

Draft Aide Memoire
Multilateral Development Bank (MDB) Programming Mission for the Pilot Program for
Climate Resilience (PPCR)
ADB/IFC/ World Bank – Government of Nepal
(September 3-9, 2009)

A. Introduction

1. A joint Asian Development Bank, International Finance Corporation, and World Bank team fielded a programming mission to Nepal from September 3-9, 2009 for the Pilot Program for Climate Resilience (PPCR). Mission members from the Asian Development Bank included Cindy Malvicini (co - Team Leader), Robert Dobias (Senior Advisor for Climate Change), Nogendra Sapkota (Social Environment Officer), Ngamindra Dahal (Environment Specialist), Si Zhizhong (Institutional Specialist); and from the IFC, Vladimir Stenek (Projects Officer), and Anupa Aryal Pant (Projects Officer). The team from the World Bank comprised Richard Damania (co- Team Leader), Dora Cudjoe (Environmental Specialist), and Ranjan Samantaray (Senior Rural Development Specialist), Claudia Sadoff (Lead Economist), and Da Zhu (Senior Economist). Karin Kemper (Sector Manager, World Bank), and Warren Evans (Director, Environment Department, World Bank) participated in the opening mission workshop. Bimal Raj Regmi from Department for International Development (DfID) participated in mission activities as a representative selected by the major development partners (donors) in Nepal and Yuri Chakalall represented United Nations Development Programme (UNDP) and other UN agencies.
2. The objectives of the mission were to take stock of the range of climate change related activities in Nepal and agree with the Government of Nepal on the process and the broad scope of potential PPCR activities. The Ministry of Environment (MoE) was the nodal agency for the mission and led mission arrangements, including meetings with a wide range of officials from the Government of Nepal, and a broad cross-section of stakeholders, including development partners, non-government organizations and private sector representatives. A list of persons met and meetings held is provided in Annex 1. The mission acknowledges with gratitude the cooperation and hospitality extended by the Government of Nepal. This *Aide-Memoire* summarizes the mission's findings and agreed next steps.

B. Background – Nepal and the PPCR

3. Nepal has been nominated to participate in the PPCR and will be eligible for grants and concessional loans for initiatives that build climate resilience in development activities. The PPCR is part of the suite of resources available under the Climate Investment Funds. According to the Trust Fund Manual agreed to by participating countries the PPCR is to proceed in two potentially overlapping phases. In the first phase technical assistance up to a maximum of US \$ 1.5 million in grant financing is available for preparatory analytical work and capacity building activities that would promote climate resilient planning activities and a document that identifies priority investments for building

climate resilience. In the second phase, grants and concessional loans (averaging \$30-60 million) will be made available to fund some of these activities.

4. In preparation for the programming mission a number of preparatory activities were undertaken. A preliminary scoping mission with representatives from the ADB, DfID and the World Bank¹ was fielded from March 4-6, 2009 to determine the Government of Nepal's willingness to participate in the PPCR and possible themes of the program. An international institutional and policy specialist funded by ADB subsequently visited Nepal from May 1 – 9, 2009 to consult with core government stakeholders and development agencies on preparatory issues including institutional options for designing and implementing the PPCR.² This was followed by a second joint preparatory mission from 27-28 May 2009 where the ADB, World Bank, DfID, and UNDP continued bilateral consultations with key government agencies.
5. Nepal has pioneered a number of activities to address the adverse impacts of climate change. Development partners have contributed to these efforts and assisted with capacity building activities, analytical work and investments for promoting climate change adaptation. Recently fourteen development partners signed a “Compact on Climate Change in Nepal”, which is an understanding between the Government and development partners on ways to address climate change challenges, and commits the development partners to harmonise and align actions on climate change (see Annex 3). The PPCR is required to complement, support and build upon these initiatives with the aim of catalyzing “transformational change”. The following is a brief overview of the major climate change activities and possible links with the PPCR.
6. **Synergies between NAPA and the PPCR.** The National Adaptation Program of Action (NAPA) was initiated in November 2008 and the inception workshop was held in May 2009. In Nepal, this NAPA is being developed with 3 components. The first component will specify a list of urgent and immediate adaptation priorities and will be prepared based on the NAPA guidelines. The second component is developing a learning platform for sharing knowledge and experience between stakeholders. The third component will develop a multi-stakeholder climate change strategy that sets out the immediate priorities in the context of wider objectives for climate resilience. The NAPA Project has been designed to ensure greater coherence and complementarity between different climate change initiatives in the country. As the NAPA is under preparation in Nepal there is an opportunity to establish synergy between the PPCR and NAPA in terms of linking analysis, prioritization and future investments. For instance both the NAPA and PPCR require analysis on climate risks and vulnerabilities, suggesting synergies between these processes. There is also scope to build a joint stakeholder consultation process. An output of the NAPA is a document that identifies priority adaptation actions at all levels. Where the projects identified in the NAPA are consistent with the objectives of the

¹ The mission was comprised of representatives from ADB (Cindy Malvicini and Nogensra Sapkota), World Bank (Richard Damania and Claudia Sadoff), and DFID (Clare Shakya and Simon Lucas).

² The consultant, Zhizhong Si, is supported through ADB's Climate Change Fund to assist the MDBs in preparations for the Joint Programming Mission. Dr. Si is also engaged under the ADB-assisted TA entitled Strengthening Capacity for Managing Climate Change and the Environment.

PPCR, selected adaptation projects and activities will be financed through PPCR resources. This opportunity will be maximized if the NAPA priorities can be identified within the PPCR TA phase timeline. Concerted efforts will be made to avoid or minimize overlap between NAPA and PPCR processes, while strengthening synergies between these. For this, the PPCR will support and provide finance, where feasible, to expedite NAPA preparation process.

7. **Synergies between the PPCR and REDD.** The Reducing Emissions from Deforestation and Degradation in Developing Countries (REDD) negotiation track under the Bali Action Plan highlights the opportunity to reduce emissions through better forest management. REDD projects are supported under the broad umbrella of the Forest Carbon Partnership Facility (FCPF). The Ministry of Forests and Soil Conservation (MoFSC) is one of the beneficiaries of the FCPF and most formalities pertaining to REDD project preparation process in Nepal have been completed. Forests serve a crucial function in promoting natural resilience and provide protection against some extreme climate events, and REDD focuses on improving total governance in the forestry sector.
8. **Synergies with Disaster Risk Management.** The issues of climate change resilience and disaster risk reduction are closely linked and it is critical that an institutionally convergent cooperative and coordinated approach be pursued in all approaches to climate change adaptation and resilience. The National Strategy for Disaster Risk Management (NSDRM) has been developed with extensive consultation and is in the process of being approved under the stewardship of the MoHA. Numerous organizations including UNDP and the World Bank among other development partners are proactive in developing disaster risk management initiatives. There is also a NAPA working group on climate-induced disasters. Climate risk and vulnerability mapping will be developed under the PPCR in order to optimize disaster risk management planning assumptions and priorities identified under this strategy, including flood preparedness plans. A number of national GLOF initiatives are ongoing and some regional ones are planned. Nepal is earmarked as a potential recipient under a UN-funded regional GLOF initiative as well as a number of other initiatives, many through ICIMOD. The PPCR will use this information to build climate resilience for planning purposes.
9. **Synergies with Water Resources Management.** The World Bank is currently supporting a number of projects through the South Asia Water Initiative that focus on building information and capacity to manage Nepal's current extreme hydrological variability while building resilience for future climate change. Specifically, support is being provided to build river basin models and modeling capacity, and a spatial (GIS) knowledge base of water resources in the country. The World Bank is also supporting the updating of Nepal's river basin Master Plans. The PPCR will use the available information from this water resources management project related to sophisticated climate change modeling and scenario analyses and will explore further opportunities.
10. **Synergies between the PPCR and the Community-Based Vulnerability Assessment and Action Planning initiative.** Stakeholders designing the TA entitled Strengthening

Capacity for Managing Climate Change and the Environment (hereafter called Capacity Strengthening TA) (ADB-funded) recognized that the capacity of district and local governments needs to be enhanced to support the Government's decentralization policies. The TA calls for the Government to develop an action plan for mainstreaming environmental protection and climate change into subnational administration by drawing lessons from successful initiatives, including the community forestry program under MoFSC. The action plan should clarify jurisdictional responsibilities at all levels of government (central, regional or provincial, district, and village and/or municipality). To support district and local governments in their risk assessments and action planning, recruitment will be undertaken after government approval for a community-based vulnerability assessment, risk mapping and adaptation planning initiative to support district and local governments in the creation of action plans at the local level. A methodology/tool will synthesize and build on the experience of the recent work by the Climate Scenarios study team to assist communities to identify their vulnerabilities and determine trade offs between building resilience to different futures. The agreed upon approach will then be piloted in the four ecological regions, representing; middle hills, high Himalayas, mid-*terai* and lower foothills.

C. Key Mission Findings

11. MoE emphasized that policy implementation and investment rather than studies and planning documents are a priority for the government and reiterated the need to accelerate the investment phase of the PPCR. It was agreed that in subsequent missions the team would explore this possibility, including the feasibility of demonstration initiatives.
12. **Consultation Process.** The mission held a two-day workshop from September 3 – 4, 2009 with key government ministries, departments and agencies, representatives of the donor agencies and UNDP. The aim of the workshops was to identify climate change related vulnerabilities in the major sectors, review existing approaches to the problem, and identify gaps and potential PPCR interventions for phase 1. Drawing on developments in the NAPA the workshop was clustered on five thematic groups: agriculture and food security, climate-induced disasters and infrastructure, forests and biodiversity, water resources and energy, and public health and urban settlements.
13. Further consultations were held through targeted workshops with donor agencies, NGOs and the private sector. A major theme emerging from the donor and NGO consultations is that PPCR activities need to focus on vulnerable rural communities and local development issues. A detailed report of the workshop outcomes and participants is in Annex 2. The mission held additional meetings with key ministries, departments and agencies to agree the broad themes identified by workshop participants.
14. **Key Emerging Themes.** Throughout the course of the mission, two underlying themes emerged as crucial to building resilience to climate change impacts in Nepal: (i) adopting a multisectoral approach particularly focusing on sectors at the frontline of impacts which involve the water-agriculture-forestry nexus, and (ii) employing bottom-

up initiatives. The main reasons are that climate change impacts transcend sectoral and thematic boundaries and impacts are disproportionately borne at the local level where economic activities and livelihoods depend largely on natural resources including water, agriculture and forests. This view, strongly held by government, was reiterated at the focus group workshops and meetings organized separately for development partners, NGOs, private sector and the constituent assembly (parliamentarians). The general consensus is that the PPCR program should pay adequate attention to these two key themes through both the TA and program phases.

15. **Integrated Water Resources Management.** Stakeholders prioritized building resilience of local communities by supporting initiatives in watershed and water resources management such as integration of rain water harvesting to augment water & moisture availability, and sustainable wetlands and river valleys. A long-term approach for integrated land use planning should also be considered.
16. **Agriculture Sector.** It is expected that the PPCR would strengthen resilience of farmers to adapt to climate change. Areas for consideration include climate resilient ways to improve food security through improved crop varieties and storage mechanisms, and crop diversification. Stakeholders emphasized the need to improve knowledge and agricultural extension services.
17. **Institutional Strengthening.** Adequate institutional capacity is a prerequisite for ensuring the achievement of the PPCR objectives. PPCR, through the implementation of activities, will help strengthen the institutional capacity of local agencies in building climate resilience into the development planning process, through targeted capacity building activities during the TA phase and through learning-by-doing during the implementation phase. The Capacity Strengthening TA referenced in paragraph 10 aims to develop an organizational framework to coordinate and manage climate change initiatives among relevant government agencies and between central and district level government. The Ministry of Environment faces both physical and technical capacity constraints. The government has also identified the need to improve mechanisms for environmental enforcement at the various levels of government, including the creation of an adequately staffed Department of Environment and field office presence in the districts. It will also implement identified programs to build capacity especially of government officials responsible for climate change. The stakeholders consulted with the programming mission identified a series of institutional strengthening needs including training, and building a network among focal points in the various sectoral ministries and departments. The PPCR should seek to coordinate with and involve the disaster risk management focal persons, particularly in support of an integrated development approach that is climate resilient to reduce disaster risk. These needs will be assessed against the institutional capacity requirements of the PPCR and the expected results of the Capacity Strengthening TA. Recognizing that building capacity and institutional expertise is a long term process, PPCR TA resources would also be used where needed for targeted institutional strengthening activities that have not been covered in other programs.

18. **Climate Resilience and Development Planning.** The PPCR program aims to integrate climate resilience into core development planning and financing, within the broader context of promoting climate resilient development and growth. Stakeholder consultations pointed to the need for building climate resilience in local development among poor rural communities. It was agreed that this could be facilitated through district LAPAs. The proposed LAPA would identify adaptation needs at the local level that focuses on reducing local-level climate risk and vulnerabilities and ways of increasing resilience. It would also focus on strengthening mechanisms for ensuring consolidated and coordinated adaptation responses at local levels through the existing planning process. The PPCR can support both the development and implementation of LAPAs. The LAPA preparation process may be informed by the Community Vulnerability Assessment and Action Planning initiative described in paragraph 10. In turn the LAPAs could be used as a vehicle to inform sectoral programs and catalyze cross-sectoral coordination and complementarities to build climate resilience. Moreover, mainstreaming climate change adaptation into existing local development planning particularly at the district and village levels is important to ensure a bottom-up perspective to climate resilience development pathways. To assure consistency there is also a need to assure complementarity between the draft Climate Change Policy and sectoral policies, strategies, investment plans and programs. This would necessitate a light and targeted review of elements of certain selected sectoral plans and priorities that are affected by climate change and their implementation on-the-ground³. It was agreed with MoF that this process could begin in phase 1 with a review of pipeline investment projects included in the Government's medium-term expenditure framework.
19. **"Climate Proofing" Infrastructure.** The PPCR could include the implementation of measures for integrating climate resilience into infrastructure design. Based on stakeholder recommendations, the mission recommended that the PPCR develop a screening tool for infrastructure investments that takes into account climate-induced risks and natural hazards risk. Depending on the results of the screen, other risk management measures (such as climate risk mapping, vulnerability assessments to extreme events, risk reduction policies and practices) would need to be introduced during project design and implementation.
20. **Knowledge Gaps and Studies.** There is more unknown than is known on the likely impacts of climate change in Nepal. This is a consequence of the extreme modeling complexities of downscaling and projecting climate variables at high elevations in monsoonal geographies. Existing knowledge gaps add uncertainties to decision making. Refining the information on the impacts of climate change remains a high priority for sectors in the frontline of climate impacts – agriculture, forests, energy, health and water. The government stakeholder workshop highlighted needs in the following areas – improved climate projections, GIS maps to identify hotspots of vulnerability for communities and critical infrastructure, improved early warning systems and real time

³ The PPCR Programming and Financing Modalities document notes that the PPCR will provide "finance for programmatic approaches to upstream climate resilience in development planning, core development policies, and strategies."

hydro-meteorological data, with sufficient quantity and distribution (for assessing and forecasting), in high- and mid-mountains, and *terai*. Full details are in Annex 2.

21. In its report published during the Nepal Day Climate Conference, the Climate Scenarios study team noted that climate change projections for Nepal is difficult and any projections must be interpreted and used cautiously, given the limitations of global and regional climate models and observational datasets. However, the mission discussed with the Climate Scenarios study team the possibility of building on their initial assessment by developing a medium-term downscaled modeling program⁴ combining (i) digitization and statistical modeling of data from approximately 150 weather stations, and (ii) regionalized descriptive/narrative scenarios derived from underlying quantitative data. The government also indicated the need to strengthen the weather stations for improved data quality and maintenance.
22. Better baseline studies are needed to adequately manage risks associated with climate change and health. In late 2009, ADB conduct a brief assessment to identify ways in which impacts on human health may be integrated into climate change risk assessment, particularly in the water and agriculture sectors. The expected output is identification of areas for building synergies between climate change adaptation and health planning.
23. The stakeholder working group called for a pilot initiative on Payment for Environmental Service, particularly ensuring sustainability of spring and stream sources. ADB has a regional technical assistance project to demonstrate market and associated policy and institutional mechanisms for ecosystem service transactions in selected sites for learning and subsequent replication, especially to capture financial transfers through the carbon market. Further discussion will be held between the mission, the Government, and the concerned ADB officer for the technical assistance to determine if it is appropriate to participate in the TA. The experience of USAID supporting the government in payments for environmental services should also be explored.
24. **Other Related Initiatives.** Stakeholders consulted by the mission recommended that the PPCR could fund various assessments and studies and pilot implementation at the local level. The mission also learned about other planned and ongoing initiatives that might address some of the stakeholder suggestions. It was agreed that further investigation is needed regarding other related initiatives and their complementarity with the PPCR. Annex 3 contains a list of related climate change adaptation initiatives.
25. **Urban Sector.** Separate meetings were held with government officials addressing urban development. There is a need to study and assess climate change vulnerability and risks of urban settlements in Nepal, and develop technical guidelines for urban development and infrastructure. Adaptation considerations should be integrated into (i) the national urban development policy, and (2) the on-going urban environment implementation plan and guidelines. Officials also noted that the knowledge gap among government staff regarding climate change; no studies have been carried out in this sector. Therefore, they suggested PPCR to also support awareness-raising and capacity building for urban and

⁴ This could be financed through resources already set aside by ADB.

infrastructure staff and city managers. The PPCR program phase may consider climate resilient projects in some cities.

26. **Private Sector.** The initial consultation workshop with the private sector included a number of associations and companies, from small entrepreneurs to SMEs and larger companies, representing thus a wide spectrum of the national economy. The discussion included the needs for analyses of climate risks and impacts to the private sector and of adaptation financing modalities, as envisioned by the PPCR Programming and Financing Modalities document. The summary of discussion with the private sector stakeholders is in Annex 2. Given the importance of private sector's adaptive capacity for the overall economic and social prosperity and stability, the PPCR Programming document specifies that the analysis of climate risks to the private sector should be a regular task of the Program and financed in the framework of Phase 1. However, since this is the first PPCR pilot IFC will aim to elaborate the analysis, seeking financing through donor funding.

D. Next Steps

- MoE will share the Workshop Proceedings with the participants of the workshop.
- MoE will share this *Aide Memoire* with concerned ministries, departments and agencies with a request for a response by 30 October 2009 as the basis for determining priorities for phase 1 of the PPCR.
- With the aide of consulting services provided by World Bank and ADB, MoE will prepare a synthesis of PPCR phase 1 needs and possible initiatives under the PPCR program by 20 November 2009 for discussion with ADB and the World Bank. This would form the basis for further discussion for the next major mission tentatively slated for the last week of November 2009.
- It was agreed that MoE will continue to work as the nodal agency for the PPCR and will establish a mechanism to engage the relevant partners in PPCR design and implementation⁵.
- A project unit will be established by 15 November 2009 under MoE to accelerate PPCR activities.
- PPCR Phase 1 funding will be used to assess climate vulnerabilities in selected geographical areas.
- The consultation process for PPCR will be carried out with the NAPA team to ensure stakeholders are aware of both processes and their complementarity.

⁵ The PPCR Programming and Financing Modalities document calls for "a consultative planning process to agree on a common vision and strategic approach for climate resilience and to define priority actions and investment needs to implement this approach."

Annex 1: Meeting Schedules and People Met**1.1) Meeting Schedules****1.1.1) Program for the Stakeholder Consultation Workshop, 3-4 September 2009**

Time	Activity	Facilitator
Day 1 (3 September)		
8:00–9:00	Transport to Hotel and Registration	
9:00–9:30	Check-In & tea	
9:30–10:00	Tea (outside conference room)	
	Opening Session	
10:00–11:00	Welcome remarks – Ms. Meena Khanal, Joint Secretary, MOE Remarks by: Representative of ADB, Mr. Bob Dobias Representative of WB, Mr. Warren Evans Closing Remarks by Chair	Chandeswor Acharya, MOE
11:00–11:15	Introduction of Participants	Nogendra Sapkota and Cindy Malvicini
11:15–11:30	Objectives of the Workshop	Cindy Malvicini, ADB and Richard Damania, WB
11:30–12:30	The PPCR Stocktaking Report	Zhizhong Si
12:30–13:30	Lunch	
13:30–15:45	Gap Analysis <i>Plenary Introductory Session</i> <i>Breakout Sessions:</i> i) Agriculture and food security ii) Water resources and energy iii) Climate-induced disasters and infrastructures iv) Forests and biodiversity v) Health and urban development	Cindy Malvicini /Nogendra Sapkota
15:45–16:00	Tea	
16:00–17:15	Plenary: Group Reports on Gap Analysis	Group Chairs, Facilitators, Participants
17.15–17.30	Plenary discussion/ wrap up of first day session	
18.00–20.00	Group Cocktails and Dinner	

Annex 1 – Meeting Schedules and People Met

Day 2 (4 September)		
7:30 - 8:30	Breakfast	
9:00 –9:30	Reflection of the first day work:	
9:30 – 12:00	Needs Assessment	Participants/ Facilitators
12:00- 13:00	Plenary: Group Reports on Need assessment	Group Chairs, Facilitators, Participants
13:00 - 14:00	Lunch	
14:00 - 15:30	Agree on priorities and sequencing of PPCR TA and pilot/investment activities	Cindy Malvicini / Richard Damania
15:30 - 16:00	Tea/Coffee Break	
16:00 - 17:00	Closing Session	MoE Officials
18:30	Dinner	

Annex 1: Meeting Schedules and People Met (cont'd)**1.1.2) List of Meetings, 3-10 September 2009**

Date	Meetings
Thursday-Friday, 3-4 September	Stakeholder Consultation Workshop
Sunday, 6 September	Ministry of Agriculture and Soil Conservation (MoASC) Ministry of Environment (MoE) Ministry of Finance (MoF) Water and Energy Commission Secretariat (WECS) Department of Urban Development and Building Construction (DUDBC)
Monday, 7 September	Workshops with: 1. Development Partners 2. NGOs 3. Private Sector
Tuesday, 8 September	Department of Urban Development and Building Construction (DUDBC) Ministry of Physical Planning and Public Works (MoPPW) Ministry of Home Affairs (MoHA) Ministry of Environment (MoE) Constituent Assembly (CA)
Wednesday, 9 September	Ministry of Environment
Thursday, 10 September	Wrap-up meeting

Annex 1: Meeting Schedule and People Met (cont'd)**1.2) People Met****1.2.1) List of Participants of Thematic Groups of Stakeholder Consultation Workshop on Pilot Program for Climate Resilience, 3-4 September, 2009***Thematic Group 1: Agriculture and Food Security*

Dr. Deepak Mani Pokhrel, Chair	Ministry of Agriculture and Cooperative
Mr. Naresh Sharma	MoE
Ms. Jessica Ayers	MoE /NAPA
Mr. Kanchan Raj Pandey	Department of Agriculture (DoA)
Mr. Ghanasyam Malla	Nepal Agriculture Research Council (NARC)
Mr. Bharat Sharma	Ministry of Women, Children & Social Welfare
Mr. Gehendra Gurung	Practical Action
Ms. Moon Shrestha	WWF

Thematic Group 2: Climate Induced Disaster and Infrastructures

Mr. Ananta K Gajurel, Chair	Department of Water-Induced Disaster Prevention (DWIDP)
Mr. Shanmukhesh Amatya	Department of Water-Induced Disaster Prevention (DWIDP)
Mr. Chandeshwor Acharya	MoE
Mr. Ritu Pant	MoE
Mr. Jagadishwor Karmacharya	Department of Hydrology and Meteorology (DHM)
Mr. Yuri Chakalall	UNDP
Ms. Dora Cudjoe	World Bank
Mr. Zhizhong Si	ADB Consultant

Thematic Group 3: Forest and Biodiversity

Mr Resham Dangi, Chair	Ministry of Forest & Soil Conservation
Mr. Batu K. Uprety	MoE
Mr Gyanendra Karki	MoE/NAPA
Mr Indra Bahadur Malla	Department of Soil Conservation
Mr. Binod Basnet	National Trust for Nature Conservation (NTNC)
Mr. Pradeep Paudel	VDC Association
Mr. Ugan Manandhar	WWF
Mr. Ram Chandra Khanal	IUCN

Thematic Group 4: Water Resources and Energy

Mr Pravin Aryal, Chair	Ministry of Energy
Mr. Purushottam Ghimire	MoE
Mr Indra Bahadur Malla	Depart of Soil Conservation
Mr. Krishna Bahadur Basnet	Ministry of Finance
Dr. Narayan Chaulagain	Alternative Energy Promotion Center (AEPC)
Mr. Hari Prasad Ishar	Water and Energy Commission Secretariat (WECS)
Mr. Gyanendra Prasad Upadhyay	Federation of Nepalese Chambers of Commerce and Industry (FNCCI)

Annex 1 – Meeting Schedules and People Met (cont'd)

Ms. Krishna Lal Shrestha	Department of Irrigation
Mr. Anil Pokhrel	(Institute for Social and Environmental Transition (ISET-Nepal)
<i>Thematic Group 5: Public Health and Urban Development</i>	
Dr Babu Ram Marasini, Chair	Ministry of Health and Population
Ms. Meena Khanal	MoE
Mr. Sita Ram Timilsina	Ministry of Industry
Mr. Bijaya Nath Subedi	Ministry of Local Development
Mr. Bidya Nath Bhattarai	Ministry of Physical Planning and Works
Mr. Thakur Prasad Pant	Department of Water Supply and Sanitation
Mr. Meghnath Dhimal	National Health Research Council (NHRC)
Mr. Anil Kaphle	Association of District Development Committees of Nepal (ADDCN)

Annex 1: Meeting Schedules and People Met (cont'd)**1.2.2) People Met – Meetings with Government Line Agencies, 6-10 September 2009**

Name(s)	Ministry/Department
Joint Secretary Hari Dahal Deepak Mani Pokhrel, Sr. Horticulture Development Officer	Ministry of Agriculture and Soil Conservation (MoASC)
Secretary Uday R. Sharma Joint Secretary Purushottam Ghimire	Ministry of Environment (MoE)
Under Secretary Bhuban Karki	Ministry of Finance (MoF)
Joint Secretary Suresh Raj Uprety Joint Secretary Iswar Singh Thapa Mr. Sanjaya Dhungel, Sr. Divisional Engineer	Water and Energy Commission Secretariat (WECS)
Director General Indra B. Shrestha Deputy Director General Mahendra Subba Mr. Buddhi Sagar Thapa	Department of Urban Development and Building Construction (DUDBC)
Joint Secretary Suresh P. Acharya	Ministry of Physical Planning and Public Works (MoPPW)
Under Secretary Thir Bahadur G.C.	Ministry of Home Affairs (MoHA)

Annex 1: Meeting Schedules and People Met (cont'd)**1.2.3) List of Participants of the Workshop on Pilot Program for Climate Resilience with Development Partners, 7 September, 2009**

Name	Organization
Providoli Isabelle	ICIMOD
Udo Weber	Embassy of Germany
Jessica Aters	NAPA/MOE
Anupa K. Lamichhane	UNDP
Yuri Chakalall	UNDP
Chudamani Joshi	Embassy of Finland
Brian Peniston	The Mountain Institute
Shiva Poudel	Embassy of Denmark
Netra Sharma	USAID
Shanker Pandey	KfW/German Dev. Corp
Neera S. Pradhan	WWF
Clare Shakya	DfID
Bimal Regmi	DfID
Giap Dang	European Commission to Nepal
Charles Pradhan	CIDA/CCO

Annex 1: Meetings Schedules and People Met (cont'd)**1.2.4) List of Participants of the Workshop on Pilot Program for Climate Resilience with Non Governmental Organizations (NGOs) on 7 September, 2009**

Name	Organization
Pankaj K.C.	Clean Energy, Nepal
Dhruba Pant	IWMI
Gehendra Gurung	Practical Action
Ganendra Karki	NAPA
Prahlad Thapa	CECI
Maksharam Maharjan	CARE, Nepal
Deepak Poudel	DPNet Nepal/NDMF Nepal
Pradeep Bhattarai	Youth for Sustainable Environment (YSE)
Dharma Upreti	Forest Action
Kiran Shanker Yogacharya	SOHAM, Nepal
Nimesh Regmi	NEFEJ
Binaya Pasakhala	AIT Thailand
Jeevan Panthi	The Small Earth, Nepal
Deepesh Chapagain	Nepalese youth for Climate Action (NYCA)
Jagadish C. Baral	MFSC
Anita Thapa	Sancharika Samuha
Bibek Chapagain	WINROCK
Chhewang N. Lama Sherpa	SWC
Raju P. Chhetri	UMN
Khadga Ser Oli	NSET-DPNet
Bishnu Nisthuri	AJA, Nepal
Satish Sharma	Financial Mulyankan
Janak Tiwari	Economic Weekly
Prakash Shrestha	WTLCP
Santosh Nepal	WWF
Neera S. Pradhan	WWF
Suvas Devkota	FECOFUN
Anil Pokhrel	ISET-Nepal
Adarsha P. Pokhrel	ADAPT- Nepal

Annex 1: Meeting Schedules and People Met (cont'd)**1.2.5) List of Participants of the Workshop on Pilot Program for Climate Resilience with the Private Sector, 7 September, 2009**

Name	Organization
Vijay Shrestha	Yeti Airlines
D.B. Shakya	AECF FNCCI
Birendra B. Basnet	Budha Air
U. Kunwar	FMEET
Arun Shrestha	HAN
Suman Basnet	SN Power
Narendra K. Basnyat	CHG
Apar Neupane	SN Power
Surya Shakya	SN Power
Banita Rana	SN Power
Udayan Ganguly	Dabur, Nepal
Shanti Chaddha	FWEAN
Gyanendra Lal Pradhan	Hydro Solutions
Bijaya Pradhan	Discover Nepal
Pramila Rizal	FWEAN
Yankila Sherpa	Snow Leopard
Pradeep Gangol	IPPAN
Ashutosh Tiwari	Himal Media
Amit More	Lucky Group
Neeraj Rathi	CEDBL
Prakash Jha	Energy and Environment Pvt. Ltd
Renu Shedai	Energy and Environment Pvt. Ltd

Annex 1: Meeting Schedules and People Met (cont'd)**1.2.6) List of Participants of the Meeting on Pilot Program for Climate Resilience with the Constituent Assembly, 8 September 2009**

Name	Contact Information
Hon. Laxmi Pariyar	sewalaxmi@yahoo.com, 9741132932
Hon. Ang Dawa Sherpa	ang-media@yahoo.com, 9841395294
Hon. Tilak Thapa Magar	9741051334
Hon. Sunil Babu Pant	pantsunil@gmail.com 9851067959
Hon. Radha Timilsina	9841248525
Hon. Ratna Gurung	9841522922

Annex 1: Meeting Schedules and People Met (cont'd)**1.2.7) List of Participants – Wrap-up Meeting, PPCR Joint Programming Mission,
10 September, 2009**

Name	Telephone Number	Ministry/Department/Organization
Bimal Regmi	9856027605	DfID
Gayatri Acharya		World Bank
Clare Shakya		DfID
Batu Uprety		Ministry of Environment
Bhuban Karki	9841272524	Ministry of Finance
Kapil D. Ghimire	9851073665	Ministry of Finance
Purushottam Ghimire	9841278600	Ministry of Environment
Uday R. Sharma	9841885957	Ministry of Environment
K. Baskota	9841350280	Ministry of Finance
Paolo Spantigati		Asian Development Bank
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Annex 2: Summaries from Workshops

2.1) Summary Results of the Stakeholder Consultation Workshop, 3-4 September 2009

1. Introduction

1. The workshop adopted a participatory approach to engage representatives from government agencies, development partner organizations, NGOs, and private sector. In the opening session, Chief of Environment Division of Ministry of Environment (Mr. Purushottam Ghimire) and senior representatives from the World Bank (Mr. Warren Evans) and ADB (Mr. Bob Dobias) explained the background and objectives of PPCR. This was followed by an introductory session in which objectives of the workshop were discussed by the team leaders, Mr. Richard Damania from the World Bank and Ms. Cindy Malvicini from ADB. ADB consultant Dr. Si Zhizhong prepared a stocktaking report as a backgrounder for the PPCR mission, a printed copy of which was provided to each participant in advance of the workshop. Dr. Si presented the key vulnerabilities of each sector and possible areas for adaptation.

2. Participants were divided into working groups in accordance with the five thematic working groups established for the NAPA preparation process: (i) Agriculture and Food Security, (ii) Natural Disasters and Infrastructures, (iii) Forests and Biodiversity, (iv) Water Resources and Energy, and (v) Public Health and Urban Development. Each working group was led by a Government representative. For each theme, participants identified (i) key climate change vulnerabilities and impacts, (ii) current responses to address the impacts (policy, institutions, knowledge/data, program/plan, capacity and resources among others), (iii) gaps, and (iv) proposed adaptation initiatives, including needed policy changes, capacity strengthening, and studies and assessments needed before appropriate climate resilience measures can be integrated into development planning.

2. Output/Recommendations

3. The working groups consisted of representatives from Government, civil society, private sector and development partners. The discussions resulted in the following broad outcomes and possible trends that may be relevant for the PPCR initiative. However, each of the recommendations requires further analysis and consultation before reaching any consensus on the sectoral interventions required with respect to the climate resilience planning.

A) Agriculture and Rural Development

i) Vulnerabilities and significance

4. Agriculture contributes about 38 percent to Nepal's GDP and employs over 80 percent of the workforce. The fortunes of agriculture have far reaching implications for the country's growth and development prospects. Simultaneously agriculture stands at the frontline of climate change impacts and remains highly vulnerable due to the predominance of rain-fed agriculture in the country and high poverty incidence in rural areas.

5. Climate change is expected to impact agricultural productivity through three primary channels: (i) increasing temperatures, (ii) rising carbon dioxide levels and (iii) changes in the timing, intensity and volume of rainfall. There is much uncertainty about the magnitude of these changes and the consequent effects on agriculture because of the extreme complexities of downscaling and projecting climate variables at high elevations and in monsoonal geographies. Nevertheless there is evidence that observed changes in temperatures and soil moisture that are already occurring are adversely impacting agriculture in many parts of Nepal. The thematic groups noted the following climate related changes have already been occurring and in some cases are documented: (i) More variable rainfall with a greater incidence of floods and droughts; (ii) Depletion of groundwater and aquifers due to groundwater abstraction rates exceeding recharge rates; (iii) declining yields of many crops and pastures due to both depleting soil fertility and changes in precipitation; (iv) alterations in the cropping cycle and (v) changes in pasture and livestock productivity, particularly at higher elevations.

ii) Current Responses

6. The group noted that the Government of Nepal has been highly proactive in developing responses to the threats of climate change in agriculture. Notable is the development of a Draft Climate Change Policy that incorporates agricultural vulnerabilities as a major theme. In addition Nepal Agricultural Research Centre (NARC) has initiated several important research programs that examine climate impacts and technologies for building climate resilience. Most significantly there is much community level autonomous adaptation occurring in response to observed climate trends. These are being promoted and strengthened in numerous rural development programs supported by GoN.

iii) Gaps

7. It was recognized that while these achievements are significant there is room for some refinement. First there are large knowledge gaps on climate impacts. Without more reliable climate projections it is difficult to advise farmers about adaptation responses. Further it was suggested that coordination and communication remains uneven. Agriculture is affected by decisions in other climate sensitive sectors such as — transport, water and energy sector. Coordination is needed to ensure complementarity and synergy. Capacity constraints — both human and financial — were further impeding progress on building climate resilience.

iv) Proposed Initiatives and Opportunities

8. The working group recommended a large number of responses to the climate change challenge in agriculture. (i) Recognizing the need for climate proofing the sector the group proposed a review existing policies for gaps and opportunities to strengthen climate resilience. This would be followed by any readjustments to policy through multisectoral involvement (including government, NGO, private). (ii) Organizational restructuring was also recommended. To facilitate communication it recommended the creation of a Climate Change Section in the Ministry of Agriculture and Departments, including NARC. It also proposed strengthening information and knowledge sharing systems through this cell. (iii) It was noted that there is an urgent need for studies on the impacts of climate change on agriculture in different geographies including agro-biodiversity. (iv) To catalyze this process and build capacity the group proposed the creation of a pilot grant facility to mainstream climate concerns in agricultural research and

extension. These would be awarded to established institutions and facilities such as NARC and Nepal Agricultural Development Fund.

9. The group also identified potential investments through phase 2 of the PPCR. These included: (i) Pilot testing and scale up of proven climate resilient technologies to be implemented through government, private sector and communities as relevant. (ii) A large grant facility to promote extension, research and development of climate resilient agricultural technologies.

B) Climate Induced Disasters and Infrastructure

i) Key Observations

10. Group discussion did not have the benefit of participation by MoHA, key stakeholders in National Disaster Risk Management, nor key Public Works officials, hence discussions concentrated more on water induced disasters and less on other infrastructure. Several group members did not have significant knowledge of upcoming planned infrastructure works programs at central and district levels.

11. Emerging recommendations for strengthening local governance for CCA/DRM, vulnerability mapping for critical infrastructure, local level extreme event forecasting, snowmelt contributions to hydrological regimes, and bio-engineering pilots identified by the group, were also identified as consensus priorities by all working groups in plenary session.

ii) Impacts/Vulnerabilities/Risks

12. Group discussions were initiated with the fact that climate impacts could be classified by: (a) triggers of climate change; (b) by objects of damage/sector and (c) by the hazard experienced. Objects of damage were identified as public property, private life and property. Key damage inducing hazards were identified as: floods/inundation, landslides, glacial lake outburst floods (GLOF) and droughts.

13. Key vulnerable sectors identified included: transportation networks (bridges, roads), human settlements, agriculture & food production, social infrastructure (health & education), power production and distribution systems as well as water supply and distribution systems. It was noted that these sectors were frequently impacted by climate variability and natural hazard events.

iii) Gaps/Priorities in Policy Mainstreaming

14. The group noted the existing national organizational structure for disaster management at the central level under the chairmanship of the Prime Minister (central disaster relief committee), and its extension to the District level. It was further acknowledged that a National Strategy for Disaster Risk Management (NSDRM) had been developed and that this was in the process of being submitted for Cabinet approval. Translation of the NSDRM into an action plan and the subsequent development of detailed regulations is envisioned but has not yet occurred. This was identified as a policy gap. Discussions suggested that disaster management has traditionally and heavily focused on relief and emergency response with the need to move in the direction of risk reduction and mitigation.

15. The group discussed that potentially climate change and adaptation considerations could be examined with the advancement and refinement of the NSDRM. The group further indicated that climate change, adaptation and resiliency considerations were closely linked to the disaster risk reduction and mitigation agendas.

16. The Three Year Interim Plan, the “in development” Five Year Plan (national multi-sector development plans), the National Water Plan and the Working Procedures of the DWIDP was all considered as potential rime entry points for climate change and resiliency considerations. There was substantive discussion that specific climate change and disaster risk management guidelines were needed for all key sectors prone to water induced disasters.

17. Group members were unclear as to the guiding policy and plan of the Ministry of Local Development (MoLD), but thought that MoLD was a critical institution within which climate resiliency should be mainstreamed.

iv) Gaps/Priorities in Institutional Strengthening

18. The group noted specifically the needs to develop, undertake, strengthen and extend district and village level local governance for climate adaptation and disaster risk management as well as conducting annual sectoral awareness programs targeting the grass roots level. Additionally, the need for building central, district and village level institutional capacities in both bio and geo-engineering was also identified as important and necessary. The need for additional (on the job) training for all department level officers in key Ministries including but not limited to the MOH, DWIDP, DSCWM was also identified.

19. It was noted that water sector specific tools and training for identifying CCA & DRR measures as well as for the climate change and disaster impact screening for infrastructure development were also needed.

v) Proposed Initiatives

20. A number of focused, and sometimes geographically specific initiatives were proposed as critically important for consideration under the PPCR.

21. **Local governance for climate adaptation and disaster risk management.** The need to strengthen and mainstream climate resiliency, adaptation, and disaster risk reduction considerations at district and village development council levels were considered important in ensuring climate resilient local development. There was also a call in this regard to support the development of local adaptation plans of action (LAPAs).

22. **Local Scale Forecasting.** Local scale, extended range forecasting and early warning systems for major river systems and their tributaries were considered important as well as the requisite socio-economic and technical feasibility justification for such systems.

23. **Database on Disaster Affected Water Supply Systems.** The development and management of a specific database on disaster affected water supply systems at district level and capacity building for its management was also proposed.

24. ***Up-scaling of Bio-engineering, Landslide Mitigation & River Training Works.*** Scaling up the bio-engineering works, landslide mitigation works and river training works at the Giruwari model site in the Siwalik range.
25. ***Identification & Implementation of Medium & Long Term Disaster Reduction & Climate Resilience Measures for River Systems.*** It was suggested that medium and long term disaster reduction/mitigation/climate resilience measures should be identified and implemented for 10 key river systems e.g., Janatako Tatbandha, Kankai to Mahakali, Bagmati, Kamala, Narayani, Mugling Narayanghat, Sindhuli and Bardiba. In this regard it was further suggested that piloting climate resilient watershed management plans should also be established for major river basins.
26. ***Vulnerability Mapping.*** Climate vulnerability mapping for critical infrastructure in critical areas at district and village levels was also identified.
27. ***Local Level Hydrological & Debris Flow.*** Supplementing scaled down (local level) studies of snow melt, ice, glacial lakes, debris flows in the context of potentially impactful surface water discharges were considered important.
28. ***Climate Resilient Urban Planning.*** Given the organic nature of urban development in Kathmandu and several key settlements, it was suggested that a pilot initiative in climate resilient urban planning was necessary to demonstrate both the importance of proper climate resilient urban planning.

C) Forestry and Biodiversity

i) Impacts and Vulnerabilities

29. The current investments in the forestry sector do not match its productive potential given that more than 45% of the country's land is officially under the forest territory. The GoN records reveal that an estimated 40% of the country's forest cover has been degraded because of biotic and a-biotic pressures which are primary causes of CO₂ emission. According to the Forest sector Policy 2000, GoN, about 1464 Ha of forest land is lost every year due to the rise in demand for food, fodder, fuel-wood and timber for construction in Nepal. Meeting these demands without sustainable land use planning and management will have direct repercussions on the stabilization of CO₂ concentration in the atmosphere and overall biomass availability in future. In addition, there is a clear trend of increase in frequency of forest fire incidences in the recent times.
30. Lack of watershed intervention has affected local hydrological cycle reducing the biomass productivity and species diversity. Given the three distinct agro-ecological zones in Nepal (Siwalik region, Mid-Himalayan region and Temperate region), there is a clear trend of upward movement of temperate species with the rising temperature and loss of moisture. Various intrusive species particularly weeds are gradually colonizing the local dominant species. Inadequate silvi-cultural practices have further deteriorated the quality of forest.

ii) Gaps

31. Due to lack of forestry inventory system, the Department of Forest (DoF) is yet to assess the exact impact of climate change and subsequent resilience mechanism needed. Large scale conversion of Forest land for Non-forestry purposes: While the DoF is trying to conserve forest for creating a carbon sink that will enhance sequestration process, the Land Development Department has recently announced rehabilitation of 200,000 families in converting forest for agriculture purposes. In addition, the MoFSC and the DoF lack capacity for comprehensive land use planning.

32. Lack of investment and technological innovation are clearly key barriers for ensuring forestry sector climate resilience planning.

iii) Current Responses and Status

33. The Current REDD project has provided an opportunity both in terms of financial as well as technological support for demonstrating pilot initiatives on climate resilience mechanism within the forestry sector. However, given the fact that about 70% of the GHG emission in Nepal is due to forest degradation, the REDD project alone is not adequate to address climate resilience issues.

34. The proposed Finland Government project (currently under preparation) on Forest Inventory will be of immense support to the sector in terms of assessing climate change impacts as well as evolving appropriate adaptation and mitigation measures. While the exact scale and the operation of the project is yet to be evolved, the discussion suggests that the project will have a wide range of GIS monitoring options dealing with the land used planning and will be of strategic importance to many sectors.

iv) Possible Initiatives

35. The New Master plan for forestry sector is expected to start this year. PPCR and REDD can jointly help in ensuring inclusion of climate resilience mechanism in the new Master Plan. Majority of studies needed for detailed analysis and policy reform for the climate resilience are already incorporated under RPP (Readiness Preparation Plan) of the REDD project. This includes demonstration of pilot initiatives in selected agro-ecological areas.

36. Capacity building and coordination support needed for developing a legislative framework for a comprehensive land use plan could be supported under the PPCR. Synergy must be established between PPCR and REDD cell for developing a policy dialogue on ways of addressing the issue of converting forest land into non forestry / agriculture activities vis-a-vis LSGA.

37. Given the fiscal deficit within the forestry sector and severe degradation in various water sources, it would be appropriate to demonstrate a pilot initiative on Payment for Environmental Service, particularly ensuring sustainability of spring and stream sources.

D) Public Health and Urban Development

i) Impacts and Vulnerabilities

38. This working group, consisting participants from MoE, Ministry of Health & Population, Ministry of Physical Planning and Works, Ministry of Local Government, and Department of Water Supply and Sanitation, discussed the climate resilience in health, urban, and water supply and sanitation sectors. Unfortunately, officials from Department of Urban Development and Building Construction, a key shareholder in urban development, did not participate in the workshop. And only the health specialist participated in the final cross sector priority discussion.

39. The group noted the climate change impact to health, urban and water supply and sanitation sectors. In health sector, the major impact identified were increased outbreak of water born and vector born diseases. The group notes there will be more disease local transmission; affected area will move up; and there will also be new diseases outbreak in the climate change conditions. In addition, outbreak of temperature/heat-stress related diseases will increase. Poor people, women, and children will be more vulnerable because of the secondary impact to malnutrition.

40. In urban and water supply and sanitation sector, the group discussed the impact of reduced water supply quality and quantity, increased resource scarcity, and reduced service reliability and sustainability. Urban environment challenges and pollution impact, such as solid waste, water pollution, air, and land pollution, will emerge due to increased temperature and more flood/draught conditions. Basic urban infrastructure such as housing, building, drainage, transport, landfill, water supply and sanitation will be threatened due to climate change. The challenge becomes more significant under the circumstance of fast growing population and economic activities in urban settlements in Nepal.

ii) Current Practices and Responses

41. At district level, health sector rapid response teams are in place; early warning system is available at regional directorate. Bed nets have been distributed in 26 Terai districts with campaign spray of insecticide. Vitamin A is distributed to children, and iron capsules to pregnant women. Some level awareness on climate change and health has been raised.

42. In urban sector, a urban development policy and physical planning is in place, a housing/building code is developed, but they have not yet address the climate change impact. Eighty percent of people in urban area have access to urban water system. There is a SWM policy, but practice is limited.

iii) Gaps

43. In health sector, existing health policies have not incorporated climate change. Although there are Rapid Response Team in place, but limited to only one per district, which is not sufficient. Insufficient human resources and research is in place for health risk analysis. 49 districts are not provided with bed nets nor sprays. Early warning system are lacking at all levels. There is no action for heat-stress related diseases

44. None of the urban and water supply and sanitation policies and planning has addressed the climate change impact. The awareness and capacity on climate change impact is very limited. No study and assessment on climate change and urban is done or on-going. The group also noticed that water service level is still low and lack of source protection. Water quality assessment and treatment are limited. No sufficient treatment and disposal of waste water and solid waste. Urban infrastructures are not climate resilient.

iv) Possible Studies, Assessments and Pilot Initiatives

45. During the workshop, this group has identified four clusters of possible assessment, study and pilot initiatives. (1) The current sector policies and planning need to incorporate the climate change conditions; some new development in sector strategy are needed to address the new challenge such as vector control and new disease outbreak investigation and management, climate resilient urban infrastructure, climate resilient water supply and sanitation strategy.

46. The group also suggested some tentative studies and assessments including climate risk and vulnerability assessment in all the health/urban/water sectors, technical information and guidance development towards climate resilience practice, and sector specific challenges such as water scarcity, new and expending diseases control, increasing urban environment challenges.

47. Awareness raising and capacity building needs are well recognized by this group as a priority for policy makers, planners, officials, and practitioners.

48. In addition, this group recommended some pilot programs such as the integrated vector control and disease surveillance program, strengthening early warning system at local level for preventing precipitation and temperature related health illness, climate resilient urban development, and new technologies in water supply and waste management.

E) Water Resources and Energy

i) Impacts and vulnerabilities

49. Water and energy related impacts of climate change are evident much faster than anticipated. Within the recent years, floods and landslides have taken the lives and livelihood of increased number of population and damaged infrastructures such as roads, water supply schemes and irrigation canals. Increased drought periods, sedimentation and intense precipitation have been more frequent. Weak monsoon and unreliable dry season flows have added to water stress and is likely create more conflict within communities in the coming years.

50. Only 20 per cent of households in urban areas and only 5 per cent of households in rural areas have electricity, while for the majority, bio-mass remain the primary source of energy. Nepal faces 16 hours of daily power cut due to variety of reasons including the reduced rainfall and drought during winter 2008. With increased temperature, there is increased demand for energy - industrial and domestic cooling.

51. Impacts on water and energy add further stress to communities where assess and service levels of water and energy are already poor.

ii) Current Responses

52. The Government of Nepal has realized the need for integrating climate change concerns into sectoral and national development planning. It is currently in the process of finalizing the National Climate Change Policy. The current government has laid out targets to build 25,000 MW hydro-electricity within the next ten years. The three year interim plan (2008-2010) focuses on adoption of the clean energy development path by promoting production and utilization of alternative energies, cleaner production and cleaner technologies.

53. The NAPA process has identified water resources and energy a key sector for addressing climate change impacts in Nepal. The Himalayan Climate Change Research Centre has been established within the Department of Hydrology and Meteorology to bridge the knowledge gap on CC especially on the water sector.

iii) Gaps

54. There is more unknown than the known factors on the impacts of climate change in Nepal. Existing knowledge gaps add uncertainties to decision making. Causes and effect relationship of CC to the water resources, energy systems and livelihood along with a proper understanding on the relationship of water-cycle with the CC phenomena and its complexities are not known. The contribution of snow, ice and glacier to the water flows in different times of the year and its future scenarios is unclear and debated. Basin wise climate change model that can accommodate local topographical variation with sufficient level of accuracy are unavailable.

55. The government agencies of Nepal are limited by their financial, technical and managerial capacity to address the impacts of climate change especially on water resources and energy sectors. However, weak governance, social-exclusion, centralization, lack of coordination along with weak institutional capacity are major areas of improvement to any development work.

iv) Proposed Initiatives

56. The two day stakeholder consultation proposed four broader sets of initiatives: (a.) revisiting the policy and plans to include climate resilience concerns, (b.) building capacities to mainstream CC into national development, (c.) implementation of multi-purpose storage projects incorporating watershed and biodiversity management issues along with augmenting current energy mix through concentrated solar, bio-energy and wind energy, and (d.) support local level initiatives to manage water related stress.

57. There is a need to resilient design in water resource projects. Build incentive/support mechanisms to adopt efficient water use technologies (e.g., micro irrigation, rain water harvesting, water conservation, ponds). Regulation of ground water and to incorporate and emphasize the role of private sector and PPP for the initiatives identified for pilot projects

58. The group prioritized building resilience at local communities by supporting initiatives such as integration of rain water harvesting to existing drinking water supply schemes, micro irrigation schemes (e.g drip, sprinkler, treadle pumps) and in digging ponds especially in the mid-mountain region to augment water & moisture availability.

3. Tentative Priorities

59. The experts, government officials and other relevant stakeholders who participated in the workshop were consulted on indicating tentative priority sectors and sequencing of PPCR Technical Assistance Pilot and Investment activities. After each working group completed its needs assessment, representatives from each working group met together to brainstorm the tentative priorities for the PPCR. As each working group had proposed many initiatives to be covered under the PPCR, the representative group had a challenging task of narrowing down the list to the most urgent and immediate needs from a national perspective. The group also looked at synergies within the existing initiatives such as NAPA and other proposed sectoral initiatives. The identified priorities by the group were presented in the plenary and finalized based on full group consensus. These suggestions are however preliminary and will be further validated and refined based on the wider consultation. The tentative priorities identified by the group are the following:

60. **Forestry and Biodiversity.** (i) study on vegetation and fauna shifting; and (ii) scaling up landscape level management to ensure free transboundary movement of flora and fauna.

61. **Agriculture.** (i) study on impact of climate change on agriculture in different geographies including impacts on agro-biodiversity; (ii) a pilot grant facility to mainstream climate concerns in agricultural research and extension; and (iii) pilot testing and scaling up of proven climate resilient technologies.

62. **Climate Induced Disasters and Infrastructure.** (i) strengthen local governance for climate adaptation and disaster risk management; (ii) vulnerability mapping for critical infrastructure of critical areas; and (iii) piloting bio-engineering works, landslide mitigation works and river training works (Giruwari model site) in the Siwalik range.

63. **Public Health and Urban Development.** Integrated vector control and disease surveillance programs.

64. **Water Resources and Energy.** (i) causes and effect relationship of climate change to the water resources, energy systems and livelihood to better understand the relationship of water-cycle with the climate change phenomena and its complexities; (ii) forecasting of extreme events with sufficient level of accuracy; (iii) identify correct contribution of snow, ice and glacier to the water flows in different times of the year with projections for future periods; (iv) integrate rain water harvesting to existing drinking water supply schemes at critical areas; and (v) support VDCs/DDCs and local communities in the mid-mountains (e.g., ponds) to augment water and moisture availability.

Annex 2: Summaries from Workshops (cont'd)

2.2) Summary Results of Consultation with Development Partners, 7 September 2009

The following brief summarizes the outcomes from the interaction with the development partners to seek their feedback and input in light of the outcomes from the 2-day stakeholder consultations workshop.

Discussion Points

The participants emphasized building synergy across sectors and consistency between sectoral strategies and the umbrella climate change policy.

The local dimension of climate change is stressed, noting that the impacts will be borne disproportionately at this level and that the PPCR should consider mechanisms that can facilitate bottom-up initiatives and respond directly to the vulnerabilities. In this regard, it is imperative to consider the synergies between LAPA and PPCR and identify project investments that can be executed readily in the near term.

It should be ensured that PPCR interventions are cognizant of the multi-sectoral nature of climate change. Focus should be placed on creating climate change cells across agencies that can facilitate intra and inter communication and corporation within and across ministries. These cells can serve as filter for agency to assure resilience of their investments to climate change.

In terms of institutional strengthening, focus should be placed on practical interventions such as measures to help retain staff in relevant government agencies; and staff training sessions on climate change adaptation towards closing their knowledge gap.

The challenge of achieving the myriad of proposed analysis, needs assessments and project investments in view of the limited PPCR funds necessitates the essence of harmonizing with other development partners to reduce duplication.

Partnering with academia is suggested in exchanging data on ongoing climate change and development based research.

Priority areas identified should highlight the forestry-water and agriculture nexus (forestry and biodiversity, livelihoods and water resources) as the key multi-sectoral area for interventions. In terms of information and knowledge base, the health sector has large gaps. Opportunities exist to build on ongoing WHO and MoH initiatives. Output from the ongoing regional meeting on climate change and health deliberations should be used. It is also noted that the health sector has window for intervention with the upcoming NLSP II.

Annex 2: Summaries from Workshops (cont'd)

2.3) Summary Results of Consultation Workshop with NGOs, 7 September 2009

The following brief summarizes the outcomes from the interaction with NGOs to seek their feedback and input in light of the outcomes from the 2-day stakeholder consultation workshop.

Discussion Points

The need to build capacity both at the local and national level is emphasized.

Participants were assured that there are no conditionalities attached to the PPCR funds.

Participants perceive it a vital necessity to transfer knowledge on climate change adaptation to the grass roots level. The means of such transfer or dissemination require fair consideration.

Synergies between the NAPA and the PPCR should be ensured.

It is noted that national level and local priorities differ. Studies, policy and capacity needs although highly prioritized at the national level may not necessarily have the same weight at the local level. Policy implementation is time intensive and may not meet the immediate short term welfare needs required by the local people.

It is noted that land tenure and governance issues need to be carefully addressed to facilitate ownership for and response to forest resources based climate change adaptation initiatives such as through the REDD.

In light of addressing climate change adaptation at the grass roots level, interventions that address issues holistically using cross-sectoral approaches should receive high priority e.g.: drinking water, health and sanitation and agriculture inter-phase.

It is critical to review acts and laws that impede implementation of projects at the grass roots level e.g., resource management for sustainable livelihood and integrated water resources management at the grass roots level.

Climate change data collection is central to addressing climate change impacts.

Duplicating analysis and studies should be avoided by partnering with other institutions carrying out similar or related studies.

Project design should incorporate monitoring of implementation to ensure sustainable results.

Integrated water resources management may be piloted as possible interventions for local water and energy needs.

Equal attention should be focused on the positive outcomes of climate change such as the expanded planting season for rice, increased productivity of maize and citrus in the higher elevation.

Annex 2: Summaries of Workshops (cont'd)

2.4) Summary Results of Consultation Workshop with the Private Sector, 7 September 2009

This brief summarizes the outcomes from the Private Sector Workshop, which sought to communicate the Program's work so far, private sector's role and potential uses of funds as defined by PPCR Programming document; to obtain the initial feedback on the needs for the Phase 1 analysis of climate risks and impacts on the private sector; and to receive comments on the outcomes of the 2 day stakeholder workshop.

The workshop was attended by more than 20 participants, representing some of the key national associations, including Federation of N. Chambers of Commerce and Industry, Confederation of N. Industries, Agro Enterprise Center, Federation of Women Entrepreneurs, Federation of Community Forest Users' Association, and sectoral representatives from hydropower development, forestry, transportation and tourism.

The following were the main discussion points at the workshop. The consultative process will extend for 2 more weeks after which the identified risks, gaps, potential investment needs and general comments received during the period will be consolidated and shared.

- Ensure synergy between PPCR and NAPA to avoid duplication in investments and analytical work.
- Avoid excessive attention on analysis by partnering with local and international institutions that are carrying out needed or related studies. Ideally focus on research of replicable climate resilient technologies.
- The importance to see the private sector as a beneficiary of the PPCR, and concern that the private sector in general, and small enterprises in particular, will have limited access and climate-related benefits from the Program.
- Piloting climate resilient technologies should be eligible for concessional financing.
- Many cross cutting issues identified in different working group sectors: coordination between different departments that will be working on the issues is essential.
- The private sector needs information about climate impacts that is suitable for its planning timeframes, generally shorter than what the climate models show.
- Concerns about the concessional financing not being in rupees, which may make it unattractive.
- There is need for additional information on the criteria guiding access of the private sector to the PPCR funds.
- Need to understand not only agricultural crop cycles but also the changing patterns.
- The existing hydrology information database needs to be updated and strengthened, to enable planning in view of climate change.
- Tourism and ecotourism are an important economic activity nationally and particularly in the Himalayan region. There is a need to analyze impacts on the tourism sector (e.g. glacial melting, landslides, water availability), and ecotourism.

- The need for more emphases on adaptation of ecosystems, and to include ecosystem based adaptation.
- The need to address climate-related risk analysis of women entrepreneurs.
- In terms of institutional strengthening focus on creating awareness of climate change noting the role that Universities can play in this arena. Define their role as far as public sector is concerned.

Annex 2: Summaries from Workshops (cont'd)

2.5) Summary from Meeting with the Constituent Assembly, 8 September, 2009

The following brief summarizes the outcomes from the discussion with the selected members of the Constituent Assembly (Parliamentarians) to seek their feedback and input in light of the outcomes from the 2-day stakeholder consultations workshop.

Discussion Points

In summary, participants emphasized the importance of raising public awareness on the issues of climate change with a focus on adaptation mechanisms particularly in the rural communities where the brunt of climate change is likely to be disproportionately felt.

Participants also noted that PPCR could be an important opportunity to Nepal with regards to addressing climate and environment challenges to development.

They noted that the absence of local government has made it difficult to represent the voice of general public at the district and village levels adding that efforts must be made to track down the real concerns of the isolated public beyond towns and district headquarters.

Participants stressed that consultations with stakeholders should extend beyond the cities to the districts and local communities adding that there should be a fair balance between plans and policies and actual project implementation on the ground.

They noted with emphasis that *Dalits* – the poor and socially excluded sections of populations – need special attention for all projects and programs as they are already living under permanent threats of climate change.

Climate change has added another layer of complexity to advancing human welfare and development. Examples include risks of bursting glacier lakes, increased food insecurity, wild fires, health concerns and so on.

Participants inquired about how the PPCR could complement ongoing studies and already identified programs ready for implementation.

They noted the equal importance of both the NAPA and LAPA such that the former should not dictate the latter.

Programs aimed at building on local knowledge and practices would be successful. Reduced productivity and loss of indigenous variety have been a great concern among local farmers.

Parliamentarians should be included as key stakeholders on all discussions on climate change.

Annex 3: Additional Materials

3.1) Compact on Climate Change in Nepal

A. An understanding between the Government of Nepal and development partners on ways to address climate change challenges



**Government of Nepal
Ministry of Environment**

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Ref. No. : Compact on Climate Change in Nepal

An understanding between the Government of Nepal, Ministry of Environment and development partners on ways to address climate change challenges

Purpose

This compact commits the undersigned to a set of principles to guide how development partners will support the Government of Nepal to implement a series of actions designed to (a) identify and assess climate risks, particularly to the most vulnerable people and sectors, (b) elaborate, test and implement adaptive responses, and (c) establish the basis for a climate resilient economy.

Background

The Government of Nepal is managing concurrent initiatives on climate change that are supported by different development partners. These include the National Adaptation Programme of Action (NAPA), Reducing Emissions from Deforestation in Developing Countries (REDD), the Pilot Programme for Climate Resilience (PPCR), the Strengthening Capacity for Managing Climate Change and the Environment, and the Second National Communication. The Ministry of Environment (MoE) is the focal point of the Government on climate change, with the Ministry of Forests and Soil Conservation (MoFSC) leading on the Reducing Emissions from Deforestation in Developing Countries (REDD) programme. The Ministry of Finance (MoF) has the responsibility to coordinate foreign aid flows and the National Planning Commission (NPC) leads in policy formulation and coordination on development planning.

Principles of participation

1. The development partners fully appreciate the urgency of climate change challenges in Nepal and express their willingness to assist Nepal in addressing climate change vulnerabilities.
2. The Government recognises the need to ensure that climate resilience is integrated into all development work. Each line ministry will lead the integration of climate resilience in their sector. The development partners recognize the need for harmonization and coordination in these efforts.
3. The Ministry of Environment, with the support of Ministry of Finance and National Planning Commission Secretariat and in close consultation with other Ministries of the Government, will lead, being the focal point to the United Nations Framework Convention on Climate Change. The development partners will participate in collaborative actions on climate change.



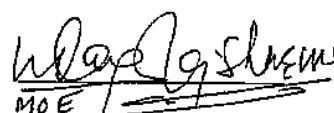
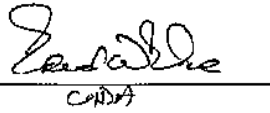
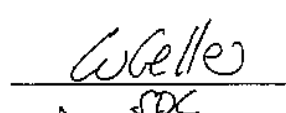
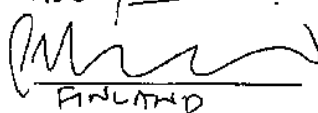
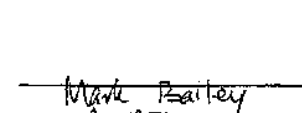
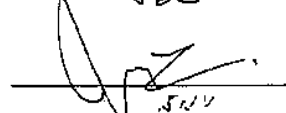
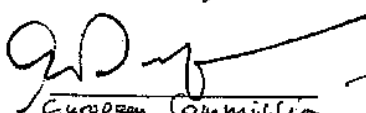
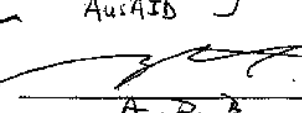
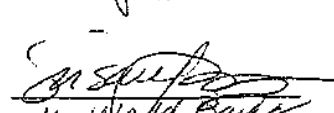
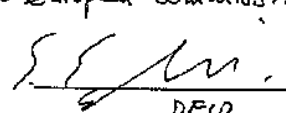
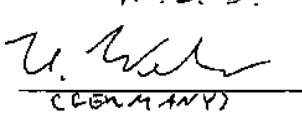
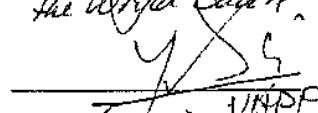
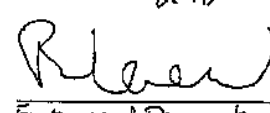

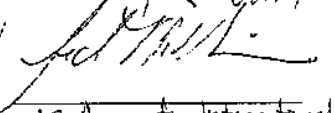
Government of Nepal
Ministry of Environment

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4. The development partners will organize themselves, with defined roles and responsibilities of each agency and facilitating partner. Communication will be maintained directly with the Government of Nepal on the availability and allocation of technical and financial resources on climate change. Such communication will be through the normal channels and will also be given to the Ministry of Environment.
5. The development partners agree to harmonise and align actions on climate change towards assisting the Government of Nepal in: the provision of human resource and institutional capacity development; the expeditious delivery of urgent and immediate adaptation needs including climate related disaster risk reduction; a programmatic approach to climate adaptation prioritising the most vulnerable people and sectors; the achievement of climate resilience through investments in low emission development pathways; and, the sustainable development of clean and renewable energy, water, forestry and agricultural sectors.
6. Participation of the development partners does not indicate specific future financial commitments.

Signatories:

 MOE	 UNDA	 SDC
 FINLAND	 AusAID	 SIDA
 European Commission	 A. D. B.	 The World Bank
 DFID	 GERMANY	 UNDP
 Embassy of Denmark	 NORWAY	 U.S. Agency for International Development

2 September 2009, Wednesday

Office Address:

Email:

Website:

Annex 3: Additional Materials (cont'd)

3.2) Selected Climate Change Adaptation Initiatives

1. Agriculture and Food Security

World Wildlife Fund Nepal:

- Biodiversity Conservation Initiatives:
 - The Terai Landscape Initiative which has been ongoing for four years
 - Sacred Himalayan landscape initiative
- Integrated Water Resources Management:
 - The ongoing IWRM in collaboration the Water and Energy Commission Secretariat (WECS) is piloting the national water plan with a focus on ground level river basin management in the Koshi River Basin Management and can provide a good model of IWRM for replication in other parts of Nepal.
- Livelihood:
 - Livelihood project in the Langtang area looking at community based adaption.

ICIMOD:

- ADB-financed and ICIMOD-implemented project on climate change adaptation, community-based downscale participatory action research towards developing climate resilient technologies
- Strategic partnership with ICIMOD and IFAD Climate change adaptation project.

IFAD:

- Climate change adaptation study

USAID:

- Impacts of climate change on biodiversity and livelihoods
- Landscape level activities in Nepal.

FAO and UNDP:

- Support to MOAC in 6 districts for (i) improved mechanisms for climate change adaptation and disaster preparedness in agriculture, including (a) institutional and technical capacity for climate risk management and disaster preparedness; (b) plan of action; and (c) agricultural perspective incorporated into NAPA; and (ii) strengthened agricultural service systems for climate risk management, including (a) disaster risk reduction plan; (b) climate impact data collection, monitoring and analysis; (c) demonstration of good practices; and (d) extension and awareness strategies.

Asian Development Bank:

- Updating and building climate resilience into Agricultural Perspective Plan (planned)

World Bank DRM

- The World Bank is currently executing a DFID trust fund under the Global Facility for Disaster Reduction and Recovery (GFDRR) which is supporting ongoing initiatives like

hazard assessment of glacial lake outburst flood (GLOF); and a study on hazard risk assessment. In addition there are parallel initiatives a joint DRM consortium that includes the UN ISDR, UNDP, IFRC, ADB and WB. GFDRR has recently approved a proposal for US\$ 10 million to cover the following key areas: (i) Institutional Strengthening and Building Technical Expertise; (ii) Flood Management Project (one River Basin); (iii) Enhancing Emergency Response Capacity; (iv) Enhancing Weather Forecast for Disaster Preparedness and (v) School and Hospital Emergency Planning and Safety Initiative. In June 2009 a Joint DRM Consortium for Nepal too place and identified flagship areas covering critical disaster management issues in Nepal.

Government of Germany:

- Lake Thulagi study (KfW-implemented with Department of Hydrology and Meteorology) (expected to be completed by the end of the year)

2. Water Resources and Energy

World Bank:

- World Bank support for water resources in Nepal is currently focused on building information and capacity to manage Nepal's current extreme hydrological variability while building resilience for future climate change. Specifically, support is being provided to build river basin models and modeling capacity, and a spatial (GIS) knowledge base of water resources in the country. The World Bank is also supporting the updating of Nepal's river basin master plans. All three of these activities could be 'up-scaled' through the PPCR to include sophisticated climate change modeling and scenario work. In addition, a river basin development project is under discussion that would include medium scale hydro, transmission, environmental management and regional development. This, too, could benefit from PPCR-funded 'climate proofing'.
- World Bank support to Water and Energy Resources Commission: preparation of integrated water resources management policy, establishment of sub-river basin organizations.

Asian Development Bank:

- Study in integrated water resources management in Bagmati basin, followed by investment project in Bagmati

UNDP:

- UNDP Rural Energy Development (REDP).

3. Climate-Induced Disasters/Infrastructure

Asian Development Bank:

- ADB pilot of project risk screening tool.

Department for International Development, UK:

- DFID pilot of climate proofing tool.

UNDP:

- Climate Change Adaptation/Disaster Risk Reduction convergence under UNDP Disaster Management Program.
- UN BC/PR Strategic Partnership Framework with UNDP Nepal.

4. Forestry and Biodiversity

Government of Finland:

- Proposed Finland project on Forest Inventory will be of immense support to the sector in terms of assessing climate change impacts as well as evolving appropriate adaptation and mitigation measures. While the exact scale and the operation of the project is yet to be evolved, the discussion suggests that the project will have a wide range of GIS monitoring options dealing with the land used planning and will be of strategic importance to many sectors.

UNDP:

- Western Terai Landscape Project (WTLCP).

USAID:

- Climate Change Impacts on Livelihoods of Poor and Vulnerable Communities and Biodiversity Conservation: A Case Study in Banke, Bardia, Dhading and Rasuwa District of Nepal (conducted by Sagun Program in collaboration with LIBIRD)
- Payments for Ecosystem Services: Developing Forest Carbon Projects in Nepal

Department for International Development, UK:

- Community Forestry Program (next phase)

Terai Area Arc Landscape Project (funded by multiple donors)

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