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**Operationalizing of Technology Cooperation in the UNFCCC:
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Lead Organization:
CIEL

Background Brief for the workshop on:
Operationalizing of Technology Cooperation in the UNFCCC: Building Civil Society
Viewpoints into Copenhagen

Title:
“Frameworks and Options for Addressing Technology Cooperation in the UNFCCC: National
and Multilateral Elements”

I. STATE OF PLAY

Transfer of technology is one of the pillars of any international response to global climate change. The UN Framework Convention on Climate Change (UNFCCC or the Convention), was built on a basic political bargain. On one side, under the first commitment period embodied by the Kyoto Protocol, industrialized countries would take primary responsibility for emissions reductions. They would provide a demonstrated example of carbon-free development, while transferring technology that would enable developing countries to make progress in reaching the same level of carbon efficiency. Thus, carbon leakage, i.e. the shifting of polluting carbon-inefficient industries from industrialized to developing countries, would be avoided. The success of the first phase would then enable developing countries to take on emissions reduction obligations in the second commitment period, along a clean development path.

Industrialized countries, however, have largely failed to provide measurable, reportable, verifiable, and effective transfer of climate-related environmentally sound technologies (ESTs). This failure was a primary bone of contention during the Bali Conference in December of 2007, and lay behind the refusal of developing countries to agree to take on specific emission reduction obligations in the post-Kyoto period. Developing countries again cited the failure of industrialized countries to abide by their UNFCCC commitments to help transfer technology, know-how, as well as providing financial assistance, in refusing to negotiate any new commitments from developing countries during the Poznan Conference in December of 2008.

The Bali Action Plan (BAP) identifies technology transfer as a key element leading up to and beyond 2012 and refocuses the work of the UNFCCC’s Expert Group on Technology Transfer (EGTT). However, beyond the failure of political will, the basic failure of technology transfer has been institutional. There is little or no understanding of the specific institutions and activities needed to ensure effective technology transfer, at the national level in developing and industrialized countries, and at the multilateral level to connect differing national actors and achieve multilateral mitigation and adaptation goals.

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In August of 2008, a proposal from the Antigua-G77 and China (G77 + China Proposal) called for a comprehensive technology transfer mechanism under the Convention.¹ This was a distillation of previous proposals, which also provided more detail on a Technology Action Plan, formulated by and providing guidance to the Executive Body, as well as what activities would be covered under the Multilateral Clean Technology Fund (MCTF). Despite the significant step forward that it represented, there remain some substantive gaps in the discussion, especially with regards to intellectual property (IP)

The G77 + China proposal was intended to be a significant element of the discussion at the Poznań Conference of the Parties (COP) in December of 2008. The Poznań COP welcomed the conclusion of the Poznań Strategic Program on Technology Transfer (SPTT), supporting the Global Environment Facility's (GEF's) response to an earlier request for the GEF to elaborate a strategic program on technology transfer. The SPTT was a step forward in the technology transfer negotiations by the COP, in advance of the December 2009 negotiations on technology transfer and climate change architecture in Copenhagen. The program will have a target level of funding of US\$50 million, and will be implemented before June of 2010.

I.1 Proposals on Institutions and Mechanisms

I.1.a G77 + China

The G77 + China Proposal contains two key elements: (1) a centralized implementation body (the Executive Body) within the UNFCCC with sub-bodies responsible for creating implementation strategies, providing technical expertise, measuring and verifying technology financing and transfer; and (2) a Multilateral Climate Technology Fund (MCTF), also within the UNFCCC.

The G77 + China Proposal calls for international, collaborative action during the both the Research and Development (R&D) phase², as well as the Demonstration phase, which would lead towards the anticipated market penetration of a particular EST. Nearly all of the signatories of the G77 + China Proposal, as well as Mexico, support the creation of a new fund and institutional body within the UNFCCC to manage the logistics of an international collaboration on both the R&D and the Deployment of ESTs.

To pay for the downstream costs associated with Deployment and Diffusion of viable ESTs, the G77 + China Proposal again suggests the creation of a new fund. Among reasons cited for the creation of this second fund are the costs associated with acquiring IPRs in developing countries. Industrialized countries have often raised the issue of enabling environments, such as strong IP protection regimes. This has resulted in still ongoing debates about whether IP is a barrier to the transfer of technologies, and whether IP is a significant cost element of access to ESTs. Under the G77 + China proposal, financial contributions to the fund could be either in the form of monies or IPR donations. It has been suggested that international collaboration, especially on R&D, would negate IP issues, as there would be joint ownership. In addition, China is asking

¹ http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/technology_proposal_g77_8.pdf

² For the purposes of this paper, the innovation chain is considered to have four components: Research and Development; Demonstration; Deployment; and Diffusion.

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for compulsory licensing of certain ESTs under the UNFCCC, and sharing agreements for joint development of other ESTs.

1.1.b The European Union

From a broad, top line viewpoint, the EU Proposals show international convergence around the idea that joint R&D, combined with some measure of increased public financing, could assist developing and industrialized countries to reduce GHG emissions. However, a detailed analysis shows significant ambiguities and potential differences that exist between the strategy suggested in the EU's proposal and that of the G77 + China Proposal, discussed above.

During the R&D, Demonstration, and Deployment phases, the EU Proposal on Mitigation and Adaptation³ calls for the use of Technology Oriented Agreements (TOAs), similar to those found in the Energy Charter Treaty. These TOAs focus on bilateral mechanisms and narrow multiparty technology agreements, which would likely fall outside of the UNFCCC process. Although funding for developing country participation would be made available under the TOAs, the EU Proposal does not specify which of the three phases would be funded.

During the Demonstration phase, the EU proposes “joint” demonstration. While “joint” is left undefined, the EU Proposal has been interpreted as suggesting a level of participation above that which is called for in the G77 + China Proposal.

In contrast to the G77 + China Proposal, which calls for the creation of a new fund to finance the Deployment and Diffusion of ESTs, the EU suggests that the Deployment and Diffusion of some mitigation projects in developing countries could be done at little or no cost. Moreover, the EU believes that the most substantial mitigation projects could be financed through carbon markets, supplemented by public funds. The EU believes that carbon markets will be the single largest funding mechanism for climate mitigation. Like the G77 + China Proposal, as well as the Japanese proposal, the EU emphasizes the need to use public funds to leverage private investment.

The most recent submission from the EU on legal text contains only one paragraph on technology stating: “Enhanced development, transfer, deployment and diffusion of low-GHG-emitting technologies are crucial components of the Copenhagen agreed outcome. The respective roles of the public and private sector need to be elaborated to ensure effectiveness of the international framework.”⁴

1.1.c Other Proposals:

Japan is proposing voluntary, international collaboration on R&D activities. In addition, Japan is also proposing energy efficiency standards and labeling schemes to enhance the deployment of existing technologies.

³ EU: *Enhanced Action on Technology Development and Transfer to Support Action on Mitigation and Adaptation*.

⁴ See [A negotiating text for consideration at AWG-LCA 6](http://unfccc.int/files/kyoto_protocol/application/pdf/czechonbehalfofec050509.pdf) (April 28), Available at: http://unfccc.int/files/kyoto_protocol/application/pdf/czechonbehalfofec050509.pdf

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Few other states have submitted concrete ideas on institutions and activities for technology cooperation. The latest US submission on potential legal text essentially reiterates the aims of the BAP on technology.⁵

Lesotho's submission on behalf of the LDC group notes that any mechanism must differentiate between those countries capable of adapting technologies and those that will not have such capacity and will be mostly interested in simple use, rather than R&D.⁶ Nevertheless IP issues must be addressed by industrialized countries so as to ensure access. The LDC Submission proposes a technology Committee to advise the COP and over see development and transfer of technologies. The Committee would, inter alia, review and decide on technology investments and technology funding requests. It would be advised by a Technology Panel which would inter alia, review requests for funding technologies, advise on and compile emerging technologies.

Belarus⁷ suggests establishing a new subsidiary body reporting directly to the COP. Its functions should include, broad information and development and assistance with Technology Needs Assessments and analyses of usefulness of potential technologies to countries. Otherwise, little further is suggested in terms of activities and institutions. Rather, Belarus notes that much of the activities in technology transfer could be supported through market and loan mechanisms bilaterally implemented.

The submission from Paraguay, Panama and El Salvador⁸ on legal text aims to refocus discussion on technology to include adaptation. They focus on the development of regional centers and platforms and driving much of the implementation through NAMAs and NAPAs.

More generally, developed countries have also linked technology support to more general support for Nationally Appropriate Mitigation Actions (NAMAs) in the major developed countries.

1.2 Proposals on Financing Technology Transfer and MRV

Estimates on the cost of technologies for climate change mitigation exceed trillions of US dollars. Nearly unanimous acknowledgement exists on the need for public funds to both stimulate and leverage private investment. The G77, China, and Mexico all propose the creation of a new fund, managed by a new body within the UNFCCC. Neither the creation of a new fund, nor a new body within the UNFCCC is supported by the EU or US. The SPTT proposed by the GEF consists of three funding windows: (1) technology needs assessments (TNAs); (2) pilot projects on priority ESTs; and (3) dissemination of successfully demonstrated technologies.

In order to promote private investment, both the EU and the US proposals state that, in addition to public financing, functional enabling environments must be in place. The US believes that the purpose of public financing is to attract initial private investment and to develop enabling environments that will further attract private investment. In terms of assistance in implementing

⁵ Available at: http://unfccc.int/files/kyoto_protocol/application/pdf/usa040509.pdf

⁶ Available at http://unfccc.int/files/kyoto_protocol/application/pdf/lesothoonbehalfofldc300409_.pdf

⁷ Available at http://unfccc.int/files/kyoto_protocol/application/pdf/belarus300409eng.pdf

⁸ Available at http://unfccc.int/files/kyoto_protocol/application/pdf/panamaparaguayelsalvador280409.pdf

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the necessary regulatory environments, the EU has indicated that financial assistance may be available for Least Developed Countries (LDCs) in consideration for the use of Sustainable Development Policies and Measures (SDPAMs). While the G77 + China Proposal is generally silent on the issue of regulatory systems, the members have asked for assistance in implementing necessary changes.⁹

India, which supports the G77 + China Proposal on Technology Transfer, suggests that the full incremental costs of technology deployment should be financed by Annex I countries in full, through grants, while also proposing a range of funds for the acquisition, development, and diffusion of technologies. In a March 2009 submission, China also expressed support for the idea of a financing formula, and seemed to have some flexibility on the formulation.¹⁰ Moreover, India, China, and Ghana all encourage the venture capital model of financing projects. The venture capital mechanism proposed would link public financing during the R&D phase with private markets (carbon, capital, and technology), thereby providing the significant increases in private investment required for the demonstration phase.

The LDC group submission proposes a broader UNFCCC financial mechanism with multiple windows one or more of which would support research, development, production and wide diffusion of technologies to developing countries.

With respect to compliance, the Bali Action Plan (BAP) called for a framework which would validate “contributions” as “measurable, reportable, and verifiable” (MRV). However, details on what is defined as a “contribution” are still unclear. For example, while financial support is considered a contribution, there is no consensus on what type of financial support would be eligible under the framework. In addition, there is little agreement on how mitigation actions taken by developing countries would be linked to any technology transfer mechanism. Moreover, there is little agreement on how such actions would be measured, reported or verified. This latter issue raises the question of coordination, i.e. where primary decisions on technology transfer activities ought to be made. Establishing a robust framework to validate demonstration as MRV is critical in performing accurate cost-benefit and risk analyses, with an eye towards future investment.

There is broad support for an improved MRV reporting framework for both financial and technological actions and support. The EU proposes that nationally-appropriate mitigation actions (NAMAs) should be monitored at the national level per international guidelines; that reporting needs to be more frequent; and that verification needs to occur at the international level, building on third-party reviews for Annex I countries. The EU also expects certain advanced developing countries to propose plans on what additional NAMAs could be implemented, if additional support was provided. On adaptation and mitigation, the EU believes that the UNFCCC should measure, report and verify action within the convention, while monitoring activities outside the convention, in order to help ensure that support happens.

South Africa proposes having a BAP framework that mobilizes all sources of finance (public, private, domestic, regional, and international) and support, in a MRV manner. Non-Annex I

⁹ World Resources Institute Discussion Paper: From Positions to Agreement

¹⁰ FCCC/AWGLCA/2009/MISC.1 – pg 24

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countries would commit to the measurement and reporting of NAMA benefits with respect to sustainable development and green-house gas (GHG) reductions, while quantifying the cost of the associated actions. NAMA reporting by Non-Annex I countries would be through either national communications, or a register of SDPAMs / NAMAs that could remain open up to 2025 for registration of voluntary pledges of NAMAs by developing countries. For verification, South Africa proposes national entities perform the task, under international guidelines, with the verification related costs being covered by Annex 1 countries.

The G77 + China Proposal calls for a verification body to MRV financial and technical support promised to Non-Annex I countries. Financial support must be under the authority and guidance of the Convention in order to be considered fulfillment of commitments. A proportion of agreed contributions could come in the form of regional or bilateral cooperation. Financial contributions to the MCTF would be considered an MRV contribution. China is proposing that indicators of technology barriers be included and, together with Brazil, that nation-specific indicators of technology transfer be included to assess the level of technology transfer to Non-Annex I countries.

II. FRAMEWORK FOR EVALUATION OF PROPOSALS: NECESSARY NATIONAL AND MULTILATERAL ELEMENTS

The plethora of proposals shows some convergence on issues such as joint research and development but also significant variation and divergence on other issues such as intellectual property, activities covered, nature and scope of obligations, financing, MRV criteria etc. This is partly the result of a lack of a basic framework for evaluating whether or not the proposals and activities on the table are actually capable of achieving the intended goal of technology transfer for climate change: enabling developing countries, primarily, to access, use, adapt and develop the technologies necessary to enable adaptation to climate change and GHG emission neutral development. This brief aims to suggest a basic framework, to be elaborated at the Copenhagen NGO Conference Policy Workshop on Technology Cooperation, for assessing and evaluating proposals for technology cooperation. The framework should be based on three broad themes: Legal principles; Actions; Institutions. Within the Actions theme there are several sub-categories of actions. The first is that the proposal must address each stage of the technology chain: research and development (including adaptation and follow-on innovation), demonstration, Deployment and Diffusion. Within each stage, a proposal should outline what kind of activities should take place, how products, skills, know-how and information will be transferred to developing countries, how financing will be provided and the distribution between adaptation and mitigation. The activities should also be divided into what activities are expected to take place in host countries, in recipient countries and in bilateral and multilateral process.

The section below provides a basic framework which will be further filled in at the Copenhagen NGO Conference Policy Workshop on Technology Cooperation

II.1 Legal Principles

In this section each proposal should be evaluated according to how it fits within the legal obligations established by Article 4.1(c) and article 4.5, as well as Article 4.3. A proposal should

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also address clearly how the issues related to technology will relate to other legal regimes such as intellectual property regimes, as well as potential connection to international investment regimes that cover intellectual property.

II.2 Actions

There is significant information and data from World Bank and other studies on what kinds of actions, both regulatory and technical have been best at ensuring successful technology transfer.¹¹ The key thing that most studies point to is that there is a necessary mix of national measures in both recipient and host countries, and multilateral measures. In addition, more recent studies show that with the increasing knowledge intensity of products actors all economic sectors, tacit or implicit knowledge not contained in patent applications has become increasingly important. No successful technology transfer can now take place without ensuring absorptive capacity, indigenous innovation and access to know-how and information.¹² That has significant consequences for how strongly any proposal ensures capacity building, know-how, skills and information are shared.

II.2.1 Research, Development, and Demonstration

- a. Source or provider (Industrialized) Country
 - a. Adaptation
 - b. Mitigation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products
- b. Host or Recipient (Developing) Country
 - a. Adaptation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products
 - b. Mitigation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products
- c. Multilaterally, Regionally or Bilaterally
 - a. Adaptation
 - b. Mitigation

¹¹ See e.g. Hoekman, Bernard, Maskus, Keith E. and Saggi, Kamal, "Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options" World Bank Policy Research Working Paper No. 3332. June 1, 2004. Available at: <http://ssrn.com/abstract=610377>

¹² See e.g. Lynn Mytelka, "Technology Transfer Issues in Environmental Goods and Services: An Illustrative Analysis of Sectors Relevant to Air Pollution and Renewable Energy" ICTSD Trade and Environment Series Issue Paper No. 6, ICTSD, Geneva, Switzerland, 2007.

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II.2.2 Deployment and Diffusion

- a. Source or provider (Industrialized) Country
 - a. Adaptation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products
 - a. Mitigation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products
- b. Host or Recipient (Developing) Country
 - a. Adaptation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products
 - a. Mitigation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products
- c. Multilaterally, Regionally or Bilaterally
 - a. Adaptation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products
 - b. Mitigation
 - i. Source of Financing
 - ii. Transfer of Skills, Know-how, Information
 - iii. Transfer of goods and products

II.3 Institutions

Recent studies have also shown that institutions at both the multilateral and national level are crucial to the success of any technology transfer programme. A successful proposal must identify the minimum mandates that national bodies must have, must describe how they relate to other bilateral and multilateral institutions, as well as to national and foreign private actors. It must also describe the nature and scope of any multilateral body. Within that description it is

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clear that each institution, especially multilateral ones must meet certain minimum criteria that reflect the legal obligations and principle of the UNFCCC.

II.3.1 Source or provider (Industrialized) Country

- a. Type of Institution
- b. Mandate

II.3.2 Host or Recipient (Developing) Country

- a. Type of Institution
- b. Mandate

II.3.3 Multilateral, Regional or Bilateral

- a. Type of Institution
- b. Mandate

This framework, once developed by the Copenhagen Technology Group will be applied to the proposals for technology mechanisms to identify gaps for further development and to identify principles for evaluating other proposals on technology cooperation. In addition, elements of the Climate Action network technology position paper will be examined.

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CAN Position on Technology Cooperation and Sharing

I. Introduction

In Copenhagen 2009, Parties will need to come to an agreement that avoids dangerous climate change and significantly increases action on mitigation and adaptation pursuant to the Bali Action Plan. This requires first and foremost, that all developed countries take on ambitious, binding commitments to reduce their own emissions. However, developed countries must also deliver the technical and financial means to help developing countries decarbonize their development and adapt to climate change. This technological cooperation and financial support is a crucial means through which developed countries will fulfill their obligations resulting from historical and ongoing responsibility for climate change and imposing the additional burden of adaptation on developing countries.

To keep the global average temperature increases as far below 2°C as possible compared with pre-industrial levels, we truly need a worldwide revolution in the development and rapid diffusion of climate-friendly technologies, particularly renewable energy and energy efficiency. It is clear that business as usual is not an option. We need drastic action and global cooperation all along the technology chain targeted at: the direction and financing of national and cross-border research and development; the speed of technology demonstration and deployment; the scope and extent of technology diffusion; and the directness and ease of accessibility to technology products, skills and know-how.

This will require a transfer of resources, (information, skills, know-how, financing, goods, and equipment, etc.) in particular from developed to developing countries, all along the technology chain, while supporting the creation of conditions in all countries that enable clean and environmentally sustainable technologies to flourish.

CAN stresses the importance of the principles on technology transfer established in Chapter 34 of Agenda 21 of the 1992 Rio Declaration that "environmentally sound technologies are not just individual technologies, but total systems which include know-how, procedures, goods and services, and equipment as well as organizational and managerial procedures" and emphasizes that transfer of environmentally sound technologies must enable the recipient to use, adapt and reproduce technologies for both the domestic and export markets.

Technology cooperation must focus on delivering sustainable development and enabling poverty reduction and ensuring access to sustainable energy services for all. This will require significant amounts of public funds, channeled directly to support technology projects and programmes as well the use of public funds to leverage private sector investment and participation in technology projects and programmes.

Technology cooperation is not about new obligations, but is about the proper implementation and operationalizing of existing commitments under the UNFCCC, in particular Article 4.5 in conjunction with Article 4.1, 4.3 and 4.7. The task now is to ensure measurable, reportable and verifiable delivery on these commitments.

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Technology Cooperation under the UNFCCC must also support and enable technology projects and programmes that are focused on South-South technology sharing, capacity building, and exchange of technology-related information, skills, know-how, financing, goods, and equipment.

We urge all Parties to put forward substantive proposals that address exactly how to operationalize and ramp up technology cooperation, including institutional arrangements (participation, decision-making, project and programme approval criteria, MRV standards and processes), financing (sources, structures, suggestions for operational entities), and managing intellectual property issues. We welcome, and support in principle, the G77 plus China proposal and urge all governments to respond to the substance of the proposal especially to highlight areas of agreement and areas that require further discussion. To ensure a shift to a low-carbon future, with a particular emphasis on renewable energy and energy efficiency, and to spur the necessary innovation for the next generation of technologies, a new technology mechanism governed by an Executive Board and supported by a Technology Fund are needed.

We would emphasize that technologies for adaptation and mitigation technologies do differ. Research, Development & Demonstration for adaptation technologies is beyond the scope of the Adaptation Fund and therefore will have to be addressed within a technology mechanism for technology cooperation (as proposed below). Support to technologies for adaptation is only one aspect of an effective approach to adaptation and crucially, different criteria, standards and safeguards apply to technology cooperation as compared to adaptation. Nevertheless, we emphasize that all components of projects and programmes for adaptation should be fully and appropriately funded.

II. CAN Principles and Mechanisms for Technology Cooperation

CAN believes that effective technology cooperation to achieve the goals of staying as far below 2° C as possible and adapting to climate change impacts - while ensuring sustainable development, poverty reduction and access to modern energy services in developing countries - will require a radical step change in technology research, development, demonstration, and diffusion; a world wide wholesale shift to the best existing low-carbon technologies and energy efficiency; and strategies to spur technological advances through effective technology cooperation. Business as usual, either in structures or policies, is not an option. Success will require dedicated mechanisms and institutions, accountable to the UNFCCC COP or COP/MOP and UNFCCC principles as well as cooperating with and building on the strength of existing mechanisms and institutions. Such mechanisms and institutions must embody the strengths of all UNFCCC stakeholders, including civil society, taking into account fair and balanced representation among all groups, and be governed in accordance with the principles of the UNFCCC and established bodies.

To this end, CAN supports:

- The establishment of a dedicated **Technology Cooperation Mechanism** under the authority of the UNFCCC COP or COP/MOP, responsible for, at a minimum;

1. The implementation of the technology cooperation obligations (Article 4.1c, Article 4.3, Article 4.5) of the UNFCCC.
2. The establishment of a **Global Technology Objective** to guide technology cooperation. This would include:
 - i. A global commitment to scale up public funding for RD&D, diffusion and capacity building for both mitigation and adaptation; and
 - ii. Scaling up global levels for renewable energy market penetration.
3. The development and implementation of **Technology Action Programmes** to prioritize areas of RD&D cooperation, and targets for uptake and diffusion and to ensure that the Global Technology Objective is met. Technology Action Programmes should *inter alia* be informed by the following sources, if available:¹³
 - i. Global Technology Roadmaps that outline a strategy for technology Research Development, Demonstration and Diffusion for a key set of technologies.
 - ii. National Technology Needs Assessments, which describe the technological, human, and institutional capacities needed to implement the Low Carbon Development Plans and national approaches to adaptation (such as National Adaptation Programmes of Action and more comprehensive National Adaptation Action Strategies) and identify the gaps in domestic capacities which must be met through international technology cooperation.
 - iii. Low Carbon Development Plans that outline the national strategy to implement a low carbon development pathway, with a specific view on endogenous technologies and capacity-building.
 - iv. National Adaptation Programmes of Action and other more comprehensive national adaptation strategies.
 - v. Nationally Appropriate Mitigation Action plans.
4. The establishment of a **Technology Executive Board** to:
 - i. Oversee the Technology Action Programmes;
 - ii. Oversee the Technology Fund (see below);
 - iii. Establish expert technical panels, where needed, to advise and make recommendations on such technology issues as deemed necessary; and
 - iv. Coordinate the work of regional centers of excellence, regional and international technology incubation centers, and other regional and sub-regional platforms for technology cooperation and ensuring synergies with all adaptation policy related bodies.

¹³ The following list is in no way intended to prejudge what may be necessary to be done at the national level, as this is something that should be negotiated. The list is intended only to emphasize that Technology Action Programmes should be needs-driven.

- The establishment of a dedicated **Technology Fund**¹⁴ with an RD&D window and a Diffusion window. Financing should be predictable, reliable, secure, transparent and sustainable, MRV'd and additional to 0.7% ODA commitments for developed countries. Contributions to the fund may be derived from financial obligations and commitments, voluntary contributions, and revenues from financing mechanisms, such as auctioning and levies, as well as any other financial flows as decided by the Parties. For Mitigation technologies the fund would provide support for both RD&D, diffusion and capacity building activities. For technologies for adaptation the fund would support RD&D and capacity building activities, in particular where international or regional co-operation is required, with a dedicated Adaptation Fund being responsible for a portion of diffusion support for existing technologies. Technology diffusion needs for adaptation should be addressed in comprehensive national adaptation strategies which should be prepared and implemented with support from a dedicated Adaptation Fund. Applications for funding should be needs-driven but within the framework of Technology Action Programmes and the Global Technology Objective. Proposed projects and programs, both multilateral and bilateral, must meet MRV criteria established by COP or COP/MOP, to qualify as financial support under the Technology Cooperation Mechanism. In administering the Fund, the Executive Board should:
 1. Receive, approve and decide the appropriate level and type of funding, including full cost and incremental cost grants, loans and guarantees, for technology components of mitigation and adaptation projects or programmes;
 2. Make allocation decisions in accordance with Article 4.3 UNFCCC;
 3. Review and accredit approved programmes and projects as a developed country's MRV contribution to its technology cooperation obligations.
 4. Ensure the financial integrity of the funds, including ensuring proper use, auditing of projects and programs and notifying the technology cooperation mechanism of any issues needing to be addressed.

- The establishment of a mechanism or process, under the technology cooperation mechanism to address patents and related intellectual property issues to ensure both increased innovation and increased access both for mitigation and adaptation. Such a mechanism should actively engage enterprises and institutions in both developed and developing countries to adopt innovation and access policies that will:
 1. Shorten research and development cycles and move technologies into markets as quickly as possible;
 2. Ensure the quickest possible global dissemination, absorption, and uptake of climate technologies, especially in developing countries; and
 3. Encourage and enable speedy follow-up innovation, both incremental and significantly inventive, to ensure adaptation of technologies to local needs, speedy feedback into innovation systems and enable indigenous and local innovation.

Recognizing that climate change is a planetary emergency, the patents and related intellectual property mechanism should be guided by an **International Declaration on Climate**

¹⁴ This Fund should be related to the broader Article 11 financial mechanism but this paper does not take a position on the nature and scope of that relationship. This technology fund will operate in conjunction with, and should not detract from, financing mechanisms for other pillars of climate change actions.

Technologies and IPRs from the UNFCCC COP or COP/MOP that all possible policy avenues to accelerate research, development, demonstration and diffusion of climate-friendly technology, should be explored, including the use of all flexibilities, exceptions and limitations in international and national patent and related intellectual property rules, as well as innovative uses of intellectual property mechanisms, licensing practices, and alternative modes of innovation such as open source approaches. The declaration should state that all countries will refrain from using unilateral measures, financial or political (such as trade sanctions or withdrawal of trade preferences), against countries that exercise patent and related intellectual property flexibilities, exceptions and limitations. The UNFCCC COP should communicate this Declaration to the General Council of the WTO and to the General Assembly of the World Intellectual Property Organization with a request that they act, as appropriate and within their mandates, to include the declaration in their norm-setting, dispute settlement, technical assistance, and policy and research programmes.

The mechanism should also establish a clear framework for evaluating and determining when intellectual property becomes a barrier to international technology research, development, deployment, diffusion and transfer and should provide options for corrective action, that both ensure that appropriate protection is provided to maintain reasonable and fair incentives for innovation, while enabling access to critical technologies and enhanced sharing and follow-on innovation in keeping with national circumstances and capacities. Such measures could include for example:

- a. patent pools and related concepts such as patent libraries
- b. joint research initiatives
- c. compulsory or non-voluntary licensing
- d. patent buy-outs
- e. segmented/parallel markets
- f. parallel imports
- g. patent exclusions
- h. differential patentability requirements
- i. open-source licensing
- j. prize funds
- k. rules on open access to publicly funded technologies

The technology cooperation mechanism should also make recommendations back to the UNFCCC COP or COP/MOP on barriers that may require further actions including the use of alternatives that may require limited or temporary modifications of international intellectual property rules.