Technology Executive Committee **3 September 2012**
Fourth meeting

Synthesis of submissions received in response to the call for inputs on ways to promote enabling environments and to address barriers to technology development and transfer, including on the role that the Technology Executive Committee could possible play in this area of work

I. Introduction

A. Background

1. The COP, by its decision 1/CP.16, requested the Technology Executive Committee (TEC), as one of its functions, to recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation.

2. The rolling work plan of the TEC for 2012-2013 includes the organization of a thematic dialogue on enabling environments and barriers to technology development and transfer, which was organised in conjunction with the third meeting of the TEC.

3. The TEC, at its third meeting, agreed to launch a call for inputs on ways to promote enabling environments and to address barriers to technology development and transfer, including on the role that the TEC could possibly play in this area of work, as one of the follow up activities of the thematic dialogue.

4. As requested by the TEC, the secretariat issued a call for inputs through the UNFCCC website on 18 June 2012, and invited interested organizations to provide their submissions by 31 July 2012.

B. Scope of the note

5. This note synthesizes information on ways to promote enabling environments and to address barriers to technology development and transfer, including on the role that the TEC could possible play in this area of work as contained in 17 submissions received by the secretariat from relevant organizations (see table 1) in response to the call for inputs.[1]

6. Submissions addressed both technology development and technology transfer. With regards to technology transfer, organizations suggested several measures that can be taken by the recipient country to attract climate investments and facilitate technology transfer measures that could be considered by the suppliers of low-carbon technologies, and also measures that could be further taken by the respective organizations, within their area of expertise. The majority of the organizations highlighted activities they are already involved in, that aim at supporting developing countries to enable local environments to attract investors.

[1] The submissions from relevant organizations are available at <http://unfccc.int/ttclear/jsp/CallInputs/EE.jsp>.

Table 1: Overview of organizations that made submissions.

Organizations		
Asian Development Bank (ADB)	Indian Institute of Technology	South Centre
Business Council for Sustainable Energy (BCSE)	Institute for Global Environment Strategies (IGES)	Third World Network (TWN)
Brookings Institution	International Centre for Trade and Sustainable Development (ICTSD)	United Nations Development Programme (UNDP)
Climate Action Network International (CAN)	International Renewable Energy Agency (IRENA)	World Bank
Climate Investment Funds (CIF)	Global CCS Institute	World Business Council for Sustainable Development (WBCSD)
Energy Research Centre of the Netherlands (ECN)	Mary Robinson Foundation Climate Justice	

II. Synthesis of information provided by organizations on ways to promote enabling environments and to address barriers to technology development and transfer, including on the role that the TEC could possible play in this area

A. Promoting enabling environments in developing countries

1. Examples of activities that foster enabling environments in developing countries

7. Organizations highlighted in their submissions various projects and programmes they participate in that encourage enabling environments in developing countries. Examples of such activities include "**Sustainable Energy for all**" (launched by the United Nations Secretary General and aimed at ensuring universal action to modern energy services), "**Lighting Africa Initiative**" (a joint program of the World Bank and International Finance Corporation aimed at helping develop commercial off-grid lighting markets in sub-Saharan Africa), "**Green Growth Alliance**" (a G20 partnership launched in 2012 with the goal of addressing the estimated $1 trillion annual shortfall in green infrastructure investment), and "**The Global Sustainable Electricity Partnership**" (launched by WBCSD to strengthen PPP to accelerate global electricity technology deployment). ADB aims also at accelerating climate technology development and transfer through the newly established **pilot Climate Technology Finance Centre** (CTFC). Other initiatives include capacity-building training programmes, national-level studies and regional mapping of local circumstances (e.g. supported by, among others, ADB, IRENA, World Bank).

8. Climate Investment Funds featured in detail several projects underway in South Africa (various renewable energy and efficiency improvement projects financed through the **Clean Technology Fund**), Nepal (as part of the **Program on Scaling-Up Renewable Energy in Low-Income Countries**), Mozambique (**Pilot Program for Climate Resilience**) and Brazil (as part of the **Forest Investment Program**) and made reference to a considerable amount of other similar projects running in 39 countries. The

four country case studies presented in their submission highlight how completed and on-going projects can set the grounds for further, scaling up projects.

9. In 2011, IRENA conducted a survey among its members about **renewable energy technology cooperation activities**, as well as technology centres working in the field of renewable energy. The resulting mapping does not give a complete picture, but tells a story of much activity in some regions, countries, technologies and types of activities, and large gaps in others. It also indicates that the relevance of continuity in capabilities in different contexts is sometimes overlooked, and that coordination is largely absent. It seems that collaboration on policy, public awareness and training is much more common than on research, development and demonstration and on deployment of renewables.

2. Publications and tools

10. A recent initiative of the World Bank (launched in Jan 2012) provides an online database of national policies and potential barriers, which can be used as a tool for promoting sustainable investment climates for climate -friendly investment (**Climate Investment Readiness Index**). The objective of the tool is two-fold: (i) A systematic and objective **evaluation of the enabling environment**, particularly in developing countries **for supporting private sector investment in climate mitigation technologies;** and (ii) **Enabling an inter-country comparison of investment climates for climate investments**.

11. Several publications highlighted in the submissions address the issue of enabling environments. They provide a comprehensive overview of challenges facing technology transfer to developing countries, and come with suggestions and recommendations on how to address some of these challenges that could be useful for the work of the TEC in this area. Examples include:

a. A Policy Strategy for Carbon Capture and Storage (IEA, January 2012);

b. Unpacking the International Technology Transfer Debate: Fifty Years and Beyond (ICTSD, 2012);

c. Fostering Low Carbon Growth: The Case for a Sustainable Energy Trade Agreement (ICTSD, 2012);

d. Realizing the Potential of the UNFCCC Technology Mechanism: Perspectives on the Way Forward, (ICTSD, 2012);

e. Meaningful Technology Transfer to LDCs: A Proposal for a Monitoring Mechanism for TRIPS Article 66.2 (ICTSD, 2011);

f. Technology Transfer in the TRIPS Age: The Need for New Types of Partnerships between the Least Developed and Most Advanced Economies (ICTSD, 2009);

g. Fostering the Development and Diffusion of Technologies for Climate Change: Lessons from the CGIAR Model (ICTSD, 2009);

h. Does TRIPS Art. 66.2 Encourage Technology Transfer To The LDC's?: An Analysis Of Country Submissions To The TRIPS Council (1999-2007) (ICTSD, 2008);

i. New Trends in Technology Transfer: Implications for National and International Policy (ICTSD, 2007);

j. Encouraging International Technology (ICTSD, 2004);

k. Enabling Frameworks for Technology Diffusion (WBCSD, 2009);

l. Innovating for green growth (WBCSD, 2009).

3. Good practices and lessons learned from creating viable enabling environments

12. Five organizations shared good practices from the activities performed to support developing countries in creating viable enabling environments.

13. BCSE suggests that the transition to a low-carbon economy cannot happen solely by government mandate; it also requires a **partnership with the private sector and education of the general public**.

14. IRENA suggests that programmes combining different types of activities in a single programme should be preferred to individual ones; as such **a systemic approach** can help the different elements in the cooperation to reinforce each other. Cooperation also works best when the reasons to collaborate of all partners are aligned and the activities are conducted in the framework of a long-standing relation. Funding agencies are recommended to stop a project when the results are achieved rather than when the deadline has been reached, balancing accountability with flexibility.

15. The **critical drivers for business investment** are, according to WBCSD: gaining competitive advantage in new markets; response to a growing market for products, services, etc.; a supportive and vigorous business environment, and access to reliable information to understand the risks (financial, technical and manpower).

16. **Regular stakeholder engagement, South-South learning**, and **knowledge management** are recommended by CIF as key for generating knowledge around technology transfer and the conditions needed to foster enabling environments for technology application in different country contexts. A Global Support Program, pilot-country meetings, a Partnership Forum and several Learning Products were established to provide CIF pilot countries with the appropriate platforms to communicate, share lessons, and access knowledge and expertise. In addition, a CIF Dedicated Grant Mechanism aims to remove the financial barriers which ordinarily restrict the full and effective participation of indigenous peoples and local communities in forest governance, sustainable forest enterprise and livelihood issues.

4. Recommendations to foster technology transfer

17. All of the organizations made recommendations aiming at fostering low-carbon technology transfer.

18. **Strong signals from governments for low-carbon growth** (nationally- and internationally-set targets and regulatory measures), could attract national and foreign low-carbon investors more easily, according to WBCSD. IGES also recommends **accelerating low-carbon Foreign Direct Investments (FDI)**, by shifting from current governance mechanisms toward green governance, both at company level and at government level. Regional and international organizations could provide the necessary support and advice to private companies and governments in the region to make this transition.

19. BCSE, CAN and WBCSD highlighted the need of **creating predictable, stable and transparent environments** for financial transactions, contracting, licensing, and dispute settlement.

20. IGES recommends that the focus should be put on **promoting the transfer of proven and commercially available technologies**. Technologies should be chosen also based on their potential to leverage large local spill overs.

21. The process should involve **technology customization and application,** and **not only technology transfer.** BCSE, South Centre and IGES consider technology transfer to imply also the **transfer of technological capabilities** that will ensure technological learning and thus, spill-over effects. According to WBCSD, **developing absorptive capacity** in the recipient countries is an essential pillar for low-carbon growth. It involves investing in people, infrastructure and institutions.

22. Mary Robinson Foundation - Climate Justice puts emphasis on the equity pillar of sustainability (addressing the needs of the poorest) and considers that linking **social protection and energy access** can provide an enabling environment for delivering energy access at scale and transferring technology to the poor. CAN and WBCSD also stressed the need to ensure access to sustainable energy for the poor, instead of subsidizing fossil fuel.

23. CIRI makes reference to a recent International Finance Corporation (IFC) report that suggests that the most **appropriate mechanisms for attracting private investment** should be based on a country's resources, features of its electricity market and related institutions, and investment promotion policies. According to the report such an approach minimizes distortions in the power sector and the overall economy and encourages competition and efficiency.

24. Global CCS Institute suggests that **government support for large-scale and pre-commercial demonstration projects** (such as CCS, solar thermal with energy storage, geothermal) can help drive the benefits of scale. Most technologies have learning curves which arise from the positive spill overs of experience and across the various stages of a technology's lifecycle that will drive down the price per unit installed. This clearly has a subsequent positive impact on the future cost of mitigation efforts.

B. Barriers to development and transfer of technology

1. Identification of barriers

25. Once the access to technology is secured, South Centre identifies three types of barriers developing countries may face in their efforts to incorporate technologies for the production and goods and services suitable for adaptation to and mitigation of climate change: a) **Lack of skills and/or financial resources to utilize freely available technologies**, b) **Reluctance to or onerous conditions** (such as IPRs) for the transfer of technologies, and c) **Asymmetries in R&D capabilities**, that might hinder developing countries to scrutinize scientific and technological developments that take place elsewhere and to generate capacity to absorb and adapt foreign technologies.

26. Where technologies are not patent protected, TWN considers that the key issues are the **costs of technology and the transfer of know-how** to use, maintain and adapt to local conditions for developing countries. Also, **the absence of stable and predictable carbon regimes** is considered by the Global CCS Institute to be a major barrier to private sector involvement. CAN and WBCSD mentioned the **existence of fossil fuels subsidies** in a country can hinder low-carbon technologies to penetrate the market.

27. ECN mentioned that **cultural practices and meanings** may prevent some innovations from becoming adopted. In Ghana, for instance, some of the benefits of

bioenergy technologies might be foregone because of the social stigma associated with using human waste. This means that it is important to include users in innovation processes. They can articulate their concerns, needs, wants and market demands – and this could make significant differences to policy strategies. Therefore, an understanding of the social context, and thereby how to leverage social processes to advance innovation, is an important complement to the technical aspects of innovation.

2. Challenges and opportunities

28. Each technology should be considered separately when trying to identify particular challenges and the opportunities it might face, as it often faces unique circumstances when trying to enter a new market. According to BCSE, a particular industry may have different modalities for diffusion, as well as different financial needs and incentive structures, infrastructure constraints and end-user behaviours that must be addressed. At the highest level, however, an **enabling environment that respects the rule of law, protects financial investments and provides a policy framework that creates an even playing field,** is needed by all clean energy technologies.

29. ECN emphasizes the great challenge many **low-carbon innovations face as they usually are in a pre-commercial stage of development.** Policies therefore need to focus on R&D, demonstration, pre-commercial deployment, market-creation and early commercial viability.

30. IRENA recognizes that TT is still at an incipient phase. In many developing countries, **technology centres are weakly developed and have poor links to government and the private sector; finance as well as industry**. This hinders the maturing of a renewable energy innovation system where government, research and industry reinforce each other's work towards greater renewable energy diffusion and transfer. A **well-networked, competent technology centre** can enable that a renewable energy technology cooperation activity is better embedded in national policy priorities.

31. Especially in developing countries, **data on renewable energy potentials and information on renewable energy technology in local languages** are often not publicly available or non-existent. It happens that **partners are not aware of good practices in renewable energy technology cooperation**; IRENA highlights the need to share information on what have been success factors in programmes. Lastly, there is **no central location where an overview of technology collaborations and centres is kept**. Although some redundancy in technology cooperation is not necessarily a bad thing, it is inefficient if similar activities are undertaken in the same region, when it unknowingly results in overlap, unproductive competition and lack of peer learning.

32. To spur transactions in climate-friendly technologies, ADB aims to **establish an innovative pilot technology marketplace**, which would bring together commercial buyers and sellers of low-carbon technologies and assist them with executing transactions. The technology marketplace will provide a pragmatic solutions-oriented approach to address TT information barrier.

33. With a view of integrating energy access into social protection programmes, Mary Robinson Foundation- Climate Justice highlights the need of **high level political commitment**, which must then translate into political support at a sub-national and local level. Other suggestions include: policy integration that can guarantee a holistic approach of the social protection programmes; development of innovative and accessible financing mechanisms to assist the poor to break out of the current cycle of paying high prices for energy such as kerosene, while lacking the capital to invest in sustainable energy options; development a multi-stakeholder model in which poor

people are recognized as key actors in their own development, and formulation of positions within a human-rights framework.

34. Brookings Institution identifies the **main gaps** in green growth innovation **where private sector investment could have a substantial impact** as follow:

a. Facilitating South-South collaboration;

b. Enhancing greater North-South collaboration;

c. Encouraging greater frontier innovation in the new tier of emerging economy innovators;

d. Supporting adaptive innovation for the Base of the Pyramid (BOP) from all countries;

e. Investing in support for absorptive innovation in all countries;

f. Providing business advisory support to developing countries;

g. Increasing financing for IP-sharing and financial products to de-risk entrepreneurial investments.

35. Of these, least commonly supported areas are long-term finance, business acceleration, frontier and adaptive BOP innovations, and South-South collaboration.

36. South Centre considers that in an international scenario dominated by the private development and appropriation of technologies, a set of **public institutions of excellence in research** would be a useful mechanism to undertake a common program of activities. Existing national institutions may welcome additional international funding, but governments may be reluctant to lose control over them. Given the vast array of fields where research is needed to generate adaptation and mitigation technologies, defining a set of priorities would require scientific competence and political commitment. A **mechanism of monitoring and evaluation** should also be put in place. Such a mechanism would be essential to define priorities, ensure an efficient utilization of resources and to achieve the concrete results that are urgently needed.

37. According to WBCSD, building capacity requires new forms of collaboration between the public and private sector, including **building trust between technology developers and users** and also **developing local management capability.**

3. IP issue

38. The importance of the Intellectual Property (IP) in disseminating low-carbon technologies was made explicit by four organizations (CAN, ICTSD, South Centre, TWN), which all addressed the issue separately in their submissions. However, the majority of submissions made references to it.

39. CAN, for example, addresses IPR policy measures for both the supply-side and demand-side of low-carbon innovative technologies. Demand side measures suggested include assurance of predictable, stable and transparent protection of IP consistent with national policy needs and international obligations; Implementation of market creation measures that establish some form of carbon price and stimulate demand for GHG reduction technologies; Implementation of market support measures, which may include subsidization for purchase of low-carbon technologies and technological goods, either through direct cash transfers or through after-purchase tax mechanisms; as well as support for research and development of locally appropriate technologies.

Implementation of such measures may bare costs, which may need to be offset within UNFCCC Articles 4.1c, 4.3, 4.5 and 4.7.

40. ICTSD mentioned several recent publications that address the issue of IPR:

a. Intellectual Property and Access to Clean Energy Technologies in Developing Countries: An Analysis of Solar Photovoltaic, Biofuel and Wind Technologies (ICTSD, 2007)

b. Intellectual Property Rights and International Technology Transfer to Address Climate Change: Risks, Opportunities, and Policy Options (ICTSD, 2010)

c. Patents and Clean Energy: Bridging the Gap between Evidence and Policy (UNEP, EPO and ICTSD, 2010).

d. Overcoming the Impasse on Intellectual Property and Climate Change at the UNFCCC: A Way Forward (ICTSD, 2011).

e. Technologies for Climate Change and Intellectual Property: Issues for Small Developing Countries**,** (Information Note No. 12 ICTSD, October 2009).

41. One of the key findings of these publications is that while the role of IPR in incentivizing innovation in climate change technologies, particularly important mitigation technologies, is well established, their **impact on technology diffusion and transfer is more complex because it varies from one technology/sector/developing country to another,** and is often difficult to isolate from a variety of other economic and institutional factors.

42. Third World Network (TWN) suggests there is little in terms of international rules to regulate restrictive practices in licensing agreements and anti-competitive uses of intellectual property and proposes that **Parties to the UNFCCC cooperate to develop norms/standards to regulate restrictive practices in licensing agreements and anti-competitive uses of IP**. It also makes reference to the G77 and China's proposal for the establishment of a Multilateral Climate Technology Fund, with the expectation that the fund will finance enhanced action on technology development and transfer and suggests that the IP on any technology resulting from R&D financed from the fund should belong to the fund under the UNFCCC. It further suggests that a possible way forward to accelerate low-carbon technology transfer is the **adoption of a Declaration on IP and Climate technologies**, similar to the 2001 Doha Declaration on TRIPS and Public Health, as such international declaration may make developing countries more confident to make full use of the flexibilities available in the TRIP Agreement. TWN also mentions several studies that describe situations where IPR represented a barrier to technology transfer.

43. South Centre highlights that when incremental innovations prevail, the exclusionary rights conferred by IPRs can lead to underutilization of knowledge, especially for the generation of subsequent innovation. As a result, in cumulative systems of technology, patents may deter rather than promote follow-on innovations. Moreover, as most patents in a developing country are held by foreign inventors or corporations, local R&D can be stifled.

C. Possible follow-up actions

1. International community

44. International organizations with membership from many countries in the world are well-placed to either fill some of the needs recognized in developing countries, or

catalyse further activities in and among their member countries. IRENA, ADB, CIRI, South Centre, and TWN are among the organizations that identified possible follow up actions within their own area of competence. It should be noted upfront that many international organizations and multilateral banks are already conducting such activities. Therefore organizations should **coordinate** explicitly with those already working on the matter.

45. IRENA could act **as a facilitator of technology cooperation** by stimulating RD&D cooperation; can provide tools and training material for managing RE projects, and can assist countries in finding and accessing funding. As a **promoter of strategic approaches in cooperative activities**, IRENA can encourage continuity of activities, cooperation with private sector, good practices and regional cooperation. Considering its main objectives, IRENA aims at becoming a **coordinator and knowledge hub in renewable energy technology**, by data repository, go-to place for independent information, effective dissemination, keep inventory of existing cooperation and centres. Finally, it is suited to provide **institutional support and policy advice.**

46. ADB's objective is to **help integrate climate technology financing needs into national development strategies, plans and priorities**, and advise governments of its developing member countries on creating business-friendly environments, including reliable rules, regulations, and policies that favorite climate technology development and transfer, which will create an enabling environment for climate technology development and transfer. Furthermore, ADB could help develop technology road maps and action plans, analyze and assess technologies and identify suitable technologies for investment and financing, and advice governments and private sectors for investment, which will address the knowledge and information gap.

47. The International Finance Corporation (IFC) is also actively involved in providing investment and advisory services to firms involved in clean energy generation and clean technologies. The IFC's Investment Climate business line's interventions are designed to complement the work of other parts of the World Bank and IFC and focuses on measures that foster competition, reduce barriers to private sector entry and operation, and develop appropriate and affordable fiscal and non-fiscal incentives to promote investments in renewable energy.

48. The Climate Investment Readiness Index (CIRI) database findings could be of great value to IFC teams in **getting a better insight into the barriers to investment that the private sector faces in various countries**. This would immensely help their advisory service activities as well as enable a strategic channeling of their lending activities.

49. TWN suggests the need for developing a "**Global Technology Pool for Climate Change**", in which IP owners of climate change-resilient technologies are required to place their IP as well as know-how in a pool and make them available to developing country firms. Access to the technologies and associated trade secrets and know-how would be conditioned on payment of a low compensation (in some circumstances royalty free) and on standard terms (that are to be negotiated). This approach has the potential to manage the IP system (if fair and reasonable terms that take into account development needs are negotiated), prevent abusive practices by the IP holder that prevents access to developing countries and make it administratively and financially easier for access to take place.

50. Organizations mentioned their commitment to continue to engage and involve in addressing the barriers to technology development and transfer.

2. Possible recommendations to the TEC

51. One of the main roles TEC could play might be **to create the international policy framework and guidance** to support it. This could include recommendations for enabling frameworks, facilitating a knowledge bank, fostering partnerships to support capacity building and training and working with other institutions to roll out support programmes (WBCSD and The Brookings Institution).

52. Several organizations recognized the position and role TEC can have in **synthesizing global information** and make it available to the global community. For example, ADB, South Centre and WBCSD made reference to **periodic assessment of technologies** including criteria to assess the suitability of the technologies for selection (e.g. environmental soundness, climate friendliness, social and cultural aspects, affordability, economy and efficiency). Similar syntheses of existing experiences studies and empirical research to **address barriers to the technology development and transfer** and to provide advice on options for solutions have been mentioned by ADB, South Centre, and Brookings Institution. WBCSD also considers TEC could be instrumental in **providing sources of information – data, contacts, TNAs, projects** to help guide prospective business investors. Moreover, TEC could **identify**, via consultation and analysis, **gaps in existing international architecture to support the innovation ecosystem**, and successes in innovation support in development context, as recommended by Brookings Institution and the Indian Institute of Technology. The former also suggests a compilation of capabilities required in developing countries to support and advance the technological challenge of tackling climate change and how these capabilities could be developed. Finally, TWN recommends TEC to compile information on government/public spending on R&D of climate technologies, to identify technologies that are publicly owned (wholly or partially), and to further promote measures/mechanisms to make publicly funded R&D and technologies accessible to developing countries.

53. Another role TEC could play is to **facilitate knowledge and experience sharing on technology development and transfer** among stakeholders. This could be done through a forum or other platform, as suggested by ADB, Brookings Institution, ICTSD, South Centre, TWN and WBCSD. Other suggestions include establishment of a **solid, regular and reliable data and reporting system for funding, clean technologies-including IPRs, programs, national policy goals** to support climate and energy innovation (Brookings Institution, ICTSD, South Centre and WBCSD). TEC could also enhance the involvement of public research institutions and R&D centers in the TEC's activities in addition to the private sector and other stakeholders, as suggested by Brookings Institution. Moreover, TEC should not limit at promoting technology transfer information sharing, but **encourage also knowledge building and capacity development**, through a bottom up approach (as suggested by IGES and Brooking Institution).

54. TEC could also **encourage collaboration with the private sector** in bilateral and multilateral initiatives regarding technology transfer, as recommended by CAN, IGES and WBCSD. IGES suggests a stable framework of incentives should be provided by governments, as well as from regional and international organizations, to leading companies willing to play a more proactive role in transferring low-carbon technology. These incentives should include material incentives (financial, IPR protection, public procurement, etc.) as well as non-material incentives (honorariums, public awards, etc.), while CAN recommends TEC to design or designate a **business-to-business (B2B) platform for commercial transactions related to climate change mitigation and adaptation products and goods, especially for public domain products.**

55. With regards to the IPR issue, four organizations made recommendations to the TEC. CAN, for example, suggests **a set of COP mandates to the TEC**: to provide clear rules and regulations that will ensure that UNFCCC support for 'incremental costs' includes those associated with purchase of IP protected products and IP licenses embodying best available technologies; to establish a Consultative Group on IPR (CGIPR) in conjunction with the CTCN that would help countries and private sector stakeholders evaluate whether IPR barriers to the transfer of their desired technologies exist and, if so, to help them find resolution; to establish a set of criteria for technology prioritization based on TNAs, patent status, and a set of objective criteria for GHG mitigation potential and effectiveness at building adaptive capacity, as well as suggestion to the COP to adopt a COP Decision for a declaration on climate change and IP that existing international flexibilities on patents, plant varieties, and copyrights especially relating to competition law, compulsory licensing, exceptions and limitations must be interpreted in ways conducive to enabling rapid and efficient uptake of technologies to address mitigation and adaptation. Moreover, CAN recommends TEC to develop and make available through the CTCN and Regional networks **Model Licenses for Least Developed Country (LDC) Market Segmentation** that would allow LDCs to access technologies at a lower cost but also set limits on the export of goods produced under such licenses to non-LDC parties so that the benefits are well-targeted.

56. Both South Centre and TWN recommend TEC to **promote the use of TRIPS flexibilities to facilitate access to climate related technologies**, with a particular emphasis on promoting DTT in LDCs (Article 66.2 of the TRIPS Agreement). TEC could also **facilitate studies and measures to assist developing countries to understand the use of flexibilities in the IPR regime** in the context of access to technologies.

57. South Centre recommends TEC to initiate a program to **map patented mitigation and adaptation technologies** and identify areas where the proliferation of patents may block innovation and DTT. TWN also suggests TEC to compile and maintain updated information on IP and restrictive business practices (e.g. refusal to deal, restrictive licensing practices) and promote measures/mechanisms to regulate/prevent restrictive practices in licensing agreements and anti-competitive uses of IP, for example through the development of norms/standards.

58. Finally, TWN suggests TEC to **compile and maintain updated information on legal disputes pertaining to IP** and climate related technologies, while ICTSD also recommends **reviewing empirical evidence regarding the effects of IPRs on the transfer of climate technologies** and addressing knowledge gaps and also facilitating collaboration with a view to increasing availability of reliable information on IPR aspects of climate change technologies.

59. Submissions also draw attention to the particularities of DTT process (including the weakness of technological capabilities in LDCs) and recommended TEC to take into account the diversity of technological needs of countries and their levels of development and technological advancement and **avoid 'one size fits all' prescriptions** (The Brookings Institution). Also, TEC should balance its work in addressing both technologies for mitigation of GHG emissions, but also technologies that could support adaptation and resilience, as recommended by WBCSD.

60. Also, ADB suggests TEC to **work together with the GCF** to develop modalities and procedures to provide financial resources for climate DTT **to create financial enabling environment**. Moreover, TEC could propose and promote **measures for the regulation of the markets for climate-related technologies**, as suggested by the South Centre.

61. Other recommendations include **raising the awareness level on the opportunities** for adaptive technology development and creative research possibly through competitive funding and prizes (WBCSD) and **promote the development of relevant technical standards** in a way that ensures the participation of developing countries' firms (South Centre).