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**Economic developments and challenges in the ECE region:
the role of innovation in creating a dynamic and competitive economy**

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Note by the secretariat*

I. Background

1. The rules of procedure of the Commission require basic documents to be prepared in relation to the agenda items, as appropriate. This document is being submitted to support the discussion under agenda item 3 “Economic developments and challenges in the ECE region: the role of innovation in creating a dynamic and competitive economy”. The discussion is also expected to provide inputs for the 2013 ECOSOC Annual Ministerial Review, which will be considering the theme “Science, technology and innovation and the potential of culture for promoting sustainable development and the achievement of the MDGs”.

II. The importance of innovation: rationale and scope

2. In modern, competitive economies, knowledge-based innovation is the foundation for economic development. Sustained growth and improved living standards can only be obtained by increasing productivity and introducing new and better products and services that compete successfully in the global market.

3. Innovation is also critical to address long-standing and emerging environmental and social challenges. Science, technology and innovation (STI) can contribute to find cost-efficient and eco-innovative solutions to address these challenges, while creating new business opportunities for the private sector. STI can therefore play an important role in relation to the three interconnected economic, social and environmental dimensions of sustainable development.

* This document has been submitted after the official documentation deadline due to the need to await the completion of the intergovernmental process of the Executive Committee.

4. The successful promotion of innovation requires a cross-sectoral approach to coordinate a wide range of initiatives in key areas such as research, education, transport, infrastructure, competition, labour markets and others. Innovation policy is also gaining a more global outlook, partly due to the recognition that some of the challenges facing the successful promotion and diffusion of innovation are too large to be solved at the national level and would be better addressed multilaterally, including at the regional level.
5. Innovation can take place in many different sectors, including services, and is not necessarily technology-based. New organizational forms, business models and marketing methods are also relevant forms of innovation. For economies that are not at the “technological frontier”, innovation includes also the use of technologies and production methods that have been created elsewhere.
6. Innovation policies that are narrowly focused on high-technologies and manufacturing would miss out on opportunities existing in other areas, which could be more relevant and appropriate for emerging countries. Cross-sectoral links are important, as innovations can have an impact on sectors different from those where they were originated. At the same time, developing commercially successful innovations may also require cross-sectoral collaboration.
7. While innovation takes place mainly at the firm level, the public sector plays an important role in creating an environment conducive to innovation, including through the provision of key public services, such as education and transportation. There is also a growing interest on how innovation, particularly non-technological and process-oriented innovation, can contribute to improve the quality of public services and increase the efficiency of public institutions.
8. The deployment of technological innovations may be challenged by well-established institutions and management practices in the public sector that are based on previous technologies. Overcoming these barriers requires political will and strategic thinking to find the appropriate balance when reforming these management frameworks.
9. Technological change and innovation, which are sought as a solution to specific problems, may have also unintended consequences. These may include, for example, the income distribution implications of innovations that reduce the demand for unskilled labour or the impact on fiscal revenues of a shift towards environmentally friendly vehicles that reduce fuel use.

III. The role of innovation in the development process

10. Innovation is not only a policy concern for the most advanced economies. Science, technology and innovation can play a vital role at all stages of economic development to generate innovative solutions to long-standing development problems and, thus, contribute to economic growth in all countries. Different stages of economic development, however, require different types of innovation. In developing economies, for example, non-technological innovation and/or the innovative use of existing technologies to address specific development problems can be more relevant than access to the newest technologies. In many cases, these countries can avoid the negative impact of technology lock-in on innovation, avoiding being hostage to inferior technologies, and leapfrogging in their economic development.
11. The generation of new knowledge and technologies continues to be heavily concentrated in a few highly developed economies. The potential for their diffusion, however, has increased considerably as a result of removal of trade barriers, capital mobility and faster circulation of information across boundaries thanks to advances in

information and communication technologies (ICT). Access to knowledge and technology, however, does not automatically lead to successful innovation.

12. The experience of some developing countries suggests that while economic openness offers opportunities for technological catch-up by providing access to global innovation networks, this is not sufficient to improve innovation performance, especially when patterns of specialization are dominated by low-technology products. Comparative studies suggest that external spill-overs from foreign direct investment (FDI) and trade, which are major channels for technology transfer, are not sufficient to lead to successful innovation unless they are accompanied by supportive measures to increase in-country innovation capacity.

13. Innovation depends both on access to knowledge and technology and the national capacity to make the best use of them including through their adaptation to national circumstances. Investments in absorptive capacity – notably investments in human capital, infrastructure and applied research and development (R&D) – are critical to enable countries to use foreign technology and knowledge and successfully turn them into innovations.

14. Creating innovation capacity has been part of the development strategies of successful emerging countries. It is important to create these capabilities early to facilitate catching-up. Innovation matters at all stages of economic development. Building innovation capacity should therefore be an integral part of the development agenda. Governments need to build human and institutional capacities for broad-based innovation, including non-technological aspects, and create framework conditions that enable innovators to prosper and make positive contributions to the social, economic and environmental well-being of a country.

IV. Economic crisis and innovation

15. The current economic climate, characterized by increased uncertainty and tighter financial constraints, has negatively affected business innovation and R&D spending in most countries. The decline in FDI has also undermined an important channel for the diffusion of technology across borders and potential source of innovation.

16. Financing constraints remain strong, both in the public and the private sectors. The priority attached to fiscal consolidation has reduced the scope for policy interventions, so that some countries have reduced their expenditure on innovation at a time when the private sector remains weak. Moreover, long-term trends such as an ageing population will further increase public expenditures on pension and health care, limiting the ability of governments to invest in drivers of long-term growth. This economic outlook has stressed the importance of using resources more effectively and emphasized the importance of process-innovation as a way to improve efficiency in the private sector and to increase the return on innovation spending in the public sector.

17. Despite the overall negative influence of the financial crisis, innovation remains high on the policy agenda. Future innovation performance will depend on overall economic conditions and the reduction of uncertainty but also on the policy priority attached to innovation. Some structural reforms carried out as a response to the crisis, including in the area of competition, are likely to have positive impact on innovation.

V. Innovation policy: framework conditions and instruments

18. Framework conditions are a major influence on the effectiveness of innovation policies. In particular, the existence of a vibrant entrepreneurial culture and the absence of barriers to entrepreneurship contribute to high rates of innovation. Small and medium enterprises (SMEs) are significant drivers of economic dynamism but face particular difficulties to access finance and develop appropriate skills. Creating an environment where these enterprises can flourish is a major challenge and policy concern.

19. Innovation takes place within global value chains. Therefore, openness and access to innovation networks are important for technological learning. ICT have a particular significance as general purpose technologies that make the adoption of new business models possible and create opportunities for connecting with and tapping into new sources of knowledge.

20. Policymakers use a variety of mechanisms to overcome barriers to innovation. Traditionally, innovation policies have relied on supply-side instruments that seek to increase R&D spending, improve the availability of finance or develop a supporting infrastructure. Currently, there is an increased awareness of the importance of using policy tools to create demand for innovation and reduce uncertainties that prevent the emergence of such demand. This demand-side approach is particularly important in the current economic conditions, which are still characterized by a high degree of uncertainty, and is consistent with the objective of finding solutions to specific environmental and social problems.

21. In both developed and emerging markets, supply-side, technological-push solutions are insufficient to bring about technologically superior solutions that, at the same time, are widely used. There is also a need to encourage demand for these technologies. This could be achieved through a variety of means, including the introduction of standards to define specific requirements for products and services. The regulatory process can also contribute to generate a credible demand for innovation, which is essential to encourage its onset and facilitate its commercialization. This is especially the case for environmental innovation. Public procurement can also play a critical role in stimulating innovation, if it fosters the demand of products and services that are beyond conventional specifications and helps innovative solutions become commercially viable.

VI. Collaboration and innovation

22. Increasingly, innovation policy instruments seek to encourage collaboration between various stakeholders, which is seen as an important factor in promoting innovation. Collaboration and linkages between the science and the business sector, or between large and small and medium enterprises, are especially critical. In an “open innovation” environment, access to external sources of knowledge also contributes to successful outcomes.

23. There is also a wide recognition that structured and long-term collaboration between the public and the private sectors is necessary to foster innovation. The current financial constraints have attracted more attention to the importance of public-private collaboration.

24. The private sector can contribute to develop key elements of a competitive economy, such as a well-developed infrastructure, through effective public-private partnerships. The public sector can help the private sector to overcome the coordination problems that would otherwise prevent the formulation of strategic plans to enhance competitiveness. The policy challenge is how to facilitate the convergence between public and private interests. An effective dialogue between the public and the private sectors can provide important

information inputs to shape public interventions seeking to promote innovation-based competitiveness.

25. The relevance of publicly-financed research to business needs and the ability to influence private research agendas to incorporate public goals require close collaboration between the public and the private sectors. Current trends show that a growing share of public funding for R&D is being channelled through various forms of collaboration between the public and the private sectors. Effective diffusion of new technologies throughout the economy, which is a key dimension of technological upgrading, is facilitated by closer collaboration with the private sector, leading to enhanced innovation competencies in firms and stronger linkages within innovation systems.

26. Collaboration takes various forms and concerns a widening range of actors, including users, public sector organizations and civic associations, in addition to private businesses as the traditional partners. Complex forms of collaboration are emerging that create a challenge for governance and require new organizational forms.

VII. Innovation and structural change: “smart specialization” strategies

27. The collaboration between the public and private sectors is a key element in the design and implementation of innovation-based strategies to promote changes in the sectoral productive specialization towards higher economic diversification and added-value activities with growth potential. These “smart specialization” strategies, which are being pursued at both the national and subnational levels, focus on specific sectors, which are considered particularly important to increase competitiveness.

28. Typically, patterns of productive specialization dominated by primary products are considered less conducive to innovation. There are, however, examples of countries that have developed strong innovation capabilities from a primary product base, underlining the importance of having a broad view of innovation.

29. Innovation-based strategies differ from the old industrial policies of “picking-up winners”. The emphasis is placed on the public support to a process of entrepreneurial discovery that leads to the emergence of new comparative advantages on the basis of existing strengths and collaborative efforts between different stakeholders. In this process, the returns that could be captured by individual entrepreneurial pioneers are limited, so investments would be low in the absence of public backing. A number of complementary activities may also need to be developed simultaneously. These are beyond the reach of the individual entrepreneur and require targeted interventions where the public sector provides the necessary strategic guidance and helps to mobilize different private sector participants.

30. The challenge is how to support activities with growth potential and facilitate restructuring rather than preserving artificially the viability of sectors that show little future. This requires a stronger emphasis on competition and entrepreneurship. In order to ensure sustained and sustainable growth, the public sector would also need to incorporate elements that contribute to environmental sustainability and social development in articulating these strategies.

VIII. Innovation and international cooperation

31. Innovation takes place in an international context and, therefore, international cooperation can make an important contribution to support the efforts of policymakers in developing countries to promote innovation. There are multiple areas in which this

cooperation can be beneficial, including the pooling of resources for complex projects, the formation of cross-border networks and technology platforms through which knowledge circulates or the creation of a regulatory environment that encourages innovation. Efforts to address global challenges and meet development goals benefit from international initiatives, at the global, regional and subregional levels, to facilitate technology access, adaptation and diffusion and to improve innovation capabilities in emerging countries.

32. International cooperation provides also ample opportunities for policy learning and exchange of experiences. This is particularly important for new policy issues, where the accumulated knowledge is still limited, or areas where the diffusion of innovation is especially problematic, such as innovation in the public sector.

33. Development assistance needs to consider how to best support developing and emerging countries in their efforts to increase their ability to absorb foreign technologies and strengthen innovation competencies in the private sector, in particular regarding SMEs. This consideration should acknowledge the diversity of situations among those countries and the need to tailor advice to the different levels of institutional and technological development.

IX. ECE activities and innovation

34. The activities of ECE include multiple initiatives that contribute to the promotion of innovation in the region and the sharing of best practices among its member countries. This concerns also innovative practices in the delivery of public services as, for example, regarding statistics.

35. In the area of transport, intelligent transport systems (ITS) are changing the way in which transport is managed through the application of new technologies and the coordination of the efforts of stakeholders. The work of ECE has contributed to the identification of best practices and the dissemination of innovative transport solutions, including through extensive public consultations. In addition, the regulatory work carried out by ECE has addressed different legal and technical aspects related to the deployment of ITS.

36. The work on regulatory cooperation carried out by ECE contributes to reduce uncertainty and the costs of economic interaction, thus facilitating linkages and lowering risks, which supports innovation. ECE initiatives to “green the economy”, increase energy efficiency and encourage the use of renewables rely on the introduction and wide dissemination of new technologies and practices.

37. However, technology is not sufficient to drive successful commercial innovations and, therefore, efforts to address non-technological aspects are important. An example is the acceptance of innovative wood products, which depends on new marketing methods and the collaboration with users in other sectors. ECE activities in this area facilitate cross-country comparisons and bring different parties across various sectors together to encourage change and promote dissemination of good practices.

38. ECE also carries out assessments of innovation performance in countries with economies in transition, which include policy recommendations and follow-up capacity-building activities to support the implementation of these recommendations.

X. Some policy issues for discussion

39. In view of the above, the discussion under this item on the role of innovation in creating a dynamic and competitive economy and the contribution of ECE activities to support this aim could consider the following questions:

(a) Innovation requires a cross-sectoral approach whose impact is greatly influenced by overall framework conditions. What are the most suitable mechanisms to align goals across different areas and facilitate effective cross-sectoral coordination to promote innovation? There are also sector-specific barriers to innovation. How can innovation policy overcome these barriers and contribute to mobilizing the relevant stakeholders to innovate in a particular sector?

(b) How can the collaboration between the public and private sectors be structured to create favourable conditions for innovation, overcome financing constraints and encourage joint research? What can the public sector do to support structural change and encourage the entrepreneurial discovery of new competitive advantages? What are the good practices and lessons learned in the ECE region with regard to effective science, technology and innovation policies to support SMEs? How could these practices be used in other countries?

(c) How can the public sector continue to deliver services and infrastructures that are essential for innovation, given existing financing constraints? How can innovation in the public sector be encouraged?

(d) What lessons can be drawn from international experiences on the use of policy instruments to encourage the demand for innovation? How standards and the regulatory processes can be used to encourage innovation?

(e) What role does economic openness play in innovation processes? What complementary policy measures are necessary for countries to fully benefit from the internationalization of their economies? How can advanced countries support the efforts of emerging and developing economies to build capacities, institutions and competences for innovation? What are the existing experiences on the use of development assistance to support these efforts? How can international cooperation avoid the widening of the technological gap between countries?

(f) What are the multiple roles that international cooperation can play in promoting innovation? How can this cooperation be facilitated, including at the regional and subregional levels? What are the most suitable mechanisms for effective cross-border policy learning?