



UNITED
NATIONS



Framework Convention
on Climate Change

Distr.
GENERAL

FCCC/SB/1997/1
17 February 1997

Original: ENGLISH

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE

Fifth session

Bonn, 25-28 February 1997

Item 7 of the provisional agenda

SUBSIDIARY BODY FOR IMPLEMENTATION

Fifth session

Bonn, 25-28 February 1997

Item 5 of the provisional agenda

**PROGRESS REPORT ON TECHNOLOGY
AND TECHNOLOGY TRANSFER**

Note by the secretariat

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I. INTRODUCTION

A. Mandate

1. The Conference of the Parties (COP) and the Subsidiary Body for Scientific and Technological Advice (SBSTA) have requested the secretariat to undertake a number of tasks regarding technology and the transfer of technologies. The first session of the Conference of the Parties, in its decision 13/CP.1 (see FCCC/CP/1995/7/Add.1), requested the secretariat:

- (a) To prepare an itemized progress report (according to the types of activities specified in paragraphs 34.15 to 34.28, inclusive, of chapter 34 of Agenda 21) on concrete measures taken by the Parties listed in Annex II to the Convention, with respect to their commitments related to the transfer of environmentally sound technologies and the know-how necessary to mitigate and facilitate adequate adaptation to climate change; and, at the same time,
- (b) To collect information from relevant sources, from, *inter alia*, the Commission on Sustainable Development, United Nations agencies, the Intergovernmental Panel on Climate Change and the Subsidiary Body for Scientific and Technological Advice, and to prepare an inventory and assessment of environmentally sound and economically viable technologies and know-how conducive to mitigating and adapting to climate change. This inventory should also include an elaboration of the terms under which transfers of such technologies and know-how could take place;
- (c) To submit the documents referred to in subparagraphs 1(a) and (b) above, through the Subsidiary Body for Scientific and Technological Advice, to the Conference of the Parties at its second session, and to update them at regular intervals (each interval not to exceed a year) for consideration by the Conference of the Parties at each of its sessions;
- (d) To take the advice of the Subsidiary Body for Scientific and Technological Advice (as described in section A, paragraph 3, of annex I to decision 6/CP.1) in implementing these responsibilities and to coordinate this matter with the relevant United Nations agencies and other organizations and institutions.

2. It also urged:

- (a) The Parties listed in Annex II to the Convention to include in their national communications the measures taken for the transfer of technology in order to enable the Convention secretariat to compile, analyze and then submit the above-mentioned documents to each session of the Conference of the Parties; and

- (b) Other Parties to include in their communications, where possible, information on measures taken for the transfer of technology in order to enable the Convention secretariat to compile, analyse and then submit the above-mentioned documents to each session of the Conference of the Parties.

3. The SBSTA, at its second session, having considered the COP decision 13/CP.1, requested the secretariat to undertake a number of activities related to inventorying and assessing environmentally sound and economically viable technologies and know-how conducive to mitigating and adapting to climate change (FCCC/SBSTA/1996/8, paras. 83-86). In this regard, the SBSTA requested the secretariat:

- (a) To identify existing sources of, as well as gaps in, information concerning technology information centres, with a view to developing a plan for setting up specialized technology information centres that could include, *inter alia*, sources of financing, preparation of comprehensive catalogues, dissemination of information and assessment of suitable technology;
- (b) To conduct a survey in order to identify the needs of Parties for information on technologies and know-how to mitigate and adapt to climate change, to prepare a programme of work and to report on the progress on these at the third session of the SBSTA. Such a work programme could consider among its elements options for future development of a database and assessment of technology and should be elaborated in cooperation with other relevant United Nations agencies and other organizations and institutions;
- (c) To prepare an initial catalogue of adaptation technologies and know-how, including information on their costs, environmental impacts, implementation requirements, probable time-frames for their introduction and utilization, and other characteristics for consideration by the SBSTA before the third session of the COP, and, on this matter, coordinate its activities with the Intergovernmental Panel on Climate Change (IPCC);
- (d) To prepare a paper, in view of the COP decision 13/CP.1, on the terms of transfer of such technologies and know-how and
- (e) To continue its activities, in cooperation with other relevant organizations, related to the preparation of an inventory and assessment of environmentally sound and economically viable technologies and know-how conducive to mitigating and adapting to climate change, to take into consideration the activities of other United Nations agencies and intergovernmental organizations, and other relevant programmes and to use all means possible to communicate the information to Parties.

- (f) To inform the SBSTA periodically about new information on technologies and know-how in the research and development stage that may be conducive to mitigating and adapting to climate change and activities aimed at increasing the diffusion and commercialization of such technologies and know-how.

4. The Subsidiary Body for Implementation (SBI) also recognized the complementarity of the roles of the public and private sectors with regard to technology transfer. It urged Annex II Parties to continue to take concrete steps to promote technology transfer. It further urged all Parties, in particular Annex II Parties, to improve the enabling environment for private sector participation in particular, and to support and promote the development of endogenous capacities and appropriate technology relevant to the objectives of the Convention, pursuant to the relevant articles of the Convention and the COP decision 13/CP.1. The SBI agreed to provide continuous advice to improve the operational modalities for effective transfer of technology. Furthermore, it requested the secretariat to prepare a report, after consultations with relevant United Nations agencies and other organizations and institutions, on technology transfer cooperation by the private sector for consideration by the SBI, preferably in time for COP 3, but no later than COP 4 (FCCC/SBI/1996/9, para.52).

5. The Conference of the Parties, at its second session, in its decision 7/CP.2 (see FCCC/1996/CP/15/Add.1), requested the Convention secretariat:

- (a) To further enhance its progress reports on access to, and the transfer of, environmentally sound technology in accordance with its decision 13/CP.1, paragraphs 1(a) and (b) and 2(a) and (b), and Article 4.5 of the Convention, based on the national communications from Parties included in Annex I to the Convention (Annex I Parties) due in April 1997; and to make suggestions with regard to further improvements in the format for information on existing environmentally sound technologies and know-how from Annex II Parties;
- (b) To give high priority to the development and completion of a survey of the initial technology needs, as well as technology information needs, of Parties not included in Annex I to the Convention (non-Annex I Parties), with a view to providing a progress report to the Subsidiary Body for Scientific and Technological Advice at its fourth session;
- (c) To initiate action, including consultations with Parties and relevant international organizations, *inter alia*, taking into account the ongoing work of the Climate Technology Initiative, to identify existing technology information activities and needs, with a view to developing options for building on existing specialized information centres and networks to provide fast and one-stop databases relating to state-of-the-art, environmentally sound and economically feasible technology and know-how in a manner that would be readily accessible to developing countries. The options should consider the need and resources

required for improving existing, and setting up additional, technology information centres and networks; and

- (d) To expedite the preparation of reports on adaptation technology and the terms of transfer of technology and know-how conducive to mitigating and adapting to climate change, and, in preparing these reports, to draw on nominees with expertise in these fields from Parties. Such a roster of experts and its use in facilitating the work of the Convention secretariat should be evaluated by the Subsidiary Body on Scientific and Technological Advice and the Subsidiary Body for Implementation, taking into account the ongoing discussion on Intergovernmental Technical Advisory Panel(s).

6. It also urged:

- (a) Annex II Parties to include in their national communications the measures taken for the transfer of technology in order to enable the Convention secretariat to compile, analyse and submit the relevant reports to each session of the Conference of the Parties;
- (b) Other Parties to include in their communications, where possible, information on measures taken for the transfer of technology in order to enable the Convention secretariat to compile, analyse and then submit the above-mentioned documents to each session of the Conference of the Parties;
- (c) Annex II Parties to expedite their efforts in the transfer of technology in fulfilment of their commitments under Article 4.5 and in recognition of Article 4.7 of the Convention;
- (d) All Parties, particularly Annex II Parties, to improve the enabling environment, including the removal of barriers and the establishment of incentives, for private sector activities that advance the transfer of technologies to address climate change and its adverse impacts;
- (e) Annex I Parties to contribute technical and other expertise to the work of the Convention secretariat related to specialized technology information centres;
- (f) In this context, non-Annex I Parties to cooperate with the secretariat in the survey of technology needs and capacities to the extent their own capacities permit and based on their current national assessments;
- (g) Non-Annex I Parties to communicate initial information to the Convention secretariat not later than 1 December 1996 regarding technologies and know-how required to address climate change and its adverse effects that could be compiled by the secretariat into a detailed list of technology needs required

by developing country Parties, taking into account that more elaborate technology needs would be included in their initial national communications.¹

B. Scope of the note

7. This note provides a status report on ongoing activities by the secretariat and indicates possible actions that the SBSTA may wish to take. More specifically, it addresses activities under way to address the following tasks:

- (a) Technology inventory database
- (b) Technology transfer activities supported by Annex II Parties
- (c) Technology information centres
- (d) Technology and technology information needs
- (e) Adaptation technology
- (f) Terms of transfer
- (g) New information on technologies and know-how in the research and development stage
- (h) Private sector technology transfer

8. When considering this note, the SBSTA may wish to draw upon the submissions by Parties contained in FCCC/SBSTA/1997/Misc.1 and its addendum. Also, the SBI will host an informal workshop, including a session on the transfer of technology and know-how, on 26 February 1997; time will be provided from the SBSTA agenda because of the relevance of that session to the work of the SBSTA.

C. Possible action by the Subsidiary Body for Scientific and Technological Advice

9. The SBSTA may wish to take note of this progress report and, where necessary, provide guidance for further work. In particular:

- (a) Guide the secretariat concerning topics for future technical papers on technologies and know-how in the research and development stage that may be conducive to mitigating and adapting to climate change and activities aimed at increasing the diffusion and commercialization of such technologies and know-how;
- (b) Request the secretariat to modify the technology needs survey instrument,

¹ This deadline was extended to 30 January by the SBSTA at its fourth session. (FCCC/SBSTA/1996/20).

for example, by adopting the design to include the format used by China and by expanding the survey with a view to having a more comprehensive survey for the seventh session of the SBSTA.

10. The SBSTA may wish to request Parties:
- (a) To provide comments and information to the secretariat, for its own use, on the tasks listed below. Parties wishing to provide comments could be encouraged to do so by 31 May 1997;
 - (b) To provide specific information to the secretariat on new reports and software on environmentally sound technologies and know-how for inclusion in an update of the technology inventory and database by the seventh session of the SBSTA.

II. STATUS OF ACTIVITIES UNDER WAY TO IMPLEMENT THE TASKS

A. Technology inventory database

1. Mandate

11. See paragraph 1(b) above.

2. Discussion

12. The secretariat has prepared initial reports on an inventory and assessment of technologies to mitigate and adapt to climate change (see FCCC/SBSTA/1996/4 and Add.1 and Add.2). The secretariat intends to continue its work on the technology inventory database as requested by the first session of the COP, with the goal of preparing an update for the seventh session of the SBSTA .

B. Technology transfer activities supported by Annex II Parties

1. Mandate

13. See paragraphs 1(a) and 5(a) above.

2. Discussion

14. The secretariat has prepared an initial report (FCCC/SBI/1996/5) on activities to facilitate the transfer of technology as reported by Annex II Parties in their national communications and on the basis of information obtained in the course of the in-depth reviews of those Parties. In accordance with the request of the second session of the COP,

the secretariat will synthesize information on this subject as provided by Annex II Parties to the Convention by 15 April 1997, with the goal of preparing a report for the seventh session of the SBSTA .

C. Technology information centres

1. Mandate

15. See paragraphs 3(a) and 5(c) above.

2. Discussion

16. The secretariat believes there are at least three elements that need consideration in order to respond to this request. First, there is a need to review what activities are currently under way so as to understand the scope of these efforts and identify gaps. How many centres are there? Where are they located? What do they do? Assuming most will have been set up for other purposes, which climate related topics do they address? The secretariat considers both international and national centres/networks and all mitigation and adaptation topics to be part of the initial mandate.

17. A second element is to determine what experts from developing countries want centres and networks to do? Since capacity-building could take many forms such as: buying hardware, building databases, analysing information on technologies and other activities, it is important to define the scope of a plan carefully and realistically. Sources of information that could help shape the direction of technology information centres are the secretariat's survey of technology needs, comments from Parties and the national communications to be submitted by non-Annex I Parties.

18. Third, there is a need for a plan, with options related to financing an enhancement of existing or new centres/networks activities. Such a plan needs to address many dimensions regarding the number of centres, type of activities to be undertaken, timing and other implementation issues.

3. Activities

19. With regard to the first element, the Parties participating in the CTI have agreed to work with the secretariat to conduct a survey of existing centres. Regarding the second element, the secretariat will convene informal open-ended consultations with interested Parties during the week of 3 March 1997 to obtain advice on the process and direction of its activities regarding this task. The secretariat will also host a meeting of technical experts from developed and developing countries to help exchange information and start clarifying specific technical needs and priorities. A target date for this meeting is early summer.

20. In parallel to these activities, the secretariat with the cooperation of the CTI will begin the preparation of a preliminary plan. The target date for a preliminary plan, as well as the survey, will be May so that the results might be made available for consideration by experts and subsequently at the sixth session of the SBSTA. The purpose of the preliminary plan will be to provide a structure and, as necessary, identify options for the SBSTA in order to guide subsequent activities.

21. In a related activity, named CC:INFO/Web, the secretariat has taken further steps to provide assistance to Parties wishing to set up national Web sites on the Convention (FCCC/SBI/1996/10, para. 9). In June 1996, the secretariat, in collaboration with the Ministry of Science and Technology of Brazil, organized the first CC:INFO/Web workshop. Participants in this workshop included government nominees from Malaysia, Senegal and Thailand. The workshop resulted in the development of national Web sites on the Convention for the participating countries.

22. In November 1996, the secretariat organized the second CC:INFO/Web workshop, with participants from Egypt, Jordan, Seychelles, Uganda, United Republic of Tanzania, Venezuela, Zambia and Zimbabwe. The UNEP/Riso National Laboratory in Denmark was an observer. In addition to bringing the total of CC:INFO/Web sites to 12, this workshop was instrumental in developing the CC:INFO/Web Tutorial Kit on CD-ROM. The kit, which was completed in early February 1997, contains a range of software tools and is a guide for creating national Web sites related to the Convention. The kit is made available on request by the secretariat to Parties wishing to join the CC:INFO/Web initiative. Parties wishing to do so, can send a letter or a fax to the Executive Secretary stating such interest.

D. Technology and technology information needs

1. Mandate

23. See paragraphs 3(b), 5(b), 6(f) and (g) above.

2. Activities

24. The secretariat, with the cooperation of the University of Amsterdam (IVAM Environmental Research), conducted an initial survey of non-Annex I Parties to identify their preliminary technology and technology information needs and to test the design of a survey instrument as a means of collecting information. The survey was sent to the climate change focal points for 15 Parties and also to business, municipal and NGOs identified by five additional Parties. An initial request for information was sent to Parties by the University of Amsterdam on approximately 28 October 1996 and a second request for information was sent to Parties by fax on 6 December 1996. The secretariat also notified Parties directly about the survey. A report, including the survey instrument, prepared by the University of Amsterdam will be available as a room document for this session.

25. The secretariat also received a submission (FCCC/SBSTA/1997/Misc.1 and Add.1) from China, Uzbekistan and Zaire regarding technologies and know-how required to address climate change and its adverse effects. The submission by China provides a format and information that is more detailed than the survey instrument.
26. The survey was designed to seek information on topics such as:
- (a) Which sectors are most important to your country?
 - (b) How would you rank in each sector the relative importance of problems encountered in the different stages of the technology transfer process (respectively creating awareness, developing capacity, obtaining information and implementation of technologies)?
 - (c) Could you characterize the key problems related to the introduction and assimilation of climate relevant technologies?
 - (d) Could you rate the relevance of different types of information for meeting the technology information needs encountered in the different sectors?
 - (e) What information sources does your organization consult in the preparation of technology transfer projects and capacity-building actions, for example, academia, technology suppliers, national sector experts, national environmental experts, and international experts and organizations?
 - (f) Which information formats are available in your country, for example, electronic, written and oral?
 - (g) What are the principal criteria for selecting technologies conducive to mitigating and adapting to climate change, for example, financial, economical, technical, social, environmental?
 - (h) Which institutions in your country are the most important in providing financing for the transfer of climate relevant technologies?
 - (i) What has your Government done to facilitate the transfer of climate relevant technologies in different sectors in your country, for example, changes in taxes, regulations and/or tariffs, training and awareness building?
 - (j) Could you name the key organizations in your country that are important in policy making and/or implementation of climate relevant technologies?

3. Discussion

27. Twenty-seven responses were received as a result of the survey, including 10 from national focal points. Bearing in mind that this number is not large, it is yet possible to obtain preliminary insights regarding the pilot survey, *inter alia*:²

² Parties may wish to read the entire report by the University of Amsterdam to obtain a more complete understanding of the preliminary results.

- (a) The energy, transportation and industry sectors are generally considered to be the most important sectors for technology transfer;
- (b) Information needs appear to be most urgent in the energy and waste management sectors and in the last step of the technology transfer process, that is, implementing and operating technologies;
- (c) Aid and grants are a means of financing technology transfer in all countries; low-interest loans and joint ventures are available in eight countries and private sector loans in five countries;
- (d) All information sources are perceived to be relevant, but of those identified, vendors and suppliers are perceived to be the least relevant;
- (e) International experts and organizations are most frequently consulted for capacity-building activities (90 per cent), but national environmental experts are used just as frequently for technology transfer projects;
- (f) All information formats are available in 50 per cent of the countries. Electronic information databases are limited to 40 per cent of the countries and internet is available in 70 per cent ³;
- (g) Perceptions about the importance of selection criteria, different sources of financing and different sources of information differ among the stakeholders, that is, business, NGOs and government officials;
- (h) Most countries (70 per cent) have identified key organizations with knowledge about the preparation and implementation of technology transfer projects.

28. Regarding the development of the pilot survey instrument, it appears to be fairly well-suited for obtaining preliminary information on technology and technology information needs. It may, however, be useful to complement the survey with additional information from other sources of information in order to further assess technology information needs.

E. Adaptation technology

1. Mandate

29. See paragraphs 3(c) and 5(d) above.

2. Discussion

30. The goal of this report will be to provide practical information for consideration by the Parties, while broadening the conceptual foundation regarding adaptation. The secretariat intends to address, to the extent feasible, all major sectors, for example, agriculture, fisheries, range lands, wood production, coastal systems, infrastructure and human settlements, water systems, health systems, and industry in responding to the mandate. It will focus on

³ The responses concerning Internet and electronic databases appear to be inconsistent and therefore need clarification.

technologies (hard and soft) and know-how, including the development of tools needed to evaluate technologies and policy options. The report will attempt to provide a catalogue of technologies, characterize a select number of technologies, and identify needed research, demonstrations, warning and surveillance systems, and distribution and delivery systems.

31. An important issue, to be decided, is the extent to which profiles of specific technologies can be developed, including, for example, a description of the technology, performance, costs, resource implications and impacts. Many efforts have been made to develop such profiles for mitigation technologies, but relatively little information has been compiled for adaptation technologies.

3. Activities

32. The secretariat is aware that the IPCC, at its twelfth session held in Mexico City, approved a workshop on adaptation to be held sometime in 1997. The Governments of Canada, the Netherlands and the United States of America offered to hold a preliminary meeting of experts to help plan this workshop. The tentative date for this meeting is 21-22 March 1997 in the Netherlands. The Scientific and Technical Advisory Panel (STAP) of the GEF has also been requested to prepare a report on adaptation.

33. The secretariat intends to convene a meeting, drawing on the roster of scientific and technical experts nominated by Parties, in conjunction with, but prior to the IPCC meeting in the Netherlands. The experts will be requested to advise on the overall scope and design of the report, identify critical information needed by Parties and possible information sources, and provide a technical review of the draft report.

F. Terms of transfer

1. Mandate

34. See paragraphs 1(b), 2(d) and 5(d) above.

2. Discussion

35. The secretariat will address several issues in responding to the request of the COP. First, it will review recent information on investment trends and financial flows, that is, trends of direct foreign investment in developing countries and how they vary among countries and sectors; terms, conditions and financial criteria employed by multilateral lending institutions, bilateral programmes and private sector banks; types of instrument: loans, bonds, equity, and private capital. It will also review activities, regulations and operating instruments that have been implemented in different countries. This will be based on information from multilateral institutions and United Nations organizations and other sources.

36. Second, it will consider the activities undertaken by Parties to create the right environment for investments and to increase the supply of environmentally sound technologies (ESTs), *inter alia*: tax regimes that reward technology upgrading, governmental incentives, targeted lending programmes from public and private banks, financial innovations such as leasing adapted to meet the needs of ESTs, availability of information and protection for investors and public/private partnerships to support the import/export of ESTs.

37. Third, the role of the private sector will be addressed with a focus on the activities of transnational corporations in transferring technology and capital and in promoting, for example, environmental awareness and environmental standards in countries where they operate. It will also address the role of small and medium enterprises (SMEs) and the problems they face in accessing, adopting and transferring ESTs.

38. Finally, the secretariat intends to collect information on "success stories" to illustrate a range of approaches for attracting investment capital. This synthesis could be organized by geographical regions and/or sectors.

3. Activities

39. The secretariat will issue a series of technical papers over the next two years to inform the Parties, beginning at the sixth session of the SBSTA. (The collection of papers will form the main body of the report to the SBSTA on this subject). It will convene (a) meeting(s), drawing on the roster of scientific and technical experts nominated by Governments to support its activities. The experts will be requested to advise on the design of the papers, identify critical information needed by Parties and possible information sources, and provide technical reviews of draft papers.

40. The secretariat notes that the IPCC is preparing a special report to be entitled *Methodological Issues in Technology Transfer: Opportunities for Technology Cooperation*. The report is scheduled to be completed in early 1999 and will assess experience on issues such as: types of transfer, role of participants, approaches to promoting cooperation and capacity-building. The secretariat will coordinate with the IPCC to ensure synergy and to avoid duplication.

G. New information on technologies and know-how in the research and development stage

1. Mandate

41. See paragraph 3(f) above.

2. Discussion

42. It is the intention of the secretariat to respond to the above mandate by informing the Parties about emerging technologies. In this regard, the secretariat notes that the press recently reported on several developments regarding alternative automotive technologies. The secretariat is prepared to provide the SBSTA with a report on this subject at a future session, workload permitting.

H. Private sector technology transfer

1. Mandate

43. See paragraph 4 above.

2. Discussion

44. The secretariat has not initiated work related to this topic. It will do so on the basis of second national communications due from Annex II Parties on 15 April 1997 and on the basis of information obtained in the course of addressing the above tasks.
