**UNITED
NATIONS**

Framework Convention
on Climate Change

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE
Twelfth session
Bonn, 12-16 June 2000
Item 9 (a) of the provisional agenda

DEVELOPMENT AND TRANSFER OF TECHNOLOGIES

**STATUS OF THE CONSULTATIVE PROCESS
(DECISION 4/CP.4)**

**Report of the Asia and the Pacific regional workshop
on the transfer of technology consultative process
Cebu, the Philippines, 17-19 January 2000**

Note by the Chairman

GE.00-61417

I. INTRODUCTION

A. Mandate

1.   By its decision 4/CP.4, the Conference of the Parties (COP) requested the Chairman of the Subsidiary Body for Scientific and Technological Advice (SBSTA) to establish a consultative process to consider the list of issues and questions contained in the annex to that decision, as well as any additional issues and questions subsequently identified by Parties, and to make recommendations on how they should be addressed in order to achieve agreement on a framework for meaningful and effective actions to enhance implementation of Article 4.5 of the Convention (FCCC/CP/1998/16/Add.1).

2.   At its tenth session, the SBSTA endorsed the proposal by the Chairman that the secretariat organize three regional workshops, one in Africa, one in Asia and the Pacific, and one in Latin America and the Caribbean. It invited the Chairman, with the assistance of the secretariat, to complete the regional workshops by early 2000, and to report to the SBSTA at its twelfth session, with a view to taking a decision by COP 6 (FCCC/SBSTA/1999/6, para. 69 (c) and (d)).

B. Scope

3.   This note presents the report of the Asia and the Pacific regional workshop on the transfer of technology consultative process, held in Cebu, the Philippines, from 17 to 19 January 2000. It contains a summary of the workshop presentations and the panel and general discussions, as well as the outcomes of three parallel working groups. The workshop was organized by the secretariat with the kind assistance of the Government of the Philippines.

4.   A seminar organized by the Climate Technology Initiative (CTI) in cooperation with the UNFCCC secretariat was held from14 to15 January 2000 back-to-back with the UNFCCC workshop. The objectives of the CTI seminar were to enhance the understanding of the role of the private sector in the diffusion of environmentally-sound technologies, know-how and practices ("ESTs") and to report the findings to the UNFCCC consultative process. The report of this seminar is contained in the annex to the present note.

5.   This note should be read in conjunction with the report of the African regional workshop held in Arusha, United Republic of Tanzania, from 16 to 18 August 1999 (FCCC/SBSTA/1999/11), the report of the Latin America and the Caribbean regional workshop organized in San Salvador, El Salvador, from 29 to 31 March 2000 (FCCC/SBSTA/2000/INF.6), and the Chairman's note on the progress of the consultative process (FCCC/SBSTA/2000/4).

6.   The report of the Asia and the Pacific regional workshop was prepared by the Chairman, with the assistance of the secretariat, taking into account all presentations by country representatives and experts, country reports and discussions at the workshop. Several ideas on possible elements of a framework for meaningful and effective action to enhance the implementation of Article 4.5 of the Convention were suggested in the working groups and the

final session of the workshop. As these preliminary ideas emerged, the Chairman did not attempt to hold a debate or reach agreement among participants on the appropriateness, practicability or acceptability of these ideas or on how such ideas relate to a framework. With this understanding, the suggested possible elements of a framework as presented in this report are viewed as a list of thoughts and ideas that can serve as input to further discussions and negotiations in the consultative process.

II. REPORT OF THE ASIA AND THE PACIFIC REGIONAL WORKSHOP ON THE TRANSFER OF TECHNOLOGY CONSULTATIVE PROCESS

A. Introduction

7.   Representatives of Parties attending the workshop had the opportunity to provide information in the form of a "country paper".[1] These papers provide detailed information on issues related to the transfer of technology specific to each country including: technology needs, technology transfer activities, mechanisms for technology transfer, and possible elements of a framework for meaningful and effective action.

8.   The agenda of the workshop was designed, in consultation with the Chairman of SBSTA and Parties from the Asia and the Pacific region, to address the issues and questions contained in the annex to decision 4/CP.4 and to follow up on progress made at the African regional workshop held in August 1999.

9.   The workshop was attended by 72 participants, including 31 from non-Annex I Parties, representing Asia and the Pacific (29), Africa (1), and Latin America and the Caribbean (1). Eighteen representatives from Annex I Parties also participated in the workshop. Eight intergovernmental organizations were represented and seven non-governmental organizations. Four representatives of the private sector from both developed and developing countries also attended.

10.   The objectives of the workshop were to generate and share information on the special situations and needs of countries in the Asia and the Pacific region and, in particular, to advance the consultative process by discussing possible elements of a framework for meaningful and effective actions to enhance the implementation of Article 4.5 of the Convention. Consequently the workshop focused on:

        (a)   The exchange of information and ideas among participants on issues, opportunities, barriers, needs and concerns relating to the transfer of environmentally-sound technologies, particularly to the Asia and the Pacific region;

---

[1]   The country papers are available on the UNFCCC web site (from www.unfccc.de, select "Programmes", then "Technology", then select the country papers under the Asia and the Pacific regional workshop).

(b)   Consideration of multilateral initiatives to enhance the transfer of environmentally-sound technologies in the Asia and the Pacific region;

(c)   Ways and means for improving the transfer of environmentally-sound technologies and know-how under the Convention, considering perspectives from governments, non-governmental organizations and the private sector;

(d)   Possible elements of a framework for meaningful and effective actions to enhance implementation of Article 4.5 of the Convention.

11.   An important central theme emerged from the workshop. Discussions in the first regional workshop had focused on issues and concerns of "the <u>what</u>" (what are the technology needs, what are the barriers, what are the roles of different stakeholders, etc.?). Discussions in the second regional workshop began to address questions of "the <u>how</u>" (e.g., how can technology needs be identified and assessed, how can barriers be identified and addressed, how can different stakeholders participate, and how can these ideas be brought together in a framework for action under the UNFCCC?).

12.   The workshop participants recognized that the Asia and the Pacific region comprises a large number of countries with a diverse range of environmental, geographic, economic and social characteristics. It contains a combination of some rapidly emerging economies with substantial private sectors (frequently comprising significant transnational and/or small and medium-sized enterprises (SMEs)) as well as some of the least developed countries in the world.

13.   Despite this intra-regional diversity, the workshop was able to consider many of the complex aspects of the special situations and needs of individual countries. In this context, participants were able to consider the issues and questions contained in the annex to decision 4/CP.4 and provide suggestions for elements of a framework for meaningful and effective actions to enhance the implementation of Article 4.5 of the Convention.

14.   The report summarizes the proceedings of the workshop in five main sections:

- Technology needs and technology needs assessments
- Technology information
- Overcoming barriers to the transfer of technology
- Building capacity for the development and transfer of technology
- Suggested possible elements of a framework

B. <u>Technology needs and technology needs assessments</u>

15.   Specific examples and greater detail of technology needs and approaches to technology needs assessments are contained in the country papers. A number of themes emerged at the workshop relating to technology needs and technology needs assessments.

16.   The participants from developing countries within the region noted that ESTs should simultaneously address basic human needs and be compatible with nationally determined socio-economic, cultural, environmental and sustainable development priorities. This issue is particularly important to the poorest and least developed countries in the region.

17.   Participants noted that the identification and assessment of technology needs should be led by the developing country Parties themselves. They recognized, however, that in many cases this process requires the support and assistance of developed countries. Needs identification and assessment should be a transparent, bottom-up, multi-stakeholder, participatory process to facilitate the identification, assessment, prioritization, and communication of technology needs.

18.   Some developing country participants noted that several countries in the region have already completed needs assessments and/or compiled a list of technology needs. These countries suggested that further action to refine these needs assessments was of less importance than moving forward to develop and implement action to respond to these identified needs. Thus an important element of a framework would be incentives for early and immediate action.

19.   The adaptability of technology to local markets and situations was frequently mentioned and discussed in the context of processes to assess countries' technology needs. Participants recognized that technology transfer is not a one-step event, but a process of partnership and cooperation among various stakeholders. Participants noted that a sustainable approach to technology diffusion and adaptation to local conditions is a long-term, country-driven process. Such a process is inherently complex as it demands a country-, project- and technology-specific approach.

20.   The importance of considering both mitigation and adaptation technologies was emphasized by many speakers. Participants suggested that technology priorities will necessarily reflect differing needs across the region in relation to mitigation and adaptation. Some participants recommended that, within the range of mitigation options and technologies, there would be advantages in focusing initially upon technologies that have potentially large commercial markets.

21.   In the case of adaptation technologies, it was acknowledged that the needs in this area are being overlooked. The range of possible adaptations to climate change is large and spans many socio-economic, ecological and environmental categories. The market for technological approaches to adaptation is therefore also potentially large. However, various barriers are present which prevent markets for adaptation technologies from being realized.   Governments could play a leading role in overcoming such barriers. In this context, participants suggested that the initial focus be on so-called "win-win" adaptation technologies which provide both climate change benefits and support socio-economic and sustainable development objectives.

22.   An important element of a framework for meaningful and effective actions could be for Annex II Parties to assist non-Annex I Parties with the process of technology needs identification and assessment. There is also a need to more systematically communicate and report the results of these needs assessments to other Parties.

C. Technology information

23.   The working groups reflected upon various aspects of the information on ESTs which is needed and how this information could best be identified, developed, stored, accessed and provided to Parties.

24.   Several common themes emerged from the discussions. A central question was how to enhance the flow of information between developed and developing countries and among developing countries. It was agreed that information must be targeted to assist the various categories of stakeholders involved in making decisions which relate to technology transfer. It was also generally recognized that a first important step toward improving the flow of information is to enhance the capacities of existing regional organizations and centres. The need for and scope of additional functions of such centres should be examined and defined.

25.   Participants noted that accessing appropriate, reliable and useful information on technology is often difficult and not always possible. Improving access within developing countries to better information on the best available technologies and processes for mitigation and adaptation technologies should be a priority.

26.   The suitability of the Internet as the main vehicle for information exchange in the region was examined. Regional participants noted that many small and medium-sized enterprises in parts of the region do not have access to the Internet. In some cases, more conventional methods of information sharing may need to be employed, such as newsletters and other printed material.

27.   Quality control and comparability of information were raised as key priorities that need to be addressed. To improve the quality and transparency of information, several participants suggested that performance evaluation ratings for technologies be developed to facilitate comparability of technologies on a uniform basis. Ratings could be used as a yardstick for governments and firms choosing technologies, either domestically, or through technology transfer from overseas.

28.   Several ideas were put forward concerning both the supply-side and the demand-side aspects of information dissemination. To ensure the availability of important information needed for effective technology transfer, several participants suggested the development of inventories or databases in areas such as publicly-owned technologies and indigenous technologies, as well as an inventory of technology-related needs of developing countries for ESTs. Several participants believed that it would be extremely valuable to improve the availability of information on case studies and demonstration projects implemented.

29.   It was noted that much more information on technology-related activities and projects exists than is reported in national communications and submissions. It was suggested that since this information is available, or could be made readily available at the national level, any framework should attempt to include and incorporate such information as it would be useful to Parties. Several participants suggested that a database of relevant projects be constructed and maintained to assist various stakeholders to learn from the range of global experience already gained. Such a database could be maintained by the UNFCCC and contain a register of technology transfer projects recognized under the Convention.

30.   The establishment of a technology information clearing house was put forward by several participants. The clearing house functions could include some or all of the above-mentioned areas of information collection, analysis, storage and dissemination. Further ideas for the functions of such a clearing house included: hosting a list of global source(s) of information on ESTs, coordinating activities with a number of international, regional, national and thematic focal points via the Internet, and mobilizing the private sector and other intermediaries to contribute their knowledge and skills.

31.   Several concerns about the neutrality and security of information dissemination under the Convention were raised and the benefits of utilizing existing international agencies of high repute were noted. In addition to providing an effective "filter" for information, an important function of a clearing house could be to ensure the security of information relating to patents and intellectual property rights.

32.   Participants agreed that a successful framework for technology transfer should cater for such concerns of quality, access, reliability and comparability of information on ESTs. The participants considered how a framework under the UNFCCC could assist Parties in assessing the sufficiency, reliability and credibility of information sources. The extent to which any framework could itself assist in standardizing the assessment and verification of the quality of information was left as an open question.

D. Overcoming barriers to the transfer of technology

1. Barriers to technology development and transfer

33.   Several important themes emerged at the workshop relating to technology transfer barriers and the action needed to overcome them. There was broad agreement that the removal of barriers to the transfer and development of ESTs is an important element of a framework to enhance technology transfer under the Convention.

34.   The wealth of information on both country- and region-specific barriers to the transfer of technology contained in the country papers submitted to the workshop, in a previous technical paper on barriers (FCCC/TP/1998/1) and in the report of the African regional workshop on the technology transfer consultative process (FCCC/SBSTA/1999/11). Recognizing the need to move the consultative process forward, the participants focused on questions of "how" these barriers could be addressed within a framework under the UNFCCC rather than providing additional information on "what" the general barriers are.

35.   While much of the discussion on this subject focused predominantly on ways and means of overcoming barriers, several additional barriers and categories of barriers not included in the above-mentioned sources were identified. In particular, the workshop participants noted that barriers and constraints to the transfer of ESTs exist in both developing and developed countries.

36.   Important institutional barriers were identified, such as insufficient linkages between the technology research and development agencies and the development assistance agencies in many developed countries. In developing countries, insufficient local capacity to adequately support and manage imported technologies was noted as significant in this region.

FCCC/SBSTA/2000/INF.2
Page 8

37.   Technological barriers identified in the Asia and the Pacific region included a lack of endogenous research and development capabilities and a lack of regional capacity to adapt imported technologies to local conditions. For some of the least developed countries, a lack of understanding of technology needs was expressed.

38.   In terms of technology information, participants noted a general lack of access to technical information on available technologies. Information that is available is not readily comparable and often of variable or dubious quality. Information on publicly-owned technologies is scarce and inconsistent.

39.   Political barriers pertaining to both developed and developing countries were noted. These barriers included insufficient integration of climate change goals into industrial regulation and economic development policy, and lack of awareness of climate change issues among various development organizations, trade associations and industries.

40.   Economic barriers were discussed. These included the problem of immature or non-existent markets for promising emerging technologies and for technologies associated with adaptation to climate change as well as a general lack of understanding of the operations of EST markets. Business practices that restrict access to and transfer of technologies from developed countries were also noted, as were other issues such as export credits.

41.   Many participants noted financial barriers, citing complex and bureaucratic processes to access funds, particularly in multilateral institutions, as well as a general lack of micro-credit facilities, intermediary businesses and availability of innovative financing for emerging EST markets.

42.   Many specific ideas were suggested as possible ways of overcoming these barriers. The participants noted that an initial step entails the identification and analysis of barriers. Recognizing that key barriers may manifest themselves differently in different countries and sectors, the participants agreed that the identification, analysis and prioritization of barriers must be a country-driven process which involves input from the full complement of international stakeholders in the technology transfer process. However, it was also noted that many developing countries may not have adequate capacity to do so and would require external assistance from developed countries.

2. How technology cooperation and assistance can address barriers

43.   The working groups and panel discussions noted that technology cooperation efforts need to be better targeted and coordinated. Efforts must address key concerns as viewed from the perspective of the developing countries rather than being targeted at technologies which may be

more easily transferred, but are less appropriate in the local circumstances. The development of joint research and development activities was suggested as one way to deal with this problem.

44.   Technology cooperation must also address technology transfer conditions which dictate the use of donor-country consultants, purchase of their equipment, use of their contractors, etc.

A more open, multilateral approach is needed that involves full consultation with the user country on project development, technology selection and implementation.

45.   The concept of technology partnerships, public/public, public/private, and private/private, emerged as an important aspect of a framework to enhance the development, adaptation, adoption and integration of imported technologies. Many participants expressed hope that partnerships could be established in the areas of technology research and development, financing, project identification and design, project implementation and management, business matchmaking and joint ventures.

46.   Discussions generated several ideas on how new and innovative technology, know-how and practices could more effectively be introduced and adopted in countries of the region through technology cooperation. Demonstration and pilot projects were suggested as a possible element of a framework that could enhance the transfer of technology. These projects could provide initial stimulus to the development of new markets, develop confidence in emerging technologies, ensure that local conditions are given full consideration, raise the awareness of key stakeholders, promote the utilization of local consultants and contractors to enhance endogenous capacities, and promote development of the "intermediary" businesses needed to sustain technology penetration.

47.   Coordinated participation of a wide range of stakeholders in the process of addressing technology transfer barriers was also recognized as an important ingredient of a framework for action. The panel sessions spent considerable time discussing the role and function of the key stakeholder interests, which include governments, non-governmental organizations, intergovernmental organizations, and the private sector. There was general agreement that governments, in particular, must take the lead as they play a vital coordinating role in promoting stable, long-term enabling environments, assisting in new market creation, channelling bilateral assistance to leverage private sector funds and leading with official development assistance where markets fail.

3. How governments can help overcome barriers

48.   A range of ideas were put forward on the role of the public sector in developing and implementing activities to overcome barriers to the transfer of technology. There was general agreement that one of government's most effective roles is to create the economic, legal and regulatory conditions that promote private sector trade and investment resulting in technology transfer, including the removal of market barriers and building human capacity; in other words, helping to create an enabling environment to facilitate enhanced flows of technology.

49.   Providing the enabling environment was noted as a responsibility of both developed and developing country Parties. Participants agreed that the enabling environment does not only refer to the private sector and that effective enabling environments need to be presented on both sides of the technology transfer spectrum.

50.   In subregions and/or sectors where market forces are not yet well developed, governments and the public sector would need to play a more comprehensive role to increase access to technologies and effectively facilitate the transfer of technology. Some suggested

activities included: reorientation of lending policies of financial institutions towards "greener credit", opening of "special windows" for financing ESTs, long-term soft loans for effective demonstration of both soft and hard technologies, and creation of separate research and development funds to support joint research and development initiatives for indigenous development of ESTs.

51.   It was noted that all governments should facilitate the integration of climate change objectives into industrial, economic and development policy. In particular, developing countries can implement effective and successful "win-win" activities which simultaneously address local environmental concerns as well as climate change objectives.

52.   Improving the enabling environment in developed countries could be facilitated by inward-looking activities such as capacity-building and effective engagement of the private sector. Important outward-looking activities include reorienting donor assistance to better integrate this assistance with host country development plans; removing conditionalities on donor assistance; coordinating assistance with other bilateral and multilateral donors; removing barriers to the dissemination and application of research and development; and developing programmes on the transfer of publicly-owned technologies.

4.   How the private sector and non-governmental organizations can help

53.   Participants recognized that the private sector is an important vehicle for the development and transfer of technologies. In developing countries, technology transfer via the private sector occurs, in part, through the participation of SMEs. While the large multinational industrial enterprises most often have in-house capability for participating in this process, effective technology cooperation involving SMEs will require that they be provided with appropriate tools to participate, including know-how and access to realistic performance data, and the capacity to access, scan, screen, and evaluate available technologies.

54.   To further improve the participation of regional SMEs in the technology transfer process several participants suggested that assistance be provided to small-scale industrial units to assist them to control pollution through adoption of cleaner technologies. Encouraging these industries to respond simultaneously to local environmental objectives and global environmental concerns would broaden their understanding and increase their participation in the transfer of ESTs.

55.   Participants from the developing countries felt that a key element of a technology transfer framework would be to ensure the development of the capabilities of host country intermediaries, such as energy service companies, banks and consultants.

56.   Recognizing a potentially valuable role for non-governmental organizations, participants agreed that a framework for actions should, where appropriate, utilize the local and regional non-governmental organizations in an increasingly important capacity to inform and involve the SMEs in this process. The participants noted that to further promote the involvement of the private sector in EST transfer, non-governmental organizations could help to facilitate the integration of climate change objectives into industrial, economic and development policy.

5. How intergovernmental organizations can participate

57.   Many developing countries felt that existing bilateral and multilateral mechanisms do not fully meet the needs for technology transfer in some cases and hence there is a need to promote additional supportive or cooperative approaches to take into account the concerns and considerations of developing countries. The question of whether new institutions would be needed or whether enhancement of the functions of existing institutions would be sufficient was left open.

58.   It was suggested that the UNFCCC could play a larger role in collecting, synthesizing and disseminating information deemed important to Parties on technology transfer.   Information could include: case studies, innovative approaches to technology cooperation, best practices, performance standards, publicly owned technologies, a database of technology experts, etc. Suggested mechanisms for information collection and dissemination could include workshops, technical papers and the Internet.

59.   Multilateral efforts to facilitate technology transfer, including those of the World Bank, regional development banks, the Global Environment Facility, CTI, etc., could be more effective with greater emphasis on capacity-building and coordination with national objectives. These institutions could be entrusted to coordinate donor (bilateral and multilateral) responses to climate technology needs, help countries establish one set of technology cooperation priorities, and report on successes and failures of ongoing programmes.

E. Building capacity for the development and transfer of technology

60.   The discussion on capacity-building for technology transfer tended to narrow the main areas of concern to four important aspects of capacity-building in relation to technology transfer activities under the Convention.

61.   Firstly, participants recognized that the scope of potential capacity-building activities includes needs assessments, prioritization, planning, implementation, monitoring and evaluation.

62.   Secondly, they noted that technology transfer does not solely concern so-called "hard technologies" but is almost always also about so-called "soft technologies" (e.g. know-how and practices). Indeed, sometimes it is *exclusively* about soft technologies. It was noted that transferring experience, knowledge, skills, know-how and practices in itself builds capacity. The assessment of existing capacities and the identification of gaps where capacity-building activities can be targeted is therefore another important step which must be incorporated into the design of any framework. More effort is needed to raise awareness of the many ways in which donor countries could support and channel resources to effectively build capacities.

63.   Thirdly, participants agreed that the capacity-building activities which can most successfully help achieve and sustain effective technology transfer are those which measurably utilize and enhance existing endogenous capacities and technologies.

64.   Fourthly, they noted that, in practical terms, often the best way to build capacity is through demonstration or pilot projects. Many reasons were cited for this, including: the simple

benefits of learning by doing; the vertical coordination of a large number of decision makers and stakeholders which project experience brings about; creation and support for necessary "intermediaries"; the use of local consultants and contractors to enhance capacities; and the positive effect that projects have on the broader enabling environment.

65.   Discussions did raise issues relating to donor-led versus country-driven efforts to build capacities. It was pointed out that capacity-building through international bilateral or multilateral activities is usually a two-way process resulting in the building of capacities on both sides, i.e. the host country as well as the donor countries or organizations themselves. Participants from developing countries raised the question of how any framework could assist in building the capacities of the donor countries to make their contributions more effective. Participants also noted that issues relating to capacity-building are being considered elsewhere in the climate negotiations process and that it may be necessary towards COP 6 to distinguish carefully, if possible, those elements of capacity-building that relate most directly to enhancing the implementation of Article 4.5 of the Convention.

66.   It was mentioned that, in addition to capacity-building for developing countries, there was also a need for capacity-building in developed countries on issues of technology transfer and the UNFCCC. It was suggested that a separate workshop be held mainly for developed country Parties, with developing country participation, for exchanging information and sharing experience on the implementation of Article 4.5.

F. Suggested possible elements of a framework

67.   In the working groups and the final panel session of the workshop, the Chairman requested participants to share and discuss their initial ideas on possible elements of a framework for meaningful and effective actions to enhance the implementation of Article 4.5 of the Convention. As these preliminary ideas emerged, the Chairman did not attempt to hold a debate or to reach agreement among participants on the appropriateness, practicability or acceptability of these ideas or on how such ideas relate to a framework.

68.   The various ideas and suggestions by participants are grouped together under the following headings: issues and concerns regarding a framework; suggestions for possible action by Annex II Parties; suggestions for possible joint activities and partnerships; and suggestions for possible intergovernmental activities.

1. Issues and concerns regarding a framework

69.   Several key issues emerged related to the elements of a framework for action under the UNFCCC. One key question relates to scope, namely, which actions should be recognized as fulfilling the commitments of a Party under the Convention. Another key question relates to accountability, namely, how can technology transfer be measured and reported upon under the UNFCCC. A further issue focused on the framework itself and includes questions such as "what is a framework?", "what are elements of a framework?", and "how to develop such a framework under the UNFCCC?".

70.   Several developing country participants suggested that a framework for action should directly address the commitments of developed country Parties contained in Article 4.5 of the Convention. These participants believe that the onus falls upon the governments of developed

countries to take action to fulfil their responsibilities under Article 4.5 and report upon activities undertaken and the outcome of these activities. These participants believe that action taken by the private sector lies outside the Convention commitments and hence differs from action by governments to meet obligations under Article 4.5.

71.   Further, several participants linked the scope of a framework to Article 11.1 of the Convention, which addresses the provision of financial resources for technology transfer on a grant or concessional basis. These participants noted that technology transfer on "non-commercial terms" requires an active government role in transferring technologies rather than reliance on the private sector.

72.   Other participants noted that a framework should take a broader view of technology transfer, in light of the many changes and developments which have occurred since the Convention was drafted. An effective and sustainable framework to enhance technology transfer under the Convention should recognize and take into account these more recent developments, including effective bilateral and multilateral technology transfer programmes. These participants noted that transfer of technology is occurring and that it occurs most effectively when there is a partnership between stakeholders in developed and developing countries. These participants envision a framework that would explicitly recognize private sector action and government activities to enhance private sector action as meeting the commitments of the Parties under the Convention.

73.   On the issue of expanding the scope of existing activities and institutions, several participants suggested that the existing bilateral and multilateral programmes were effective and sufficient and cautioned against establishing additional mechanisms or new institutions without further study. Other participants felt that existing mechanisms do not target EST transfer adequately or specifically enough and should be strengthened, and that new mechanisms may also be necessary.

74.   Many participants expressed the idea that a framework should improve reporting and measuring procedures for technology transfer for all Parties under the Convention. How best to measure technology transfer under the Convention and by which metric (e.g., using financial indicators, technology indicators or market impact indicators) to evaluate these efforts were recognized as difficult issues which will require further discussion. Further, several participants expressed concern as to whether or not meaningful technology transfer goals could even be set.

2. Suggestions for possible actions by Annex II Parties

75.   Develop or enhance "one-stop technology transfer shops" within donor countries to facilitate developing countries' access to technologies and mechanisms for their transfer.

76.   Develop or enhance inventories and/or databases of technologies and technology transfer activities of Annex II countries. These data could include information on publicly owned technologies and on case studies and demonstration projects.

77.   Develop or enhance a specific bilateral mechanism by which Annex II Parties can provide financial and technical assistance to non-Annex I Parties to carry out effective technology needs assessments and identify priority technology needs.

78.   Develop or enhance programmes to respond to identified priority technology needs of developing countries, including the implementation of technology demonstrations and pilot projects.

79.   Develop or enhance a specific mechanism to fund technology transfer projects and activities on a grant or concessional basis. This mechanism could include a provision to improve access of developing countries to the rights to specific technologies which have been identified as a priority.

80.   Develop or enhance national quality assurance programmes for technology transfer exports and related development assistance programmes, projects and activities.

81.   Develop or enhance specific domestic policies and measures to promote the transfer of ESTs by the private sector to developing countries.

3. Suggestions for possible joint activities and partnerships

82.   Create, with the assistance of Annex II Parties, specific, national "climate change technology units" in developing countries. These national bodies could be vested with responsibility to develop national inventories of technology-related needs, plan and implement the diffusion of priority technologies, and serve as focal points for stakeholder involvement in technology transfer activities.

83.   Enhance coordination of national energy and environmental research and development programmes with international development assistance activities both within and between Annex II and non-Annex I countries. This could include development of joint donor-developing country research and development initiatives on key technologies or technologies of mutual interest.

84.   Develop, with the assistance of Annex II countries, greater awareness and better understanding among decision makers in developing countries of issues related to patents, intellectual property rights and equipment standards and certification.

85.   Develop a multilateral technology programme to assist developing countries to establish a domestic programme to conduct technology needs assessments, identify technology priorities, and build appropriate institutional and human capacity needed for sustainable technology transfer. The programme could coordinate collaboration of stakeholders from both donor and developing countries in the technology transfer process.

86.   Develop a programme to cultivate bilateral and/or multilateral technology partnerships in the areas of project financing, identification and design, project implementation and management, and joint ventures.

4. Suggestions for possible intergovernmental activities

87.   Establish a separate process under the Convention, apart from national communications, for Annex I Parties to report on technology transfer activities. While revised guidelines for

Annex I national communications were also suggested, several participants noted that the relevant timescales and level of detail may still be insufficient to satisfy all Parties.

88.   Establish a separate process under the Convention, apart from initial national communications, for non-Annex I Parties to communicate results of national technology needs assessments, including elaboration of technology priority needs, key barriers, priority programmes and projects.
89.   Develop an intergovernmental technology advisory panel under the Convention to monitor and evaluate technology transfer activities.

90.   Establish an ad hoc panel of experts under the Convention to monitor and review activities on technology transfer at the country level and participate actively in helping to develop and improve the international technology transfer process.

91.   Develop a multilateral mechanism under the Convention for coordinating donor assistance in specific technological areas and regions.

92.   Develop performance evaluation ratings for technologies to facilitate comparability of environmentally-sound technologies on a consistent basis.

93.   Enhance networks to disseminate technology information.

94.   Establish a technology information clearing house to facilitate technology information collection, analysis, and dissemination.

95.   Develop international technology demonstration centres to demonstrate and commercialize viable ESTs in developing countries.

96.   Arrange for other possible future activities to be undertaken by the UNFCCC secretariat, which would include:

        (a)   Collecting, synthesizing and disseminating information on case studies, best practices, innovative technology transfer approaches, and practical technology transfer experiences;

        (b)   Compiling technology performance standards;

        (c)   Identifying and developing inventories of publicly owned technologies;

        (d)   Synthesizing and assessing information on emerging technologies;

        (e)   Maintaining a register (database) of technology transfer projects.

Annex

REPORT OF THE SECOND CLIMATE TECHNOLOGY INITIATIVE/INDUSTRY
JOINT SEMINAR ON TECHNOLOGY DIFFUSION IN ASIA

A. Introduction

1.   Approximately 110 participants from 30 countries representing the private sector, government, and non-governmental organizations participated in the second CTI/Industry Joint Seminar on Technology Diffusion in Asia, 13-15 January 2000. The seminar provided a forum for discussion on a wide range of topics, from what was meant by technology transfer, to practical, near-term steps that might be taken to promote, facilitate, and finance transfer of and access to environmentally-sound technologies and practices.

2.   The outcomes from the CTI seminar were reported at the UNFCCC regional workshop on the transfer of technology consultative process held in Cebu, the Philippines, 17-19 January 2000. This report summarizes the outcomes of the CTI seminar as follows: (1) perspectives on technology transfer; (2) capacity-building needs; (3) information needs; (4) institutional needs; and (5) financing and project development.

B. Perspectives on technology transfer

3.   Participants were in general agreement that technology transfer was not a single-step process, but consisted of several steps, including: (1) creating awareness of the need for environmentally-sound technologies (ESTs); (2) obtaining information on and assessing technology options; (3) developing capacity for absorption/adoption; and (4) implementing and operating the technology.

4.   Participants noted that the challenge within the transfer of technology consultative process was to find politically acceptable and practicable answers to the issues and questions in the annex to decision 4/CP.4.

5.   The seminar considered a broad view of the scope of activities involved in technology transfer. This view included activities that result in the acquisition, introduction, and integration of hard and soft technologies into a country. Participants felt that meaningful technology transfer goes beyond the installation of turnkey projects and should include the transfer of knowledge and skills necessary to maintain and support technologies.

6.   Several participants noted that for technology transfer to be successful, countries should have in place well-defined and enforceable intellectual property rights protection so that the owners of ESTs will be confident that the terms of licensing or other agreements will be respected.

C. Capacity-building needs

7.   Several participants took note of the lack of entrepreneurial and technical skills necessary to absorb more advanced technologies. It was suggested that some of this human-endowed

capacity-building could be developed through bilateral and multilateral activities which might include technical exchanges, demonstration projects, and education, such as the technology training courses being conducted on a regional basis by the CTI. Growth of technical and entrepreneurial capacities within some developing countries could provide increased opportunities for south-south cooperation.

D. Information needs

8.   Although participants acknowledged some improvements in the quality and accessibility of information on ESTs, they also reiterated that there is a serious need for greater awareness and understanding of technology options to respond to climate change, including those related to adaptation. The lack of information on technology alternatives, and/or the lack of access to information channels can inhibit the adoption of ESTs and practices. In some situations, the problem is not the absence of information per se, but access to relevant, useful information.

9.   Participants noted that as availability of and access to climate-related information increases, it becomes even more important to maintain the quality of such data. This is where the establishment of well-defined country-specific needs can be of great assistance when assessing technology alternatives. Participants discussed how such a need might be met through the CTI programme of working with countries to develop a cooperative technology implementation plan laying out specific technology needs and options for particular sectors.

10.   Participants also noted the present difficulty in making meaningful inter-country or regional comparisons to assess the extent of technology transfer progress under the Convention. It was suggested that a technology assessment matrix be developed wherein technologies would be ranked according to their relative environmental, social and economic benefits.

E. Institutional needs

11.   Two themes relating to institutional needs were highlighted. First, participants noted that successful technology transfer most often occurs through collaborative involvement of government, the local community, and the private sector. Second, participants emphasized that without the involvement of the private sector only limited technology transfer will occur, as governments can only do so much directly.

12.   Several participants noted that governments can play an important role through enacting policy reforms with the intent of creating markets, increasing private sector participation and increasing investments in large-scale project implementation. At the same time, some participants cautioned that too much government intervention can actually slow down the process of adopting climate-friendly technologies. Many participants felt that governments should be more a facilitator than a regulator, since regulation can inhibit innovation, and that regulations which provide greater benefits for the costs they impose are likely to be both more attractive and more effective in the long term.

13.   It was noted that public policy interventions, such as incentives and government procurement practices, may be appropriate in some cases to accelerate adoption of environmentally sound technologies and promote the demand for a particular technology need.

Participants voiced the need for public support of technology development costs, since, due to risks and the "free-rider" problem, it is often not in the best interest of a single firm to cover the entire investment.

F. Financing and project development

14.   Participants discussed financing of projects in terms of both lending and borrowing perspectives. Both perspectives acknowledged that financing is a risk-sharing business between project developers and lenders. It was broadly agreed that financing is more effective when borrowers and lenders clearly identify and understand the potential environmental issues, socio-economic impacts, management capabilities, and other salient aspects associated directly and indirectly with the specific project initiative.

15.   Participants noted that the transaction costs of financing are not directly related to the size of loans. The costs of placing a small loan may be nearly as great as those to process a loan for a major project and therefore small projects may need financial intermediaries. Several participants suggested that bilateral activities and multilateral organizations should focus on small and medium-sized enterprises.

16.   Several participants identified a need to increase the number of "green" bankers. Some participants noted that lenders could be more sensitive to borrowers' environmental needs and the local socio-economic impacts of projects. Several participants suggested that one option is to change the mind-set of the financial community so that environmental issues are viewed as opportunities rather than cost issues. In that regard, many participants characterized the clean development mechanism (CDM) as such an opportunity. In the context of CDM as well as other project investments, recognition was given to in-country benefits in the form of significant increases in revenue to the government and the local economy for infrastructure improvement.

G. Suggested roles for CTI in the Asia-Pacific region

17.   Participants discussed how multilateral activities such as the CTI can continue to help promote meaningful and effective technology transfer under the UNFCCC. The seminar participants identified five activities which initiatives such as the CTI could undertake:

(a)   Develop technology training courses to build indigenous capacity. Training courses should be focused and directed toward specific regional needs. It was also suggested that training materials, particularly for the use of course graduates to train others, could be developed and widely disseminated;

(b)   Organize technology diffusion seminars structured to address country and regional priorities and contemporary issues. Several participants noted the need to organize a seminar in the small island states to cover adaptation issues. In addition, participants also identified a need hold seminars in developed countries on technology transfer, particularly to engage the private sector in the UNFCCC process;

(c)   Improve access and linkages to better quality information on climate-friendly technology (e.g., via technology-specific search engines such as that available at http://www.ClimateTech.net, and other reports on EST market information and best practices);

(d)   Maximize the use of existing programmes to provide incentives for ESTs;

(e)   Expand multilateral activities with countries in the Asia and the Pacific region to collaboratively establish priority technology needs on a sectoral basis (e.g., through cooperative technology implementation plans).

- - - - -