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ASIA-PACIFIC NETWORK FOR GLOBAL CHANGE RESEARCH

The 22nd Joint Inter-Governmental Meeting/
Scientific Planning Group Meeting
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New Delhi, India

Item 2 of the draft agenda[1]

Item 2.1. Appendix 2: Technology Transfer Needs for Asia and the Pacific – A scoping workshop.

Summary

This document contains the finalized report of the Technology Transfer Needs for Asia and the Pacific – A scoping workshop.

Summary.....
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[1] IGM/22/A.

1. Abstract

The objective of the scoping workshop is to address technology transfer needs of APN developing member states with the aim of developing a robust collaborative regional research and capacity development framework under APN that will provide support for technology transfer research, synthesis, assessment and capacity development activities to effectively respond to the needs of APN members and produce information for decision makers that could lead to stronger solutions for an adaptable, sustainable, low carbon Asia-Pacific under a warming climate.

2. Meeting Overview

The APN Technology Transfer Scoping workshop was held in Kobe from 6-7 December 2016. The two-day workshop concluded with some inputs for the development of APN's framework on research and capacity development in the field of technology transfer.

The meeting was attended by researchers and experts on technology transfer coming from: ADB, TERI, IGES, Kitakyushu Foundation for the Advancement of Industry, Science and Technology, IISD, Sustineo/ANU, UNEP-IETC, APEC VC Japan, RRC.AP-AIT, CTCN, University of Southern Queensland, LCS-RNet/LoCARNet, Global Environment Centre Foundation, National Institute for Environmental Studies, Vietnam Academy of Science & Technology, Asia-Europe Foundation, Department of Science & Technology of the Philippines, National Environment Commission Secretariat of Bhutan and Ministry of Environment of Japan; and APN Secretariat.

Mr. Tsujihara, Director of APN Secretariat, delivered the opening remark, followed by participants' introduction.

3. Presentation Session

3.1 APN: Technology Transfer Need in Asia-Pacific

Dr. Linda Stevenson delivered a presentation on APN and an overview of the Technology Transfer Scoping Workshop. Dr. Stevenson mentioned that in its 4th Strategic Phase, APN emphasises the importance of inter- and transdisciplinary approaches in addressing regional issues.

The two-day scoping workshop, Dr. Stevenson stated, is expected to result in a robust collaborative regional research and capacity development initiative for technology transfer in the context of global change and sustainability. This initiative, which might be a stand-alone framework or embedded under CRRP and CAPaBLE programmes, would provide support for technology transfer research, synthesis, assessment and capacity development activities.

3.2 Enabling Technology Transfer: UNFCCC Climate Technology Centre and Network (CTCN)

Dr. Parimita Mohanty, from CTCN, delivered a presentation on the work of CTCN in supporting technology transfer. CTCN main role is to support technology transfer for developing countries based on their requirements. To date, CTCN has received 157 requests from developing countries in areas that include: (i) technology identification; (ii) strengthening technology policy and regulation; (iii) enhancing project readiness; (iv) project scaling up by accessing investment; (v) capacity building and knowledge management.

Based on the assessment that CTCN has conducted, CTCN believes that the main requirement for technology transfer to happen is capacity building and knowledge sharing. CTCN conducts different types of capacity building based on the requirement of each country, including: (i) Empowering focal points at national level; (ii) Sharing experience at regional level through network meetings; (iii) Thematically focused learning, which considers areas where countries are frequently requiring for

assistance; (iv) LDC Incubator Programme; and (v) Secondment Programme.

3.3 GEF's Supporting Activities and Technology Transfer

Ms. Masako Ogawa delivered a presentation remotely from GEF Office in Washington DC. She explained about the support that GEF has provided in terms of technology transfer. GEF has been supporting efforts to address climate change and technology transfer has been one of the focus themes under both mitigation and adaptation. GEF support for regional projects consists of three core elements: (i) policy development; (ii) focal points and technical assistance; and (iii) financial support. In supporting the Paris Agreement, GEF has been requested to support countries in formulating policies, strategies, programmes & projects to implement activities that advance priorities identified in their INDCs, starting in 2016, and GEF intends to support countries to implement the Paris Agreement.

3.4 Scaling Cleantech in Asia – ADB

Mr. Daniel Hersson from ADB, presented Cleantech, the current project on technology transfer supported by ADB. ADB identified challenges faced in scaling up Cleantech in Asia:

There's a lack of entrepreneurs, i.e. lack of strong and experienced Cleantech entrepreneurs; (ii) Lack of early-stage risk capital; (iii) Weak ecosystem. ADB has been focusing its support to build Cleantech ecosystem through: (i) Support accelerators & incubators; (ii) Support new Cleantech investors; (iii) Support Cleantech marketplaces; (iv) Support networking & collaboration.

Selected key players were invited to deliver presentations and share their experiences and knowledge in the implementation of technology transfer. Following the presentations, group discussions were organised to identify what has taken place in terms of research and capacity development in technology transfer, identify key players and their roles in technology transfer, as well as potential research and capacity development themes and activities that can be included in the APN's Technology Transfer Framework.

3.5 Case Studies of Technology Transfer in India - TERI

Dr. Girish Sethi, from TERI, presented a case study on technology transfer that took place in India. From the case studies presented, some of the lessons that can be taken are: (i) In India, technology transfer happened through business-to-business route. Some common barriers faced during the process that includes financial and technological barriers. A key important factor is the process of technology transfer and knowledge flows; (ii) In terms of mitigation, there is high potential for adoption of low carbon technologies in developing countries; (iii) It is very important to enable collaborative research, development, deployment and diffusion (RDD&D), consider the local condition in adopting technology, as well as involvement of local players in order to ensure sustainability of the project.

3.6 Status of Technology Needs of Bhutan

Mr. Karma Tshering, through his presentation, informed the workshop participants on Bhutan's climate technology status and challenges. Bhutan developed its Technology Needs Assessment (TNAs) in 2013, which identified technology needs, and developed NAMA on transport, waste and energy efficiency in building. Several challenges that Bhutan is currently facing: (i) Appropriate technology that suits Bhutan context; (ii) Specific policy on climate change is not available. Mr. Tshering noted the top priority sectors for technology transfer for Bhutan includes: (i) Industries; (ii) Waste; (iii) Transport; and (iv) Energy Efficiency in buildings.

3.7 Case Study on Technology Transfer and Technical Capacity Building in Resource Utilisation – GHG Mitigation in Vietnam

Dr. Kim Chi Ngo, from Vietnam Academy of Science and Technology (VAST), delivered her presentation on technology transfer case studies in Vietnam. From the experiences shared, there are factors required to support successful technology transfer:

- Regulation and logistics on technology transfer (technical standards, norm, guideline, promotion)
- Linkages with technical capacity building (human resources and equipment)
- Technology demonstration, role of institutions, private sector, and government
- Competition in technology (imported and locally-made technologies)
- Research and development support, including identification of barriers, challenges, as well as opportunities on marketing the best technologies available

4. Discussion Session

4.1. Regional Research

Regional research that responds to the member countries' needs, as reflected in the official documents (NDCs, TNAs), may take form in the following:

- Case studies on best practices/success stories of technology transfer
- Action research/solutions-oriented research that may address the following areas:
    - Development of web-based information platforms and establishment or improvement of technology information
    - Market and market-based policies and instruments to enable technology transfer
    - Innovative financing or new business models for technology transfer and scaling-up
    - Needs assessment and assessment of appropriate technology, localisation of technology
    - Social issues on technology transfer (technology awareness and attitude, behaviour change, gender issues, etc.)
- Integration of mitigation and adaptation research that focuses on the ability to measure the effectiveness of technology transfer, particularly as it relates to adaptation
- Technology information, data collection and ease of availability
- Private sector involvement (incentives, business model, civil society, and government's role in helping de-risk projects for greater private sector engagement)
- Opportunities resulting from technology transfer
- Development of web-based information platforms, establishment or improvement of technology information, data collection and ease of availability.

4.2 Capacity Building

Capacity building projects that respond to the needs of member countries that may address the following:

- Establish and strengthen south-south cooperation on technology transfer
- Increase capacity to access financial resources for technology transfer
- Raise awareness and increase knowledge and capacity on technology and technology transfer among member countries
- Improve decision-making processes

- Training on the use and application of technology; capacity building on low-cost technology particularly at community level
- Twinning programme
- The role of the private sector in building capacity

4.3 Science-Policy Interactions

Science-policy interactions that aims at:

- Establishing technology discussion forums and/or policy forums
- Increasing multi-stakeholders and multi-sectors engagement, as well as multiple level of policy- and decision makers
- Effective mechanism for data, information, and knowledge delivery (interactive dialogue, synthesis activities, etc.)
- Explore mechanisms to better improve engagement with policy makers (As mentioned in Table 4)
- More broadly, research should focus on how technology transfer interventions interact with Nationally Determined Contributions (NDCs) and broader host government strategies and politics around climate change policies and attitudes to international climate processes of the UNFCCC, bilateral and plurilateral[2] engagements.

4.4 Collaboration, Communication, and Outreach

4.4.1 Partnerships

Establish partnerships with other organisations, combining strength to create significant impact more effectively and efficiently.

- Include relevant organisations (e.g. CTCN) in APN network

4.4.2 Communication and outreach

Undertake communication and outreach activities that effectively reaches multiple level of stakeholders, from community level to the policy- and decision-making level.

- Engaging APN's national focal points to take part to disseminate findings

[2] A plurilateral agreement is a multi-national agreement between countries. In economic jargon, it is an agreement between more than two countries, but not a great many, which would be multilateral agreement.

Appendix 1. Group Discussion Result

1. Current situation on research and capacity development on technology transfer

Adaptation Group	Mitigation Group
Research and capacity development that has taken place on adaptation technology transfer identified are: • Remote sensing and early warning systems. MOEJ is supporting small island states to use remote sensing for climate change impacts, linked to early warning systems. • Hydrological and agricultural modelling that makes CC information relevant for policy • Hard engineering solutions – sea walls, river protection works etc. • Ecosystem based adaptation as complementary to hard engineering solutions • Behavioural and other social science research, including on discussion support systems (not just decision support systems) • Studies on crop suitability and management for altered climate regimes (Bhutan: can now plant rice at higher altitudes, but new pests and diseases entering area where they previous did not exist) (GM, breeding) • Infectious diseases (health impacts) • Downscaling of global climate models to actionable levels • In Vietnam, participatory research involving communities and small businesses on coffee and rubber plantations underway • Infrastructure vulnerability assessments: In various countries, ADB supporting studies on risks of specific cities to CC impacts. • Impacts on existing urban housing and urban planning (e.g. increased exposure to flooding)? • APN supported research project on linking climate change science in real time with farmers' decision making. Finding from research suggested that bottom-up approaches are needed.	Current situation on research and capacity development activities on mitigation technology transfer identified are: • There are official documents on: Nationally Determined Contributions (NDCs), Technology Needs Assessments (TNAs), Technology Action Plans (TAPs), Project Ideas • Sectoral-based research and capacity development are taking place. • There is a need for approaches that can lead to transformation, which imply multi-stakeholder engagement.

2. Barriers and challenges for technology transfer

Adaptation Group	Mitigation Group
1. Social barriers/challenges • Behavioural changes at individual and community levels • Social responsibility 2. Financial barriers/challenges • Farmers risk adverse, so reluctant to take up unproven technologies • Lack of understanding on how to access adaptation financing and lack of sufficient financing • Private sector investment in adaptation very low 3. Policy barriers/challenges • Low uptake of adaptation technologies (only 5% according to FAO) • Approach is too top-down 4. Institutional barriers/challenges • Lack of human capacity to develop/implement projects attractive to funders • Challenge of measuring effectiveness of adaptation strategies • Insurance and reinsurance (this is a new area taking a strong interest in private sector investment) 5. Intellectual property right issues. In general sense, it does not hinder technology transfer for adaptation, but could differ between countries.	1. Technical barriers • Lack of access to technology information • Lack of capacity to assess appropriate technology • Lack of capacity to operate and maintain the technology 2. Institutional barriers • Lack of funding availability and capacity to access funding (i.e. formulate bankable projects) • Policies that are conducive for technology transfer is minimal • Sectoral-based projects instead of multiple sector collaboration • Conducive market is not available 3. Social barriers • Cultural and language barrier • Social resistance (lack of awareness, negative attitude towards technology)

3. Stakeholder mapping exercise

Adaptation Group

Suppliers	Procurers/ beneficiaries	Research	Finance	Policy making
• Developers (R&D) • Industry groups (at all levels of chain): Local SMEs (installation); Large enterprises • Distribution channels (NGOs) • Training • Knowledge networks (sharing experiences) • Research institutions (as knowledge generator, data, monitoring) • Data providers (NASA) • Standardisation bodies	• Agriculture (farmers and the whole supply chain) • Government (local, federal, regional) • Agencies (Government, NGOs) • Village development committees	• Researchers (Knowledge generator)	• Financing institutions	• Ministries and departments • Local governments • Regional district level

Mitigation Group

	Research & Development		Technology Demonstration		Technology deployment/diffusion	
	Financing	**Implementation**	**Financing**	**Implementation**	**Financing**	**Implementation**
International		International research institutions	GEF, GCF	International organisations, such as: UNDP, UNEP, ADB, GEF, WB		Small number of international organisations (due to intellectual property rights issue)
Regional	APN	Regional research institutions				
National	Relevant ministries Private companies (technology holder)	Relevant ministries Academic institutions (i.e. universities) Research institution Private companies (technology holder)	Relevant ministries	Relevant ministries Private sector	Relevant ministries	Relevant ministries Private companies
Sub-national	Private companies (technology holder)	Academic institutions (i.e. universities) Research institution Local government (limited numbers, e.g. city alliance (C40 cities)) Private companies (technology holder)	Local government (limited numbers, facilitating role, e.g. city alliance (C40 cities)) Private companies (technology holder)	Local government (limited numbers, facilitating role, e.g. city alliance (C40 cities)) Private companies (technology holder)	Local government Private domestic financial institutions	Private companies Local governments
Community		Research institution Civil society organization/non-governmental organisations	Civil society organization/non-governmental organisations	Civil society organization/non-governmental organisations	Civil society organization/non-governmental organisations	Civil society organization/non-governmental organisations

4. Opportunities for research, capacity development and science-policy linkages for technology transfer

Adaptation Group	Mitigation Group

1. Research and capacity building on the following areas:
• Resilient crop and farming systems research
• Transboundary management of land
• Participatory local discussion fora for famers, etc.
• Distance education
• Health
• Improved decision making using shorter term forecasts facilitating incremental adaptation (equals effective adaptation over the long-term)
• Better forecasting
• SDGs and Paris Agreement
  ○ providing new drivers for adaptation support in terms of resources and actions of the ground
  ○ requesting integration of mitigation of adaptation; need for better understanding of the co-benefits of such integration
• Research on how to best engage policy makers (role exchange: second policy makers to research institutions and vice versa, etc.)
• Development of web-based information platforms
• Support for participatory (face-to-face) interactions at all levels
• Public and private sector linkage for wide application / scaling up
• Adaptation as beyond disaster risk reduction
• Science policy dialogue:
• Solutions need to be co-created by multiple stakeholders and multiple sectors (need to move away from silo approaches; too much just Ministries of Climate and Environment). The SDGs may help with
	1. Regional research and capacity development that looks at the following:
	• NDCs and TNAs are already available, research and capacity development that responds to the NDCs and TNAs, how to implement the NDCs.
	• Research and knowledge sharing on best (good) practices/success stories in technology transfer.
	• Research and capacity building for transformation. Most of the time, researchers, practitioners, governments and local communities are working in silos. It is important to have shared common knowledge and understanding to gain optimal benefit and achieve transformation. Therefore, multistakeholders participatory approach is needed; transdisciplinary approach is needed
	• Research on specific sector, looking at: (i) technology, tools; (ii) Policy; (iii) Systems research; (iv) Promotion; awareness raising
	• Localisation of technology, not only how to transfer technology from developed country to developing country, but also to improve the existing technology inside the country.
	• Market and market-based policies and instruments, intellectual property rights issue
	• Development of innovative financing, new business model
	2. Science-policy dialogue
	3. Knowledge sharing among countries

this, because of their emphasis on integrated approaches; though risk that different agencies are given different SDGs to look after. • Multiple level of decision-making / poor communication between different levels of govt. • Need for greater involvement with stakeholders on the ground (including those exposed to risk). • Bottom up approaches to influence government • Messages from science need to be delivered in ways readily understandable by policy makers. Synthesis needed. • Effective processes for engaging policy makers	