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Development and transfer of technologies

**Updated synthesis report on views on the areas of focus set out in section IV
of the terms of reference for the review and assessment of the effectiveness
of the implementation of Article 4, paragraphs 1(c) and 5, of the
Convention agreed at the twenty-ninth session of the
Subsidiary Body for Implementation**

Note by the secretariat

Summary

This report presents an updated synthesis of information and views on the areas of focus set out in the terms of reference for the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention specified in 11 submissions received from Parties and three submissions from accredited non-governmental organizations by 19 February 2009, as well as in one additional submission received from a Party on 22 February 2010.

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I. Introduction

A. Mandate

1. The Conference of the Parties (COP), by its decision 2/CP.14, paragraph 3, invited Parties and relevant organizations to make submissions to the secretariat, by 16 February 2009, in accordance with paragraph 9 of the terms of reference for the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention, contained in the annex to document FCCC/SBI/2008/L.28.

2. The Subsidiary Body for Implementation (SBI), at its thirtieth session, invited Parties and relevant organizations, particularly those that had not done so, to submit to the secretariat, by 15 February 2010, their views on the areas of focus set out in the terms of reference referred to in paragraph 1 above.¹

B. Scope of the note

3. This document synthesizes the views on the areas of focus for the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention, as set out in section IV of the terms of reference,² contained in 11 submissions received from the following Parties: Australia, Belarus, Belize, Canada, Colombia, the Czech Republic on behalf of the European Community (EC) and its member States,³ Grenada on behalf of the Alliance of Small Island States (AOSIS), Japan, Panama on behalf of Costa Rica, Mexico and Panama, Saudi Arabia, and Uzbekistan,⁴ as well as in one additional submission received from Kazakhstan.⁵ The secretariat also received three submissions from accredited non-governmental organizations (NGOs). In line with established practice, the secretariat has posted these submissions on the UNFCCC website.⁶

4. This synthesis could be used by the SBI as input into its deliberations on the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention.

C. Possible action by the Subsidiary Body for Implementation

5. The SBI may wish to take into consideration the views of the Parties and related work of other subsidiary bodies when undertaking the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention, as specified in the terms of reference for this review. The SBI may also wish to provide guidance to the Expert Group on Technology Transfer (EGTT) and the secretariat on providing further support on this matter, as appropriate.

D. Background

6. The SBI, at its twenty-ninth session, agreed on the terms of reference for the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the

¹ FCCC/SBI/2009/8, paragraph 72.

² FCCC/SBI/2008/19, annex I.

³ The submission by the Czech Republic on behalf of the EC and its member States is supported by Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, Serbia and Turkey.

⁴ FCCC/SBI/2009/MISC.4.

⁵ FCCC/SBI/2010/MISC.3.

⁶ <http://unfccc.int/parties_observers/ngo/submissions/items/3689.php>.

Convention.⁷ The COP, by its decision 2/CP.14, paragraph 3, invited Parties and relevant organizations to make submissions to the secretariat, by 16 February 2009, in accordance with the terms of reference for this review and assessment.

7. The SBI, at its thirtieth session, invited Parties and relevant organizations, particularly those that had not done so, to submit to the secretariat, by 15 February 2010, their views on the areas of focus set out in the terms of reference for this review and assessment.⁸

8. As specified in the terms of reference, the areas of focus for the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention should cover the practical steps taken by Parties and other relevant participants in the process of development and transfer of technologies, and should comprise the following tasks:

- (a) Review the extent to which actions have promoted and supported institutional systems and regulatory and legislative frameworks needed to scale up development and transfer of technologies;
- (b) Review the range of practical actions taken and identify possible actions to promote innovative public and/or private partnerships and cooperation with the private sector, and consider steps that governments, the business sector and academia can take to facilitate effective participation by the private sector;
- (c) Review the mechanisms and processes developed to enhance cooperation with relevant intergovernmental processes;
- (d) Review efforts to promote collaborative research on, and development and deployment of, technologies for mitigation and adaptation;
- (e) Review the adequacy and timeliness of the financial support provided, within the context of Article 4, paragraphs 1(c) and 5, for the purposes of development and transfer of technologies, the related activities and their results.

9. The provisions of the Convention relevant to the review are shown in the box below.

⁷ FCCC/SBI/2008/19, paragraph 74.

⁸ FCCC/SBI/2009/8, paragraph 72.

Relevant provisions of the Convention

- Article 4, paragraph 1(c), of the Convention: All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors;
- Article 4, paragraph 5, of the Convention: The developed country Parties and other developed Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention. In this process, the developed country Parties shall support the development and enhancement of endogenous capacities and technologies of developing country Parties. Other Parties and organizations in a position to do so may also assist in facilitating the transfer of such technologies.

II. Summary of the submissions

A. General views on the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention

10. Most of the submissions were prepared following the structure of the five main areas of focus for the review and assessment listed in section IV of the terms of reference.

11. The majority of the submissions emphasized that the effective implementation of Article 4, paragraphs 1(c) and 5, of the Convention is very important for meeting the overall objective of the Convention. A broad portfolio of activities is required to effectively address climate change, including the widespread uptake of new and innovative technologies and the creation of appropriate enabling environments. The development and transfer of environmentally sound technologies (ESTs) remains central to achieving a significant reduction in global greenhouse gas (GHG) emissions, and mitigating and adapting to climate change.

12. In their submissions, many Parties stressed that international technology cooperation and thus technology development and transfer require reciprocity and require that Parties work together to be effective. Therefore, an understanding of how to address the tasks set out in each of the areas of focus would require valuable input from different Parties and organizations. Parties underlined that the lack or absence of data from Parties involved in actions to enhance technology development and transfer is reducing the possibility of undertaking a comprehensive review and assessment of the effectiveness of these actions.

B. Possible activities under each area of focus for the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention

13. The following elements were synthesized, taking into account the tasks specified in the areas of focus of the terms of reference for the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention.

1. Review the extent to which actions have promoted and supported institutional systems and regulatory and legislative frameworks needed to scale up development and transfer of technologies

14. Regarding actions to promote and support institutional systems, specific proposals include:
- (a) The enhancement of international cooperation on institutional systems and frameworks for technology transfer and an increase in financing for institutional systems and technology cooperation in developing countries (Colombia, and Panama on behalf of Costa Rica, Mexico and Panama);
 - (b) An increase in the promotion of institutional systems at national and international level to promote the development and transfer of technology in order to significantly enhance the deployment of energy-efficient technologies (Belize, Canada, and Grenada on behalf of AOSIS);
 - (c) The establishment of a separate UNFCCC body, or the extension of the authority of the EGTT to the level of an advisory centre under the UNFCCC subsidiary bodies, on development and transfer of technologies in order to address the issue of capacity-building using appropriate funds allocated for that purpose (Belarus and Saudi Arabia);
 - (d) The establishment of a transparent mechanism for monitoring, reporting and verifying the compliance of Parties included in Annex I to the Convention with the specific obligations under Article 4, paragraphs 1(c) and 5, of the Convention, taking into account the efforts made thus far by the EGTT in developing a set of performance indicators for the monitoring and evaluation of technology development and transfer under the Convention (Colombia, Czech Republic on behalf of the EC and its member States, Panama on behalf of Costa Rica, Mexico and Panama, and Saudi Arabia).
15. With regard to actions to promote and support regulatory and legislative frameworks, submissions from Parties included the following proposals:
- (a) The adoption of legislative frameworks to promote development and transfer of technologies in order to significantly enhance the deployment of energy-efficient and renewable-energy technologies and to enhance the harmonization of the legislative frameworks at domestic level in developing countries (Belize, Colombia, Grenada on behalf of AOSIS, Kazakhstan, and Panama on behalf of Costa Rica, Mexico and Panama);
 - (b) The exchange of policy information through bilateral dialogue with developing countries and support for development of human resources, including the exchanges involving experts and trainees on legal systems and policies (Canada and Japan);
 - (c) Additional actions, approaches and mechanisms relevant to this area of focus including, inter alia, the European Union (EU) Environmental Technologies Action Plan to improve the development and promotion of the wider use of ESTs; the European Union emissions trading scheme (EU ETS), which was launched in 2005 to improve the development, deployment and diffusion of a broad range of technologies for mitigation; the foundation of the International Renewable Energy Agency to promote renewable energy worldwide (Czech Republic on behalf of the EC and its member States); and the development of national programmes on green development, and establishment of domestic carbon trading schemes (Kazakhstan).

2. Review the range of practical actions taken and identify possible actions to promote innovative public and/or private partnerships and cooperation with the private sector, and consider steps that governments, the business sector and academia can take to facilitate effective participation by the private sector

16. Regarding actions taken to promote innovative public and private partnerships and cooperation with the private sector, specific proposals include:

- (a) The exploration of approaches, including innovative public and private partnerships, and the development of risk assessment and management tools in order to engage and encourage the participation of the private sector in technology development and deployment (Canada);
- (b) The integration of climate change into national innovation strategies and plans as a key component (Kazakhstan).

17. With regard to actions taken to consider steps that governments, the business sector and academia can take to facilitate effective participation by the private sector, Parties suggested the following actions:

- (a) The development of a private-sector advisory group to the EGTT or the establishment of a partnership with a private-sector association such as the World Business Council for Sustainable Development (Canada);
- (b) The expansion and replication of the innovative actions undertaken, especially through the EGTT, to develop mechanisms that provide financing or financial support, such as the Private Financing Advisory Network, which encourages private financial entities to develop and invest in technology transfer projects (Belize, Canada, and Grenada on behalf of AOSIS);
- (c) The development and implementation of mechanisms for the private sector and academia in both developed and developing countries to encourage partnerships in order to stimulate development and transfer of technology identified by Parties in their technology needs assessments (TNAs), as well as the consideration of the further development of TNAs and national adaptation programmes of action (Belize, Colombia, and Grenada on behalf of AOSIS);
- (d) The preparation of a document compiling regional TNAs, including the suggestion of areas where technologies could be aggregated to provide economies of scale and the scale of technologies required to address the urgent need for the implementation of technologies for mitigation and adaptation. A periodical update of the guidelines for this document would be undertaken by the EGTT with support from the secretariat and under the guidance of Parties (Colombia);
- (e) The establishment of an institutional infrastructure at the international level to give incentives to cooperate on a multilateral and bilateral basis and provide international expertise to assist in enhancing national regulatory and legislative frameworks based on national circumstances (Kazakhstan).

18. With regard to additional actions, approaches and mechanisms, Parties highlighted some relevant activities and entities including, inter alia, the potential value of continuing actions implemented jointly under the EU for demonstrating new technologies and methodologies; the EU ETS; the Global Energy

Efficiency and Renewable Energy Fund, which focuses on energy efficiency and renewable-energy projects in developing countries and countries with economies in transition (EIT countries); the Innovation Relay Centre Network; and the participation of some member States of the EU (including Austria, Finland, Germany, Sweden and the United Kingdom of Great Britain and Northern Ireland) in the Climate Technology Initiative.

19. Parties indicated that intellectual property rights (IPRs) could be viewed as both an incentive and an obstacle to development and transfer of technology. Some Parties were of the view that additional measures should be taken to ensure that IPRs support the climate regime. These measures include financial mechanisms and guidelines on intellectual property protection for publicly funded technologies, prizes as incentives for climate-related innovation, institutional arrangements for open or collaborative innovation and the use of existing flexibilities regarding trade-related aspects of IPRs in order to promote the transfer of ESTs.

20. Specific views on how to address IPR issues include:

- (a) The improvement of the business environment, including through full protection of IPRs, as they are fundamental tools to recoup research and development (R&D) investments, and the establishment of strong incentives for technology transfer and business competitiveness, with a view to promoting the sustainable development of technologies by the private sector (Japan);
- (b) The facilitation of processes for technology transfer and capacity-building for all Parties, avoiding trade and IPR policies that restrict technology transfer, as well as the elimination of the trade barriers that would impede and/or hinder the transfer of necessary technologies for adaptation and mitigation to developing countries (Saudi Arabia);
- (c) The provision of incentives by governments of developed countries for companies to transfer technology to least developed countries. The cost of intellectual property licensing should be an issue for further study, as its benefit to developing countries in terms of acquiring the necessary technology at an affordable cost needs to be examined (Saudi Arabia).

21. Sectoral approaches and sector-specific actions were suggested by Japan as a possible practical means of integrating national actions on mitigation, adaptation, finance, technology and capacity-building. Japan recognized the large disparities in technology transfer from sector to sector and from country to country owing to the differences in needs with regard to supply and demand, business circumstances, social systems and other factors.

22. To support the mitigation actions taken by developing country Parties, Japan suggested the establishment of an advisory group for sectoral technology cooperation with the following functions: the identification of currently available technologies in order to explore appropriate ways of promoting technology transfer and diffusion in each sector, the analysis of emission reduction potentials and the preparation of a periodic report to the COP on its activities.

3. Review the mechanisms and processes developed to enhance cooperation with relevant intergovernmental processes

23. Several Parties recognized various initiatives undertaken by relevant United Nations agencies, including: (a) the production of the United Nations Development Programme (UNDP) handbook for conducting TNAs; (b) the provision of financial support by the Global Environment Facility (GEF) to Parties not included in Annex I to the Convention (non-Annex I Parties) for conducting TNAs; and

(c) the organization of the training of trainers workshop on preparing technology transfer projects for financing.⁹ Parties also recognized various other cooperative activities undertaken on a bilateral and multilateral basis, including the Cool Earth Partnership, bilateral action plans, training workshops on energy efficiency and GHG accounting, and regional cooperation among countries in the Commonwealth of Independent States (Kazakhstan). Parties noted that while these initiatives are sound, they have not made a significant impact on the large-scale implementation of technology transfer projects (Belize, and Grenada on behalf of AOSIS).

24. Regarding mechanisms and processes developed to enhance cooperation with relevant intergovernmental processes, Parties suggested the following actions:

- (a) The enhancement of existing international R&D cooperation efforts (Canada and Japan) and the establishment of new activities to promote cooperation on R&D with intergovernmental organizations (Belarus);
- (b) The transfer of appropriate adaptation technologies to developing countries under the post-2012 framework and the scaling up of intergovernmental technology transfer cooperation in order to have a significant impact on the large-scale implementation of technology transfer projects (Belize);
- (c) The expansion of networks for knowledge-sharing, climate and technology policy support, market assessment, linking and reinforcing national climate technology centres and, in particular, the establishment of an innovative mechanism to promote cooperation on R&D and transfer of appropriate adaptation technologies to developing countries under the post-2012 framework (Colombia);
- (d) The acceleration of innovative technology development by expanding investment in R&D and sharing technology road maps (Canada and Colombia);
- (e) The enhancement of cooperation through workshops, seminars and training courses, providing the opportunity to share experiences and expertise (Kazakhstan).

4. Review efforts to promote collaborative research on, and development and deployment of, technologies for mitigation and adaptation

25. With regard to actions taken to promote collaborative R&D relevant to, and deployment of technologies for, mitigation and adaptation, Parties suggested the following actions:

- (a) The enhancement of the capacity of developing countries to develop and expand endogenous technologies by improving capacity, practices and processes, as well as the technologies themselves (Colombia, and Panama on behalf of Costa Rica, Mexico and Panama);
- (b) The establishment of an international programme for development and transfer of technology that is adequate for regional needs and is operated through regional centres and technology research entities for consideration of policies, measures and actions, in order to create a supporting environment for the implementation of ESTs (Colombia, and Panama on behalf of Costa Rica, Mexico and Panama);

⁹ <<http://unfccc.int/ttclear/jsp/TrnDetails.jsp?EN=TrainingTrainer>>.

- (c) The linking of private-sector organizations (large and small), industry associations, universities, government research agencies and other end-users in order to focus R&D efforts on progress towards utilization and commercialization of ESTs (Australia);
- (d) The balancing of the attention given to R&D, deployment, diffusion and scaling up of technologies for mitigation and adaptation, since technologies for adaptation are mostly low capital, frequently contribute to low-carbon growth and employ a large percentage of the economically active population (Colombia, and Panama on behalf of Costa Rica, Mexico and Panama);
- (e) The comparison and sharing of key aspects of the technology road maps formulated by many Parties in compliance with the objective to halve GHG emissions globally by 2050 through the key energy technologies identified by the International Energy Agency (IEA) (Japan);
- (f) The enhancement of the transfer of 'co-benefits technologies' by tackling the urgent issue of environmental pollution in many developing countries, the promotion of the transfer of R&D of these technologies, and the implementation of the co-benefits of clean development mechanism (CDM) projects. 'Co-benefits technologies' simultaneously address air and water pollution, and the direct effects of problems with waste that are measurable, reportable and verifiable (Japan);
- (g) The development of a process and an appropriate mechanism to facilitate the exchange of views on collaborative R&D initiatives in both developed and developing countries (Belize, and Grenada on behalf of AOSIS);
- (h) The harnessing of existing networks and initiatives, such as the Asia-Pacific Network, the research networks and initiatives of the EU, implementing agreements and related networks within the IEA, and other research programmes and projects, in order to significantly scale up collaborative R&D (Kazakhstan).

5. Review the adequacy and timeliness of the financial support provided, within the context of Article 4, paragraphs 1(c) and 5, for the purposes of development and transfer of technologies, the related activities and their results

26. Regarding the review of the adequacy and timeliness of the financial support provided, Parties suggested the following actions:

- (a) The provision of funding for enhanced action on development and transfer of technology to support action on mitigation and adaptation should be increased significantly and must be adequate, predictable, measurable, reportable and verifiable, and stable. This funding must also be new and in addition to official development assistance. It would go beyond what was envisaged in the Poznan strategic programme, including the financial contributions of the Parties in accordance with the principle of common but differentiated responsibilities, and take into account the views expressed by the Group of 77 and China on the Multilateral Climate Technology Fund (Belize, Colombia, Grenada on behalf of AOSIS, and Panama on behalf of Costa Rica, Mexico and Panama);
- (b) The undertaking of an annual review of government investment in technology R&D and international cooperation for innovative technology development by relevant international organizations, such as IEA (Japan);

- (c) The enhancement of the clarity of the financial needs and investment programmes of non-Annex I Parties in their TNAs, and the generation of resources through the emerging CDM/joint implementation markets to ensure that the further development and implementation of TNAs is followed up (Czech Republic on behalf of the EC and its member States);
- (d) The use of the updated handbook on conducting TNAs, prepared by UNDP, when updating or preparing TNAs. A new funding resource may become available to enable developing countries to update or prepare TNAs (Belize, and Grenada on behalf of AOSIS);
- (e) The recognition of the necessity to speed up the operational work of the Poznan strategic programme on technology transfer on strengthening the level of investment in the transfer of technologies in order to support the needs of developing countries regarding the implementation of ESTs (Uzbekistan);
- (f) The attraction of investment to EIT countries to secure easy access to new low-carbon technologies. Climate change mitigation activities are often not subsidized in these countries and therefore it is necessary to focus on investments in the form of long-term loans, crediting, and programmes of bilateral cooperation in the field of science and technology (Belarus);
- (g) The provision of financial support to relevant local NGOs, research institutes and centres. The negotiations under the Convention should elaborate effective financial guidelines and tools under the proposed Technology Mechanism, including procedures for measuring, reporting and verifying actions and support (Kazakhstan).

C. Views from relevant organizations

27. The International Chamber of Commerce (ICC) proposed that the accessibility of the procedures of the CDM and other Kyoto mechanisms be simplified and enhanced, and suggested that the CDM recognize national circumstances and priorities, while fostering maximum cooperation through sectoral approaches that promote clean development and address the local needs and priorities of the host country.

28. ICC suggested that partnerships between the private sector and governments be facilitated with assistance from United Nations agencies and intergovernmental organizations to fill gaps by building capacities, supporting infrastructure investments, raising awareness and funding. It suggested taking advantage of the incentives provided by patent licensing for the private sector to invest in R&D and make capital investments in joint public-private enterprises. ICC also suggested that limitations on the free market licensing of technology should only be used in short-term situations that are extremely rare, involving, for example, national emergencies, and should avoid the use of compulsory licensing in order to obtain commercial advantage for the country receiving the technology.

29. The Chamber of Commerce of the United States of America proposed that government funding for basic research be increased to ensure that government policies facilitate innovation and dissemination of technology and to encourage public-private partnerships, particularly at the local and municipal levels, taking into account the possible catalysing role of the secretariat in the areas of tariffs on environmental goods and the pursuit of the elimination of tariff and non-tariff barriers to environmental goods and services.

30. The Japanese Business Federation proposed enhancing technical assistance to developing countries as a cooperative effort between the public and private sectors. It suggested the use of the

experience of the Asia-Pacific Partnership on Clean Development and Climate as a framework in which the public and private sectors of developed and developing countries might participate in practical activities to promote technical assistance and the dissemination of best practices.

D. Next steps

31. The COP will conduct the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention, with the assistance of the SBI and input from the EGTT. The secretariat will provide support as necessary.

32. The review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention should be undertaken by the SBI at its thirty-second session, with a view to making recommendations that take into account the views of Parties and possible linkages with relevant ongoing work under the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, for consideration by the COP at its sixteenth session, as appropriate.
