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FORWARD LOOKING STRATEGY FOR CSTP

FURTHER DEVELOPMENT OF THE PROPOSED MEDIUM-TERM SUBSTANTIVE FOCUS FOR THE COMMITTEE'S WORK

CSTP Extended Bureau Meeting, 21 March
98th Session of the CSTP, 22-23 March 2011, OECD Headquarters, Paris

This secretariat document further develops the forward-looking CSTP strategy which builds on DSTI/STP(2010)16 and incorporates comments expressed by Delegates as well as exchanges with CSTP Bureau members.

Delegates are invited to discuss the proposal, to agree on the main themes to be addressed in the next PWB, and to comment on possible developments under each theme.

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FORWARD LOOKING STRATEGY FOR CSTP

FURTHER DEVELOPMENT OF THE PROPOSED MEDIUM-TERM SUBSTANTIVE FOCUS FOR THE COMMITTEE'S WORK

Background

1. The CSTP is a unique and privileged body within the OECD, because it is devoted to "science and technology (S&T)" policy with particular attention to the role of science and technology policy in innovation systems. The OECD itself is unique, because from its early days, it considered S&T as one of the key elements of economic development.

2. The way we produce goods, provide services, and use them, the way we organise our life and work or conceive new business, every single element of economic and social activities have been drastically transformed by the advancement of S&T. How, today, can we conceive our daily life without any use of ICT and all sensing and control devices? How to guarantee the quality of public health and food security without any use of biotechnology?

3. In this respect, the OECD was visionary. It foresaw these evolutions, that we may qualify as "power of innovation", and its vision is comforted more than ever today, given the gaining political interest in innovation of almost all countries.

4. Since 1972, the CSTP was there to translate this vision in terms of S&T policy, and continues to serve members countries and observer countries by exercising this function.

5. During the preparation of the Programme of Work and Budget (PWB) 2011-2012, CSTP felt the necessity to enhance its capacity to lead policy discussion on science, technology and innovation, and better serve its constituency. Thus, "Towards a Forward Looking Strategy for CSTP" (DSTI/STP(2010)16) was presented and discussed at the 97th CSTP meeting.

6. In line with the objectives in its mandate (Annex 1), recognising that, in recent years, it strongly focused on innovation putting less emphasis on science issues, the CSTP, looking ahead beyond the completed Innovation Strategy and with the aims to better guide the PWB 2011-2011 and better prepare the PWB 2012-2013, expressed its intention to focus more on "science in the innovation system", tracking the evolving needs and priorities of its stakeholders. These include not just government officials, but also research administrators, members of the scientific community, entrepreneurs and other actors in the private sector, as well as members of the public.

7. In response to the Committee's intention, this discussion paper presents ideas for new directions and activities for CSTP and its Working Parties in the domain of science, technology and innovation (STI) policy.

8. In the preparation of the paper, an attempt was made to take into account changes and trends in member country economies, globalisation and the increasing interdependence of economic and societal phenomena worldwide, emerging global-scale challenges, and ongoing priority projects of the OECD.

9. This paper was prepared by the OECD secretariat for the "extended CSTP Bureau meeting" of March 21, 2011 and for the CSTP plenary discussion of March 22. It was prompted in part by the ideas contained in DSTI/STP(2010)16 ("Towards a Forward Looking Strategy for CSTP") and, more specifically, paragraph twenty-four, which summarises the desired strategic shift for CSTP:

> *24. As noted earlier, one issue that has come up in several recent CSTP meetings is what the overall focus of the Committee should be. A number of delegates have suggested that the Committee has moved too far downstream in the innovation process in their policy discussion and that the role of science and science policy are being neglected. This has led to some who call for an increased focus on science policy (and science in policy), and on knowledge as the fundamental currency of growth, with some concomitant reduction in coverage of downstream innovation policy. This all, of course, is within the context of growing opportunities and challenges through globalisation. Getting the balance right in CSTP's coverage of STI policy thus remains a challenge, but with a reinvigorated Committee on Innovation, Industry and Entrepreneurship there may be some opportunity for CSTP to shift their attention somewhat upstream from where they have recently focused, if that proves to be the desire of participating countries.*

Key themes

10. Innovation is a central element of the economy, as a driver of economic growth and as a means to address global and social challenges. Meanwhile, the way innovation occurs has gained in complexity, diversity, inter-connectivity, interdependency among stakeholders, and intertwined global and local links, beyond the linear model of innovation. There is a need to develop a new concept, which would better reflect this changing and evolving nature of innovation. To facilitate the discussion, we may tentatively name it "innovation eco-system".

11. The departure from the linear model challenges policy makers. How to understand the structure and functioning of the innovation value chain? How to identify the role of government and what are appropriate policy tools in this context?

12. To answer these questions, in 2007, the OECD launched a horizontal project on "Innovation Strategy" where multi-disciplinary and multi-stakeholder efforts were mobilised. Its key findings were presented at the Meeting of the Council at Ministerial Level in May 2010. We may retain from the Innovation Strategy that:

- Science and technology continue to be a fundamental constituent of innovation, but non technological components, including design, marketing, organisation, service, are gaining importance in the value chain of innovation;

- More collaborative and concerted ways of conceiving innovation are in place, mobilising universities, public institutions, start-up companies, venture capitalists, NPOs, users and consumers, and forming networks of innovation locally and globally;

- Entrepreneurial individuals are playing a pivotal role by connecting these actors, and catalyzing and accelerating the chain reactions of innovation;

- Knowledge flows and exchanges are greatly facilitated and supported by the information and communication technologies (ICTs) and the Internet, which have become a privileged infrastructure of innovation;

- The global and social challenges we face today require moving beyond existing disciplinary, institutional, administrative borders, sollicitating a better co-ordination and governance of international STI co-operation.

13. Given this framework and based on the expertise of the Committee's members, four themes have been identified as substantive components of the CSTP forward looking strategy:

- *The Role of science in driving economic growth and social welfare.*
- *Collaborative research, knowledge networking and open innovation.*
- *International co-operation in STI for social and global challenges.*
- *Science and technology for Green Innovation.*

Theme A. The Role of Science in driving economic growth and social welfare

Background

14. Nobody questions in our society the importance of science per se, and often its public good characteristics have been used to justify public funding for science. But, beside its primary function of pushing ahead the knowledge frontier, science is gaining in importance as a basis for innovation. Today, beyond the linear model of innovation - a scientific discovery leading to a new product or process, scientific activities interact with different components of the value chain of innovation, contributing to remove technological barriers, to open new technological paradigms, or to create new business opportunities. It is worth noting that this process is not unidirectional. These interactions equip science with new perspectives for scientific development, and also increase the social recognition and accountability of science. There is strong evidence that interaction with science is central to modern innovation, but we need to know more about the functioning of this interaction and to examine its policy implications.

15. From the political perspective too, science is perceived as a driver of innovation and through it, of economic growth, and in most OECD countries, the budgets for science are justified in terms of innovation effects. In the UK the "Science Budget", that is, funding for Research Councils and university science, is roughly ten times the size of funding for the Technology Strategy Board, and roughly four times the size of all innovation instruments combined. The EU in its "Innovation Union" points out that "in times of fiscal constraints, the EU and its Member States need to continue to invest in education, R&D, innovation and ICTs. Such investments should, where possible, not only be protected from budget cuts, but should be stepped up". The same is true of other OECD countries. So there is a need to explore this allocation rationale, its rationale and effects, guiding policy makers in a direction of "evidence based STI policy".

16. Last but not least, society is evolving in terms of its priorities, needs and opinions regarding science, technology, and technology-based products and processes. There is a very large diversity of social attitudes in this domain, both within individual countries, and internationally. This diversity needs to be taken into account when designing optimal strategies for promoting the types of research that citizens want, need, and are willing to support.

Rationale

17. In the US, projects have been already launched in this area, by the National Science Foundation (NSF) in 2005 under the flagship of "Science of science and innovation policy (SciSIP)", and since 2007,

several projects have been funded to explore methodologies to analyse science and technology data, to develop analytical tools and theoretical frameworks, and to create or improve science and engineering data.

18. To accompany the stimulus packages with strong emphasis on science, the project "Science and Technology in America's Reinvestment Measuring the Effect of Research on Innovation, Competitiveness and Science (STAR METRICS)" has been launched in 2009 jointly headed by the Office of Science and Technology Policy (OSTP), the NSF and the National Institute of Health (NIH) with the aim to measure the impact of federal science investments. The Phase I has been accomplished by setting-up an automated data infrastructure to capture the impact of science investments. Opposed to the Phase I, focusing on the "direct" impact, the Phase II, under way, is expected to cover indirect impacts such as scientific knowledge, social outcomes, economic growth, workforce outcomes, but still in a preliminary stage in their development of proof of concept.

19. The Japanese Government is also going to start a new national program on "Promotion of Science for Policies in STI Policy" in the 2011 fiscal year. It consists of three pillars: Data infrastructure led by the National Institute of Science and Technology Policy (NISTEP), the Research Funding Program on "Science for Policies" directed by the Research Institute of Science and Technology for Society (RISTEX) / Japan Science and Technology Agency (JST), and Center for Education and Research on "Science for Policies" (Master and Ph.D. degrees) jointly supported by the MEXT, NISTEP, Center for Research and Development Strategy (CRDS) / JST. It is worth noting that the second pillar covers topics similar to the SciSIP.

20. These cases illustrate the acute concern of national governments to consolidate the data infrastructure and to get equipped with methodological and analytical frameworks which allow them to improve their understanding of science in the innovation ecosystem and their capacity to make policy decisions and to measure impact. Sharing experiences and exchanging ideas are urgently needed in this enterprise of developing a new approach to policy making. Building the infrastructure for evidence-based policy making is core to the work of NESTI (Working Party of National Experts on Science and Technology Indicators). Following the Blue Sky conference in 2006 and the Innovation Strategy Measurement Agenda in 2010, NESTI has a wide ranging activity on building the infrastructure (and facilitating access to it) to measure the determinants and impacts of STI (see DSTI/EAS/STP/NESTI(2011)1). As part of this effort, micro-linked databases are being developed to allow the monitoring of scientific production, science-innovation interactions, knowledge flows and networks; firm level analysis has been produced to map innovation modes and estimate the relation between innovation and firms' performance; work is ongoing on mapping out public support for science and innovation in its different modes and across different objectives; and a review of the measurement framework for science, technology and innovation has been launched and will provide guidance to definitions and surveys re-design in this area.

21. There is a timely opportunity for CSTP to lead on this issue, given its expertise in science and technology policy, in science and technology indicators and measuring innovation (NESTI), in innovation processes and national innovation systems (Working Party on Innovation and Technology Policy: TIP), in the public research sector and human capital (Working Party on Research Institutions and Human Resources: RIHR), and in the policy analysis of science (Global Science Forum: GSF).

Possible development

22. OECD/DSTI could conduct, based on a conceptual work and a literature overview, a new study and prepare a policy report on the economic and social impacts of public investments in science. The activity would involve interested committees and working parties of the directorate, supervised by one or

more lead countries, working in close collaboration with national experts and with the participation of selected members and representatives of scientific communities.

23. The activity would build on the previous accomplishments of DSTI and on its links to science funding agencies, to scientific communities, and to major research institutions. The study would examine in detail the flow of ideas, information and people between the publicly-funded research enterprise and the innovation system, the latter having been the subject of intense OECD work during the past three years, culminating in the release of the OECD Innovation Strategy. Past experience shows that efforts of this kind are subject to many methodological difficulties, and that the outcomes vary significantly as a function of the chosen method, including its hypotheses and biases. Hence, outcomes must always be interpreted with great caution to avoid doing damage to individual scientific endeavours or even whole fields of research. Thus, it could be desirable to frame the study as one whose principal goal is to illuminate (and thus, potentially, to optimise) the *mechanisms* through which scientific activities are interlinked to the marketplace and to society.

24. The basic dilemma associated with analyses of the type being described that while many technological innovations (and some social developments as well) have their roots in science, the converse is not universally true; that is, not all research projects in science ultimately lead to quantifiable (or even identifiable) benefits. Furthermore, the measurable impacts of research activity, when they do emerge, often do so following an extended period of time (possibly 10 or 20 years) and in an application domain that was not foreseen (and, perhaps, did not even exist) at the time that the research was proposed, authorised and funded. Furthermore, science, technology and innovation can have mixed, disruptive, or negative impacts on society and the lives of individual citizens. Thus, an important goal of any scoping effort would be a decision on whether to consider all impacts, or focusing on some of them.

25. CSTP may play a major role by providing international platform to gather experts in SciSIP, policy makers, scientists, business people.

Theme B. Collaborative research, knowledge networking and open innovation

Background

26. The way innovation occurs has been drastically transformed these last decades while "entrepreneurial universities" and "open innovation" were emerging in parallel. Innovation tends to be the result of a collaborative enterprise, including academic researchers, start-up companies, and other associations or individuals, through which knowledge is created, exchanged, transformed, and translated into goods or services. Large companies, considered in the past as privileged "beds of innovation" with their capacity to invest in R&D, are seeking potential sources of innovation all around the world. And in the context of open innovation, not only business entrepreneurs, but also representatives of civil society and social entrepreneurs play an active role in the process of creation of added value through innovation.

27. These phenomena have been investigated and intensively analysed by innovation scholars, but clear policy messages are difficult to extract from the result of their work. Also, the departure from the linear model of innovation towards the innovation ecosystem framework calls for an approach based on a well balanced policy mix, and there is a need to investigate this issue. The challenge for the CSTP would be to take on the difficult task to identify the policy implications flowing from this complex and evolving innovation phenomena.

Rationale

28. The CSTP's Working Party on Innovation and Technology Policy (TIP) – the mandate of which is to provide "advice on innovation and technology policies that enhance productivity, facilitate the creation, diffusion and application of knowledge, and foster sustainable growth and employment" - has made an important contribution to developing the Innovation Strategy. In particular, it shed the light on the changing nature of innovation, in particular the role of non technological factors and the social dimensions, and on the impacts of globalisation on the innovation process.

29. Working at the interface of science, technology, innovation and economic policies, TIP has experience and expertise in the tools and working methods needed to take a cross-government and evidence-based approach to the analysis, design, implementation and evaluation of innovation policies. Its Delegates, representing a mix of officials from research, education, and economic affairs ministries, can mobilise high level experts with diverse backgrounds and attach a particular importance to the multidisciplinary and horizontal nature of innovation.

30. Given the importance of knowledge in innovation systems, the Innovation Strategy introduced a concept of "Knowledge Networks and Markets (KNMs)" defined as "arrangements which govern the transfer of various types of knowledge, such as intellectual property, know-how, software code or databases, between independent parties".

31. Recognising the importance of KNMs as a lubricant of the innovation ecosystem, and following the October 2010 CSTP discussion on the role of KNMs in biotechnology, the STI horizontal project on KNMs (jointly led by WPB and EAS) intends to address questions such as what these markets are, how they operate, what hinders and fosters their emergence and growth, what are their economic impacts and what is the role of policy. RIHR may contribute its deeper understanding of one of the key depositories of knowledge, that is research institutions, and of the privileged vehicle of knowledge, that is human resources.

32. This development, together with work from TIP and RIHR , provides the CSTP with a fertile ground to pursue the theme "Collaborative research, knowledge network and open innovation".

Possible development

33. The TIP has already taken a step in this direction. Following its workshop on "Future Challenges for STI Policy Making" held in December 2009 which involved a range of actors and stakeholders, TIP identified several key issues, such as the need for national STI policies to address global and social challenges, highlighting, on the one hand, the shift from a firm-centric view of economic growth and well being towards growth models that integrate measurement of social well-being and environmental quality, and, on the other hand, the contribution of non-firm actors. Such a holistic approach to public policies could be fostered by the CSTP setting up a forum of policy dialogue mobilising the expertise of its subsidiary bodies. Furthermore, CSTP could invite the Committee on Industry, Innovation and Entrepreneurship (CIIE) to join this forum.

34. Based on a literature review of the dynamics of the two-way interactive relations between science and technology, CSTP may explore work done in the member countries on mapping modes and extents of interaction, by focusing, not only on the existing high tech sectors, but also on the direct and indirect use of science in services, construction, low tech manufactures. CSTP may also enhance its engagement in the STI horizontal project on KNMs. By doing so CSTP would consolidate its expertise in knowledge network, which would bring new insight on collaborative research and open innovation.

Theme C. International cooperation in STI for social and global challenges

Background

35. The world is undergoing rapid and profound transformations, characterised by increasing interdependency and globalisation. This creates new economic opportunities and social progress, but at the same time, raises political pressure to meet various social challenges of a global nature, such as, climate change, green growth, food security, scarce clean water, and energy supply. How do we tackle these global challenges? Science, technology and innovation (STI) play a key role in understanding the interaction between various environmental, technological and social factors which frame global challenges, in assessment risks and in developing solutions. A way forward would be to speed up scientific and technological progress and to strengthen innovation. Recognising that these problems do not stop at national borders, there is also a need to address these challenges collectively.

36. However, existing policy frameworks and governance mechanisms for international STI co-operation have been created for specific purposes and in different settings, and they fall short of adequate support for broad-based collaborative action of the scale and intensity required to tackle global challenges.

Rationale

37. At the national level, RIHR is looking at big changes occurring in science governance in most OECD countries, in its PRIs project and in the current work on university funding. At the international level, CSTP has already taken an initiative to improve the governance of international co-operation on STI for global challenges. The Committee has delegated the oversight of this project to a Steering Group and Delegates from OECD member and non-member countries are engaged in the governance of the project through their participation in the steering group. The project team interacts with other OECD directorates (e.g. Environment, Development Co-operation) and coordinates its work with horizontal work across the organisation such as the Green Growth Strategy. It is incorporating the outcomes of the work of the Global Science Forum (GSF) which is actively engaged in identifying practical measures to facilitate the establishment of large international research infrastructures (for example, facilities and networks).

38. The project seeks to develop principles and good practices to assist governments in their efforts to develop and implement policies that strengthen international STI co-operation to address global challenges.

39. To achieve tangible results beyond the circle of OECD member countries, non-member economies have been fully involved in the design and implementation of the initiative since its very inception.

Possible development

40. The project addresses five key governance dimensions:

- **Institutional arrangements, agenda and priority setting**: Strong and inclusive agenda, priority setting mechanisms, and models that ensure optimal outreach and stakeholder involvement while keeping co-operation effective and efficient;

- **Knowledge sharing and intellectual property**: Mechanisms for improved access to and utilisation of knowledge generated from international collaborative STI activities; institutional arrangements for benefit sharing;

- **Funding and spending arrangements**: Models that lead to a significant up-scale of funds, flexible and responsive spending arrangements, monitoring and evaluation that impact the funding and spending cycle;

- **Capacity building and technology transfer**: Mechanisms that factor the different levels of STI capacity in countries into the conceptualisation of co-operation, including technology transfer, build-up of absorptive capacities, joint laboratories;

- **Delivering benefits – putting STI into practice**: Arrangements, which ensure that innovation is rolled-out in a timely and dynamic manner and that the outcomes of international collaborative STI efforts are delivered into practice.

41. A series of case studies, which aim to identify how existing international scientific and technological co-operation initiatives are organised, have been conducted, and an analysis of the five governance dimensions is underway. Based on the analytical work, a team of policy experts and specialists from other relevant fields will carve out the policy recommendations.

42. CSTP may express its engagement in the work of the Steering Group and facilitate the sharing of its results with its subsidiary bodies.

Theme D. Science and technology for Global Challenges

Background

43. "Global challenges", such as climate change, green growth, ageing populations or balanced development are widely recognised. There is widespread confidence in the ability of the science system to develop effective solutions to the serious problems that confront society – solutions that, via the process of innovation, can give rise to useful commercial products and services. Thus, governments are routinely being urged to "invest massively in R&D" as a way of heading off looming disasters. But calls for major R&D investments often sidestep basic science policy questions. What exactly should governments invest in, and how much? How should the research be organised? Should it be carried out in universities, in government laboratories, or in industrial labs? Can the existing research system productively absorb a large influx of new funds? Will incremental progress produce the needed results based on existing theories and techniques, or is there a need to explore entirely new, radical solutions? Are there inherent "hard" limitations that science imposes on potential solutions? Are there multiple ways to proceed, and what should be their relative priorities for R&D? On what time scale can results be expected? Are major new facilities or infrastructures needed? Are there regulatory (or other legal/administrative) roadblocks? Is research needed into the implications and consequences (ecological, societal, economic, political, *etc.*) of possible technological solutions? Can international cooperation accelerate these efforts? Elementary questions such as these need to be answered, and the process should include an examination of the underlying science and technology.

Rationale

44. The DSTI, through its Structural Policy Division (SPD), is strongly committed to the OECD-wide project on the Green Growth Strategy, bringing its expertise on innovation and growth. Innovation is considered as a key driver of greener economies, enhancing the capacity of economies to address the fundamental question of decoupling economic growth and environmental challenges. The Synthesis Report (C(2011)29) has been submitted to the Council.

45. With the view to facilitate a discussion on its contribution to the Green Growth Strategy, the CSTP organised a workshop on Green technology and Innovation Policies on 25 October 2011. The outcome was, in short, that science, technology and innovation have a great deal to offer to help manage biodiversity and resource scarcity as well as climate change and energy; that more emphasis might be placed on climate change adaptation and transition management technologies; and that in the future, the focus should be on managing the potential tension between fostering incremental innovation through market-based instruments and developing large scale mission-oriented R&D programmes with governments support. CSTP saw its work on governance of international co-operation in STI as critical. Thus, CSTP has already a first move with this field of green growth.

46. Another global challenge, on which the DSTI is focusing, is in the field of health. A new horizontal work project on Smarter Health and Wellness, led by the Information, Computer and Communications Policy Division (ICCP), in collaboration with the Directorate for Employment, Labour and Social Affairs (ELSA) has been launched at the OECD-NSF joint Workshop "Building a Smarter Health and Wellness Future" held in Washington on 15 -16 February 2011. The workshop aimed to "analyse what is needed to move forward effectively – the technological, social and organisational innovation necessary, the challenges encountered in redesigning processes of care, the socio-technical and usability factors, access and privacy issues, the sustainability of the new business models and their impacts". It was also designed to "consider the role of government in "shaping policies and programmes" to make the most of the benefits of these developments for both individuals and society". The event was successful in gathering an international community, including policy-makers and industrial participants and in defining an international research and policy agenda to nourish the reflection and to identify key challenges in this field. In contrast with the Green Growth Strategy, for the moment, the CSTP is not directly associated to this horizontal project. However, the Committee could consider contributing to its development through its subsidiary body, the Working Party on Biotechnology (WPB), which has extensive knowledge in this area.

Possible development

47. In line with the Innovation Strategy, the CSTP may pursue the approach which positions innovation and its underlying science and technology as a means to address global challenges. In this regard, the Committee may take advantage of the outputs of the workshops mentioned above to explore potential avenues for future work in both areas. Also, it may propose a project on methods and approaches to selection of scientific priorities, which would be vital, and would also contribute to work on governance.

48. A particularly useful approach could involve examining the potential for breakthroughs that could be achieved through scientific research. A good example is the analysis of the contribution of bio-fuels to safe, sustainable and affordable energy production. These days, criticism of bio-fuels is common, with numerous reports pointing out their many deficiencies. However, scientific advances in fundamental biology (including the creation of completely novel life forms via "Synthetic Biology") could change this negative picture in a radical way. The prospects for such a development could be the subject of an OECD activity, with important consequences for investments in research. Generally speaking, research for energy (and related domains such as transportation) could be a very fruitful area for work of this kind. Energy storage systems for electric vehicles, very high efficiency photovoltaic devices, novel fission and fusion reactors – these are all topics where policy-relevant analyses could be conducted with the role of clarifying the potential contribution from research.

49. Another approach could be to seek the impact of these global challenges on the capacity to pursue scientific activities. For example, Japan is facing the rapid aging of its population resulting from the decline in the birth rate. This trend is expected to continue, and the working-age population is shrinking steadily from the current 80m to 74m and less than 70m in 2020 and 2030, Japan is not the only country to

face this challenge. Sooner or later many OECD countries and other developing countries such as China will be in the same situation. There are a lot of studies on demographic trends, but what is less well known is how the aging of populations affects various social and economic structures in a country, and in particular in countries that are heavily dependent on science and technology. The aging of populations will naturally bring about many serious issues such as declining tax revenue and increasing public costs for social security including health care and pensions. These issues will lead to pressure on countries' policies toward the austerity of national budgets, and probably lead to declining public investment in research and development. There will be much more impacts of the aging on society that we can fully understand.

50. Questions that the CSTP may raise include, for example, how shrinking populations of scientists and engineers affect STI and industries and the capacity to cultivate new industries and businesses, and how the declining population of younger generations affects universities and research laboratories. There would also be much impact on international trade and economic relations, but we do not have reliable answers to these important questions, nor do we know which strategic policy measures should be taken. More issues may emerge that we are not yet aware of. Thus, we, OECD countries, definitely need to start addressing this aging problem. We need to be proactive and to develop policies to overcome this possible roadblock ahead of us in order to lead our countries on a sustainable path of development. Japan serves as a case study, which will certainly give a good lesson to all member countries.

51. Where the Committee would undertake work to address the above mentioned issues, the CSTP could become a unique venue for designing public policies on global challenges. The Committee's strong analytical capabilities, its neutrality, and its international prestige can attract the right stakeholders from the scientific and governmental communities, as well as industry, NGOs and civil society.

Next step

52. The next steps could be as follows:

- Delegates are invited to submit any additional comments in writing within three weeks (April 12).
- The Secretariat prepares a revised version of this document based on the discussion of March 22, taking into account of additional written comments.
- Once available on the OLIS, delegates will be invited to approve the document.
- Once approved, the document will serve as a basis for the CSTP Strategic Orientations (DSTI/STP(2011)3) for the 2013-2014 PWB.

Action item

53. Delegates are invited to discuss the proposal, to agree on the main themes to be addressed in the next PWB, and to comment on possible developments under each theme.

ANNEX 1

Objectives of the Committee for Scientific and Technological Policy

(extract from the Mandate, Committee for Scientific and Technological Policy)

1. The Committee for Scientific and Technological Policy shall be responsible for encouraging co-operation among Members and, as appropriate, with non-members, in the field of science, technology and innovation policy, with a view to contributing to the achievement of economic, social and scientific aims, including growth and the creation of skilled jobs, sustainable development, improved well-being of their citizens and advancing the frontiers of knowledge. It shall pay particular attention to the integration of science, technology and innovation policy with other aspects of government policy, which is of increasing importance in the development of increasingly globalised knowledge economies.

2. The Committee for Scientific and Technological Policy shall, more particularly, be responsible for:

   a) Improving, through analytical work and the development of relevant internationally comparable indicators, the understanding of the process through which science, technology and innovation contribute to increased knowledge, productivity growth, economic performance, skilled job creation, sustainable development and social well-being.

   b) Promoting the exchange of information and discussion among Members on the objectives, instruments and financing of national, regional and global science, technology and innovation policy, in order to facilitate international comparison, to develop evaluation models and to identify relevant best policy practices, particularly as relates to the production, dissemination and exchange of knowledge and the strengthening of links between research, higher education and industry, including in the fields of human resource development, innovation policy, mobility and research infrastructure.

   c) Promoting the exchange of information and discussion among Members on policies designed to maintain a strong and creative base of scientific research endowed with adequate tangible and intangible infrastructure.

   d) Improving the understanding of Members both of foreseeable developments and impact of technologies, including emerging and/or converging technologies, and their likely national as well as international economic, social and environmental consequences, and the impact of globalisation on their national and regional research and innovation systems.

   e) Promoting the exchange of information and discussion among Members on measures to promote public understanding of science and technology, to make science and technology studies and training more attractive; and to strengthen, within each Member country and on the broader level, dialogue and interaction with science, industry, higher education and civil society in formulating and implementing science, technology and innovation policies.

f) Identifying policies and regulatory frameworks which facilitate international co-operation in science, technology and innovation to address global challenges as well as, as appropriate, co-ordination among Members, and among Members and non-members on the development of research objectives and priorities, funding and spending mechanisms, institutional and access arrangements and enhanced transfer and dissemination opportunities.

g) Facilitating international co-operation in science, technology and innovation, as well as, as appropriate, policy co-ordination among Members, and among Members and non-members on the development of research, access to scientific information and the international mobility of researchers.

h) Facilitating the efforts of the Members to strengthen the scientific, technological and innovative capabilities of developing countries.