean region. The region had been actively assessing lessons from the past. Macroeconomic performance had been relatively stable, with almost a decade of stable growth accompanied by low inflation and social progress in some areas.

102. Despite this, the productivity gap between the region and developed countries was becoming wider. The region had low levels of innovation, a persistent productivity gap and the most unequal income distribution in world. The region also had low investment and

[35] Mr. Vijaya Kumar, Industrial Technology Institute, Colombo.
[36] Mr. Mario Castillo, ECLAC.

labour market informality, and lagged in science, technology and innovation, education and infrastructure. Current patterns of economic growth in the region were not consistent with sustainable development, particularly since the region had not succeeded in inducing the necessary changes to its production structures, which still remained highly reliant on natural resources.

103. Therefore, in order to move towards productive convergence, policymakers needed a longer term focus beyond the current price boom. Economic policies should be based on a relevant, long-term, sustainable vision at the macroeconomic, productive and territorial levels. To take advantage of the opportunities provided by the international context, exports needed to have a higher value added and knowledge content, with a focus on diversification of production and integration of sustainable production processes. The speaker also called for a re-evaluation of global and regional partnerships and strengthening open regionalism.

104. One participant commented on the experience of Brazil in the implementation of the Millennium Development Goals, mentioning that the process had been subject to evaluation in 2004, 2005 and 2007. A recent initiative that had been implemented at the national level was a website that presented advances in the implementation of the Millennium Development Goals by municipality.[37]

VI. Findings and suggestions

105. The following main findings and suggestions were highlighted by the panel and put forward for consideration by the Commission on Science and Technology for Development at its sixteenth session, scheduled to take place in Geneva, from 3 to 7 June 2013.

A. Main findings

1. Science, technology and innovation for sustainable cities and peri-urban communities

(a) The use of science, technology and innovation in the urban context implies the application of high technology as well as low technology and innovative approaches to urban planning and institutional innovation;

(b) The challenges of cities in developing countries, in particular LDCs, differ widely from those of developed countries and require special analysis in the context of this issue;

(c) Regional planning is a key consideration to ensure that the needs of urban and peri-urban zones are addressed in an integrated way;

(d) An intersectoral approach is necessary for sustainable cities;

(e) Science, technology and innovation are necessary for sustainable urban development, including providing solutions to mitigate the impact of climate change on vulnerable urban populations;

(f) Design and engineering go hand in hand when building cities, along with city planning. Ultimately, cities should be places where people feel comfortable to live in;

(g) Local and indigenous culture and knowledge accumulated through the centuries are crucial in solving local problems. For example, indigenous knowledge can be put into use to construct sustainable buildings or to manage natural resources;

[37] www.portalodm.com.br.

(h) It is necessary to develop business models that scale up technological innovation and make sure that it reaches beneficiaries.

Internet broadband for an inclusive digital society

(a) Broadband penetration and deployment contribute to economic and social development in all countries. There is evidence that economic gains occur at the macro level in terms of GDP growth arising from broadband expansion, while benefits can also accrue at the micro level in terms of productivity gains, employment and firm efficiencies. Important social benefits can be found in areas such as education, health care, information access and e-government.

(b) The debate over the goals for broadband service has evolved from universal access to universal services. However, there are still regions with important gaps in terms of access to broadband services, both between urban and rural areas, and between higher- and lower-income populations. Several factors explain these gaps. Some of the main barriers to broadband ICT development are the high prices of the Internet, lack of an enabling policy environment, elevated costs of infrastructure, low revenue potential and low digital literacy rates.

(c) Comprehensive strategy frameworks for national broadband development must have shared, tangible objectives and be created, planned and implemented using a multi-stakeholder approach.

(d) Coherent and holistic national policies and plans with clear targets and strong government commitment, clear regulatory frameworks and coordinated demand strategies are crucial to ensure that consumers can adopt and benefit from broadband access.

(e) Providing an enabling regulatory and policy environment focused on open markets and fair competition is crucial to ensure the benefits of broadband ICTs.

(f) Literacy, including traditional and digital literacy, plays a decisive role in the penetration and use of broadband access. Therefore, investment in education, with a focus on ICT-oriented curricula, is also critical to benefit from broadband development.

(g) Local content development can strengthen knowledge in communities and can be used as a platform to reach new markets.

(h) The development of an appropriate model of broadband infrastructure is essential to realizing the benefits of ICTs. Financing is a key element in this regard. New business models are required to capitalize on available opportunities.

B. Suggestions

2. Science, technology and innovation for sustainable cities and peri-urban communities

The CSTD should consider the following:

(a) Providing a forum for the sharing of good practices and experience on the use of science, technology and innovation for sustainability in key urban sectors in developing countries with a special focus on LDCs;

(b) Sharing and analysing evidence on successful examples of local innovation models that provide solutions to pressing urban challenges based on science, technology and innovation (including serving as incubators);

(c) Sharing and analysing evidence on business models that scale up these innovative interdisciplinary solutions to city management and provide them to beneficiaries;

(d) Raising awareness among urban policymakers about the role of science, technology and innovation, and of ICTs in facilitating integrated regional planning, spatial design and informed resource consumption.

Member States, especially developing countries, should consider the following:

(a) Establishing governance mechanisms that facilitate integrated, multi-sector and multi-stakeholder urban planning. Urban projects should include participation from departments responsible for spatial planning, mobility, energy use, waste management, environmental protection, buildings and disaster resilience.

(b) Putting in place regulatory frameworks at the national, regional and local levels that mainstream issues of sustainability into urban projects and support business models that scale up innovative solutions.

(c) Encouraging municipalities to join national and international networks of cooperation to learn from best practices in cities of other regions and countries.

(d) Providing support for research and encouraging cooperation with universities and municipalities on the socioeconomic impact of urbanization, in order to support informed public policies.

(e) Analysing market trends on the use and impact of technology and innovation and ensuring that these are taken into consideration when envisaging public policies driven by science, technology and innovation for sustainable cities.

(f) Using ICT-based simulation tools that estimate requirements for future transport, energy, food and water consumption, waste generation and housing in expanding urban areas, as well as taking into account the estimated growth of income.

(g) Establishing regional expansion plans that take into account the estimated demand for basic services and infrastructure of growing populations in cities and surrounding peri-urban and rural zones.

(h) Promoting technologies and business models that scale up affordable, resource-efficient housing for lower-income groups living in slums, as well as new inhabitants of urban areas.

(i) Exploring potential bilateral or multilateral cooperation, especially between municipalities and other types of local government, on improving the resilience of cities and peri-urban areas against natural disasters and the impacts of climate change, for example, with the help of early warning systems.

The international community should consider the following:

(a) Exploring innovative financing models, including the investment of pension and sovereign wealth funds, to promote the greater integration of solutions based on science, technology and innovation for sustainable development and the management of cities in developing countries;

(b) Establishing platforms, such as open repositories, to share experiences and knowledge that addresses the particular urbanization needs of LDCs.

2. Internet broadband for an inclusive digital society

The CSTD is encouraged to take the following steps:

(a) Provide a forum for the sharing of best practices on the design and implementation of national broadband policies, with special attention to using comprehensive and multi-stakeholder approaches during all stages;

(b) Share and analyse evidence of best practices oriented towards reducing the urban–rural gap in broadband access in developing countries;

(c) Share and analyse policies and best practices aimed at reducing the digital divide in countries, especially in LDCs and landlocked developing countries;

(d) Raise awareness about the importance of local content development to take full advantage of the opportunities offered by broadband ICTs, especially in terms of small and medium-sized enterprises and entrepreneurship.

Member States are invited to consider the following suggestions:

(a) Consider a multi-stakeholder approach in developing national broadband plans. These plans should include clear definitions about roles and responsibilities, especially those of Governments.

(b) Develop coherent policy and regulatory frameworks to promote competition and investment in the ICT sector focused on achieving access to and affordability of broadband Internet.

(c) Establish coordinated broadband demand stimulation strategies aimed at ensuring that consumers adopt and benefit from broadband access.

(d) Explore new models for spectrum allocation and regulation. Innovations in this area can contribute to reducing the broadband access gap.

(e) Explore the trade-offs with regard to the security issues of using international servers as data repositories.

(f) Take action at the policy and implementation levels to leverage existing pools of technology and infrastructure to reduce the digital divide at international and country levels.

(g) Put emphasis on education and training policies that allow citizens to access and take advantage of the benefits of broadband services.

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

The CSTD should:

(a) Prepare, deliberate and make recommendations to the Economic and Social Council at its next session on how the WSIS review could be done reasonably and effectively;

(b) Prepare a high-quality WSIS+10 document;

(c) Conduct research about the effects of WSIS on the decision-making process in the Internet sphere;

(d) Elaborate a compilation of previous statements regarding enhanced cooperation that can be used as an initial document for the WGEC;

(e) Consider holding regional videoconferences or teleconferences to enable interaction during the WGEC;

(f) Explore the ability of the WGEC to collect funds for travel;

(g) Consider linked open data and similar developments.

Annex

List of participants

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Mr. Elias Sanchez-Eppler, Economic Officer, United States Embassy in Lima

International organizations

Mr. Janis Karklins, Assistant Director General for Communication and Information, UNESCO
Mr. Neil Pierre, Chief, Policy Coordination Branch, Office for the Economic and Social Council, Support and Coordination, United Nations, Department of Economic and Social Affairs
Mr. Jaroslaw Ponder, Strategy and Policy Adviser, ITU
Mr. Chengetai Masango, Programme and Technology Manager, Internet Governance Forum Secretariat
Ms. Rosa Maria Delgado, International Consultant, World Health Organization

Non-governmental organizations in consultative status with the Economic and Social Council, civil society, the technical and academic community, and business entities

Mr. Rodrigo de la Parra, Vice-President for Latin America, Internet Corporation for the Assignment of Names and Numbers
Ms. Ellen Blackler, Vice-President, Global Public Policy, The Walt Disney Company, United States of America
Ms. Marilyn Cade, Chief Executive Officer, ICT Strategies, Mcade, LLC., United States of America
Mr. Andrés Piazza, Public Affairs Officer, Latin American and Caribbean Internet Addresses Registry, Uruguay
Mr. Ricardo Pedraza-Barrios, Director, Verisign Colombia, SAS, Colombia
Mr. Francisco Leiva M., Consultant, Konsultel, Colombia

Speakers

Ms. Elizabeth Deakin, Professor, Urban and Regional Planning, University of California Berkeley, United States of America
Mr. Carlos Felipe Pardo, Executive Director and Founder, Fundación Despacio, Colombia
Ms. Albina Ruiz, Founder and President, Ciudad Saludable, Peru
Mr. Alberto Pantoja, Regional Office for Latin America and the Caribbean, Food and Agriculture Organization of the United Nations, Chile
Mr. Vladimir Gil, Faculty and Researcher, Pontificia Universidad Católica del Perú and Centre for Environmental Research and Conservation, The Earth Institute at Columbia University, Peru
Mr. Alfred Watkins, Executive Chair, Global Innovation Summit, United States of America
Mr. Peter Engelke, Senior Fellow, Strategic Foresight Initiative, The Atlantic Council, United States of America
Mr. Miguel Palomino, Managing Director, Peruvian Economy Institute
Mr. Ricardo Jordan, Economic Affairs Officer, Division on Sustainable Development and Human Settlements, ECLAC, Chile
Mr. David Townsend, President, David N. Townsend and Associates, United States of America
Ms. Sonia Jorge, Research and Consulting Director, Pyramid Research, United States of America
Ms. Claudia Suaznabar, Senior Specialist, Competitiveness and Innovation Division, Inter-American Development Bank, Peru
Mr. Patrick Ryan, Policy Counsel, Open Internet, Google, United States of America
Mr. Paul Mitchell, Senior Director, Technology Policy, Microsoft, United States of America
Mr. Rainer Spitzer Chang, Director of Wholesale Business, Telefónica del Perú
Mr. Richard Stallman, President, Free Software Foundation, United States of America
Mr. David Rugamba, Head of Strategy and Competitiveness, Rwanda Development Board, Rwanda
Mr. David Souter, Managing Director, ICT Development Associates, United Kingdom
Mr. Mario Castillo, Coordinator ECLAC @LIS2 Project, ECLAC, Chile
Ms. Constance Bommelaer, Director of Public Policy, The Internet Society, France

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Ms. Anne Miroux, Director, Division on Technology and Logistics, and Head of the CSTD secretariat
Ms. Dong Wu, Chief, Science and Technology Section
Mr. Jason Munyan, Associate Economic Affairs Officer, Science and Technology Section
Mr. Tansuğ Ok, Associate Economic Affairs Officer, Science and Technology Section