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I. Chair's summary

Enhancing productive capacities for development, including through strengthened entrepreneurship policies and improved science and innovation policies

(Agenda item 5)

1. The session opened with an intervention by the Deputy Secretary-General of UNCTAD, who said that science, technology and innovation (STI) played a pivotal role in sustainable development and improved human welfare, although the ability of countries to develop, access and use technology remained largely uneven. Thus, it was a key objective for UNCTAD to assist developing countries in harnessing STI. This was pursued through the three pillars of the organization's work. For example, the STI Policy (STIP) Reviews supported capacity-building in STI through an evaluation of national policies and capacity, and contributed to the identification of good practices and the sharing of STI experiences among developing countries, while reports such as the *Technology and Innovation Report 2010* had analysed the role of STI in enhancing food security and the *Information Economy Report 2010* had investigated the potential role of ICTs in creating new livelihoods and enhancing the productivity of enterprises of direct relevance to the poor.

2. Introducing the STI component of the agenda item, the Director of the Division on Technology and Logistics discussed the role of STI in structural transformation and economic development. She explained that, at the same time as knowledge had become more important in terms of production, trade and investment, large gaps persisted between the technological capabilities of developed and developing countries. She went on to emphasize the importance of the systemic nature of innovation and technological learning, and how this was a reason why the concept of the national innovation system increasingly framed STI policies in many developed and a growing number of developing countries. As a consequence, the scope of STI policymaking had expanded considerably beyond research and development. She then explained some specific characteristics of STI in developing countries, such as (a) the role of incremental and routine innovation; (b) the need for absorptive capacities in firms and organizations; (c) the influence of context on innovation and how policies and socio-cultural environments could determine the course of change; (d) the relevance of tacit knowledge; (e) the need to put in place institutional and policy frameworks that supported access, dissemination, adaptation and use of knowledge; and (f) how public policies were crucial in the establishment of such frameworks. The Director suggested what could be some issues to be addressed by STI policies, such as developing human capital, supporting linkages within the innovation system, the commercialization of research, regulatory frameworks, finance and others. It was important that such policies were fully integrated into national development strategies. She concluded her presentation with a reference to the main activities of her Division that aimed at supporting STI policymaking in developing countries, including the STIP Reviews and the analysis work disseminated through the *Information Economy Report* and the *Technology and Innovation Report*.

3. Ms. Julia Lane, Program Director, Science of Science & Innovation Policy of the National Science Foundation of the United States, addressed the question of how to foster innovation ecosystems. An important point was the funding of innovation, both in the sense of priorities and amounts that could assure a positive outcome. Understanding the components of the ecosystem was a first step. To do so, it was necessary to develop a "science of science and innovation policy" that would guide innovation policy. It was also important to assess the gaps in knowledge and develop a road map for action. Coordination

among scientific agencies was needed to reduce duplication of activities and waste of resources. It was also important to discover how investments in science and innovation worked their way through the economy. In addition to policymakers and economists, it was considered beneficial to involve actual scientists and innovators as they had valuable first-hand knowledge to help determine the return-on-investment in scientific research. Metrics were important as was developing a data infrastructure that was targeted at gauging such returns and which could contribute to developing evidence-based policy. Developing metrics required active and relevant partnerships among policymakers, academia and firms. Intellectual property data were still a useful metric as they showed how innovation traveled from research in academia to firms and commercialization.

4. The presentation was followed by reflections on STI strategy development from the perspective of an LDC, by the Permanent Representative of Lesotho. He said that the benefits in terms of technological catch-up of increased participation in trade and investment flows of developing countries would materialize only if they had the human capital and institutional mechanism in place for a national innovation system. UNCTAD's work on STIP Reviews, including in his own country, gave pointed indication on the need to integrate STI into overall development policy, and he listed a number of recommended priority activities and sectors. One particular component was intellectual property policy whereby Trade-Related Aspects of Intellectual Property Rights (TRIPS) provisions were often not fully utilized; the scientific and innovation activities originating in public institutions was another area where more benefits could be derived for developing countries. A number of recommendations were devised, including and highlighting supporting a systems approach to innovation policy. For countries such as Lesotho, which were at the earlier phases of the technological catch-up process, innovation capabilities depended critically on the capacity to establish linkages among the actors involved in the creation, diffusion and application of knowledge within the country, as well as with the rest of the world. UNCTAD had a clear role to play in creating an international environment that enabled and supported the emergence of such linkages.

5. In his presentation on the importance of STI in lower-income countries, the Head of the Science, Technology and ICT Branch, Division on Technology and Logistics of UNCTAD, stressed that it was important to understand that STI cut across all sectors of the economy and that STI had seldom been as vital to economic and social development as they were currently. However, while technology, both traditional and new, offered opportunities for economic and social gains, its growth had been marked by asymmetrical access and use, both within and among nations. Global differences in economic and social well-being could be traced partly to differences in levels and spread of technology. In fact, technology had become the dividing line between development and underdevelopment. And the power of this technology was transforming the world at a rapid speed.

6. Strategically, the underlying principles were not fundamentally different between developed and developing countries. Innovation and research and development (R&D) were inextricably interlinked and without a critical mass of STI capacity to undertake both R&D and innovation activities, the STI cycle would underperform with detrimental effects on economic growth. The Head of the Science, Technology and ICT Branch explained the different kinds and levels of technological capabilities that developing countries needed to achieve. He explained how the STIP Review process addressed, on a country-case basis, many of the policy challenges that the STI issue brought with it and listed recent policy reviews and general conclusions common to most of them. The most frequent policy action recommendations were related to improving political support, improving funding and supporting the development of STI hubs and technology parks, all in partnership and with improving linkages among all STI stakeholders, and necessarily with a national innovation systems approach.

7. In the discussion that followed, the delegations of Ghana, the Dominican Republic and Peru shared their experiences in the implementation of STIP Reviews and expressed their appreciation for the support they had received from UNCTAD through this programme, and the delegation of Rwanda officially formulated a request for the implementation of a STIP Review in their country. Some delegations invited development partners to consider supporting this programme as part of their contribution to the technical cooperation activities of UNCTAD. It was also suggested that, since several Latin American countries had recently undertaken STIP Reviews, UNCTAD could organize a regional event to identify possible areas in which STI cooperation at the regional level could be enhanced.

8. The discussion underlined the universal need for STI policy and activities in order to achieve development. A question was raised about the direction of causality between development and STI activities. Another question concerned the possibility of replicating the system approach as described in the presentation by Ms. Lane. On the question of increasing productivity in developing country firms, the fundamental problem was that the poor were often not included in the consideration of STI policy. The fundamental question was: how do the poor innovate themselves out of poverty? Another question was about the strategy for implementation of STI policies – these were often left on paper, without practical consequences. Finally a comment was specifically related to the role of STI in developing disaster resistant infrastructure.

9. The UNCTAD secretariat underscored that three issues were underlying the noted questions. The first was the need to integrate STI into overall development policy. The second was the awareness that sustainable development was strongly based on STI. Finally, it was imperative that STI policy and institutional capacity-building needed to receive high priority, as it was a critical component for improving the absorptive capacity for technology.