



Technical Assistance Consultant's Report

Project Number: 44168-012
Capacity Development Technical Assistance (CDTA)
March 2017

Nepal: Mainstreaming Climate Change Risk Management in Development (Financed by the Strategic Climate Fund)

Final Report

Prepared by ICEM – International Centre for Environmental Management

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Asian Development Bank



FINAL REPORT

TA-7984 NEP: MAINSTREAMING CLIMATE CHANGE
RISK MANAGEMENT IN DEVELOPMENT
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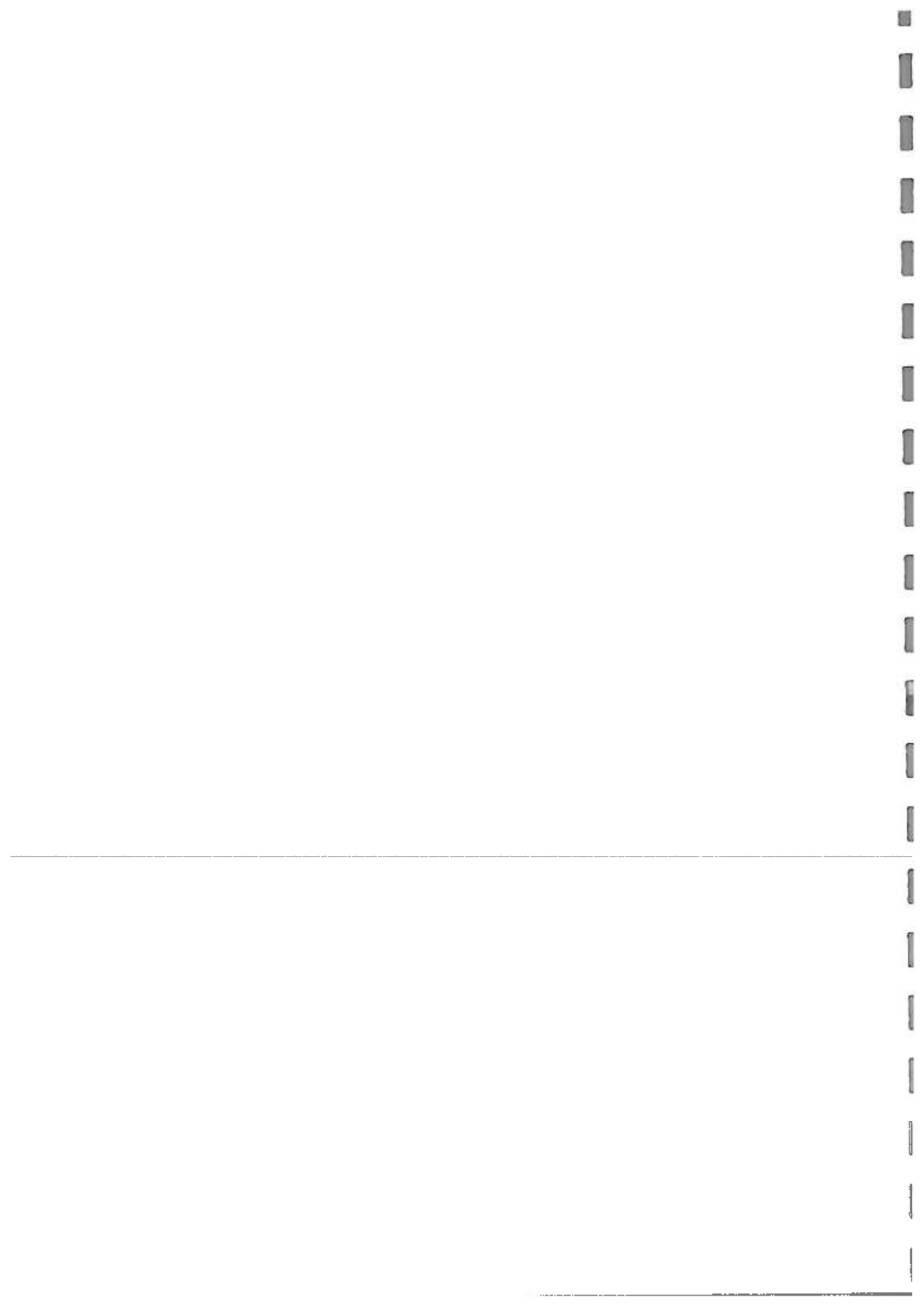
MARCH 2017



PREPARED FOR: ASIAN DEVELOPMENT BANK
MINISTRY OF POPULATION AND ENVIRONMENT, GOVERNMENT OF NEPAL

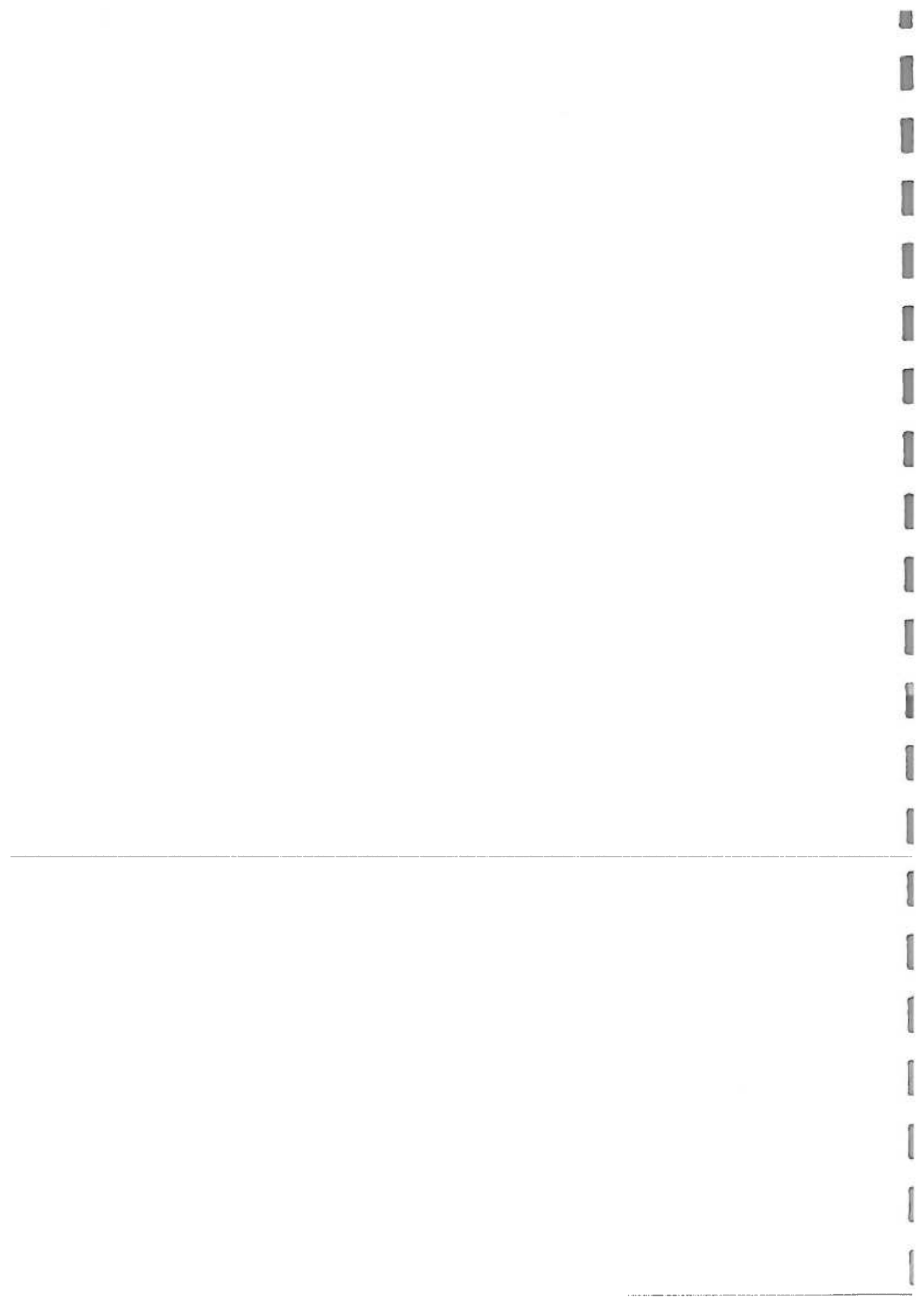
PREPARED BY: ICEM - INTERNATIONAL CENTRE FOR ENVIRONMENTAL MANAGEMENT
METCON CONSULTANTS
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ACRONYMS

ADB	Asian Development Bank
AP	Adaptation planning
CCP	Climate Change Program
CCPCC	Climate Change Program Coordination Committee
CCPCC TWG	Climate Change Program Coordination Committee Technical Working Group
CDC	Curriculum Development Centre
CDT	Consultant for district training
CIF	Climate Investment Fund
CSO	Civil society organisation
DDC	District Development Committee
GoN	Government of Nepal
ICIMOD	International Centre for Integrated Mountain Development
IRC	Indigenous Research Consultant
KU	Kathmandu University
LDTA	Local Development Training Academy
MCCRMD	Mainstreaming climate change risk management in development project
MIS	Management Information System
MoPE	Ministry of Population and Environment
NAST	National Academy of Science and Technology
NCKMC	Nepal Climate Change Knowledge Management Centre
NGOs	Non-government organisation
NPD	National Project Director
NPM	National Project Manager
PPCR	Pilot Program for Climate Resilience
PU	Pokhara University
RMF	Results Management Framework
SPCR	Strategic Program for Climate Resilience
TA	Technical Assistance
ToT	Training of Trainers
TU	Tribhuvan University
VA	Vulnerability assessment



ACKNOWLEDGMENTS

This Final Report is prepared under TA 7984-NEP: Mainstreaming climate change risk management in development.

The team wishes to acknowledge the very important support they have received from more than 1,000 participants in the TA activities. These participants ranged from communities in more than 60 districts and sector District Development Committee staff in more than eight districts, through to the Director Generals and senior staff of sector departments and high level staff of the Ministry of Population and Environment (MOPE). They have all played important roles in furthering the objectives of Nepal's climate change mainstreaming project and this TA. We thank them for their efforts.

The TA team was fortunate to have a series of passionate National Project Directors - Ms. Meena Khanal, Mr. Shankar Adhikari, Mr. Hari Kumar Shrestha, Mr. Mahendra Man Gurung and Mr. Ram Prasad Lamsal – and NPMs - Mr. Akhanda Sharma, Mr. Arjun Thapa, Dr. Jayaram Adhikari, Mr. Govinda Prasad Kharel and Raja Babu Pudasaini. These hard working government staff provided support and guidance throughout the TA.

Particularly thanks are owed to En. Akhanda Sharma of MOPE who contributed so much to the success of the project with his creative and tireless guidance and technical inputs throughout the full four years of the TA.

Also special thanks go to:

- The focal points and counterparts from Department of Hydrology and Meteorology, Ministry of Federal Affairs and Local Development, Department of Water Supply and Sewerage, Department of Roads, Department of Local Infrastructure Development and Agricultural Roads, Department of Urban Development and Building Construction, Department of Water Induced Disaster Management and Department of Irrigation, for their strong involvement in shaping the direction of the TA and their technical contribution to the various activities and reports
- The Service Providers under Output 2 - Samuhik Abiyan, Rupantaran, NAVIN, Nepal Federation of Environmental Journalists, ISET-NEPAL, NAST Communication Corner and Media Watchdog - for implementing their tasks efficiently and effectively
- The Curriculum Development Committee, Pokhara University, Kathmandu University and Tribhuban University for recognizing and acting on the importance of training the next generation of climate change specialists
- The 36 research teams that received a research grant through the TA, for their commitment to expanding the knowledge base on climate change
- The projects of the MOPE Climate Change Program who supported the establishment of a coordination mechanism and results management system.

The project team was fortunate to have Cindy Malvicini, Manju Amerasinghe and Vidhisha Samarasekara as the ADB Desk Officers. They were a source of guidance and technical support throughout the TA.

EXECUTIVE SUMMARY

BACKGROUND

Nepal is highly vulnerable to climate change. Its geomorphological systems are dynamic, its natural systems are already stressed, poverty is widespread and there is little capacity to mitigate disasters when they occur. The impacts of climate change are projected to be intense at high elevations and in regions with complex topography, such as Nepal's mid-hills. Climate change is likely to change river flows, which in turn will affect low flows, drought, flood and sedimentation processes. Temperatures are increasing in Nepal and rainfall is becoming more variable. The mid-hills are likely to grow more arid in the non-monsoon seasons. Also precipitation is likely to be more uncertain and storm intensity will increase. Still higher temperatures are anticipated especially at higher elevations, with increased glacial melt and frequency of extreme events, flash flooding and landslides. Those projected changes will all have implications for the design, maintenance and investment priorities for infrastructure in the transport, agriculture, water supply and sanitation and urban development sectors.

THE TECHNICAL ASSISTANCE

1. The expected impact of the TA is *Nepal has increased resilience to climate variability and climate change*. The expected outcome of the TA is *the GoN's infrastructure development programs, policies and projects incorporate safeguards to address the effects of climate change*. The project has three outputs:
 - **Output 1: Climate change risks are integrated into Nepal's implementation of development projects.** The aim of this Output is to integrate climate change risk management into a physical implementation of development projects, with a focus on infrastructure and urban and rural service provision (especially water supplies and sanitation, roads, irrigation).
 - **Output 2: Knowledge management tools are developed and applied.** The aim of this output is to strengthen Nepal's system for generating, managing, and sharing knowledge as an input to making the country climate resilient.
 - **Output 3: Outputs from the SPCR and other adaptation programs are managed for results and lessons learned are incorporated into Nepal's climate change program.** This output aims to monitor climate change programs in Nepal through a single reporting framework that creates a platform for shared learning and harmonized reporting.

TA ACHIEVEMENTS, LESSONS LEARNED AND RECOMMENDATIONS

Highlights of the TA's activities, lessons learned and recommendations are summarised below.

Output 1 - Climate change risks are integrated into Nepal's implementation of development projects

1.1: Sector vulnerability assessments and adaptation planning

Key achievements undertaking case study vulnerability and adaptation assessments included:

- *Eight Institutional analyses and reports for target sector departments/ ministries highlighting the opportunities for climate change mainstreaming*
- *Eight sector reviews of international experience reports on climate change risks, adaptation approaches and implications for Nepal*
- *District level climate threat modelling for eight case study districts*

- *Comprehensive climate change and hydrological threat profiles for eight district*
- *Case study vulnerability assessments and adaptation planning for sectors* In eight districts – 151 infrastructure systems were reviewed, 97 vulnerability assessments undertaken and 80 adaptation plans prepared.

Lessons learned and recommendations include:

- The district level learning and tools development involving the core group was one of the most important and successful components of the TA
- Adaptation planning needs to take into account the broad range and categories of infrastructure vulnerabilities in the country
- Importance of building on existing adaptation efforts in each sector
- Reliable information on climate change threats is needed

1.2: Sector adaptation reform recommendations

Key achievements developing sector adaptation reform recommendations included:

- *Six sector adaptation synthesis reports* building on the district level case study analysis and sector institutional analysis to present sector adaptation reform priorities for climate change mainstreaming
- *Guidance on priority reforms for mainstreaming adaptation* in eight sectors

Lessons learned and recommendations include:

- The core group approach worked well in defining and promoting appropriate mainstreaming reforms in each implementing agency
- The Sector Adaptation Synthesis Reports are a first attempt by each sector to prepare Sector Adaptation Plans (SAPs)
- The district level case studies and review of sector experience with infrastructure development enabled a wide range of needed mainstreaming reforms to be identified
- The detailed guide for vulnerability assessment and adaptation prepared by the TA with the core group requires MOPE to facilitate its formal adoption across government
- Reforms for mainstreaming climate change risk management need to be formally adopted by MOPE and sector agencies
- Working across seven departments diluted the TA impact which a more focused assistance support could have achieved

1.3: Capacity building and training program

Key capacity building achievements included:

- *Seven vulnerability assessment and adaptation planning training programs* for the core group – one of one week, four for two days and two one day events
- *Two months of training on climate change impact modelling* for DHM senior officials, DHM technical staff and sector department staff.
- *Climate Change Impact Modelling Guide* to support sustainability in modelling applications.
- *Numerous sector round table working and training sessions* with government counterparts on climate change risk management processes

- *Infrastructure sector dialogue and capacity building program* to build the capacity of central department staff on climate change risk management approaches – involved 67 participants
- *Three regional training events on climate change risk management* which trained 167 districts officials

Lessons learned and recommendations include:

- There is a need for continuing sector commitment to undertaking climate change risk management building on new capacities
- The district based learning – especially the week-long training programs – was particularly effective
- Challenges arose relating to settling on daily allowance rates for government staff when participating in field work and training
- Adaptation auditing to assess the effectiveness of adaptation to past extreme events contributed significantly to understanding and learning
- The learning experience would have been greatly improved if accompanied by opportunities for practical demonstration of adaptation measures

1.4: Support for the MOPE Climate Change Program

Support to MOPE included:

- *Climate Change Risk Management Framework* shared with central and district level GoN officers and endorsed by Steering Committee
- *Climate Change Vulnerability Assessment and Adaptation Planning Guide* as a core tool in the TA training and policy innovation - endorsed by Steering Committee
- *Guidance for Nepal National Adaptation Plan and Sector Adaptation Plan* preparation and implementation
- *Guidance on integrating climate change in EIA procedures*
- *Detailed briefings on the TA methods, tools and findings* to the MOPE team currently preparing the National Adaptation Plan (NAP)
- *Guidance for MOPE draft chapter in the National Development Plan* with suggestions for integrating climate change policies and institutional arrangements
- *Briefings on TA support for GoN achievement of their UNFCCC INDC commitments* (eg 13 May 2016)
- *Presentations for MOPE and sector delegations* to international conferences (eg by DOI representative at a ADB regional training event on climate change risk management - June 2016; and for annual CIF conferences); and *MOPE exhibition for 2016 NAP Expo* in Germany

Lessons learned and recommendations include:

- A policy gap exists between the national climate change policy and the local adaptation plans – NAPs and SAPs need to be embraced as policy frameworks to be regularly reviewed and updated as part of the development planning process.
- There is a need for continuing sector commitment to undertaking climate change risk management – that will require initiative by MOPE to have the Vulnerability Assessment and Adaptation Planning Guide adopted as an all of government tool.
- Nepal is progressing well in introducing policies to mainstream climate change adaptation but budgeting for policy implementation is lagging well behind

- A wealth of information, tools and guidance has been produced by the TA which needs to be picked up and applied by the recently commenced Nepal National Adaptation Plan process
- Adaptation policy reform needs to be complemented and inspired by a network of practical adaptation demonstration in the field

Output 2 - Knowledge management tools are developed and applied

2.1: Communications and knowledge management

Key achievements related to communications and knowledge management included:

- *Extensive outreach:* An estimated 14 million members¹ of the Nepali public have been exposed to climate change issues and the importance of climate resilient planning through print, radio and television media
- *Two websites on climate change resilience established and improved*
- *More than 50 news stories* featured in international, national and district media including 28 news items on PPCR activities featured in national media, one featured in international media and multiple stories in district media during district training program
- *Radio and TV programs* on climate change and development produced including 40 thirty-minute radio episodes, three TV programs and two PPCR videos
- *More than 20 knowledge sharing events* held on climate change resilience and development including in sector government departments, with national stakeholders and in three international conferences

Lessons learned and recommendations include:

- Awareness raising and sensitization at all levels of local government and political parties – as well as through media outreach - is essential for climate change resiliency
- Sharing knowledge on climate resilience needs to be done through diverse types of media in order to reach a wide audience
- Creating a communications focal group and sharing communications strategies among various PPCR components results in more synergy in sharing knowledge about PPCR with diverse stakeholders

2.2: District training

Key achievements in district training included:

- *61 District Training events* on Climate Change and Community-based Adaptation completed in 61 districts with participation of 1,608 local planners (35% women and 65% men)
- *District Training Manual on Climate Change and Community-based Adaptation* endorsed by Steering Committee and is ready for use in future Climate Change and Community-based Adaptation training programs, and more than 50 officials from government/training institutes have received training so that they can replicate the training as co-facilitators in other environment and climate change related programs implemented at the local level.

Lessons learned and recommendations include:

- Concerted efforts are needed to ensure gender equality in training programs in the districts

¹ The national radio producer Communication Corner estimates the listening audience of all stations in which the radio program was broadcast to be 14 million.

- Engaging with Village Development Committees, Social Mobilizers and communities increases the effectiveness of local government training

2.3: Curriculum integration

Key achievements in climate change integration into secondary and tertiary education included:

- *Climate change topics integrated into Secondary Curriculum (Grade 9 and 10 Science), 100 teachers in pilot schools have been trained in the new curriculum and student self-learning material on climate change has been distributed to 100 pilot schools.*
- *Climate change content has been integrated into tertiary level curriculum of seven academic programs across three universities (Kathmandu University, Pokhara University and Tribhuvan University) including two bachelor level environment related programs, three environment related master programs and a bachelor and master program for meteorology.*
- *Four course manuals for university students produced and 60 faculty trained in climate change-related topics*

Lessons learned and recommendations include:

- Integrating climate change topics into formal curriculum requires a close engagement with the persons responsible for curriculum development in the education institutions, and following the official approval process.

2.4: Climate change related research

Key achievements related to climate change research included:

- *36 research projects on climate change have been completed covering six thematic areas - Water Resources and Energy, Agriculture and Food Security, Forests and Biodiversity, Climate Induced Disasters, Public Health, Urban Settlements and Infrastructure*
- *National study of indigenous adaptation knowledge and practices including published report and knowledge products*

Lessons learned and recommendations include:

- Important to delineate objectives related to building research capacity and objectives to produce quality research
- Providing technical assistance to research institutions such as NAST needs to be well integrated into an organizational structure that is able to carry forward the research results
- The size of a research grant program needs to be tailored to the capacity of the implementing organizations
- It is important to have sound and manageable research methodologies and a clear report writing plan prior to going out into communities.
- Assignments to produce research studies need to be planned and documented in phases
- Gathering information about indigenous adaptation practices needs to be integrated into the overall processes to gather, analyze and mainstream adaptation practices in national, sector and local planning.

Output 3 - Outputs from the SPCR and other adaptation programs are managed for results and lessons learned are incorporated into Nepal's climate change program

Key achievements included:

- *A new coordination functioning mechanism for the Nepal Climate Change Program (CCP)*

- *Seven TWG meetings and one CCPC meeting supported by a program of one-to-one meeting with government and development partner stakeholders of the CCP.*
- *A Results Management Framework (RMF) capable of demonstrating the contribution of CCP projects to NAPA implementation whilst still satisfying the reporting requirements of the PPCR core indicators - Nepal's CCP RMF included as an example of international best practice on the GIZ website www.adaptation.community.net*
- *CIF Annual Progress Reports for 2014 (two reports), 2015 and 2016*
- *Briefings and materials to numerous reviews of M&E in Nepal, conducted by ADB (October 2013), CIF (April 2013), TAMD, (July 2012, March 2013, August 2013), and Practical Action Nepal (July 2012, January/February (2013)*
- *Management Information System which provides on-line access to information on climate threat data, vulnerability assessments, results monitoring and knowledge sharing reports*

Lessons learned and recommendations include:

- **There is a need for continuing institutional strengthening and capacity building in M&E if the RMF and coordination mechanisms developed under the TA are to be utilized after completion of the TA**
- **Coordination activities of the CCPC TWG could be expanded to cover more than results management**
- **Identity of the CCP as a program needs to be strengthened within Nepal.**

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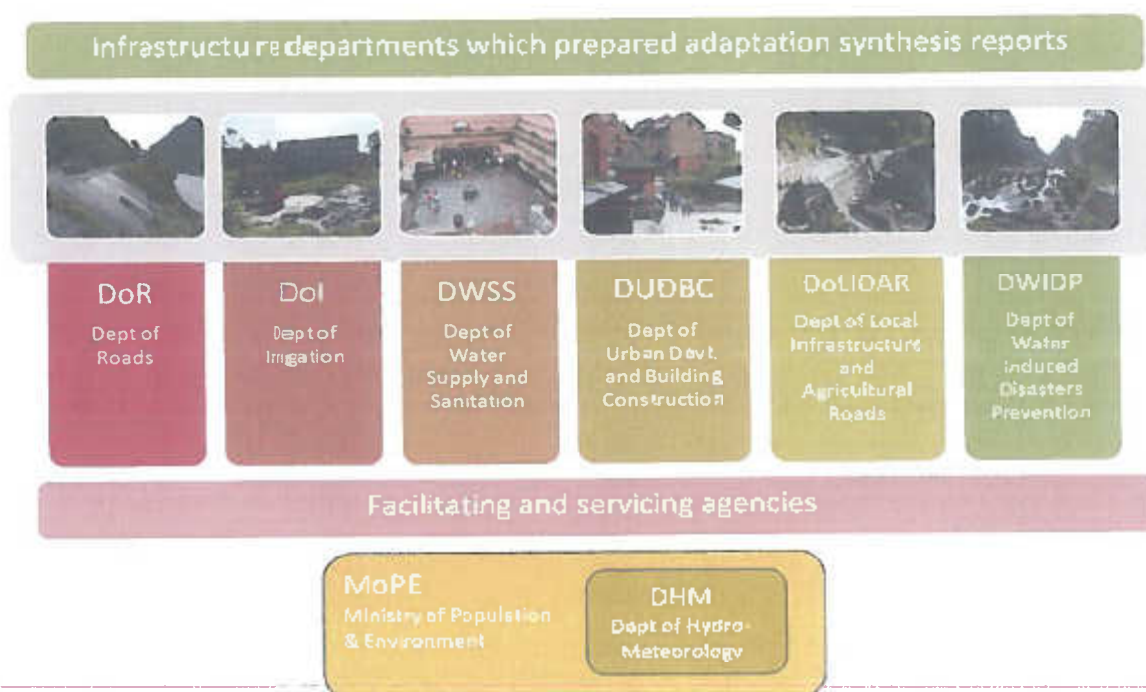
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1 INTRODUCTION

1.1 Background to the TA

- In June 2012, The Asian Development Bank contracted the consortium of ICEM - International Centre for Environmental Management (ICEM) as the lead, METCON Consultants and APTEC Consultancy to provide technical assistance to the Ministry for Population and Environment (MoPE) in implementing the project titled "Mainstreaming climate change risk management in development". The TA supports MOPE to implement Component 3 of Nepal's Strategic Program for Climate Resilience (SPCR). The TA consultant contract will finish in January 2017.
- MOPE is the executing agency of the TA with seven designated implementing agencies: the Department of Water Supply and Sewerage, Department of Roads, Department of Local Infrastructure Development and Agricultural Roads, Department of Urban Development and Building Construction, Department of Water Induced Disaster Management, Department of Irrigation and the Department of Hydrometeorology Figure 1.

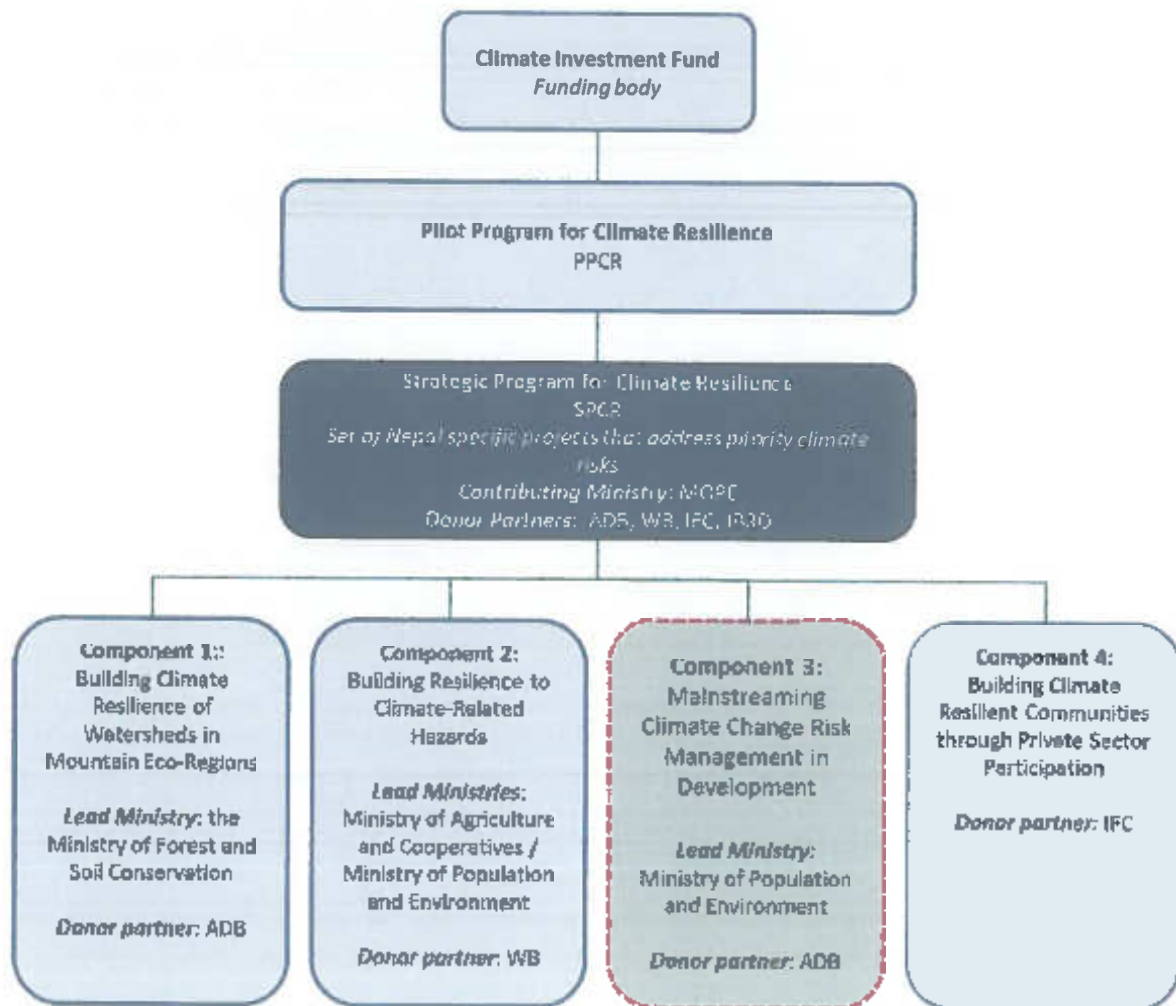
Figure 1: Sector agencies involved in the TA (particularly Outputs 1 and 3) leading to the preparation of Adaptation Synthesis Reports and policy reform activities



1.2 The TA

- The TA supports implementation of Nepal's Strategic Program for Climate Resilience (SPCR) Figure 2. The expected **Impact** of the TA is *Nepal has increased resilience to climate variability and climate change*. The expected **outcome** of the TA is *the GoN's infrastructure development programs, policies and projects incorporate safeguards to address the effects of climate change*.

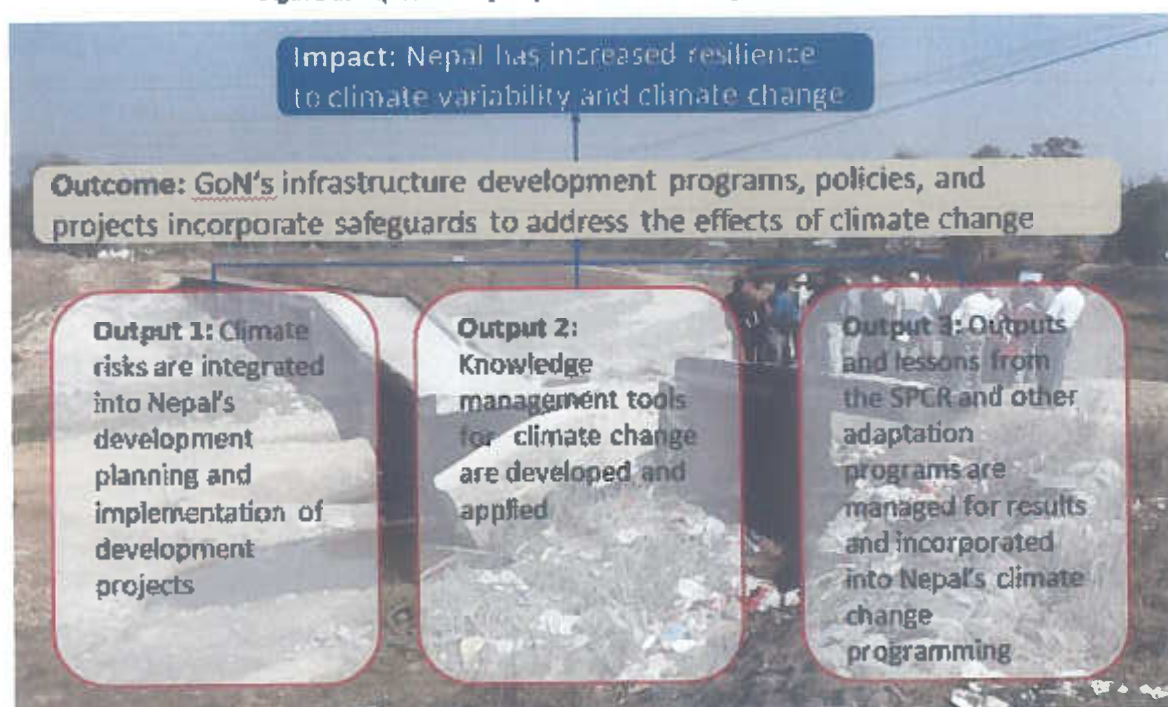
Figure 2: Structure of Nepal's Strategic Program for Climate Resilience (SPCR)



5. The project has three outputs (Figure 3):

- **Output 1: Climate change risks are integrated into Nepal's implementation of development projects.** The aim of this Output is to integrate climate change risk management into a physical implementation of development projects, with a focus on infrastructure and urban and rural service provision (especially water supply and sanitation, roads and irrigation).
- **Output 2: Knowledge management tools are developed and applied.** The aim of this output is to strengthen Nepal's system for generating, managing, and sharing knowledge as an input to making the country climate resilient.
- **Output 3: Outputs from the SPCR and other adaptation programs are managed for results and lessons learned are incorporated into Nepal's climate change program.** This output aims to monitor climate change programs in Nepal through a single reporting framework that creates a platform for shared learning and harmonized reporting.

Figure 3: Expected impact, outcomes and objectives of the TA



1.3 Purpose and layout of this report

This final report is an opportunity to reflect on the achievements of the TA and lessons learned through the implementation of TA activities. The report is divided into five key sections:

- **TA approach** describes the staffing, coordination with MOPE, capacity building approaches and geographic coverage adopted by the TA;
- **TA achievements** describes the achievements of the TA against the TA Design and Monitoring Framework (DMF) and activities and deliverables listed in the Inception Report;
- **Administrative Issues** outlines the handover of equipment, data and ongoing responsibilities to MOPE;
- **Lessons learned** summarizes lessons gained through the TA which could be useful for Nepal's continued mainstreaming of climate resilience, and also for similar projects being implemented elsewhere; and
- **Opportunities for mainstreaming climate change resilience in development planning in Nepal** describes opportunities for ensuring that the work of the TA is utilized and climate change resilience continues to be mainstreamed into development planning in Nepal.

2 TA APPROACH

2.1 Staffing

6. Overall implementation of the project has been led by the MoPE National Project Director (NPD) who is supported by National Project Managers (NPMs) responsible for implementation of each of the project's three Outputs. MoPE has made proactive efforts at engaging with the TA work program including regular support and meetings, consultative working arrangements, actively participating in TA events, reviewing outputs and undertaking monitoring field visits for Output 2 Service Providers.

7. The TA team comprised of 36 international and national experts. TA experts were organized into sub-groups focusing on the delivery of each target Output for the project. The project team has been led by the National Team Leader with support from the National Deputy Team Leader and the ICEM Project Manager. A full list of the TA team is provided in Annex A.

2.1.1 Output 1

8. Implementation of Output 1 has been led by the National Team Leader which was a full time post. The Team Leader was supported by two groups of TA specialists: a cross-cutting sub-team dealing with cross-sector issues (i.e. the risk management specialists, the climate change vulnerability specialist and GIS specialist) and a sector sub-team comprised of project team sector specialists working with the various departments on sector-specific knowledge, guidelines, design standards, capacity and policies.

9. Each sector sub-team consists of an international sector expert and one or two national sector experts. At the request of MoPE, international sector expert inputs were almost entirely field-based and generally around six months in total. National sector experts were allocated longer inputs spread intermittently over the life of the Output 1 activities.

10. The TA design required the Output 1 International consultants to provide all inputs in the field in Nepal (i.e. they had little or no home office input). In addition, the total International input from the sector specialists was relatively small – six months or less for each expert over the project duration. As a result, the Output 1 international consultants were not able to provide the desirable level of ongoing support to the national consultants in implementing the innovative baseline, vulnerability assessment and adaptation planning activities being developed. This TA design made it difficult for the international consultants to monitor the development of the various case study outputs and offer support at key stages of the project implementation to their national counterparts. A later adjustment in some home time going to international consultants allowed for more consistent monitoring of progress, more timely technical inputs to key project activities and reports and more timely and effective delivery of outputs. Consistent with those findings, further, similar flexibility in team input is encouraged to ensure the thorough and timely completion of remaining similar TA projects.

2.1.2 Output 2

11. Project team implementation of Output 2 is led by the International Development Communications Specialist and the Deputy Team Leader with 20 and 44 months of input over the life of the project. The Output 2 knowledge management team also includes a national curriculum development specialist with 24 months of input, and communications specialists with 20.75 months of intermittent inputs.

2.1.3 Output 3

12. Project team implementation of Output 3 is led by the International Results Management Specialist (RM Specialist) and a National MIS Specialist, each with 12 months of intermittent inputs over the five-year TA implementation period. In addition, the National Team Leader (full time) plays

an important role in coordinating the interaction of the Output 3 team with government and development partner stakeholders. In mid-2014, the Output 3 team was expanded to bring on board a Web Database Application Developer.

2.1.4 Comments on overall team composition and approach

13. The following comments can be made on overall team composition and approach:

- **National and International counterparts** – the pairing of national and International counterparts (e.g. having both national and international road engineers) was a useful aspect of project design as it brought both local and International perspectives and experience, facilitated access to implementing departments through the professional networks of the local team members and enabled capacity building of the local team members through on-the-job training.
- **Short international inputs:** The short inputs of international team members constrained that productive working relationship and learning with most internationals being limited to six months or less over the project duration with long gaps between missions. The project took a creative learning approach to new policy and operational fields and the limited time inputs of internationals made achieving a consistent understanding on methodology and innovations among all team members a challenge as the project progressed;
- **Sectoral approach to team structure:** The TA team was grouped according to sector so that one international and one national were matched with one implementing department providing the basis for establishing strong ties between the team and respective departmental staff.
- **Splitting of the team into different Outputs** – similarly the division of the TA team members into the three outputs was a useful approach for allocating clear roles and responsibilities, although at times this meant that the Outputs were not fully integrated;
- **Large team with part time and inconsistent time inputs** – the large number of team members with variable inputs, particularly under Output 1, posed some challenges to implementation – it was not always easy to ensure that relevant team members were available at the same time, and to achieve a consistent level of output against input in terms of quality and timeliness.

2.2 Working within the Ministry of Population and Environment

14. The TA team was provided ample office space within MOPE, close to the offices of the NPD and NPMs. The TA office was set up with 21 cubicles and a small meeting room was also created to facilitate frequent meetings of TA team members and NPMs. The TA office was equipped with furniture, carpet, fan, room heater, photocopier, printers, telephones, wireless router and scanner. Internet and electricity was provided to the office by MOPE.

15. The Team Leader, Deputy Team Leader, Senior Finance Manager and administrative support staff were based full-time in the TA office. When mobilized, the TA team national and international experts worked in the project office or in their relevant sector departments. Emphasis was placed on team members working at the sector implementation departments which brought positive results, although the facilities and degree of engagement of sector staff was variable, mainly because of considerable staff turn-over and changes in some agencies during the project.

16. The establishment of a TA office within the ministry was an important initiative to ensure that the TA team could work closely with MOPE counterparts. As a result of their location within MOPE, the TA team was able to communicate closely with MOPE staff on a day to day basis to ensure that they were consulted and able to shape TA decision making and deliverables. Products of

this close coordination included, for example, the MOPE endorsed Vulnerability Assessment and Adaptation Planning Guide, the TA team to contribution to the MOPE draft chapter in the National Development Planning Document and the guidance provided to the national and sector adaptation planning process.

17. The following comments can be made on the office space and working with MOPE:

- **Repair and maintenance of TA office** During a review mission in July 2013 it was noted that the office space provided for the project team's consultants was in need of immediate maintenance and some repair. It was further noted that water leaking through the roof had become a safety issue and that MoPE had agreed to undertake immediate office repairs. These problems were raised again during a review mission in October 2013 and January 2015. Limited maintenance budget within MoPE meant that the problem was not resolved during the project.
- **Institutional arrangements.** For most of the project period, the TA was housed within the Environmental Protection Section of MoPE and not the Ministry's Climate Change Section. This situation was rectified in early 2016, when the TA was placed under the Ministry's Climate Change Section. Therefore, for most of the project duration the activities and materials developed by the project team were not directly linked to the specific mandate of the NPD and NPMs responsible for implementing the project. This has not affected the level of NPD and NPM engagement and support enjoyed by the project team. Yet, it would have been preferable if the work undertaken by the project team were to have been an integral part of the Climate Change section duties, particularly on the CCRMS and climate risk screening tools that factor strongly in the TA DMF.

2.3 Focus on capacity building

18. As this was a Capacity Development TA, a significant focus was placed on building the capacity of government agencies on various aspects of climate resilient development. The TA took a number of approaches to capacity building covering different levels of government, from local community leaders to senior MOPE and sector department officials:

- **Sector department core group approach:** A technical core group was formed for Output 1 from the government focal points of the seven sector departments and MoPE. The Core Group was involved in all policy and procedural development, vulnerability assessment and adaptation planning and special on-the-job training including field trips and week-long intensive meetings. The Core Group facilitated a deeper and more focussed capacity building and the creation of "champions" within each department who promoted project activities and outputs and contributed to integration and sustainability.
- **Specific training on key topics:** In addition to the core group, specific training was provided to a broader network of departmental and ministry staff on important topics such as gender integration into climate resilient development planning and climate change impact modelling at river basin and district level.
- **Regional training:** The TA undertook three week long regional training events on climate change risk management to build capacity of 167 districts officials. The focus of training was methodologies and tools development with sectors throughout the project.
- **District training:** The TA conducted 61 district training events on climate change and community-based adaptation aimed at providing an introduction to climate change and adaptation concepts to communities and district-level government staff.
- **Curriculum training – secondary level:** 100 secondary school science teachers were trained – 20 teachers from each of Nepal's five development regions - on the climate change

curriculum developed by the CDC through the TA (see Table 3-11, p. 34 for list of 20 districts covered).

- **Curriculum training – tertiary level:** The TA supported three universities (Kathmandu University, Pokhara University, Tribhuvan University) to hold two trainings in Kathmandu Valley on climate change for their faculty - one on vulnerability assessment and adaptation planning and one on climate change modelling.

2.4 The Core Group approach to capacity building and sustainability

19. The TA team adopted a core group approach for Output 1 for capacity building, sector ownership and sustainability of project outputs. Some 30 members of the core group included the government counterparts and focal points from sector departments and from MoPE. Core group members were the focus of engagement and capacity building during the TA, ensuring that they were thoroughly exposed to climate change risk management methods and tools particularly focusing on vulnerability assessment and adaptation planning. The core group played a strong role in the activities of the TA including policy and procedural development, vulnerability assessment and adaptation planning and special on-the-job training including field trips to each target District and week-long intensive training sessions in the field (Figure 4).

20. Key elements of the core group engagement included:

- Formally defined focal points and counterparts within each of the implementing departments facilitated deep impact and engagement;
- Focus for training on climate change risk management approaches including training sessions on vulnerability assessment, adaptation planning and climate change risk management;
- Involved in TA methodology and tools development, such as the development of the vulnerability assessment and adaptation planning methodology adopted by the Project Steering Committee and applied throughout the TA;
- Involved in case study vulnerability assessment and adaptation planning in the eight districts specific to each of the seven infrastructure sectors;
- Involved in sector guideline reform and adaptation planning drawing from the field learning at district level and from the institutional review within their respective departments;
- On-the-job training within each department and working with district officers during field missions;
- Field trips and the district work program always sought to involve the core group members; and
- Week-long training intensives (including in Chitwan, Dolakha and Kathmandu) and shorter workshops (In Kathmandu).

Figure 4: The Core Group



21. A challenge to the success of the core group approach has been the frequent movement of GoN sector focal points and counterparts. This issue was documented during ADB review missions in October 2013 and March 2014. To try and address this issue the project team instituted a number of measures to strengthen engagement with sector focal points and develop a consistent network of counterparts within each sector department.

22. Measures to strengthen the core group included conducting a program of sector roundtable meetings, the holding of frequent “tiffin talks” in each department to inform sector agency staff of the project’s activities and to receive guidance and feedback, and the periodic embedding of project team members within the relevant GoN sector departments. While these measures have strengthened the involvement of GoN sectors, particularly in the sector adaptation planning process developed and implemented by the TA team, GoN staff movements reduced continuity in activities and commitment and made resolution of issues and endorsement of project outputs more complicated and time consuming.

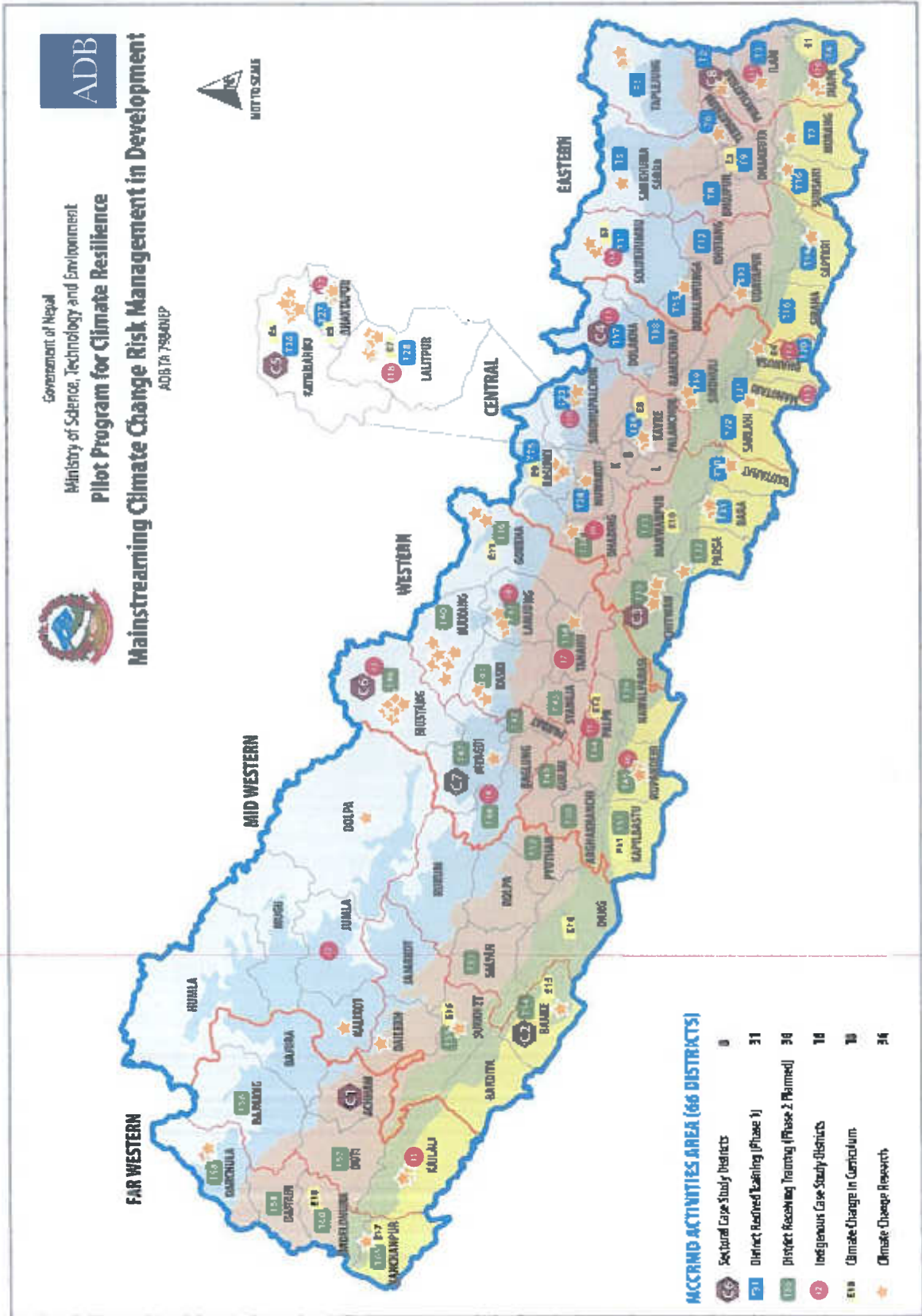
2.5 Geographic coverage

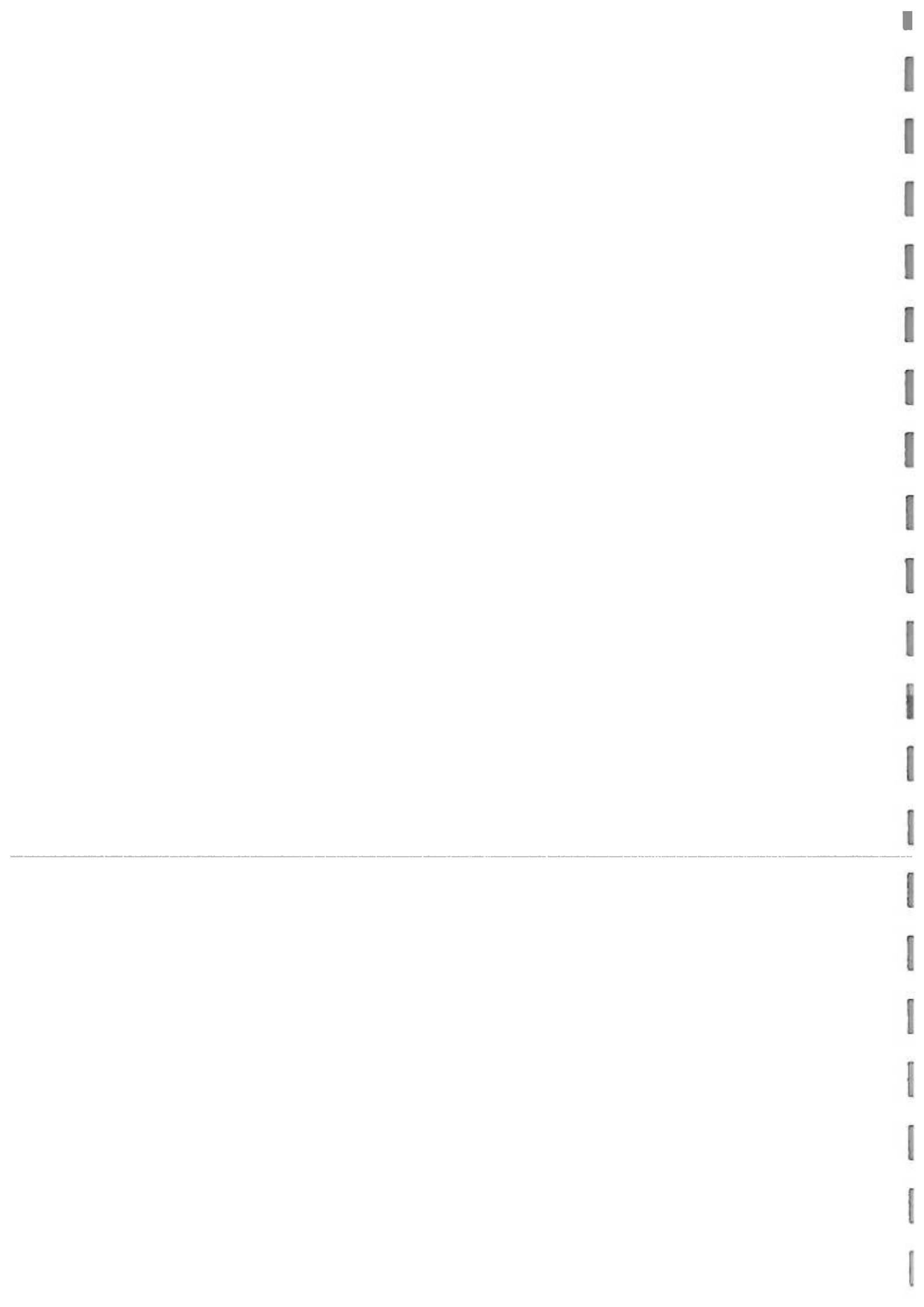
23. Demonstration and learning from sector activities at District level was a critical approaches in the TA to understanding priorities for reform and in seeking solutions and refining tools and policies for national application. Early in the inception phase, all concerned agencies worked together to identify eight districts which would be representative of geographic and ecological conditions of Nepal and would be the focus of intensive trial and learning in the vulnerability and adaptation planning process. Various TA activities also sought a more extensive coverage of the country (Figure 5):

- Climate change vulnerability assessment and adaptation planning for infrastructure systems in eight districts (Output 1);
- Training in climate change risk management for sector department staff in three regions with staff from all other regions invited to attend - Nepalgunj to cover the Far and Mid-West Regions; Pokhara to cover the Western Region and western part of Central Regions; and Biratnagar for the Eastern Region and eastern part of Central Region (Output 1);

- Training in climate change vulnerability and adaptation at the district and community level in 61 districts (Output 2);
- Indigenous adaptation assessment case studies in 16 districts (Output 2);
- Integration of climate change information into secondary level curriculum (Grade 9 and 10 Science) at the national level (Output 2);
- Integration of climate change information into tertiary level curriculum at two Kathmandu Valley universities – Tribhuvan University and Kathmandu University – as well as in Pokhara University – both Pokhara and Kathmandu campuses.
- Supported CDC to deliver teacher training on climate change in Nepal's five development regions for a total of 100 teachers trained (Output 2 – see Table 9-11, p. 34 for list of 20 districts covered); and
- Climate change research grants provided for studies in 36 districts (Output 2).

Figure 5: Geographic coverage of TA activities





3 TA ACHIEVEMENTS

3.1 Key achievements

24. Highlights of the technical assistance's achievements are summarized in Table 1. Detailed information on the TA's achievements is presented under the section on each output.

Table 1: Highlights of TA achievements

OUTPUT 1 – HIGHLIGHTS OF ACHIEVEMENTS

- **MoPE Climate Change Risk Management Framework** developed and training in its application provided to central and district level GoN officers
- **Climate Change Vulnerability Assessment and Adaptation Planning Guide** developed and endorsed by MOPE – supported by extensive field and on-the-job training
- **Detailed Guidance prepared for Nepal National Adaptation Plan and Sector Adaptation Plan** preparation and implementation
- **Eight institutional analyses and reports** prepared for target sector departments/ministries highlighting gaps and opportunities for climate change mainstreaming
- **Eight sector Review of international experience reports** prepared on climate change risks, adaptation approaches and implications for Nepal
- **District level climate change threat modelling for eight case study districts** completed and **climate change threat profiles** developed for each district
- **Case study vulnerability assessment and adaptation planning assessments** undertaken for six sectors in eight districts – a total of 151 infrastructure systems were evaluated, 97 vulnerability assessments undertaken and 80 system specific adaptation plans prepared
- **Six sector adaptation synthesis reports** prepared drawing from the district based case study analysis to **present sector reform priorities to strengthen climate resilience** in implementing departments
- **Guidance on priority reforms for mainstreaming adaptation** in eight sectors prepared
- **Eight vulnerability assessment and adaptation planning training workshops** conducted for the core group – two of one week, four for two days and two one day events
- **Two months of training on climate change impact modelling** to DHM senior officials, DHM technical staff and sector department staff.
- **A Climate Change Impact Modelling guide** prepared and distributed.
- **Climate change units established in all six implementing departments**
- **Numerous working sessions with technical networks in each of the implementing departments** on climate change risk management tools and processes including:
 - **23 sector half day roundtable meetings** held with GoN counterparts to discuss district case study results and sector reforms and 14 meeting summaries completed
 - **Workshop for validation of Climate Change Risk Management Framework**
 - **Workshop for validation of key findings of Sector Synthesis Reports**
 - **Consultation workshop for validation of climate change threats modelling**
- **Infrastructure sector dialogue and capacity building program** held to build the capacity of central department staff on climate change risk management approaches – 67 participants
- **Three regional training events** held on climate change risk management which trained **167 districts officials**
- **Technical support provided to MOPE Climate Change Program** including:
 - **Presentations and national briefs** prepared for all MoPE delegations to the annual CIF

meetings

- **Briefing papers, reports and minutes of Project Steering Committee Meetings prepared**
- **Ad hoc briefings prepared for MoPE Secretary on TA activities and climate change issues**
- **Detailed briefings provided to the MOPE team currently preparing the National Adaptation Plan (NAP) on the TA methods, tools and findings**
- **Briefing note on TA support for GoN achievement of their UNFCCC INDC commitments prepared (13 May 2016)**
- **Presentation by DOI representative at a ADB regional training event on climate change risk management (June 2016)**
- **MOPE exhibition developed for presented at the July 2016 NAP Expo in Germany (1 July 2016)**
- **MOPE draft chapter in the National Development Planning Document reviewed and detailed inputs provided for national and sectoral responses in building climate change resilience in development**

OUTPUT 2 – HIGHLIGHTS OF ACHIEVEMENTS

- **An estimated 14 million members² of the Nepali public have been exposed to climate change issues and the importance of climate resilient planning through print, radio and television media**
- **61 District Training events on Climate Change and Community-based Adaptation completed in 61 districts with participation of 1,608 local planners (35% women and 65% men)**
- **District Training Manual on Climate Change and Community-based Adaptation endorsed by MoPE and is ready for use in future Climate Change and Community-based Adaptation training programs, and more than 50 officials from government/training institutes have received training so that they can replicate the training as co-facilitators in other environment and climate change related programs implemented at the local level.**
- **Climate change topics integrated into Secondary Curriculum (Grade 9 and 10 Science), 100 teachers in pilot schools have been trained in the new curriculum and student self-learning material on climate change has been distributed to 100 pilot schools.**
- **Climate change content has been integrated into tertiary level curriculum of seven academic programs across three universities (Kathmandu University, Pokhara University and Tribhuvan University) including two bachelor level environment related programs, three environment related master programs and a bachelor and master program for meteorology.**
- **Four course manuals for university students produced and 60 faculty trained in climate change-related topics**
- **36 research projects on climate change have been completed covering six thematic areas - Water Resources and Energy, Agriculture and Food Security, Forests and Biodiversity, Climate Induced Disasters, Public Health, Urban Settlements and Infrastructure**
- **Indigenous adaptation knowledge and practices documented**
- **Two websites on climate change resilience established and improved**
- **More than 50 news stories featured in international, national and district media including 28 news items on PPCR activities featured in national media, one featured in international media**

² The national radio producer Communication Corner estimates the listening audience of all stations in which the radio program was broadcast to be 14 million.

and multiple stories in district media during district training program

- **Radio and TV programs on climate change and development produced** including 40 thirty-minute radio episodes, three TV programs and two PPCR videos
- **More than 20 knowledge sharing events held on climate change resilience and development** including in sector government departments, with national stakeholders and in three international conferences

OUTPUT 3 – HIGHLIGHTS OF ACHIEVEMENTS

- **A new coordination mechanism established for the Nepal Climate Change Program (CCP)**
- **Seven TWG meetings and one CCPC meeting convened** supported by a program of one-to-one meeting with government and development partner stakeholders of the CCP.
- **A Results Management Framework (RMF) developed** capable of demonstrating the contribution of CCP projects to NAPA implementation whilst still satisfying the reporting requirements of the PPCR core indicators
- **Nepal's CCP RMF included as an example of international best practice** on the GIZ website www.adaptation.community.net
- **CIF Annual Progress Reports submitted** in 2014 (two reports), 2015 and 2016
- **Briefing papers and materials provided to numerous reviews of M&E in Nepal**, conducted by ADB (October 2013), CIF (April 2013), TAMD³ (July 2012, March 2013, August 2013), and Practical Action Nepal (July 2012, January/February (2013)
- **Management Information System developed** which provides on-line access to information on climate threat data, vulnerability assessments, results monitoring and knowledge sharing reports

3.2 Progress against the TA Design and Monitoring Framework

25. An overview of performance against the project design and monitoring framework (DMF) of the project appears as Table 2.

Table 2 Performance against project DMF

Outcome/Outputs	Performance Targets and Indicators with Baselines	Project Performance
Outcome ⁴ : The government's infrastructure development programs and policies incorporate	By 2016: Risk screening tools and methods are applied for projects in irrigation, flood protection, roads,	Risk screening tools and processes have been developed and applied for 97 infrastructure systems in eight districts for irrigation, flood protection, roads, water supply and sanitation, and urban development. In addition, a Climate Change Risk Management Framework has been developed which provides a series of climate change risk screening tools for infrastructure projects. MoPE is in the process

³ Tracking Adaptation and Measuring Development (TAMD) is a DFID funded global initiative with Nepal as one of the case study countries.

⁴ **DMF Assumption:** Climate change risk management tools and measures are supported by national and local government offices and user communities. **DMF Risk:** Insufficient budget allocation for climate change development programs, policies, and projects

Outcome/Outputs	Performance Targets and Indicators with Baselines	Project Performance
safeguards to address the effects of climate change	water supply and sanitation, and urban development (baseline: 0).	of submitting the tools for formal adoption by GoN.
	50% of approved projects are assessed for climate change risk by 2016 (baseline: 0).	<p>Significant progress has been made in systematizing climate risk screening: i) MOPE has endorsed a climate risk screening guidance based on a practical, field tested vulnerability and adaptation assessment process; ii) DUDBC included climate change vulnerability assessment and adaptation planning requirements in the TORs for consultants assisting with the Mid-Hills Development Project; iii) MOAD has established climate risk screening processes linked to a flood and drought risk vulnerability index; iv) MOFALD has mandated climate risk screening in annual development plans; v) DHM has started providing detailed climate change threat profiles and information to sector agencies to facilitate the process of project climate change assessments; vi) DSCWM is plotting a due diligence report to screen projects for climate risk; vi) DOR has begun applying climate screening to projects of national strategic significance; vii) DOI has developed a TOR for integrating CC into irrigation project design; viii) DWSS have commenced assessments of the impacts of climate change on water supply schemes in nine vulnerable districts.</p> <p>All implementing agencies have established climate change units as a direct result of TA support to act as catalysts and to support project assessments⁵</p>
	Trained focal point in charge of climate change risk management in DWIDP, DWSS, DOI, DUDBC, DOR, DOLIDAR, MOFALD (baseline: 0)	<p>All the sector departments have assigned a section and focal point in charge of climate change issues:</p> <p>DWSS -Climate Change Adaptation and Appropriate Technology Section headed by Mr Kiran Darnal who has received training through the TA</p> <p>DWIDM – Environment, Climate Change and Gender Development Section headed by Mr Arbind Kumar who has received training through the TA</p>
		<p>DUDBC – Urban Environment Section headed by Mr Karuna Ratna Shakya who has received training through the TA</p> <p>DOI – Environment and Climate Change Section headed by Mr Dandi Panjaisy who has received training through the TA</p> <p>DOLIDAR – Environment and Monitoring Section (currently proposed to develop a Disaster, Environment and Climate Change Section) headed by Mr Jeevan Guragain who has received training through the TA</p> <p>DOR – Geo-environment and Social Unit headed by Mr Vijay Kumar who has received training through the TA</p>
Output 1 ⁶ : Climate change risks are	DWIDP, DWSS, DOI, DUDBC,	In collaboration with MOPE and GoN sector agencies, the TA has detailed revisions to 41 policies guidelines, manuals, and

⁵ The national monitoring framework developed with sectors through Output 3 of the TA includes indicators to keep track of the % of projects which have been assessed for climate change impacts across all arms of government.

Outcome/Outputs	Performance Targets and Indicators with Baselines	Project Performance
integrated into Nepal's development planning and implementation of development projects.	DOR, DOLIDAR, and MOFALD guidelines, manuals, and standards include climate change risk management by the end of year 5 (baseline: 0).	standards to include climate change risk management. All implementing agencies have worked together to develop an all of government methodology for vulnerability assessment and adaptation planning – and each department has trialed the tool for specific infrastructure categories and defined adaptation options in response. Following endorsement the cross sector Steering Committee, the VA & AP guide has been formally distributed to all departments for application. Official adoption of the revisions to guidelines, manuals, and standards has been limited as each ministry has its own internal approval and adoption process requiring formal decisions, regulations and legislation and in some cases review and adoption by Cabinet or Parliament.
	50% of projects approved from agencies identified apply revised guidelines by end of year 5. (baseline: 0)	Each of the six infrastructure departments applied risk screening tools and guidelines to 97 infrastructure systems in eight districts for irrigation, flood protection, roads, water supply and sanitation, and urban development. Each department is now continuing to test the vulnerability assessment and adaptation planning tools to the project portfolio – as promoted by the newly established climate change units. On official request from MoPE, implementing agencies were not able to provide all-of-department assessments of the number or % of projects which have been approved following application of the new guidelines. As the guidelines have not yet been officially adopted by each Ministry, their application is being driven informally by MoPE and the sector focal points.
	Risk management system established in MOE and used by at least 4 of 7 agencies by end of year 5	A Climate Change Risk Management System/Framework has been developed and training provided to representatives of the sector departments at the central and district level. All implementing agencies have trialed various tools within the Risk Management System including EIA procedures which climate change provisions and the vulnerability assessment procedures.
Output 2: Knowledge management tools for climate change are developed and applied.	Local adaptation practices are used by 5 of 7 agencies in CCRM training by end of year 4 (baseline: 0)	Five Case Studies of Indigenous and Local Practices for Climate Change Adaptation in Nepal have been produced and disseminated covering: i) Water Management; ii) Forest and Pasture Management; iii) Rural Transport Infrastructure; iv) Settlements and Housing; and v) Traditional Social Institutions. Three regional training events held on climate change risk management which trained 167 districts officials and core group representative from six implementing agencies – each course presenting local adaptation practices.
	Trained district development committees develop adaptation plans	1,608 local planners (35% women and 65% men) have been trained in climate change and community-based adaptation Community Adaptation Plans have been developed in 61 communities in the districts where the training took place.

⁶ DMF Assumption: Strong cooperation and coordination between relevant government agencies and MOE
 DMF Risk: High turnover of trained government staff.

Outcome/Outputs	Performance Targets and Indicators with Baselines	Project Performance
	for 100 communities by year 4 (baseline: 0)	
	New academic curriculum for climate change science and adaptation incorporated in the syllabi of 2 of 4 universities by year 4 (baseline: 1).	Climate change has been integrated into the curriculum of seven academic programs across three universities (Kathmandu University, Pokhara University and Tribhuvan University)
	25 new research articles published and posted in Nepali and global web portals by year 5 (baseline: 0).	36 research projects have been completed resulting in 36 research reports and a published summary volume available on web portals. From these studies, 10 articles have been published in International journals and an additional 18 articles are submitted and under review for publication.
Output 3 ⁷ : Outputs and lessons from the SPCR and other adaptation programs are managed for results and incorporated into Nepal's climate change programming.	MOE conducts two media briefings annually on results of the climate change program.	8 media briefings have been conducted at the national level 1 International news article has been published. 30 media briefings have been conducted at the district level
	Results of climate change programs in Nepal are tracked through well-established management information system by midyear 2.	Climate change projects managed by MOPE are being monitored annually as part of the Nepal Climate Change Programme (CCP) and CIF reporting process. The results of the monitoring is displayed on a web-accessed Management Information System.

⁷ DMF Assumption: Strong cooperation and coordination between relevant government agencies and MOE.

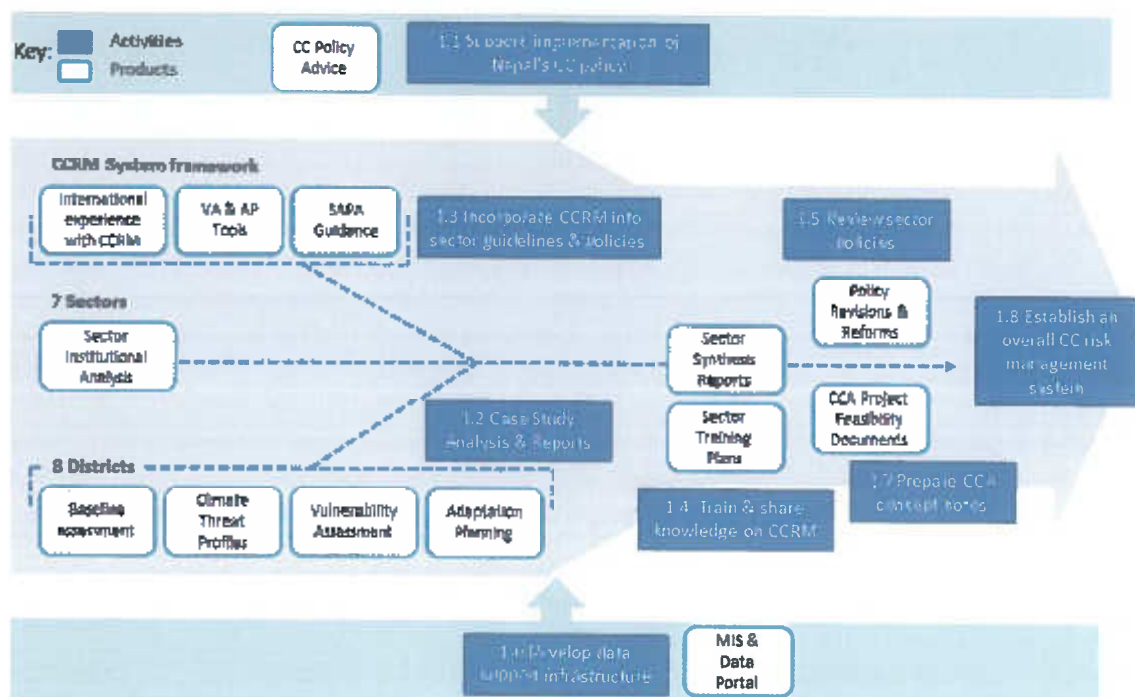
DMF Risk: Poor attendance during results management meetings.

4 OUTPUT 1 ACTIVITIES AND RESULTS

26. The aim of Output 1 was to Integrate climate change risk management into infrastructure and urban and rural service provision (water induced disaster prevention, water supply and sanitation, irrigation, roads and bridges and urban planning). This was achieved through eight separate activities each with a range of interconnected and reinforcing outputs (Figure 6).

27. Activities have been undertaken in nine infrastructure development and servicing sectors involving the following agencies: Ministry of Population and Environment (MOPE), Department of Water Supply and Sewerage (DWSS), Department of Roads (DOR), Department of Urban Development and Building Construction (DUDBC), Department of Irrigation (DOI), Department of Water-Induced Disaster Management (DWIDM) earlier Department of Water Induced Disaster Prevention (DWIDP), Ministry of Federal Affairs and Local Development (MOFALD), Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR), and Department of Hydrology and Meteorology (DHM).

Figure 6: Overview of Output 1 key activities and products



4.1 Supporting the implementation of Nepal's Climate Change Policy

28. Under this activity the TA Team has supported MoPE in the Implementation of climate change policy by: providing support in preparing the materials for international negotiations on climate change; assisting MoPE (as the Secretariat of Climate Change Council) to develop concept papers, case studies, and other necessary documents for meetings of the council; preparing guidance and text for inclusion in the National Development Plan; and providing support for MoPE's involvement in other climate change coordination mechanisms. Also, the TA provided a report and step wise guidance on implementing the National Adaptations Planning and Sector Adaptation Planning process.

29. In support of this activity since commencement of the project, the TA Team has regularly prepared briefings, presentations, guidance and reports for senior MoPE staff related to climate change issues and policy. A summary of the support provided by the project team to MoPE in Implementing Nepal's Climate Change Policy appears as Table 3.

Table 3: Overview of Project Team support to Nepal's climate change policy

Type of support	Description
Support for Integrating climate change into the National Development Plan	Reviewed the MOPE draft chapter in the National Development Planning Document and provided detailed guidance and text for how consideration of climate change resilience issues can be incorporated into the document
Briefing MOPE teams on the TA and MOPE's CCP	Provided a detailed briefing on the TA findings and work to the MOPE National Adaptation Plan (NAP) team. This was an essential initiative for ensuring continuity and use of the TA tools, materials and findings.
Regular meetings with MOPE staff regarding the status of the TA	The TA team leader and deputy team leader were in constant contact with the NPD and NPMs to discuss general project matters, coordinate their input into technical activities of the ministry, seek endorsement of work plans and reports and seek guidance on issues related to project implementation.
Periodic project steering committee meetings	The TA team assisted MoPE to organize and prepare briefing papers and minutes for project steering committee (PSC) meetings to update project stakeholders on progress and make decisions regarding project implementation. In total four PSC meetings have been held and one final PSC meeting will be held in December 2016.
Regular coordination with GoN sector focal points	The TA team through the Team Leader and national sector experts was in regular contact with sector focal points on behalf of MOPE to update them on key upcoming project events and project management issues, to facilitate discussion on policy issues within each department, and to promote the involvement of sector staff in policy reforms.
Prepare TA briefings for incoming senior staff of MoPE and implementing agencies	The TA team frequently prepared briefing materials on the project when there was a change of staff at MoPE (ie NPDs or NPMs) or in focal point ministries. In addition, the TA prepared a briefing note on TA support for GoN achievement of their UNFCCC INDC commitments.
Prepare presentation materials for MoPE and sector department staff for national, regional and international meetings	The TA team supported preparation of materials for MoPE and sector department staff on issues related to climate change and the PPCR at national and regional forums. This included: i) MoPE's participation at the CIF Partnership Forum held in Jamaica (June 2014); ii) MOPE's participation at the PPCR Stocktaking event in Tajikistan (April 2015); iii) Presentation on the Nepal CCP and RMF for delivery in a spot-light session on the Nepal RMF at the CIF Annual meeting on M&E held in Rome, Italy (2015); iv) MOPE exhibition to be presented at the July 2016 NAP Expo in Germany (1 July 2016); v) DOI representative at a ADB regional training event on climate change risk management (June 2016) and vi) Presentations for NPM 1 for consultation meetings held at sector departments DOR, DOLIDAR, DWSS, DOI, DUDBC and DWIDP (various dates); and (vii) presentations for senior MoPE staff on key climate change issues at national workshops and conferences.
Prepare project specific installations and materials for MoPE sponsored events	The project team prepared stalls, banners and materials for MoPE supported events related to the project such as World Environment Day (eg. 5 th June 2014) and World Science Day (eg. 17 th September 2014)

4.1.1 Lessons learned

30. Several lessons learned from the support for Nepal's Climate Change Policy are outlined in Box 1.

Box 1: Lessons learned from supporting Nepal's Climate Change Policy

- **A policy gap exists between the national climate change policy and the local adaptation plans:** The implementing agencies in this TA – all concerned with infrastructure development – now fully appreciate the importance of conducting sector adaptation plans and associated budgeting. Yet, current national policy does not recognize the need for and importance of that sector adaptation planning level. Only the overarching national adaptation plan and the LAPA process is defined. Nepal is to receive several million USD through the GCF to conduct a NAP – but the current design of the process follows the international model and guide which gives little emphasis to the preparation of SAPs as a foundation and inspiration for the NAP. National policy incentives for on-going commitment of sectors to prepare and implement SAPs are needed.
- **Nepal is progressing well in introducing policies to mainstream climate change adaptation but budgeting for policy implementation is lagging well behind:** Nepal is seen as having progressed much further than other PPCR countries in climate change policy innovation and its achievements have been highlighted by CIF. Yet, at national level the government budgeting process is leading to adaptation funding neglect in infrastructure sectors. At local level the LAPAs are more lists of local development priorities such as roads, bridges and schools than adaptation actions. For that reason local level is receiving the lion's share of "adaptation" funding – and national policy requires 80% of the national budget for adaptation to be channeled to the local level – leading to serious environmental problems, particularly relating to uncontrolled development of rural roads.
- **A wealth of information, tools and guidance has been produced by the TA which needs to be picked up by the recently commenced Nepal National Adaptation Plan process:** The Nepal National Adaptation Plan process provides an opportunity for ensuring the support and material developed by the TA is taken up and used in further climate change adaptation work in Nepal.
- **Adaptation policy reform needs to be complemented by a network of practical demonstration in the field:** Further work at national level in policy and plan processes will not have the desired effect unless driven and informed by practical demonstration on the ground. There is a strong sense of policy and planning fatigue in Nepal – and the TA suffered by not being able to engage each of the implementing agencies in field demonstration works addressing real climate change related problems. The NAP process is heading for the same constraint which will limit its impact.

4.2 Case Study Analysis

31. The TA team undertook extensive case study vulnerability assessment and adaptation planning analysis in eight case study districts for each of the six infrastructure sectors (Error! eference source not found.). The purpose of the case studies was to identify the key sector climate threats, their impacts and adaptation responses for subsequent upscaling to the national level policy and practice. The work in the eight districts was a process of learning, capacity building and policy and procedural development by the core group. The target districts were identified by core group members to reflect the diverse ecological zones of the country and varying environmental and social conditions in which infrastructure is built (Figure 7).

32. **Climate change threat profiles:** As an early step in the vulnerability assessment of infrastructure, it was necessary to prepare a *climate change threat profile* for each district. The district threat involved documenting past regular and extreme climate and events, and modelling of

future climate change. The threat modelling used projections of future climate change for the period 2040-2060 compared to a baseline of 1980-2000. Statistical downscaling for temperature and precipitation stations was used to develop these projections using IPCC scenario A1B and four GCMs.⁸ The results of the downscaling were incorporated into a basin-wide hydrological model which computed changes in precipitation, evapotranspiration, PET, soil moisture, river discharge and runoff for every 120 x 120m grid cell in each district. Additional parameters computed include river water levels, flooding, erosion, sediment concentration, slope stability/land slide risk and irrigation demand. The full range of climate change threats were summarized into key threats likely to impact on infrastructure development sectors in each district. The methodology and results adopted for the climate change threat modelling was presented, discussed and endorsed in a stakeholder consultation workshop held on 11th May 2014.

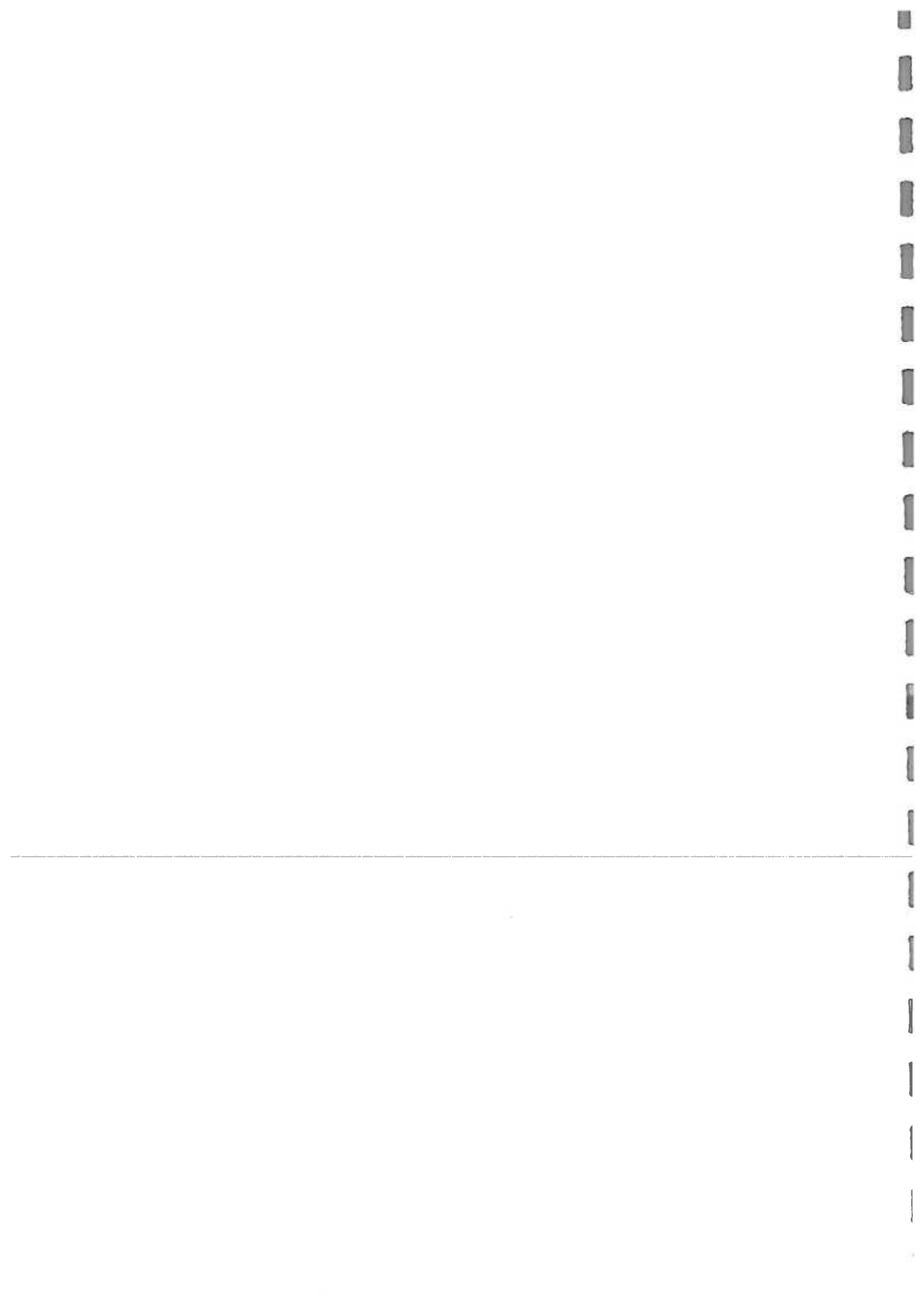
33. Field visits to case study districts were undertaken during 2013 and 2014 to collect baseline information on infrastructure systems and on past extreme events and their impact. This baseline work enabled the vulnerability assessments and adaptation planning exercises for all case study districts to be completed during October 2013 to February 2015. A total of 151 infrastructure systems were assessed including roads, bridges, irrigation schemes, river-training-works, embankments, urban infrastructure systems such as drainage, water supply schemes and sewerage works (Figure 7).

34. For each district and for each sector a set of case study activity reports (baseline assessment, vulnerability assessment and adaptation planning) were developed and consolidated into single sector volumes by district. The findings and content of the sector district reports were presented by core group members supported by the TA team for wider discussion with each of the implementing agencies during a series of sector roundtable meetings held during 2014. In February 2015 these reports were consolidated, printed and sent to the relevant GoN sector agencies for final review, endorsement and as a foundation for further mainstreaming action within each department.

⁸ GCMs included PRECIS – Providing Regional Climate scenarios for Impact Studies; RegCM4 – Regional Climate Model version 4; ARPEGE; and WRF- Weather Research and Forecasting model version 3.2. The downscale datasets were prepared under ADB TA 7173 Strengthening Capacity for Managing Climate Change and the Environment and improved under this project.

Figure 7. Infrastructure systems assessed by each sector in each district including number of systems where baseline information was collected (baseline), number of systems for which vulnerability assessment (VA) was undertaken and number of systems for which adaptation planning (AP) was undertaken

Case Study Districts	Number of infrastructure systems assessed during the field visits																
	Sector																
	WATBAN			Irrigation			Strategic Road Network			Local & Rural Roads			Urban planning			Water Induced Disaster Prevention	
Baseline	VA	AP	Baseline	VA	AP	Baseline	VA	AP	Baseline	VA	AP	Baseline	VA	AP	Baseline	VA	AP
Achham	4	5	5	-	-	4	2	2	2	2	2	3	2	2	3	2	1
Barke	4	5	5	4	4	5	2	2	3	2	2	3	2	2	7	2	1
Chitwan	3	3	3	3	2	5	2	2	3	2	2	3	2	2	3	2	1
Dolakha	3	2	2	4	4	5	1	1	3	1	1	3	2	2	4	2	1
Kathmandu	5	3	3	4	4	3	2	2	2	1	1	4	2	2	-	-	-
Mustang	4	3	3	2	2	3	2	2	3	2	2	2	2	1	3	1	1
Myagdi	4	3	3	-	-	5	2	2	3	2	2	3	2	2	-	-	-
Panchthar	4	3	3	2	2	5	2	2	3	2	2	3	2	2	-	-	-
Total	31	27	27	19	18	35	15	15	23	14	14	23	14	14	20	9	5
Grand Total of assets visited during field visits																	151
Grand Total of assets of which vulnerability assessments(VA) completed																	97
Grand Total of assets of which adaptation planning(AP) completed																	80



4.2.1 Lessons learned

35. Lessons learned from the district case study analysis are outlined in Box 2.

Box 2: Lessons learned from the case study analysis

- **The district level learning and tools development involving the core group was one of the most important and successful components of the TA:** The district work on existing infrastructure systems and the impacts of past and future changes provided an opportunity for the cross sector core group to address real problems through the climate change assessment tools – and to take the approaches and learning back to guide sector wide reforms. Yet, the district work over two years was hampered by inconsistency in core group participation with frequent changes to membership. Also, there were changes to senior level staff in implementing agencies which meant that some departments lost momentum in the reform effort – requiring repeated intensive reinforcement and explanations on the role of the district activities through briefings and round table meetings.
- **Adaptation planning needs to take into account the broad range and type of infrastructure vulnerabilities in the country:** Infrastructure performance varies greatly from one ecological zone to another in Nepal - reflecting its diverse climate and topography. That is an important finding of the TA work in the eight districts. The nature and extent of climate change vulnerability – and of the required adaptation response varies accordingly. . Planning for mainstreaming climate resilience in each sector needs to accommodate this geographic diversity in vulnerabilities with investment priorities for adaptation oriented to districts facing the most significant climate changes.
- **Importance of building on existing adaptation efforts:** Adaptation to climate change is already occurring – most infrastructure sectors have a significant program of maintenance, repair and replacement following extreme events such as flooding and landslides. That work has led to significant innovations in adaptation approaches. The TA documented a good cross section of those cases in the district level work. Future adaptation planning needs to include an ongoing program of adaptation auditing to assess these adaptation efforts so that future approaches, design standards and tools benefit from analysis of past successes and failures.
- **Reliable information on climate change threats is needed:** Climate threat information is an essential foundation for undertaken adaptation planning. DHM needs to continue their work on threat modelling begun through the TA and expand threat profile preparation to all districts of Nepal. Further support is needed to DHM in setting up an easily accessible and interactive internet based GIS tool box which provides up to date climate change projections and a wide range of interpretative GIS products. ICEM is developing a tool of this kind using OpenStreetMap for the SPCR sister project in Cambodia.

4.3 Sector guidelines, manuals, standards and policies

36. Following completion of the case study analysis and sector district baseline, vulnerability and adaptation reports, the TA team and core group members prepared *Sector Adaptation Synthesis Reports* for each sector. The Sector Adaptation Synthesis Reports reviewed the findings of the case study analysis to identify opportunities for mainstreaming climate change risk management into policies, procedures and standards of each department, focusing on entry points into sector development planning and implementation cycles where tools can best be used to promote climate change resilience.

37. In each report a package of institutional, policy and guideline revision measures have been identified to enhance the capacity of each department to plan for climate change related threats when making infrastructure investment decisions and strengthening the climate resilience of strategic infrastructure categories and assets. In total, the TA team detailed revisions to 41 policies, guidelines, manuals, and standards. A full list of the reforms identified is provided in Annex D. Summary, examples of proposed reforms for each sector include:

- *Water induced disaster prevention sector* - The licensing for sand and gravel mining should be carried out in close coordination with DWIDP;
- *Strategic roads network sector* - Specific revisions recommended for road, bridge and related structures Design Standards;
- *Rural roads network sector* - Specific revisions recommended for the Nepal Road Sector Assessment Study Guidelines;
- *Urban planning and building construction sector* - Guidance for establishing a Climate Change / Disaster Management Section within the Urban Development Division at DUDBC;
- *Irrigation sector* - Revise the Environment Protection Act and Environment Protection Rules to require coverage of potential climate change impacts in all EIAs and IEEs of irrigation projects; and
- *Water supply and sanitation sector* - Recommendations for Standard Operating Procedures for Community and Municipal Wastewater Treatment Plants and Disposal Management Systems taking climate change into account.

38. The Sector Adaptation Synthesis Reports were developed in close consultation with MOPE and implementing departments. This collaboration included numerous working sessions, workshops and sector roundtables held between TA team sector experts and sector department staff. Following a final round of consultation meetings where each department endorsed the reports at the Director-General level, the synthesis reports were presented to the Project Steering Committee and endorsed in March 2016.

39. Building on the Sector Adaptation Synthesis Reports, in consultation with MOPE and the sector departments, the TA team identified one or two reforms that the TA would focus on for each sector. The TA sector experts then worked with respective sector departments to develop more detailed guidance documents for each reform. The aim of the guidance documents is to provide further detail on a climate change mainstreaming reform that each sector could adopt. The reforms included:

- *Urban sector: Climate Change Standards and Guidelines* - Land use planning tools for climate change adaptation;
- *Irrigation sector Climate Change Standards and Guidelines* - A modified vulnerability assessment tool for the irrigation sector;
- *Strategic Road Network sector CC Standards and Guidelines*: Expansion of bio-engineering requirements in Road Design Standards;
- *Local and Rural Roads sector CC Standards and Guidelines*: Inclusion of bio-engineering requirements into Nepal Rural Road Standards draft;
- *WATSAN sector CC Standards and Guidelines*: Incorporating Climate Change in sector policies; and
- *Water induced disaster management sector CC Standards and Guidelines*: Planning, design and implementation of spur systems.

4.3.1 Lessons learned

40. Lessons learned from incorporating climate change risk management into sector guidelines, manuals, standards and policies are outlined in Box 3.

Box 3: Lessons learned from incorporating climate change risk management into sector guidelines, manuals, standards and policies

- **The core group approach worked well in defining and promoting appropriate mainstreaming reforms in each implementing agency.** The core group, with Director General focal points and senior technical staff and counterparts, proved to be an effective vehicle for identifying practical opportunities and entry points for reform based on a consensus within each department.
- **The Sector Adaptation Synthesis Reports are a first attempt by each sector to prepare Sector Adaptation Plans (SAPs):** The Synthesis reports followed a similar preparation process to that which each department will need to embrace on a regular basis in keeping with the normal development planning and budget cycles. Each department will need to review and revise their Synthesis report in preparing their SAPs as part of the NAP process over the next two years. Then the SAPs will be the adaption planning framework which is prepared along with the sector development plan – eventually to be integrated within it.
- **The district level case studies and review of sector experience with Infrastructure development enabled a wide range of needed mainstreaming reforms to be identified.** The working linkage between the identification and detailing of needed reforms at local level, and the process of upscaling to national sector level proved to be an appropriate and valuable approach. The district analysis enabled the definition of many potential areas for reform and innovation for each ecological zone of the country – then priorities could set at national level for detailing within each department.
- **The detailed guide for vulnerability assessment and adaptation prepared by the TA with the core group requires MOPE to facilitate the formal adoptions across government:** The VA and AP Guide has been endorsed by individual sectors and the TA Steering Committee. Now MOPE needs to set in train the formalities for all-of-government adoption in a similar way to steps followed for the LAPA guidance. That may require a decision of the Council of Ministers.
- **Reforms for mainstreaming climate change risk management need to be formally adopted by MOPE and sector agencies:** All TA reports, guidelines and tools were endorsed by each of the implementing agencies. Yet, despite that endorsement, strong engagement with sector departments throughout the TA, and involvement of many sector department staff in defining needed reforms, the formal uptake of recommendations has been limited. Formal adoption by a department is a lengthy process usually involving actions by the concerned ministry and requiring determined and consistent backing by senior departmental staff. The TA team found that the process of receiving high level endorsement of TA policy and procedural products from the relevant implementing department required strong diplomatic effort and practical support. To then have those reforms taken through to formal adoption will require dedicated commitment by each agency which has been lacking to date.
- **Working across seven departments diluted the impact which a more focused TA support could have achieved:** This lesson reflects a design fault in the TA – to address complex and detailed technical reforms in seven departments in parallel with only one full time technical team member (ie the TL) relied heavily on the responsiveness of departmental staff and senior officers to take full responsibility for refinement and formal adoption. Given the frequent shifting of staff to unrelated posts, the political instability, other pressing development priorities and then the earthquake, that level of necessary long term and focused internal effort was difficult to sustain.

4.4 Train and share knowledge on climate change risk management

41. Following identification of reforms for mainstreaming climate change risk management into sectoral guidelines and standards, the next step towards practical implementation was training of users. The capacity building efforts of the team under this activity have focused on enhancing the ability to apply vulnerability assessment and adaptation planning processes amongst the core group. Twelve training workshops of different duration/lengths and locations have been held for the core group and other sector department officials (Table 4). Capacity with the climate risk management approach developed by the team was further enhanced through regular updates for key GoN staff at national project workshops, sector roundtables and “tiffin” talks.

42. In addition to the training provided to the core group, a broader network of GoN staff were trained on climate change risk management approaches through training workshops at the central, regional and district level (Table 4). By working at multiple scales and across multiple sectors the TA aimed to ensure a large number of GoN staff was exposed to training and new knowledge on climate change risk management information and tools. During the TA, 627 GoN staff have received some level of training on climate change risk management. The level of training received has ranged from a program of half day presentations to multiple week-long training intensives.

43. In addition to the training events, knowledge on climate change risk management was shared through the communication and knowledge management activities of Output 2. Those activities are described in more detail in Section 5.5 Communications and knowledge management.

Table 4. Training events for climate change risk management

ID	Event	Description	Participants
1	Refining the vulnerability and adaptation method	Core group working session to create understanding of the international experience of impacts and adaptation solutions to climate change and to refine a Nepal specific climate change vulnerability assessment methodology through an initial application of the method in Chitwan district	Core group
2	Sector climate change seminars	Series of seminars for wider participation of sector agency staff to share knowledge on climate change impacts on sectors and adaptation opportunities	Broad range of sector department staff
3	Vulnerability assessment and adaptation planning district example	Core group working session to demonstrate the VA & AP process	Core group
4	Reviewing and revising guidelines and policies	Core group working session to demonstrate the process of guidelines and policies reform.	Core group
5	Infrastructure sector dialogue and capacity building program	Core group working session to discuss methodologies for climate change risk management	Core group
6	National workshop on the Risk Management Framework and VA & AP Guide	Training on Risk Management Framework and VA & AP Guide	Broad range of sector department staff
7	Regional climate change risk management training – Pokhara, Nepalgunj and Biratnagar	Train district level staff on sector climate change risk management	District officers of sector departments
8	Climate Change threat modelling Training for DHM technical staff (three separate training events over three years)	Train DHM technical staff on the modelling of climate change impacts to inform climate change risk management	Technical staff of DHM

ID	Event	Description	Participants
9	Climate Change threat modelling training for senior staff of DHM	Provide broad overview of climate change impact modelling and its uses	Senior staff of DHM
10	Climate Change threat modelling training for technical staff of sector agencies	Provide broad overview of climate change impact modelling and its uses, and an introduction to the modelling software	Technical staff of sector departments

4.4.1 Lessons learned

44. Several lessons learned from the program of training and knowledge sharing under Output 1 are outlined in Box 4.

Box 4: Lessons learned from training and sharing knowledge on climate change risk management

- **Need for sector commitment to undertaking climate change risk management building on new capacities:** The GoN now has a wide range of staff, from local to senior levels, with capacity in climate change risk management. For this capacity to be utilized, the sector departments need to implement the recommendations and guidelines arising from the TA to so that each project goes through a climate change risk management assessment as a key part of the planning process.
- **The district based learning – especially the week long training programs – was particularly effective:** The district training allowed knowledge and learning drawing from real cases of infrastructure problems from extreme events. They took national technical staff away from their Kathmandu working environment and allowed them to concentrate on the training with close interactions with District Officers.
- **Challenges arose relating to settling on daily allowance rates for government staff when participating in field work and training:** During the district work, negotiations were continuing between GON and donors on the allowance levels which could be paid to government officers. That uncertainty and the differences in allowances paid to national experts on the TA team and government staff sometimes got in the way of smooth logistical arrangements for field activities.
- **Adaptation auditing to assess the effectiveness of adaptation to past extreme events contributed greatly to understanding and learning:** The use of an auditing tool to assess what had worked and what had not in infrastructure subject to past extreme run off, floods and land slides proved to be a particularly useful training approach in understanding and developing the VA&AP tools.
- **The learning experience would have been greatly improved if accompanied by opportunities for practical demonstration of adaptation measures:** Ideally the TA would have included resources and a mandate to support each of the implementing agencies in building adaptation measures following the guidelines and VA&AP process they helped define.

4.5 Review sector policies

45. The aim of this activity was to undertake an Institutional and policy analysis for each implementing department to identify gaps and entry points for mainstreaming policies, procedures and tools. Then, the district level work for inform the core group on appropriate measures to respond to those gaps through the new knowledge generated and tools tested and modified under Nepalese conditions.

46. As part of the preparation for the Sector Adaptation Synthesis Reports, the TA team undertook institutional and policy analysis for each sector and outlined specific suggested revisions to better mainstream climate change adaptation into sector development planning. Those suggested revisions were then reviewed in the light of international experience in each sector (separately

reported) and the district level case study work. A summary of these policy reforms are outlined in Table 5 and a full list provided in Annex D.

Table 5. Overview of policy reforms and strategies

Policy Reform category/area	Activities
Incorporate climate change issues into existing sector policy and plans	<ul style="list-style-type: none"> Proposed climate change adaptation measures for sector vision papers. Drafted sector climate change policy statements Proposed amendments to specific legislation to include provisions to promote climate resilient infrastructure and mandate and guide the VA and AP processes. Prepared the Sector Synthesis Reports as initial SAPs and recommended SAPs be prepared as a foundation stone for the NAP process and then reviewed and revised regularly in keeping with the development planning cycles
Review of infrastructure design guidelines	<ul style="list-style-type: none"> Proposed upgrades to the building codes and design standard guidelines to account for climate change including the responses identified in the district demonstration case studies Updated key design standards based on information available from climate change district and sector threat profiles produced by DHM.
Revise guidance materials for environmental planning processes	<ul style="list-style-type: none"> Updated sector procedures and standard terms of reference for EIAs and IEEs to include climate change issues and to factor in specific climate change impacts and responses. Proposed expansion of the DHM mandate for (i) regular climate change modelling, (ii) consultation with each sector on relevant parameters and (iii) provision of updated threat profiles. Prepared threat profiles for districts representative of ecological zones and distilled relevant threats for each sector Prepared, tested and revised VA&AP guide for all-of-government application
Develop and implement capacity building plans	<ul style="list-style-type: none"> Prepared sector climate change capacity building plans Made recommendations for actively testing, reviewing and continuing to refine adaptation policy and procedural reforms especially sector design standards and detailed procurement guidance and templates for infrastructure construction and maintenance Made recommendations for applying and testing how best to integrate the Vulnerability and Risk Assessment guide in existing sector infrastructure development planning and implementation.
Improve Climate Change Information Systems	<ul style="list-style-type: none"> Detailed guidance on expanding the DHM portal to ensure better access to climate change data and information Detailed a system for identifying hot spots and introducing monitoring programs and preventative measures to guard against infrastructure failure
Institutional change	<ul style="list-style-type: none"> Prepared policy commitments, TORs and structural recommendations for establishing dedicated climate change units and specialists with sector Departments building on existing environment and disaster management units

4.5.1 Lessons learned

47. Several lessons learned from the institutional and policy analysis are outlined in Box 5.

Box 5: Lessons learned from review of sector policies

- Regular institutional analysis required as part of the SAP process:** The sector institutional analysis was prepared as a first step in the baseline assessment phase of the TA when there was limited knowledge and little depth of commitment within infrastructure departments. That meant the gap and entry point definition was rudimentary. That institutional analysis was

repeated during the Synthesis Reporting stage with more sophisticated results. The institutional arrangements for climate change are evolving rapidly in Nepal in part as a result of the TA. Therefore regular analysis of what is working and what is not is required to reflect changes, new pressures and opportunities as they arise and more information becomes available.

- **Newly formed climate change units in sector agencies will require adequate budget support and staffing:** The establishment of climate change units within each infrastructure sector was a significant achievement of the TA. Yes, those fledgling units have not been well integrated into the sector planning or budget processes. Strong leadership will be required from GON to ensure that the units receive the necessary backing to be effective and influential within their respective departments.

4.6 Data support infrastructure for climate change risk management

48. Under this activity, data support infrastructure was developed to allow the easy storage, processing and flow of data between key agencies such as DHM and MOPE and from them to sector users. The TA team focused on producing a range of climate change threat profiles underpinned by climate change and hydrological modeling, threat analysis and vulnerability assessments, and establishing and strengthening data support infrastructure in conjunction with the implementation of the Information management system (MIS). Preparation of the MIS is described in detail in Section 6 Output 3.

4.6.1 Lessons learned

49. The lessons relating to this output are considered under Section 3.5 dealing with the overall MIS activities. Key issues which shaped the final approach to the data support infrastructure drew from a capacity assessment which indicated that:

There was little capacity within MOPE to manage and maintain an interactive web based GIS tool for climate change projection and hydrological modeling data layers. The current MOPE website involves updating with static information. Similarly, the DHM website includes static information layers and data, which is updated. That capacity to maintain an interactive web based data support framework would need to be built most probably within DHM. The other issue is that there is not an institutional culture or strong policy driver promoting free sharing and accessibility of data for use by line agencies and other groups. That free and ready access to data becomes important when promoting among sectors an all-of-government approach to vulnerability assessments and adaptation planning based on the same down scaled climate change projections and linked hydrological modeling results.

The project team worked through these issues with MOPE and DHM with a special emphasis on building regular working linkages between DHM and each line agency to better understand the kinds of data which each agency requires for its climate change mainstreaming, and to establish a common language so that DHM can reorient and adjust its modeling and interpretative work to satisfy those data needs on a regular basis.

4.7 Concept notes for climate change related projects (Activity 1.7)

50. Under this activity the TA team supported MOPE and the sector agencies in defining and preparing of 20 short project concept notes addressing priorities identified in their respective adaptation synthesis reports. The 20 short concept notes then went through an intensive consultative phase involving all agencies in sector round table discussions and two national level workshops. From that discussion each sector selected one concept for further development into an ADB Concept Paper level document. A list of 20 project concepts developed appears as Table 6 with the six receiving more detailed treatment highlighted.

51. Two parallel streams of discussions and concept development took place. One at the request of MOPE aimed to use the remaining project funds of some USD1.2 million on relatively small scale “soft” projects, for example, concept 10 in Table 6 - *Inventory and performance evaluation of existing infrastructures under divisions and sub-divisions of DWIDP*. The other on priority “hard” resilient infrastructure projects which would need to be funded through sources outside the project. During 2015-2016, a good deal of effort went into the consultations and preparatory work for stream one relating to potential use of the remaining project funds by the implementing agencies. Unfortunately, due to some contradictions and uncertainty on what the remaining funds could be used for, this effort did not bear fruit which was a lost opportunity to extend the influence and impact of the project significantly.

52. The second work stream to development concepts for more substantial projects based on priorities identified in the sectors adaptation synthesis reports went forward smoothly. All project concepts are now at the stage for (i) more detailed discussions on targeting funding options such as the Green Climate Fund, Adaptation Fund or GEF and (ii) financing of comprehensive feasibility studies for selected projects as part of a PPTA level of support.

Table 6. Project concepts developed by the TA (Note: * indicates that the project was selected for further development into a more detailed ADB Concept Paper level document)

Sector	Concept note title
DOR	1. Development of software for land mapping analysis and design
	2. Increasing climate resilience of Lothar Bridge on East West Highway, Chitwan
	3. Increasing climate resilience of Nepalgunj-Bhagode Road, Banke*
DOLIDAR	4. Increasing climate resilience of Beni-Darbang Dhorpatan Road, Myagdi ¹
	5. Increasing climate resilience of Bhorle-Dahakani Road, Chitwan
DWSS	6. Increasing climate resilience of Paraspur- Gaughat Road, Banke
	7. Functionality improvement of water supply and sanitation systems*
	8. Ground water recharge to improve source yields
DWIDP	9. Water sources mapping
	10. Inventory and performance evaluation of existing infrastructures under divisions and sub-divisions of DWIDP
	11. Construct demonstration green and grey engineering for stabilization of vulnerable river banks in bends*
DOI	12. Quantitative approach for vulnerability assessment of infrastructures of DWIDP
	13. Increasing climate resilience of Chisapani Naubasta Irrigation Project, Banke*
	14. Increasing climate resilience of Ramp Irrigation Project, Dolakha
DUDBC	15. Increasing climate resilience of Syang Irrigation Project, Mustang
	16. Increasing climate resilience of Administrative Plaza at Babarmahal, Kathmandu
	17. Increasing climate resilience of Kaligandaki Market Settlements, Mustang*
MOPE	18. Increasing climate resilience of Sanphe Bagar - the New Town along the Mid-Hills Highway
	19. Mainstreaming climate change into EIA (achieved as part of the TA)
	20. Support to National Adaptation Plan (NAP) Implementation (support provided by the TA in the form of detailed guidance for the preparation of the NAP and linked Sector Adaptation Plans (SAPs))

4.7.1 Lessons learned

Lessons from the concept paper development include:

- (i) It was an important final step in the overall strategic process in the TA from institutional analysis, district level learning, adaptation synthesis reporting and priority setting then to developing some of the priorities for adaptation action as project concepts.
- (ii) The cross sector consultations at national workshops were particularly useful in promoting integration and multi-sector approaches to adaptation.
- (iii) With little or no time remaining in international team inputs and only one national expert for each target sector, the scope of analysis which could be built into the project concepts was constrained. Inevitably, the concepts could not cover all the fields of justification and analysis which would go into full feasibility studies. Much still needs to be sorted out in a full design process including cost benefit analysis and other conditions equivalent to the selection criteria of the Green Climate Fund.

4.8 Overall climate change risk management system (Activity 1.8)

53. Under this activity the TA team worked with MOPE and sector departments in developing an overarching climate change risk management and adaptation planning framework. A series of guidance papers were prepared to serve as the basis for enhanced climate change risk management and climate resilience in Nepal. Those guidance papers outlined the risk management context in Nepal and distilled international best practice for climate change risk management. On that foundation of knowledge, a CCRMS framework was defined with four key elements (Table 7).

Table 7. Components and progress of the Climate Change Risk Management Framework

Component	Description
Initial screening tool to identify which projects need to undergo further VA and AP assessment	Identification of the priority projects at risk. This excel-based screening tool provides a quick assessment of vulnerability for infrastructure projects. It should be used as an initial screen to identify which projects are likely to be vulnerable and therefore should undergo more detailed VA and AP
Detailed VA and AP process for existing and new projects	Use of VA and AP to assess vulnerability for existing and new policies, plans and projects. The tool provides detailed guidance on undertaking VA and AP for infrastructure projects. Requires field visits and assessment of sensitivity, exposure and adaptive capacity. Outlines how to identify and prioritize adaptation measures to address infrastructure vulnerabilities.
IEE and EIA appraisal guidance for MOFALD and MOPE	Ensuring projects have planned for climate resilience through EIA/IEEs. Provides guidance on how to assess how well IEE and EIA reports have incorporated climate change issues. Provides a table of checklist items for establishing to what degree climate change has been considered and incorporated.
Climate change resilience audit for existing infrastructure (using VA & AP process already prepared and used in trainings)	VA and AP for existing infrastructure to identify which needs additional protection and maintenance

4.8.1 Lessons learned

54. Key lessons from the development of the overarching climate change risk management framework include:

- (i) The linkage of the framework to the existing sector development planning system was appropriate in defining entry points for mainstreaming - yet, for core group infrastructure engineers focused on project based planning, discussion of methods for integrating climate change into higher level sector development plans or spatial plans, for example, was often a more challenging requiring involvement of experts from sector planning divisions.
- (ii) The term "risk" created a good deal of discussion and varying levels of understanding. It is a complex concept and the capacity to absorb it into day to day departmental operations and development planning was not always in place. Instead the TA team used the term "impact" as part of the vulnerability assessment process – something which all government agencies and technical staff are familiar with as part of the long standing EIA procedures.
- (iii) The TA team emphasized the role of vulnerability assessment and adaptation planning as a foundation tool in the risk management framework. That strategy worked well allowing for linkage with all other Output 1 activities and enhancing core group capacities in application of the VA and AP tool to the point where climate change units were able to conduct the assessments independently.

5 OUTPUT 2 ACTIVITIES AND RESULTS

55. The main objective of this output was to strengthen the generation, management and sharing of knowledge as a building block for improving the capacity of Nepal for climate resilient development. The activities completed under this output include: i) implementation of a district level climate change program using training modules developed under TA 7173 and implemented through service providers; ii) updating of educational curriculum on climate science and resilience; iii) establishment of a small grants research fund; iv) documentation of traditional/indigenous adaptation practices implemented through services providers; and v) communications and knowledge management including establishment of a knowledge management information system, development of a communications strategy and support for the development of knowledge products and services.

5.1 District Training on Climate Change and Community-based Adaptation Planning

56. This activity delivered training on climate change and community-based adaptation planning to planning officers and other stakeholders in 61 districts (Error! Reference source not found.) in order to develop their skills for mainstreaming climate resilience into local development planning. ADB contracted a service provider to implement this activity and MOPE monitored implementation with support from the TA team.

5.1.1 Key activities by the Service Providers

57. Based on a competitive process administered by ADB and with inputs from the TA team and MoPE, a Consortium led by Samuhik Abiyan, with Rupantaran and NAVIN were selected to implement the training program in 31 districts under Phase I. For Phase II, ADB signed a contract with the same Consortium members but this time under the lead of Rupantaran and with the Nepal Federation of Environmental Journalists added for communication purposes. The Consortium prepares and submits its Progress and Completion reports directly to ADB after review and comment by the TA. The key activities implemented by the consortium partners are listed in Table 8.

58. For each district the training was undertaken over six days:

- **Day 1 - 2** - Climate Change concepts including sessions on Climate Change Science, Causes, impacts, measures for mitigation and adaptation;
- **Day 3 - 4** - Vulnerability and adaptation assessment using participatory tools;
- **Day 5** - Field practicum in a nearby village to prepare a Community Adaptation Plan applying the tools and learning from the training; and
- **Day 6** - Participants presented their field exercise findings to stakeholders including officers in charge of sector line agencies, political parties, media people and community members.

Table 8. Activities implemented by the District Training Consortium

ID	Activity	Completed Phase I	Completed Phase II
1	Inception consultations and report - consultations with MOPE, MoFALD, other programs and development of training approach, schedule and strategy	October 2013	August 2015
2	Production of Training Manual - compiled from existing materials on training local officials on climate change topics and adaptation planning ⁹	December 2013 (draft used for training)	October 2015 (Updates to Phase I manual)

⁹ In particular, the training materials developed under TA 7179 - *Strengthening Capacity for Managing Climate Change and the Environment* were used as a basis for developing the training material.

ID	Activity	Completed Phase I	Completed Phase II
		November 2014 (final after training)	
3	Training of Lead Trainers and Co-facilitators - led by the Master Trainers/Team Leader for 6 days	December 2013	September 2015
4	Conduct training in districts – Training was organized in lots to cover multiple districts in parallel. The training was undertaken for six days per district	December 2013 - July 2014 31 districts in eastern part of Nepal	November 2015 – May 2016 30 districts in western part of Nepal
5	Prepare Progress reports on status of training	Quarterly	Quarterly
6	Early Impact Assessment - to follow-up on how the trainees were applying their skills. The EIA also allowed for follow-up on cases where the training had resulted in measures from the Community Adaptation Plans being integrated into the District Development Plan.	September 2014	September 2016
7	Final Dissemination Workshop – sharing of program experiences with government and non-government stakeholders	October 2014	September 2016
8	Video Documentary - the Phase II Consortium produced a video documentary featuring the training process as well as some of the findings from the EIA.	N/A	September 2016
9	Project Completion Reports	September 2014	September 2016
10	Contract Closure	January 2016	December 2016

5.1.2 Key activities by MOPE and the TA Team

59. The MoPE and TA team were responsible for providing overall guidance and monitoring for the training program. ADB contracted the District Training Consortia as service providers working under the strategic guidance of MOPE. The Consortium also interacted with government through coordination with MoFALD and local district offices. Throughout the training, MOPE provided monitoring on the training progress and technical inputs to improve the quality of the training.

60. The TA team provided technical inputs throughout the implementation of this assignment including:

- (i) Design of the training approach and method during the TA Inception period;
- (ii) Drafting of the Terms of Reference for the engagement of the training service providers for Phase I and Phase II;
- (iii) Support to ADB in promoting the call for proposals and inputs to the criteria and scoring for selection of the training service providers for Phase I;
- (iv) Gathering MOPE's inputs to the ToRs and selection process and keeping MOPE informed of progress;
- (v) Providing the Service Providers with materials and technical inputs into the content of the training and review and comment on the Training Manual;
- (vi) Facilitating MOPE's monitoring visits to the training of trainers and the district training field sites, including field visits by the NPD, NPM and the Secretary;

- (vii) The TA team members accompanied MOPE officials on the site visits or took separate visits to monitor the quality of the training delivery;
- (viii) Accompanying and documenting the ADB field review of the District Training in Phase I (June 2014);
- (ix) Regular follow-ups by email, phone and in-person meetings to review the status of the training and ensure timely implementation. This step included reviewing constraints – such as the fuel shortage during Phase II – and providing inputs to the measures to overcome the constraints;
- (x) Reviewing and providing detailed comments on all reports prior to their submission to ADB – Inception Report, Progress Report, Early Impact Assessment and Completion Reports. In addition, the TA team provided inputs to the questionnaires and methodology for carrying out the Early Impact Assessments; and
- (xi) Assisting the Service Provider in understanding and responding to ADB contract and financial requirements. In Phase I, this included reviewing administrative procedures and supporting the contract closure. In Phase II, the TA reviewed and commented on all of the Consortiums financial claims prior to their submission to ADB.

5.1.3 Outcomes

61. The concerted efforts from Consortium members, MOPE, ADB and the TA team resulted in an overall effective and timely implementation of this activity. The main constraint to implementation was the Service Providers lack of familiarity with ADB contractual and financial requirements and some delays in implementation in Phase I. In Phase II, the Consortium members successfully managed completion of the district training program during a period of political instability where access to fuel for travel was a major constraint across the country.

62. The field visits by MOPE, ADB and the TA team confirmed that the training: i) had appropriate climate change content; ii) was aligned with government priorities for climate change and the environment; iii) was relevant to the context of decentralized local development planning; and iv) was well-received by participants. The approach also made appropriate efforts to increase women's participation and encourage higher inclusion of disadvantaged groups by inviting external agencies with higher representation of target groups.

63. The main results from the district training program are:

- (i) **Trained Local Planners:** Under Phase I, a total of 791 local planners in 31 districts were trained in climate change and community-based adaptation including 230 women (29.08%) and 561 men (70.92%). In Phase II, an additional 817 local planners across 30 districts, with 326 women (40%) and 491 men (60%), participated in the training program. **Error! Reference source not found.** and **Error! Reference source not found.** show the total number and profile of local planners trained.
- (ii) **Uptake and use of skills:** For both phases an Early Impact Assessment report was completed. These reports show that the majority of respondents' report having applied the skills they learned on climate change and community-based adaptation in their work. For example, some of the district planners and social mobilisers trained were asked to facilitate training sessions on MoFALD's Environment Friendly Guidelines and were able to use knowledge and skills from the training to discuss the environment and climate change. About 40% of participants were in districts where the Multi-Stakeholder Forestry Program (DFID funded) or the Promoting Agriculture, Health and Alternative Livelihoods (PAHAL) was taking place and were able to use the skills they learned to facilitate training on climate change held under these programs.
- (iii) **Pool of skilled Co-Facilitators:** A total of 50 Co-Facilitators participated in the training of trainers during Phase I and Phase II, and accompanied the Lead Trainers in delivering this

training. This pool of trainers is available to undertake other local trainings on climate change.

- (iv) **Manual and Video Documentary on District Training on Climate Change and Community Adaptation Planning:** The manual was finalized based on lessons from the training and published for sharing with the wider development community as well as disseminating to the co-facilitators and trainees. The video produced in Phase II is an additional tool to disseminate the training methods and results to other organizations that may want to undertake similar training.
- (v) **Community Adaptation Measures Integrated into District Development Plans.** Some of the climate change adaptation measures proposed by communities during the training exercises have now been incorporated into Village Development Committee and District Development Committee plans. See list of examples below.

64. Examples of integration of training and community adaptation plans into local level planning include:

- In Chitwan, a VDC secretary initiated the construction of a rainwater harvesting Pond, in Kabilash VDC which will be used for irrigation farming. From the VDC fund, more than Rs. 400,000 (USD 4000) was approved and the same amount of community contribution was mobilized. From this activity more than 85 poor households are now able to irrigate their land.
- In the Palpa District, the Soil Conservation Office allocated Rs. 200,000 (USD 2,000) to four communities for water resource conservation activities. These activities have been implemented and are almost completed.
- Myagdi participants from the District Agriculture Development Office were able to allocate budget for construction of Rain Water collection ponds for the purpose of irrigation. This scheme was constructed in partnership with the community. Prior to selection of sites, the training participant organized a one-day sensitization session at the community to share the adverse impact of climate change.

Table 9. Number of Local Planners Trained in Phase I and Phase II disaggregated gender

Gender	Phase II (30 districts)	Phase I (30 districts)
Men	491 (60%)	561 (71%)
Women	326 (40%)	230 (29%)
Total	817	791

Table 10. Number of Local Planners Trained in Phase I and Phase II disaggregated by organisation types

Type	Represented office/ Organizations	Phase II	Phase I
Government Line Agencies	District Forest Office	215 (26%)	307 (39%)
	District Agriculture Development Office		
	District Livestock Support Office		
	District Education Office		
	District Soil Conservation Office		
	Women and Children Office		
	Division Irrigation Office		
	Division Water Supply Office		
District Public Health Office			
Local Bodies	District Development Committee	302 (37%)	203 (26%)
	Village Development Committee (Including Social		

Type	Represented office/ Organizations	Phase II	Phase I
	Mobilizers) Municipalities		
Civil Society Organization/ Networks	Federation of Forest Users' Groups In Nepal Nepal Federation of Indigenous Nationalities VDC Secretary Association NGO Federation of Nepal	80 (10%)	82 (10%)
Private Sector	District Chamber, Commerce and Industry Alternative Energy Promote	14 (1.5%)	16 (2%)
Non Govt. Organizations	NGOs working in climate change, energy and environment	130 (16%)	133 (17%)
Media	Nepal Journalist Association Journalist from Local FM, print media and online media	73 (9%)	50 (6%)
Others	Students, Teachers	3 (0.5%)	0
Total		817	791

5.1.4 Lessons learned

Lessons learned from the district training on climate Change and Community-based Adaptation Planning are outlined in Box 6.

Box 5: Lessons learned from district training on climate Change and Community-based Adaptation Planning

- Concerted efforts are needed to ensure gender equality in training programs in the districts.** Women are under-represented in the district government positions, and the District Training Service Providers had difficulty to ensure that district offices invited women. The Service Providers applied strategies including having more exchanges with the district on the need for women's participation as well as extending the participation from NGOs and civil society groups. Ultimately the Service Providers were able to reach a level of 30% of women in the program.
- Awareness raising and sensitization at all levels of local government and political parties – as well as through media outreach - is essential for climate change resiliency.** The training approach allocated time to bring local leaders to an awareness session. This session ensured that local stakeholders especially political representatives were sensitized to the issues raised in the training, including the adaptation measures proposed. This approach ensures that local leaders are more likely to own the issue of climate change and will themselves lead on planning climate change adaptation issues and mainstream those plans in on-going development activities. When leaders and media representatives are invited to participate at some point during climate change training programs, they are more likely to take up this issue. As a result, there is more likelihood that they will understand the issues and advocate the allocation of funds to climate change.
- Engaging with Village Development Committees, Social Mobilizers and communities increases the effectiveness of local government training.** The practical session to guide local planners on how to develop sample Community Adaptation Plans with communities was an effective learning by doing approach. A limited number of VDCs and DDCs were able to transfer these adaptation measures to their local development plan. However, local planners participating in the training needed more support on how to create a mechanism to roll-out the training in communities. Future trainings need to engage more with Social Mobilizers who are the ones responsible for planning community inputs into VDC development plans.

5.2 Integrating updated climate change content into curriculum

65. This activity integrated climate change content into Secondary and Tertiary curriculum, textbooks and teaching materials. The activities are implemented with a number of education partners: i) the Department of Education Curriculum Development Centre (CDC) for Secondary level; and ii) three universities (Pokhara University, Kathmandu University and Tribhuvan University) for Tertiary level. This activity was implemented directly by the TA team.

5.2.1 Secondary Curriculum activities

66. In consultation with MOPE and the TA team, the CDC decided to enhance the information about climate science and climate change in the Grade 9 and 10 Compulsory Science course.

67. With TA technical and financial support, the CDC implemented an action plan to develop new climate change content. As a first step, to prepare the new materials the CDC formed a Climate Change Curriculum Working Group of internal experts on curriculum development and external experts on climate change. The Working Group members gathered climate change reference materials and examples of curriculum from other countries. They used this information to design climate change content appropriate to the knowledge level of Grade 9 and 10 students. The new curriculum with climate change integrated was officially approved in July 2014 and is now part of Nepal's national curriculum.

68. The climate change content in the curriculum and textbook is very concise as these documents cover an entire course and space for each topic is limited. In order to expand the amount of information on climate change provided to students, two supplementary documents were produced: i) Student Self-Learning material; and ii) Technical Glossary on Climate Change for Grade 9 and 10. These documents were finalized and printed in December 2014, and were distributed to 100 pilot schools.

69. In March 2015, MOPE and ADB approved concept notes and costs for a set of activities to reinforce results achieved for curriculum development in the first half of the project, namely: i) training 100 secondary school science teachers on the climate change curriculum developed by the CDC; and ii) producing a Teacher Training Manual on Climate Change.

70. As a first step to implementing the teacher training activity, the TA team organized a meeting between MOPE and CDC to have MOPE inputs into the program as well as to clarify the types of presentations that MOPE would contribute to the training events. The TA team then continued with sessions to organize the training content and prepare the manual. The training manual was completed in May 2015. MOPE was provided with the manual and provided its comments to the TA team to incorporate through the CDC. The TA team then worked with CDC to organize the training schedule for the five regional training events. Five regional trainings were completed as presented in Table 11.

Table 11. Regional teacher training on climate change conducted by CDC (locations illustrated in Error! reference source not found.)

ID	Venue	District covered	Date	No. participants
1	Mahendranaga, Kanchanpur	Kanchanpur, Dadeldhura and Dang	2 - 4 June 2015	18
2	Dhankuta	Jhapa, Dhankuta, Dhanusha and Solukhumbu	2 - 4 August 2015	23
3	Kathmandu	Kathmandu, Lalitpur Bhaktapur, Kavrepalanchowk, Rasuwa and Nuwakot	9 - 11 September 2015	25
4	Pokhara	Palpa, Gorkha, Makwanpur and Kaski	9 - 11 October 2015	20

ID	Venue	District covered	Date	No. participants
5	Nepalgunj	Surkhet, Kapilbastu and Banke	October 30 – November 1 2015	18
Total participants				104

71. After completing the trainings, the CDC requested support for systematizing the training program by consolidating the training modules and improving them based on feedback. The TA submitted a Concept Note and Cost Estimate to ADB to support the CDC to organize working sessions to consolidate the training material, edit and print the training manual publication. The Working Group met on 13th to 18th January 2016 and again on 25th to 27th February 2016 to review the Training Manual and update it based on lessons learned from the training events. The members reviewed and endorsed the final revision and CDC completed the printing in March 2016.

5.2.2 Secondary Curriculum outcomes

72. Nepal now has new content on climate change integrated into secondary science curriculum for two grades that will be used at national level. In addition, more than 100 teachers are trained in this new content. The CDC has a training manual to use to train teachers on climate change. Grade 9 and 10 students have access to textbook content on climate change. In addition, students in 100 pilot schools across the country have access to self-learning materials about climate change.

5.2.3 University Curriculum activities

73. For the Tertiary level, the TA has supported three universities to integrate climate change into the curriculum of a total of seven academic programs. The TA team worked with each institution to prepare an Action Plan and Budget. The first step of each of the Action Plans was to form a Climate Change Curriculum Working Group (CCCWG) comprised of members of the concerned department. The role of the CCCWG was to undertake the curriculum design and development tasks required for climate change integration. The CCCWG undertook research on climate change, listed the relevant subjects, determined under which courses and topics the content would be included, and then developed the teaching materials. The Action Plans reflected the steps required in the curriculum approval process to ensure that the content developed would become part of the official degree programs.

74. The Working Groups each took a tailored approach to integrating climate change topics depending on the needs of their program. In most cases, climate change information was introduced as one of many course topics in early years, and then expanded as a specialized course in later years. For example, Pokhara University's Bachelor of Science in Environmental Management added a specialized course on Climate Change and Society. Tribhuvan University's Department of Meteorology decided to devote half of its fourth year bachelor program to climate change science and developed a course manual for professors to teach the new material. The updated climate change content and course revisions were vetted by other faculty members and external stakeholders during curriculum review workshops before receiving official approval by the university's higher authorities. The TA also supported the academic departments to purchase new library resources on climate change and prepare guidelines for student research projects.

75. The TA team provided support through: i) facilitating meetings; ii) providing faculty with information and resources to undertake research and develop draft curriculum; and iii) reviewing draft content. The TA also provided inputs and resources to facilitate the consultation meetings with the wider faculty to review and improve material (Figure 8)

Figure 8. Curriculum Development Action Plan

Phase I: Working Group Development of Content**Phase II: Review with Faculty and Stakeholders****Phase III: Approval and Preparation for Teaching****5.2.4 University Curriculum outcomes**

1. Three universities have new academic curriculum on climate change science integrated into their programs – a total of four master programs and three bachelor programs:

- (i) *Tribhuvan University*: a) Bachelor of Science in Meteorology; b) Bachelor of Science in Environment Science and c) Masters program In Hydrology and Meteorology.
- (ii) *Pokhara University*: a) Bachelor of Science in Environment Management; b) Master of Science in Environment Management; and c) Master of Science in Natural Resource Management.
- (iii) *Kathmandu University*: Master of Education in Environment Education and Sustainable Development.

76. Along with the development of curriculum, the TA supported the universities to complete the following:

- (i) Conducted nine workshops among faculty, students and other stakeholders to review and comment on the climate change content to be integrated into the curriculum - a total of 300 university stakeholders participated in workshops on Integrating climate change into curriculum;
- (ii) Prepared research guidelines and resource materials for students to undertake independent research projects on climate change for course credit;
- (iii) Acquired reference books for each of the department libraries so that students and faculty had access to updated resource material – each department was provided with between 18 to 35 books;
- (iv) Prepared four course manual / micro-syllabus to provide more detailed content on climate change to guide faculty members on what to teach in the revised curriculum;
- (v) Four programs printed 500 copies each of the revised curriculum and the course manual for sharing with faculty members;
- (vi) The universities collaborated to hold two trainings on climate change for their faculty - one on Vulnerability Assessment and Adaptation Planning and one on Climate Change modelling. In both these trainings, materials developed during Output 1 activities were part of the reference sources; and

- (vii) Completed a student practicum on VA & AP as a case study for alternative teaching approaches with Pokhara University.

5.2.5 Lessons Learned

77. Lessons learned from climate change integration into tertiary and secondary level curriculum are outlined in Box 6.

Box 6: Lessons learned from climate change integration into tertiary and secondary level curriculum

- **Integrating climate change topics into formal curriculum requires a close engagement with the persons responsible for curriculum development in the education institutions, and following the official approval process.** Changes to the official curriculum content in education institutions are made through a formal curriculum revision process and follows prescribed procedures. The process may take more time than anticipated as the institution may change its curriculum revision objectives and timeframe for reasons beyond the project control. This fact can result not only in delays but also in challenges monitoring the project specific results. This investment of time is worthwhile since it results in an officially approved change. Under the official curriculum, teachers have guidance on when and how to teach climate change to students during classroom hours.
- **Information about climate change has to be made concise and integrated with other topics to be incorporated into the curriculum as well as supplemented with self-learning material for students interested to explore further.** Teaching about climate change must be contextualized within the wider knowledge the student must acquire in their discipline. The Working Groups developing the curriculum – in particular for secondary and bachelor level – started with the identification of entry points to ensure a progressive understanding of climate change issue along with other related topics. Students need to first understand basic facts about weather, climate and the effects of global warming on climate patterns. Once the basic facts are understood, learning evolves towards more complex issues related to climate change mitigation and adaptation, and international frameworks to respond to climate change.
- **Consultations on revised curriculum are essential to ensure that faculty members who will teach the courses are familiar with the climate change content and feel part of developing materials they will teach.** Education institutions are forums for debate and professionals may have divergent views on how to treat various topics within their discipline. Also, professors will have varying levels of knowledge about climate change. The TA worked with the universities to hold consultation workshops to present draft curriculum and seek feedback. This step is essential to ensuring that all angles of proposed topics are considered and that professors acquire some level of common understanding on how to approach the topic of climate change.

5.3 Climate Change Research Grant Program

78. This activity supported a small grants research fund for academic research on climate change and environmental management issues in Nepal. The activity was implemented by the Nepal Academy of Science and Technology (NAST) with monitoring support provided by MOPE and the TA team.

5.3.1 Key Activities by the Nepal Academy of Science and Technology

79. In October 2013, ADB issued a sole source request for proposal (RFP) to NAST to become the Climate Change Research Grant Program Manager (CCRGP) and NAST submitted its proposal in November 2013. In January 2014, ADB signed the contract with NAST to become the CCRGP. In February 2014, NAST established the Research Grant Program Management Unit (RGPU) mobilizing three staff members – a Program Manager, Finance Officer and Administrative Assistant.

80. The CCRGP Completion Report submitted by NAST to ADB provides detail on the activities implemented under this program. The steps implemented since the start-up of the RGPU are summarized below.

- (i) **A Research Grant Manual** to guide the grant selection and management process was developed by NAST and the TA team with inputs from ADB. The manual was finalized in May 2014;
- (ii) **Committee formation:** NAST formed the Project Steering Committee (PSC) to provide overall strategic guidance to the program, and the Research Grant Selection Committee (RGSC) to implement the selection process and monitor the quality of the research;
- (iii) **Promoting Calls for Research Projects:** NAST's RGPU prepared the first Call for Research Project Concept Notes in June 2014 (Batch 1) and issued the second call in July 2014 (Batch 2);
- (iv) **Press Conference:** To promote the calls a Press Conference and Stakeholder Consultation on the Research Grant Program was held in May 30 2014;
- (v) **Short-listing concept notes:** The grant process followed a two-stage selection process with concept notes submitted as the first stage, and then a shortlist requested to provide full project proposals. The results of the calls in terms of numbers of concepts received and short-listed is presented in Table 12;
- (vi) **Full proposal evaluation:** NAST identified a pool of Peer Reviewers with subject expertise in the CCRGP thematic areas. With the support of the Peer Reviewers the RGSC reviewed the Project Concept Notes and Full Proposals. A summary of the number of grants awarded is provided in Table 12;
- (vii) **Awarding contracts:** A contract was made with all researchers defining the roles and responsibilities together with administration and financial aspects.
- (viii) **Capacity-building support to researchers:** NAST held various workshops to support the researchers to manage their grants, understand climate change issues, share progress and receive feedback from other experts, as well as on getting published.
- (ix) **Monitoring by RGPU and RGSC:** NAST developed separate monitoring framework for the CCRGP to ensure the quality of research outputs and also to maintain financial discipline. Based on the framework, monitoring of each and every researcher's work was completed under the leadership of RGSC members who have subject expertise on the concerned research.
- (x) **Progress Reporting:** The NAST team produced regular progress reports based on the contract milestone payment schedule. During the final months of the grant, NAST submitted monthly briefs to ensure ADB, MOPE and the TA team were kept up to date.
- (xi) **Grant Administration:** The NAST RGPU administered the grants to researchers ensuring the eligibility of grantees, the setup of financial procedures to receive the grant, documenting the submission of progress reports and other milestones, processing the grant instalments and verifying the status of the grantee documents as per the manual procedures.
- (xii) **Contract management and financial closure:** The NAST RGPU prepared financial claims and submitted to ADB as per the requirements to manage their contract. This step included justifying the grant advances and completing the financial closure documents.

Table 12. Received, short listed and selection proposals under the Research Grant Program

	Batch 1	Batch 2	Total
No of Project Concept Notes Received	274	139	413
Number selected for Full Project Proposals	36	24	60
Number of grants selected	24	12	36
% grants selected	8.7	8.6	8.7

5.3.2 Key activities by MOPE and the TA Team

81. MOPE and the TA team supported NAST in implementation of the CCRGP through a number of activities:

- i **Response to ADB RFP:** With guidance from MOPE, the TA team supported NAST to prepare its Proposal for submission to ADB under the sole source solicitation. The TA team guided NAST on the documents to use and the content to include. It also contributed RFP sections and assisted with the registration and use of ADB's online proposal submission system.
- ii **Preparation of the Research Grant Manual:** The TA team worked closely with NAST to draft the Research Grant Manual. The TA team provided sample manuals from other grant programs and contributed to outlining the table of contents. The TA team provided revisions and write-up for sections in order to facilitate the document production. The TA team also ensured MOPE's and ADB's comments were incorporated into the final grant manual.
- iii **Inputs to the Call for Proposals Process:** The TA team provided inputs to the draft documents drawn up by NAST in preparing for the call for proposals. In meetings and through emails the TA team also provided guidance on how to promote the call to maximize applications from diverse research communities.
- iv **Review of the selection process:** As the RGPU and RGSC reviewed concept notes, short-listing and review of full proposals, the TA team provided comments and inputs at each step to improve the process. In particular the TA team made checks to avoid duplications with other international programs, encouraged NAST to select only high-quality proposals in thematic areas that received few submissions, and recommended other actions with the aim to increase the level of quality of the final selections.
- v **Guidance on ADB contract requirements and amendment process:** The TA team provided guidance to NAST on how to follow and respond to the requirements of their ADB contracts in terms of the various budget lines, making claims, completing the FSEC and other administrative procedures.
- vi **Monitoring:** The TA reviewed NAST's CCRGP monitoring framework, and contributed sections and forms to complete it. The TA team reviewed and provided comments on the researchers' proposals for them to incorporate into their Inception Reports. The TA team also provided periodic updates to ADB and MOPE on the status of the research grant program by email and phone. The TA team also participated in the monitoring visits with researchers periodically to determine the status of the projects and provide inputs on the improves to make.
- vii **Comments and revisions to concept notes, progress reports and policy brief publication:** The TA team provided comments and revisions to NAST's concept notes, progress reports, completion report and policy brief publication prior to their submission to ADB.

5.3.3 Outcomes

82. The Climate Change Research Grant Program improved capacity of Nepali researchers to conduct studies on climate change through the completion of 36 research projects (summarised in Table 13 and full topic names provided in Annex E) covering research in 36 districts. As well as adding to the experience of the principal researchers to conduct research and publish on climate change topics, each of the 36 research projects engaged a group of team members (from four to 10 people), who were M.Sc. and M.Phil/Ph.D. students. As a result, approximately 200 to 250 present and future researchers in Nepal have benefited from increased knowledge and understanding on climate change.

Table 13. Themes of Research Projects funded by the Research Grant Program

Theme	Number of Large Grants	Number of Small Grants	Total Grants
Agriculture and Food Security	2	6	8
Forest and Biodiversity	1	9	10
Water Resource and Energy	2	6	8
Climate Induced Disaster	1	4	5
Public Health	0	3	3
Urban Settlement and Infrastructure	0	2	2
Total Grants	6	30	36

83. Eight researchers have published 10 papers based on their research in international journals (Table 14). In addition, by 15th September 2016, a total of 12 researchers had 18 journal articles in the pipeline for peer-reviewed journals for publication. The researcher findings were also presented in sessions sponsored by NAST as well as those held independently by the researchers.

Table 14. Published Papers in International Journals

ID	Title	Journal	Author
1	Impacts of Anthropogenic Climate Change on Freshwater Molluscs in Kailali Western Nepal	TENTACLE (The Newsletter of the IUCN/SSC Mollusc Specialist Group IUCN No. 24--March 2016)	Prem Bahadur Budha
2	Challenges and Opportunity of In vitro Propagation of <i>paulonia tomentosa steud</i> for Commercial Production in Nepal.	International Journal of Applied Science and Biotechnology	Niranjan Parajuli and team
3	Evaluation of Antidiabetic Polyherbal Formulations	Advance Research Journal of Medical and Clinical Science India (Volume 1, Issue 1)	Rajendra Gyawali
4	Landslide susceptibility mapping of southern part of Marsyangdi River basin, west Nepal using logistic regression method	International Journal of Geomatics and Geosciences Volume 7, No 1, 2016, August	Dinesh Pathak and team
5	Understanding climate change adoption by farmers in crop production in Nepal	Journal of Food Security	Madhav Dhital
6	Assessment of Vehicular Emissions and Its impact to Climate Change in Urban Areas of Kathmandu Valley Nepal.	Global Journal of Engineering Science and Research Management	Asim Ratna Bajracharya

ID	Title	Journal	Author
7	Impact of climate change on the occurrence of cholera in Kathmandu, Nepal ¹¹	European Journal of Biomedical and Pharmaceutical Sciences	Supriya Sharma and team
8	River Ecological Study: Building the knowledge base for variety of assessment such as Climate Change in Nepal	Journal of Mountain Area (JMAR)	Bibhuti Ranjan Jha and team
9	Climate change projection for the Marsyangdi river basin, Nepal using statistical downscaling of GCM and its Implications in geodisasters	Geo environmental Disaster (August, 2016)	Dinesh Pathak and team
10	Fluvial Functioning Index (FFI): Assessing Freshwater Habitat in Tamor River Basin, Nepal.	International Research Journal of Environmental Sciences	N. P. Ghimire and team

5.3.4 Lessons learned

84. Lessons learned from research grant program are outlined in Box 8.

Box 8: Lessons learned from climate change research grant program for Nepali researchers

- **Climate change is a topic of research interest to Nepal's academic community across disciplines.** The calls for expression of interest for the research grant program received a high number of submissions across the thematic areas targeted by the program. Nepal's researchers were able to make a link between climate change and their subject areas showing the importance of a cross-disciplinary approach to climate change research. Researchers in certain thematic areas were stronger in their climate change knowledge than others. For example, the researchers in Water Resources had more prior knowledge of climate change than conducting research on Public Health. The approach of bringing researchers across disciplines together for sharing workshops under one program was an effective way to share knowledge and expand the research community working on climate change issues.
- **Nepal's academics show commitment to building a research culture but require more financial and technical support.** Many past climate change and other research programs in Nepal have focused on providing grants for master doctoral students to complete their thesis. The CCRGP program required applicants to identify a principle investigator with prior research experience to lead a research team. While the past experience of the selected principal investigators varied, the CCRGP was able to finance some senior researchers who guided master and doctoral student teams to undertake the research. More such models of grant programs are needed in Nepal to build a culture of research where senior researchers have access to grants that allow them to build produce evidence for policy-making while at the same time training and mentoring more junior researchers.
- **Important to delineate objectives related to building research capacity and objectives to produce quality research.** The Climate Change Research Grant Program had the dual objective to increase capacity to conduct climate change research as well as produce quality research. These two objectives were difficult to align in a short-term program – some of the grantees already had a strong research capacity and were able to produce quality studies with only some monitoring from NAST. Others had to have intensive follow-up and coaching to produce their studies to a satisfactory level. In a few cases, the final research product was still less than satisfactory. The Research Grant Selection Committee invested time in supporting and coaching researchers but this was a voluntary committee and so their time was limited. Also their interventions came later in the program when it was apparent that a number of researchers were struggling to complete their studies. Future research grant programs are advised to allocate more time and resources to build researcher capacity such as including a series of

planned that address gaps in researchers' knowledge as these emerge.

Future programs should also identify two streams of grants – a stream of grants for well experienced researchers separate from a stream of grants for developing researchers. Developing researchers should receive smaller amounts for the grant and have more opportunities for coaching than was possible in the 18 months available for this program.

- **Providing technical assistance to research institutions such as NAST needs to be well integrated into an organizational structure that is able to carry forward the research results.** The process of providing technical assistance to NAST to obtain and implement the Research Grant Program was intended to build the capacity of a national institution – a research body associated with MOPE - to administer research grants on climate change as an outcome of the program. However, the project-based technical assistance team was required to deliver the grant program during a relatively short period. As a result, NAST did not take full advantage of this program to improve NAST systems and structure and institutionalize new approaches to grant-making. The senior management structure of NAST, and the academics sitting on the RGSC, assumed responsibility for the program delivery. However, no one was assigned a role to integrate the CCRGP learning into NAST processes and systems in order to institutionalize the experiences of the program. Also NAST staff and management made only limited efforts to coordinate with MOPE, and other government departments in order to promote the role of research and evidence in policy-making. Future programs should build in more time and activities for research institution capacity building, including capacity to network and engage with government, development partner and civil society stakeholders, prior to the start of the grant program. In addition, the implementing agencies selected for managing research grants need to make clear commitments on how they will build the learning into their own systems from the start of the program.
- **The size of a research grant program needs to be tailored to the capacity of the implementing organizations.** The CCRGP was the largest grant program managed by NAST up to that date. By the end of the program, NAST had not demonstrated a capacity to manage a grant of this size in the future without additional technical support. A phased approach of managing a fewer number of grants to start and then scaling up would have allowed time to evaluate NAST's capacity to implement the program and identify mechanisms to build capacity of both NAST staff and the researchers. By securing such a large grant from the start, NAST's management did not perceive the need to increase their institutional capacity and implement the necessary mechanisms. Future grant programs should scale the size of grant funds to the level of experience of the institutions and allow more time for building knowledge on a complex subject matter such as climate change.

5.4 Traditional adaptation practices in Nepal

85. This activity involved a research program to document traditional or indigenous adaptation practices in Nepal, including those by women and disadvantaged groups.

Activities

86. Based on a competitive process led by ADB with inputs from MOPE and the TA team, the Consortium of Integrated Development Services (IDS) and Institute for Social and Environmental Transition (ISET) were selected to undertake this research study. The contract was processed in July 2013 and the selected Indigenous Research Service Provider (IRSP) was mobilized for 1st August 2013. MOPE, with support from the TA team, facilitated a consultation session with the six sector departments involved in the TA to have their inputs into the design and methodology of the Indigenous Research. The IRSP compiled this material and submitted a draft Inception Report in the last week of September 2013.

87. The IRSP selected 18 districts covering a representative sample of Nepal's diverse ethnic, agricultural and ecological regions (Error! Reference source not found.). Five development,

livelihood and infrastructure-related case-study sectors were selected for focus: i) local water management; ii) forest and pasture management; iii) rural transport infrastructure management; iv) settlement and housing; and v) traditional social institutions. The IRSP undertook a field visit to test the research design in November 2013. Following the field test, MOPE and the TA team provided inputs to the methodology and research design. The fieldwork plan covering 18 districts was approved by ADB, and the research teams were mobilized to begin collecting data in the districts. The data collection took place from December 2013 to May 2014.

88. The IRSP produced a draft of the preliminary findings from five case study districts with the progress report of March 2014. The MOPE and the TA team reviewed this report and requested the DTSP to: i) ensure the findings and conclusions from the research were relevant to climate change adaptation; and ii) improve the quality of the write-up. The DTSP submitted the first draft of the Research Report and the Case Studies in June 2014. Comments on the drafts were provided by ADB and the TA team.

89. The IRSP continued to improve the content and editing of the reports and re-submitted three drafts between June 2014 to December 2014 to which the TA provided substantial inputs and revisions along with comments from MOPE and ADB. In addition, in collaboration with MOPE, the IRSP held a workshop in November 2014 to disseminate the research findings to government stakeholders, academics and civil society groups and gather feedback on the report. The final drafts of the Research Report and Case Studies were submitted on 19th December 2014. This version has been endorsed by MOPE and has now been printed and distributed.

5.4.1 Outcomes

90. This activity has resulted in the documentation of indigenous knowledge and practices that can be applied to enhance climate change adaptation at the community level based on 22 field cases across 18 districts. The following reports have been produced:

- Final Research Report on Indigenous Practices for Climate Change Adaptation; and
- Five Case Studies of Indigenous and Local Practices for Climate Change Adaptation in Nepal: Water Management, Forest and Pasture Management, Rural Transport Infrastructure, Settlements and Housing and Traditional Social Institutions.

5.4.2 Lessons learned

91. Lessons learned from the research program to document traditional or indigenous adaptation practices in Nepal are outlined in Box 9.

Box 9: Lessons learned from the research program to document traditional or indigenous adaptation practices in Nepal

- **It is important to have sound and manageable research methodologies and a clear report writing plan prior to going out into communities.** Gathering information on indigenous practices requires extensive consultations at the community level – the researchers gathered a great quantity of information that then became difficult for them to synthesize. Future studies of this nature should be more focused geographically and thematically to allow for more in-depth analysis and reporting of findings.
- **Assignments to produce research studies need to be planned and documented in phases.** After spending most of the assignment collecting data, the research team left the drafting of the the case studies to the end of the assignment and the task became overwhelming for them. Also, without earlier drafts MoPE, the TA team and ADB could not easily monitor the quality of the case study development. The IRSP was also not able to accurately estimate the time required to prepare the reports and continually revised deadlines. Future such assignments need to be scheduled with more milestones that indicate how the work is progressing and ensure the service provider is progressively preparing the deliverables throughout the

assignment.

- **Gathering information about indigenous adaptation practices needs to be integrated into the overall processes to gather, analyze and mainstream adaptation practices in national, sector and local planning.** The design decision to have the documentation of Indigenous practices undertaken by a separate research team made it difficult to integrate the learning on indigenous practices into the TA's overall policy reform process. The processes for working with the sector departments on vulnerability assessment and adaptation planning, and the indigenous practice research process followed different steps and timelines making it difficult to integrate into a cohesive package for sector departments to learn from. Future programs should ensure that learning about indigenous and traditional practices is included in the overall process to document adaptation measures and mainstreamed into adaptation plans.

5.5 Communications and knowledge management

92. This activity covers a range of actions to build the capacity of MOPE in knowledge information systems and communications. The communications and knowledge management activities were implemented directly by the TA team and MOPE with some outsourcing of publication design and audio-visual media production.

5.5.1 Key activities

93. The knowledge management and communication strategy promoted the use of varied media formats to share TA and PPCR activities and results. The key activities implemented are outlined below.

94. **Knowledge Management and Communications Strategy:** In September 2012, the TA team in consultation with MOPE and ADB prepared a knowledge management and communications strategy for inclusion in the Inception Report. This strategy, which was updated at project mid-term, guided the knowledge management and communication activities throughout the TA.

95. **Media coverage:** Based on the issuance of press releases and invitations to journalists the TA's project events and activities were featured in English and Nepali national newspapers and TV news (see Annex G).

96. **PPCR Website:** The TA developed a web site hosted on the Nepal government web platform that presents information about all four PPCR programs. The TA designed the PPCR website, developed templates for gathering information from the other PPCR components, and regularly updated the site with news items and upcoming events. The web site has been the key tool for knowledge sharing and disseminating publications produced by MCCRMD as well as news and updates about the three other components. The common web site was particularly important in sharing information about the status of the PPCR while the PPCR 1, PPCR 2 and PPCR 4 were in the planning stages.

97. **Nepal Climate Change Knowledge Management Centre (NCKMC) Web site:** In addition to developing the PPCR web site, the TA provided the services of its web developer to upgrade and re-design the NCKMC Website (climatenepal.org.np). As a result, NCKMC has a new, more dynamic interface and features for functionality of its climate change knowledge portal. The NCKMC staff were also trained by the web developer to maintain the site. To support NCKMC in maintaining the site up to date, MCCRMD provided solar panel equipment and on laptop so that the updating could continue during load-shedding hours.

98. **CIF Web site:** The TA Knowledge Management team made regular contributions to the Climate Investment Fund (CIF) website. This included preparing three guest blogs from the National Project Director to post in the CIF Voices section. It also included preparing articles, publications and links to the CIF newfeed. (see Annex G for topics)

99. **Print Publications:** A number of publications have been produced to promote and share knowledge about the program

- **Visibility materials:** Early on the team produced a PPCR brochure explaining the background to the program with information on all four components. A brochure about the three outputs of MCCRMD was also produced and shared with stakeholders. Later the brochure was replaced with a bookmark featuring PPCR website address as well as the address of the Nepal Climate Change Knowledge Management Centre web site - to encourage stakeholders to seek up to date PPCR information online. Folders conference holder bags, and other material to promote the visibility of the PPCR and MCCRMD were also designed and used at the TA's workshops and events.
- **Educational Poster:** The TA team also produced a poster explaining the causes of climate change for distribution in government offices, public spaces and shared with 75 district offices.
- **Bulletins:** The TA issued English and Nepali bulletins. The articles cover activities completed under MCCRMD. In addition, the TA team coordinated with other PPCR Components for the news/articles for the bulletins. The Nepali bulletin for March /April was printed in May and distributed through the TA mailing list of government and other stakeholders. The English bulletin was produced electronically in May and distributed by email to government, international agencies and other stakeholders.
- **ADB Newsletter:** Three articles – one on MCCRMD, one on the Bio-char project and one on BCRWME (PPCR 1) were produced for the ADB Nepal resident mission newsletter.

100. **Radio Program:** In partnership with Communication Corner, the project produced 40 radio episodes on climate resilience themes. The episodes were broadcast on 23 FM radio stations and one central network providing coverage across Nepal. The radio programs are estimated to reach 14 million listeners. The 30 minute episodes were broadcast weekly at two time intervals. The episodes were also made available online. The content covered a range of topics related to PPCR programs and climate change in general. Features were planned in collaboration with TA sector departments and PPCR components to share knowledge on from PPCR activities. The radio episodes had a diversified format to present the information in different ways. This included interviews with key policy-makers, stories from the field, quizzes, panel discussions and listener feedback. The interviewees included government stakeholders at central and district level, subject specialists as well as community members (see Annex F for list of topics). The radio program was a key feature of the TA's efforts to share knowledge on climate resilience, including knowledge generated through the PPCR, with a wide public across Nepal.

101. **Video / TV:** The TA has worked with three production companies to produce feature son PPCR:

- **NEFEJ produced a video about climate change and the work of MCCRMD for their weekly environmental news program.** Journalists from the Nepal Federation of Environmental Journalists (NEFEJ) accompanied the TA team to Chitwan during the baseline assessment in August 2013.
- **A video documentary on PPCR Nepal named "On the Path to Climate Resilience Development" has been made both in Nepali (15 minutes) and English (10 minutes) and distributed to concerned sector agencies and other partners as well as being presented at the June 2014 CIF Conference**
- **The TA produced three television episodes in collaboration with Media Watchdog.** The TA coordinated with communications focal persons in PPCR 1 and PPCR 2 to facilitate the Media Watchdog filming of their activities and identification of appropriate experts to discuss each

theme. The TV programs were aired on Nepal Television (Sankalpa) and Avenues Television (Rupantaran) in June and early July 2016 and covered three themes: i) Climate change adaptation and watershed management featuring the case of one VDC covered under the Building Climate Resilience of Watersheds in Mountain Eco-Regions in collaboration with PPCR 1. (June 2 2016); ii) Agriculture Management Information System as an adaptation tool for farmers in collaboration with PPCR 2. (June 15 2016); and iii) Climate resilient urban development for new cities featuring adaptation planning techniques documented by TA specialists (June 29 2016)

102. A compilation of these three features was produced in Nepali with English sub-titles for sharing through the web site and in workshops.

103. **Events:** The TA held and participated in a number of knowledge sharing events:

- **Holding a series of Climate Change Tiffin Talk Programs in 2013-2014** covering diverse mainstreaming climate change topics in order to share information about PPCR and MCCRMD with various staff in sector agencies work place
- **Exhibit, Presentation and winning entry into Poster competition at the Eighth International Conference on Community-based Adaptation in April 2014**
- **Exhibits and distribution of promotional materials during MOPE's events for Earth Day (April) and World Environment Day (June) in 2014, 2015 and 2016.**
- **Presentation on PPCR and its results in collaboration with various organizations including presentation on Climate Change Impacts in Chitwan at ICIMOD/UNESCO Tourism conference in March 2014, sharing findings on VA & AP with agriculture officers under ADB's High Mountains Agriculture and Livelihoods Initiative (HIMALI) in May 2014, presenting at ADB's PPCR knowledge sharing event in Dushanbe Tajikistan (May 2015), sharing PPCR program experiences with MOPE's newly formed National Adaptation Plan team (June 2016).**
- **Presentation made on the TA approach to climate change risk management featured at a training of irrigation / water resources experts in Delhi (July 2016); adaptation of the presentation for the purpose of ADB director's key note at an international conference on climate finance to be held in Kathmandu (September 2016).**

5.5.2 Outcomes

104. The main result from the knowledge management and communications strategy of the TA has been a regular sharing and flow of information about the TA and PPCR using diverse media during the entire duration of the project. Through the communications and knowledge management work an **estimated 14 million members of the Nepali public have been exposed to climate change issues and the importance of climate resilient planning** (the majority of the public was reached through radio and TV). A summary of the results are:

- **Regular updates on news and information about the TA has been posted on PPCR Nepal and CIF web sites - PPCR Nepal website postings were at least 2 to 3 times weekly from May 2013 to September 2016. In addition, the Nepal PPCR progress has been shared with other countries through cross-posting articles on the CIF web site's newsfeed.**
- **40 Radio episodes were produced featuring diverse PPCR activities and results, as well as general climate change topics (see annex F for a list of topics). The radio programs were broadcast at central level as well as through 23 local FM stations thereby reaching most of the country.**

- Four television episodes (one in 2013 and three in 2016) and two videos (one in 2014 and one in 2016) were produced summarizing the main objectives and results of the Nepal PPCR (see annex F for a list of topics).
- 28 newspaper articles about the TA appeared in English and Nepali national newspapers (see annex G for a full list of articles and publications). In addition, the TA team supported the development of three CIF Guest Blogs posted by the MOPE National Project Director.
- Interaction with the public and other development stakeholders through presentations and displays at four international events, and at least three national events per year over the duration of the program.
- 14 English electronic bulletins and 18 Nepali print Bulletins produced and distributed to more than 1,000 stakeholders.

5.5.3 Lessons learned

105. Lessons learned from communication and knowledge management support are outlined in Box 10.

Box 10: Lessons learned from the communications and knowledge management support

- **Sharing knowledge on climate resilience needs to be done through diverse types of media in order to reach a wide audience.** The TA produced a series of reports on sector adaptation planning along with the synthesis reports. This information is documented and available on the web site for specialists in each sector to consult and use in future programs and policy reform initiatives. As well as make information available to sector specialists, mainstreaming climate resilience requires synthesizing information and sharing knowledge with varied audiences through different means. The TA 7984 packaged information on climate resilience and sector adaptation planning, and reached audiences through bulletin articles, newspapers local and national radio, national television, newspapers and events. In addition, information on climate modelling and vulnerability assessment and adaptation planning was integrated into curriculum and faculty training. As a result, the technical information produced under the program has been shared with a wide reaching group of stakeholders and the public.
- **Creating a communications focal group and sharing communications strategies among various PPCR components results in more synergy in sharing knowledge about PPCR with diverse stakeholders.** The TA reached out to the various executing agencies and service providers involved in the implementation of the PPCR components to identify communication focal persons. These communication focal persons were interested to meet and collaborate in share knowledge and promoting visibility of the PPCR. This approach resulted in the web sites and bulletins produced by the TA having features from each of the PPCR components. It also enriched the TV and radio episodes produced by presenting information and knowledge from across the PPCR components.

5.6 Gender equality and climate resilience

106. The project prepared a Gender Equality and Social Inclusion (GESI) Strategy during the TA Inception Phase. The strategy described two phases of activity for GESI: i) the first covering gender analysis in parallel with the VA and AP process undertaken under Output 1; and ii) the second focused on gender training.

5.6.1 Activities

107. **Gender Analysis:** As part of integrating gender analysis into the VA and AP process, the TA team undertook the following steps:

- Preparation of Gender Equality and Social Inclusion Strategy, including rapid institutional assessments of GESI issues in key sector departments;

- Preparation of baseline information on gender and social inclusion for the Output 1 case study districts;
- Integration of gender issues into the questionnaires to be used to undertake VA and AP in each district;
- Gender analysis of four sector synthesis reports and provision of a comments matrix to the sector specialist with suggestions for improving gender inclusion in the report; and
- Analysis of how to apply gender in the VA and AP methodology adopted by the TA team and MOPE.

108. **Gender Training:** The final activity was to conduct a training of sector specialist on how to integrate gender and social inclusion into climate resilience planning. The TA team reviewed the material from the analysis phase as part of the preparation to design the training modules. In addition, prior to the training, the TA undertook a Training Needs Assessment on GESI for the sector specialists using key informant interviews, a survey and a final debriefing to validate results.

109. Based on the Training Needs Assessment, the training modules were drafted by the Gender Specialist and finalized with inputs from other members of the TA team and MOPE. A total of 35 MOPE and sector officials were invited to attend and a total of 30 confirmed with 2 from district offices. The training was conducted from the 9th to 12th August at Gorkana Forest Resort. The training program was designed to be highly interactive with most sessions involving small working groups.

110. The training covered key concepts of GESI and climate change adaptation on the first day and interacted with participants to ensure the concepts were well understood. In the remaining days, the TA team guided the trainees to work in their sector groups in a practical planning process that included working on integrating GESI results, indicators, activities and risk assessment into a climate change adaptation program planned (or typical) for their department.

5.6.2 Outcomes

111. The key results of these efforts are that: i) GESI considerations have been integrated into the tools and technical reports produced under the TA; and ii) 30 technical officers from six development sectors and MOPE have been trained in mainstreaming GESI into climate change adaptation planning. A total of seven GESI plans were produced under the program.

6 OUTPUT 3 ACTIVITIES AND RESULTS

112. The main objective for Output 3 is that outputs and lessons from SPCR and other adaptation programs are managed for results and incorporated into Nepal's climate change programming. The end result of Output 3 is that the progress of all climate change projects under implementation by MOPE monitor progress under a single reporting framework to create a platform for shared learning among the lead agencies and harmonization and reporting of all resilience building and adaptation initiatives in Nepal.

113. Output 3 covers three activity sets that are focused on coordination of MOPE's climate change program, and managing the wealth of information produced by the program and reporting on results; these are: i) preparation of a Results Framework; ii) development of a Management Information System (MIS); and iii) program coordination.

6.1 Develop a climate change program results framework

114. During the period February 2012 to August 2014, the Output 3 team worked with government and development partner stakeholders to develop a Results Management Framework (RMF) capable of satisfying both PPCR reporting requirements and also Government of Nepal (GON) requirements to report on progress implementing the NAPA. During this period four technical working group (TWG) meetings were held along with a program of approximately biannual one-to-one meetings with each stakeholder. Comments were progressively collected and used to draft and revise the RMF. The final RMF was sent by MOPE to CIF in August 2016.

115. The RMF is designed to measure the effectiveness of climate change adaptation projects and programs in Nepal and supports a programmatic response to climate change led by the MOPE in close partnership with 12 government sector agencies and five development partners. The main elements of the RMF include:

- a log-frame;
- a set of indicators for measuring performance;
- a template and approach for documenting lessons learnt; and
- an approach and description of the role of consultations in the implementation of M&E activities.

116. The RMF identifies two sets of indicators to be collected: i) CIF indicators; and ii) NAPA/CCP indicators. The CIF requires programs funded through the PPCR to report on five core CIF indicators including: i) Degree of integration of climate change into sector planning; ii) Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience; iii) Quality and extent to which climate responsive instruments/investment; iv) Extent to which vulnerable households, communities, businesses and public sector services use improved PPCR supported tools, instruments, strategies, and activities to respond to climate variability and climate change; and v) Number of people supported by the CCP to cope with the effects of climate change.

117. The Nepal NAPA document contains nine integrated priority climate change adaptation areas identified through a nationwide vulnerability assessment and extensive consultation process. The CCP projects are contributing to the achievement of the NAPA priorities. The RMF therefore establishes a process for using CCP project level indicators to measure the contribution of the CCP to achieving NAPA priorities. The seven projects of the CCP are collecting information for more than 50 separate indicators at the output, outcome and impact levels. From this set of indicators, the RMF selects a sub-set for which a causal link to the NAPA priorities can be established. The program level contribution of the CCP to the NAPA priorities is then established by aggregating all the project level contributions.

118. Based on the endorsed RMF, the TA team supported MOPE to report to CIF in 2014, 2015 and 2016.

6.1.1 Lessons learned

119. Lessons learned from developing a climate change program results management framework are outlined in Box 11.

Box 11: Lessons learned from developing a climate change program results framework

- **Strengthening resources for Results Management:** There is a need for continued institutional strengthening and staff capacity building in M&E if the RMF and coordination mechanisms developed under the TA are to be applied after completion of the TA

6.2 Establish a Management Information System

120. The CCP MIS is a consolidated information management system which allows the CCP projects to centrally store and access data, results and knowledge produced by each project in the program. The MIS is designed to be hosted on the MOPE server with a web-based portal as the main interface for users. The web based portal will be accessed via the MOPE website www.ppcr.moste.gov.np/.
121. The MIS comprises three key elements: (i) **Data** - hydro-met data, climate change projections, agricultural field data, climate change data products (risk maps, threat profiles); (ii) **Results** - indicator scores, lessons learnt templates, progress reports, project activities and outputs; and (iii) **Knowledge** - project outputs, reports and other knowledge products.
122. The key activities under MIS development have been the development of the foundation system and the design and building of the database, including:

Foundation system development: The MIS Framework design was completed and the foundation system developed. The foundation system includes a system database and basic portal interface. The system database has three logical information components to handle data and information under data management, results management and knowledge management components.

Design verification and finalisation: The MIS framework was designed and an initial conceptual overview of the framework presented to the CCPCC TWG in March 2014. The design was then revised to include clear coverage of both the user requirements (i.e. front end requirements of the MIS) and the back-end system design.

Database development, building and data preparation: Database development involved identifying data requirements and defining the technical specifications of the database for the identified data requirement. Database development is followed by the task of data preparation and database building, which involved data coding and formatting as required and entering and establishing data records for basic data. Database building and data preparation to date has focused on TA data as this is the most advanced of the CCP projects. Data is organized into three categories according to the three main elements of the MIS.

Test and verification involved testing the operation of the system including interface design and verifying data maintained by the system. Test and verification are first done by the developer followed by key system users of the 8 CCP projects and 13 sector agencies. The draft MIS was submitted to ADB and MOPE in September 2016, and after revision to address comments received, a final version was submitted to MOPE on TBC.

6.2.1 SPCR Program coordination

123. During the TA inception phase, a review was undertaken to identify the existing climate change adaptation coordination mechanisms of the Government of Nepal (GON). The review identified that effective coordination of climate change responses required the establishment of new institutional modalities that facilitated collaboration across ministries and across development partners. The new mechanism needed to: i) focus on dedicated climate change adaptation projects under direct implementation by MOPE; ii) complement existing structures (such as the Project-level Steering Committees, the PPCR Committee, and the Multi-stakeholder Climate Change Initiatives Coordination Committee (MCCICC); iii) function at an operational/working level; and iv) be formally endorsed and chaired by MOPE.
124. During December 2011 to July 2012, a multi-tier coordination modality was developed in close consultation with stakeholders to allow CCP projects a platform to coordinate on the scheduling of activities and sharing of data, coordinated dissemination of data and knowledge products as well as aggregate project progress to allow for program-level reporting to government and development partners. Based on a program of one-to-one meetings with government and development partner focal points the resulting mechanism included a Climate Change Program Coordination Committee (CCPCC) and a CCPCC Technical Working Group (TWG). The approach was endorsed and adopted by MOPE in the first CCPCC meeting in June 2013.
125. Two meetings of the TWG were held in July and December 2012 to discuss the scope, membership and reporting requirements of the CCPCC and TWG. A final draft TOR was distributed for comment to government and development partner stakeholders in early 2013 and supported by a program of one-to-one meetings with relevant government sector agencies and development partners. Comments were incorporated and a penultimate draft TOR was submitted to the first meeting of the CCPCC chaired by the MOPE Joint Secretary in June 2013. The TOR for the CCPCC, outlining the background, modality, objectives, membership, meeting schedule and outputs of the committee and working group, was approved at its first meeting in June 2013 (provided in annex H). It was also agreed that the CCPCC would continue to be supported by a TWG chaired by the Joint-Secretary/National Project Director for PPCR3.
126. During the project period there has been one meeting of the CCPCC (June 2013). Initially it was proposed that the CCPCC meet every quarter, however, during the first meeting it was decided by members that the committee would meet on an ad-hoc, as-needed basis.
127. As the main formal mechanism for operation-level coordination of all CCP projects, the TWG has met seven times during the project period:
- (i) **CCPCC TWG 1, July 2012:** brief MOPE and development partner stakeholders on the proposed approach for program coordination, modalities and roles.
 - (ii) **CCPCC TWG 2, December 2012:** review and provide comments on the TOR for the CCPCC and a road map for the RMF development.
 - (iii) **CCPCC TWG 3, September 2013:** Results Management Framework (RMF) Baseline assessment workshops to review preliminary baseline scores developed by 13 government sector agencies and ensure consistency in scoring.
 - (iv) **CCPCC TWG 4, March 2014:** presentation of revised NAPA score card to government and development partner stakeholders.
 - (v) **CCPCC TWG 5, June 2014:** presentation of draft Results Management Framework (RMF) for comment.
 - (vi) **CCPCC TWG 6, November 2014:** provide an update to stakeholders on the RMF review process to date and obtain any final comments for finalization of the RMF.

(vii) **CCPCC TWG 7, June 2015:** Demonstrate the contribution of CCP to implementation of the national adaptation of program of action (NAPA) and fulfill the program level reporting requirements to development partners including the CIF.

128. In addition, the Output 3 team also utilised ad-hoc, one-to-one meetings with CCP government and development partner stakeholders (July 2012, November/December 2012, March 2013, August/September 2013, January 2014, February/March 2014, July/August 2014, November 2014, June 2015 and April 2016) as well as the Donor Climate Change Coordination Group to review and develop the results framework and implement the program-level reporting.

5.2.2 Lessons learned

129. Key Lessons learned from SPCR program coordination are outlined in Box 14.

Box 14: Lessons learned from establishing a Management Information System

- **A more proactive CCPCC is needed to help shape Nepal's planning for adaptation** A reason which reduced effectiveness of the MCCICC in its later stages was the drop in meeting frequency. The CCPCC has faced a similar challenge, with only one meeting in the last four and a half years. In the case of the CCPCC, the reasons remain unclear.
- **Expand coordination activities to cover more than results management:** At present the CCPCC TWG has primarily focused on bringing together stakeholders to discuss M&E aspects of coordination. As all projects have now been mobilized and are under implementation, projects will begin to generate a substantial amount of data. This will mean that coordination of other components such as data and knowledge product sharing will increase in importance and that coordination activities of the CCPCC will need to expand.
- **Identity of the CCP as a program could be strengthened within Nepal:** While the CCP has been established and endorsed by all parties concerned, the identity of the CCP as a cohesive program of eight projects needs further strengthening.

7 ADMINISTRATIVE ISSUES

7.1 Equipment

130. The TA team holds various items of equipment purchased throughout the TA period (e.g. computers, chairs, printers). All these items are recorded in an asset inventory. Most of the equipment is used by the TA team and some is used by MOPE officials and the NAST Research Grant Team. As part of the TA team contract, this equipment will be handed over to MOPE at the end of the TA.
131. The equipment held by the TA was purchased in several batches from two sources of funds following the ADB process with the consent from the Government:
- Equipment purchased directly by the MOPE (formally named MoEST) using an Advance Payment Facility Fund (APF); and
 - Equipment purchased by the TA team from the TA equipment budget.
132. Discussions have been held with MOPE and ADB to understand the equipment handover requirements of each organization. For MOPE it is important that the appropriate government forms are completed so that internal approval can be provided. Though the handover process will take place earlier, it is important that the TA team are allowed to use the equipment till the end of the TA. The detailed handover steps will include:
- Ensure the TA Inventory list is up to date;
 - For equipment purchased by the TA budget the TA team will fill out the Certificate of Turnover/disposal Form (Form no 705/01) as per ADB's guidance;
 - For the equipment purchased by MOPE under APF fund the TA team fill out the government prescribed form for endorsement by MOPE staff;
 - Following completion of the forms, the equipment will be handed over to MOPE and a clear record of the items prepared and provided to MOPE and ADB; and
 - The TA team will facilitate the handover equipment held by NAST.

7.2 Data

7.2.1 Datasets collected and developed by the TA

133. The TA has obtained and produced a large amount of data (e.g. downscaled climate change data, GIS layers) and other resources (e.g. literature on climate change impacts in Nepal). These data and resources need to be handed over to MOPE before TA closure. An overview of the datasets held by the project team is included in Table 15.
134. Discussions with MOPE on how the data should be handed over has identified the following process:
- All the available data and resources that the TA team has collected will be listed;
 - Softcopy data will be saved in CDs/Pendrives and hard copies (books, reports) will be arranged in a clear and logical order;
 - All the collected data (both hard and softcopy) is to be handed over to the MOPE Climate Change section with a covering letter addressed to the Section chief with cc. to NPD; and
 - All the computer based data should also be uploaded into MOPE web portal, in the computer of Climate Change section and in the NPD's computer, and also if needed in the computer of the MOPE Secretary.

Table 15. Datasets held by project team

No.	Description	Source	Location
1	Current climate monthly data (in grid) <ul style="list-style-type: none"> Rainfall (mm), 1971-2009, 12km, 20km, 25km Temperature (Max and Min) (°C), 1971-2009, 12km, 20km, 25km 	Asian Disaster Preparation Centre(ADPC)	TA Office – Admin assistant computer
2	Projected climate monthly data in grid <ul style="list-style-type: none"> PRECIS (20 km x 20 km) RegCM4 (20 km x 20 km) BCCR – WRF (12 km x 12 km) 	Asian Disaster Preparation Centre	TA Office - Admin assistant computer
3	Characteristics for original downscaling data <ul style="list-style-type: none"> Asian Disaster Preparedness Center, Bangkok The Energy and Resources Institute, New Delhi + ADPC, Bangkok Bjerkness Center for Climate Research, Norway 	ADPC & DHM	TA Office - Admin assistant computer
4	The hydromet data for each district: <ul style="list-style-type: none"> Kathmandu Dolakha Achham Banke Panchtha Myagdi and Mustang Chitwan 	DHM	TA Office - Admin assistant computer
5	Mustang District Map	Department of Survey/GON	TA office
6	District Map for Kathmandu, Bhaktapur and Lalitpur	DOS/GON	TA office
7	Paanchthar District Map	DOS/GON	TA office
8	Myagdi District Map	DOS/GON	TA office
9	Protected Areas of Nepal Map – Dept. Survey, GoN	DOS/GON	TA office
10	Banke District Map	DOS/GON	TA office
11	Chitwan District Map	DOS/GON	TA office
12	Acham District Map	DOS/GON	TA office
13	Dolakha District Map	DOS/GON	TA office

8 SUMMARY OF LESSONS LEARNED

Through implementation of the five-year TA, numerous findings and recommendations have been identified through each output of the TA, and for overall mainstreaming climate change risk management. Lessons have been identified in various sections of this report dealing with the three outputs. These lessons inform further work on mainstreaming climate change risk management in Nepal, as well as similar projects undertaken in other countries. A summary of the lessons learned through the TA appears in Box 14.

Box 14: Summary of findings and recommendations

General

- **Long projects require flexibility in implementation and approach:** This was a 4.5 year project and inevitably changes from both within the TA and external sources affected the ability to implement the project as originally planned requiring adjustments to inputs and work plans. For example, in the four and a half years the project team had experienced staffing changes and changes to the structure of the support provided by MoPE. Adjustments were required to the consultant team as some national team members found permanent work or have had to leave for performance related issues. For these and other reasons the project team, MoPE and ADB had to take a flexible and positive approach to the project in order to maintain momentum and to continue meeting the project's objectives.
- **Importance of having the TA team placed within the ministry:** Having the TA team located within MOPE provided invaluable in ensuring strong involvement and coordination between the TA and MOP. Examples include regular briefings to MOPE staff on the progress of the TA.
- **Importance of integration between outputs:** Although the TA was divided into three Outputs, the TA team were conscience of the need to integrate activities and result between each output. For example, technical reports on vulnerability assessment case studies (Output 1) were used as inputs to the design of tertiary curriculum development (Output 2)
- **Lack of report review and endorsement process:** The TA was not able to establish a clear MOPE and sector report review and endorsement process early in the project. This led to project delays as there was uncertainty and confusion on the endorsement process. For future TAs the report review and endorsement process should be documented and agreed to by all parties in the Inception Report
- **Limited input of international team members constrained innovation and consistency in approach within and across all outputs.**
- **Project design needs to enable support by the international team:** The project was designed in a way that required international consultants to provide all inputs during mobilizations in Nepal. Also, the total international inputs from the sector specialists were relatively small – six months or less over five years. As a result, these international consultants were provided with no home time to support the national consultants while they implemented the innovative baseline, vulnerability assessment and adaptation planning activities adopted by the project team. This TA design made it very difficult for the international consultants to monitor the development of the various case study outputs and offer support at key stages of the project implementation to their national counterparts. A mid-project adjustment in some home time going to international consultants allowed for more consistent monitoring of progress, more timely technical inputs to key project activities and reports and more timely and effective delivery of outputs.

Output 1

- **MOPE has good capacity for engaging in climate change mainstreaming as a key issue for the country:** MOPE has a strong team of staff engaged in climate change as a key issue for the country. These staff have good capacity and understanding of climate change and risk management processes
- **Nepal has progressed in mainstreaming climate change adaptation, but there is a lot more work to do:** Nepal is seen as having progressed much further than other PPCR countries and has been highlighted by CIF as a success story, particularly for its results management activities. That said, there still needs to be a stronger commitment and engagement by the GoN to prioritize response to climate change in the form of all of government policies and tools.
- **A wealth of information has been produced for input into the ongoing Nepal National Adaptation Plan process:** The Nepal National Adaptation Plan process provides an opportunity for ensuring the support and material developed by the TA is taken up and used in further climate change adaptation work in Nepal.
- **Adaptation planning in Nepal needs to take into account the broad range and categories of infrastructure vulnerabilities in the country:** Reflecting its diverse climate and topography, there is a broad range of types and reasons for climate change vulnerability of infrastructure across Nepal. Planning for mainstreaming climate resilience needs to accommodate this diverse range of vulnerabilities.
- **Importance of building on existing adaptation efforts:** Adaptation to climate change is already occurring. Future adaptation planning should assess the success of these adaptation efforts to ensure that they are either built upon or learnt from.
- **Reliable information on climate change threats is needed:** Climate threat information is essential for undertaken vulnerability assessments and adaptation planning. DHM should continue their excellent work in threat modelling and expand to all the districts of Nepal, and establish strong working linkages with each government sector to define and service their information needs.
- **Reforms for mainstreaming climate change risk management need to be adopted by MOPE and sector agencies:** There are many opportunities in Nepal for incorporating climate change risk management into sector guidelines, manuals, standards and policies, but the political will to do so is needed. Despite strong engagement with sector departments throughout the TA, and support from many sector department staff, uptake of sector guidelines, manuals, standards and policies is limited. An important step to promote that uptake rest with MOPE in putting up the VA&AP guide for all of government adoption and application (as was done for the LAPA guide). The impediments to formalizing policy guidance and tools which have been endorsed by the cross sector Project Steering Committee is in large part due to the frequent changes in key MOPE and sector staff engaged in the project. For example, the TA has had 6 MOPE Permanent Secretaries and 7 National Project Directors. Those changes in key staff led to losses in momentum and levels of engagement. Another reason for a distraction from formally processing key policies and tools was the political instability during the project and serious natural disaster events.
- **Need for appropriate policy on Climate change:** To date, in most of the sector departments no dedicated policy on adaptation against climate change threats exists and thus the concerned officers are not empowered to undertake adaptation measures. As a result, in many sectors there is no clear allocation of human and financial resources for adaptation

planning. Formulation of appropriate policies by concerned Government Ministries/Departments would help to address this gap. First MOPE needs to take the initiative in having the VA&AP guides adopted with all sectors required to given it policy and procedural expression.

- **Need for sector commitment to undertaking climate change risk management:** The GoN now has a wide range of staff, from local to senior levels with capacity in climate change vulnerability assessment and adaptation planning. For this capacity to be utilized, the sector departments need to enact guidelines that ensure that each plan and project undertaken by the sector goes through a climate change risk management assessment process.
- **Policy revisions are needed to provide an overall framework for driving mainstreaming of climate change risk management into each sector:** The TA has led to a definition of a broad range of simple policy revisions that could be made to better mainstream climate change risk management in development in Nepal. These revisions would provide the overall framework for driving mainstreaming of climate change risk management into each sector.

Output 2

- **Concerted efforts are needed to ensure gender equality in training programs in the districts.** Women are under-represented in the district government positions, and the District Training Service Providers had difficulty to ensure that district offices invited women. The Service Providers applied strategies including having more exchanges with the district on the need for women's participation as well as extending the participation from NGOs and civil society groups. Ultimately the Service Providers were able to reach a level of 30% of women in the program.
- **Awareness raising and sensitization at all levels of local government and political parties -- as well as through media outreach - is essential for climate change resiliency.** If local stakeholders especially political representatives are sensitized, they will own the issue of climate change and will themselves lead on planning climate change adaptation issues and mainstream those plans in on-going development activities. When leaders and media representatives are invited to participate at some point during climate change training programs, they are more likely to take up this issue. As a result, there is more likelihood that they will understand the issues and advocate the allocation of funds to climate change.
- **Engaging with Village Development Committees, Social Mobilizers and communities increases the effectiveness of local government training.** The practical session to guide local planners on how to develop sample Community Adaptation Plans with communities was an effective learning-by-doing approach. A limited number of VDCs and DDCs were able to transfer these adaptation measures to their local development plan. However, local planners participating in the training needed more support on how to create a mechanism to roll-out the training in communities. Future trainings need to engage more with Social Mobilizers who are the ones responsible for planning community inputs into VDC development plans.
- **Integrating climate change topics into formal curriculum requires a close engagement with the persons responsible for curriculum development in the education institutions, and following the official approval process.** Changes to the official curriculum content in education institutions are made through a formal curriculum revision process and follows prescribed procedures. The process may take more time than anticipated as the institution may change its curriculum revision objectives and timeframe for reasons beyond the project control. This fact can result not only in delays but also in challenges monitoring the project specific results. This investment of time is worthwhile since it results in an officially approved change. Under the official curriculum, teachers have guidance on when and how to teach climate change to students during classroom hours.

- **Important to delineate objectives related to building research capacity and objectives to produce quality research.** The Climate Change Research Grant Program had the dual objective to increase capacity to conduct climate change research as well as produce quality research. These two objectives were difficult to align in a short-term program – researchers' who already had a strong capacity were able to produce quality studies. Researchers selected for their potential but with less capacity had not enough time to be coached and improved. Future programs should identify two streams of grants – a stream of grants for well experienced researchers separate from a stream of grants for developing researchers. Developing researchers should receive smaller amounts for the grant and have more opportunities for coaching than was possible in the 18 months available for this program.
- **Providing technical assistance to research institutions such as NAST needs to be well integrated into an organizational structure that is able to carry forward the research results.** The process of providing technical assistance to NAST to obtain and implement the Research Grant Program was intended to build the capacity of a national institution – a research body associated with MoPE - to administer research grants on climate change as an outcome of the program. However, the Research Grant Program Unit was required to deliver the grant program during a relatively short period. As a result, this team was not able to integrate the learning from CCRP into NAST systems and structure. The senior management structure of NAST, and the academics sitting on the RGSC, assumed responsibility for the program. However, over the time frame there was insufficient time for CCRGP to really influence NAST processes and systems in order to institutionalize the experiences of the program. Future programs should build in more time and activities for research institution capacity building prior to the start of the grant program.
- **The size of a research grant program needs to be tailored to the capacity of the implementing organizations.** The CCRGP was the largest grant program managed by NAST up to that date. A phased approach of managing a fewer number of grants to start and then scaling up would have contributed better to institutional capacity-building and allowed NAST to really coach researchers and upgrade the quality of the research produced. Future programs should scale the size of grant funds to the level of experience of the institutions and allow more time for building knowledge on a complex subject matter such as climate change.
- **It is important to have sound and manageable research methodologies and a clear report writing plan prior to going out into communities.** Gathering information on indigenous practices requires extensive consultations at the community level – the researchers gathered a great quantity of information that then became difficult for them to synthesize. Future studies of this nature should be more focused geographically and thematically to allow for more in-depth analysis and reporting of findings.
- **Assignments to produce research studies need to be planned and documented in phases.** The preparation of the case studies was left to the end of the assignment and the task became overwhelming for the research team. Also, without earlier drafts MoPE, the TA team and ADB could not easily monitor the quality of the case study development. The IRSP was also not able to accurately estimate the time required to prepare the reports and continually revised deadlines. Future such assignments need to be scheduled with more milestones that indicate how the work is progressing and ensure the service provider is progressively preparing the deliverables throughout the assignment.
- **Gathering information about indigenous adaptation practices needs to be integrated into the overall processes to gather, analyze and mainstream adaptation practices in national, sector and local planning.** The design decision to have the documentation of indigenous practices undertaken by a separate research team made it difficult to integrate the learning on indigenous practices into the TA's overall policy reform process. The processes for working with the sector departments on vulnerability assessment and adaptation planning, and the

indigenous practice research process followed different steps and timelines making it difficult to integrate into a cohesive package for sector departments to learn from. Future programs should ensure that learning about indigenous and traditional practices is included in the overall process to document adaptation measures and mainstreamed into adaptation plans.

- **Sharing knowledge on climate resilience needs to be done through diverse types of media in order to reach a wide audience.** The TA produced a series of reports on sector adaptation planning along with the synthesis reports. This information is documented and available on the web site for specialists in each sector to consult and use in future programs and policy reform initiatives. As well as make information available to sector specialists, mainstreaming climate resilience requires synthesizing information and sharing knowledge with varied audiences through different means. The TA 7984 packaged information on climate resilience and sector adaptation planning, and reached audiences through bulletin articles, newspapers local and national radio, national television, newspapers and events. In addition, information on climate modelling and vulnerability assessment and adaptation planning was integrated into curriculum and faculty training. As a result, the technical information produced under the program has been shared with a wide reaching group of stakeholders and the public.
- **Creating a communications focal group and sharing communications strategies among various PPCR components results in more synergy in sharing knowledge about PPCR with diverse stakeholders.** The TA reached out to the various executing agencies and service providers involved in the implementation of the PPCR components to identify communication focal persons. These communication focal persons were interested to meet and collaborate in share knowledge and promoting visibility of the PPCR. This approach resulted in the web sites and bulletins produced by the TA having features from each of the PPCR components. It also enriched the TV and radio episodes produced by presenting information and knowledge from across the PPCR components.

Output 3

- **Strengthening resources for Results Management:** There is a need for a both institutional strengthening and capacity building in M&E if the RMF and coordination mechanisms developed under the TA are to remain utilized after completion of the TA
- **A more proactive CCPC is needed to help shape Nepal's planning for adaptation:** A reason which made the MCCICC unsuccessful in its later stages was the drop in meeting frequency. The CCPC has faced a similar challenge, with only one meeting in the last four and a half years. In the case of the CCPC, the reasons remain unclear.
- **Expand coordination activities to cover more than results management:** At present the CCPC TWG has primarily focused on bringing together stakeholders to discuss M&E aspects of coordination. As all projects have now been mobilized and are under implementation, projects will begin to generate a substantial amount of data. This will mean that coordination of other components such as data and knowledge product sharing will increase in importance and that coordination activities of the CCPC will need to expand.
- **Identity of the CCP as a program could be strengthened within Nepal:** While the CCP has been established and endorsed by all parties concerned, the identity of the CCP as a cohesive program of eight projects needs further strengthening.

9 FOLLOW UP OPPORTUNITIES FOR MAINSTREAMING CLIMATE RESILIENCE IN DEVELOPMENT PLANNING

There are a series of opportunities for building on the TA achievements to strengthen the mainstreaming of climate change risk management in Nepal. These have been identified for each output below.

Output 1

Each sector to prepare a SAP: Each sector needs to be supported in preparing their Sector Adaptation Plans, using the sector Adaptation Synthesis Reports and other TA outputs as a guide. The SAPs need to shape and inform the NAP. Nine principles were identified through the TA with the Core Group which need to be instilled in the SAPs and their implementation:

- (i) Identify the categories of infrastructure which have shown to be most vulnerability to past extremes
- (ii) Identify the responses to past failures in infrastructure systems that have proved to be effective in building resilience to extreme events
- (iii) Emphasize the involvement of user communities in the design, management and maintenance of adaptation measures
- (iv) Emphasize the use of local materials and methods which engender a greater level of local government and community confidence in effectively maintaining and repairing vulnerable systems with local resources and capacities
- (v) Emphasize anticipatory management approaches which anticipate, avoid or reduce damage and failure in infrastructure systems
- (vi) Promote bioengineering methods and rehabilitation and maintenance of natural systems as an essential foundation in building resilience in infrastructure and human settlements
- (vii) Design to avoid areas at risk of extreme events such as floods and landslides
- (viii) Design for multiple use so that communities and local government receive multiple benefits which provide strong incentives for local maintenance and repair.
- (ix) Avoid maladaptation, so that actions taken to avoid or reduce vulnerability to climate risks do not impact adversely on, or increase the vulnerability of other systems, sectors or social groups.

Integration of TA products and findings into NAP: The research and findings of the TA, specifically the sector assessments of vulnerability and Sector Adaptation Synthesis Reports, are essential information sources and tools for the National Adaptation Planning process that is currently underway and overseen by MOPE. MOPE needs to ensure that the work of the TA is integrated into the NAP process.

Climate change modelling: Climate threat information is essential for undertaking climate risk screening. DHM and the TA have undertaken climate change impact modelling for eight districts of Nepal, and DHM staff have received extensive training in the use of hydrological models for this purpose. Further support is required for DHM to undertake climate change impact modelling for the remaining districts of Nepal and to make these results available to sector agencies.

Adoption of the Climate Change Risk Management Framework: The Climate Change Risk Management Framework provides a screening approach to identifying and responding to climate change impacts on development infrastructure. It is important that this framework is adopted by sector agencies into their development planning processes.

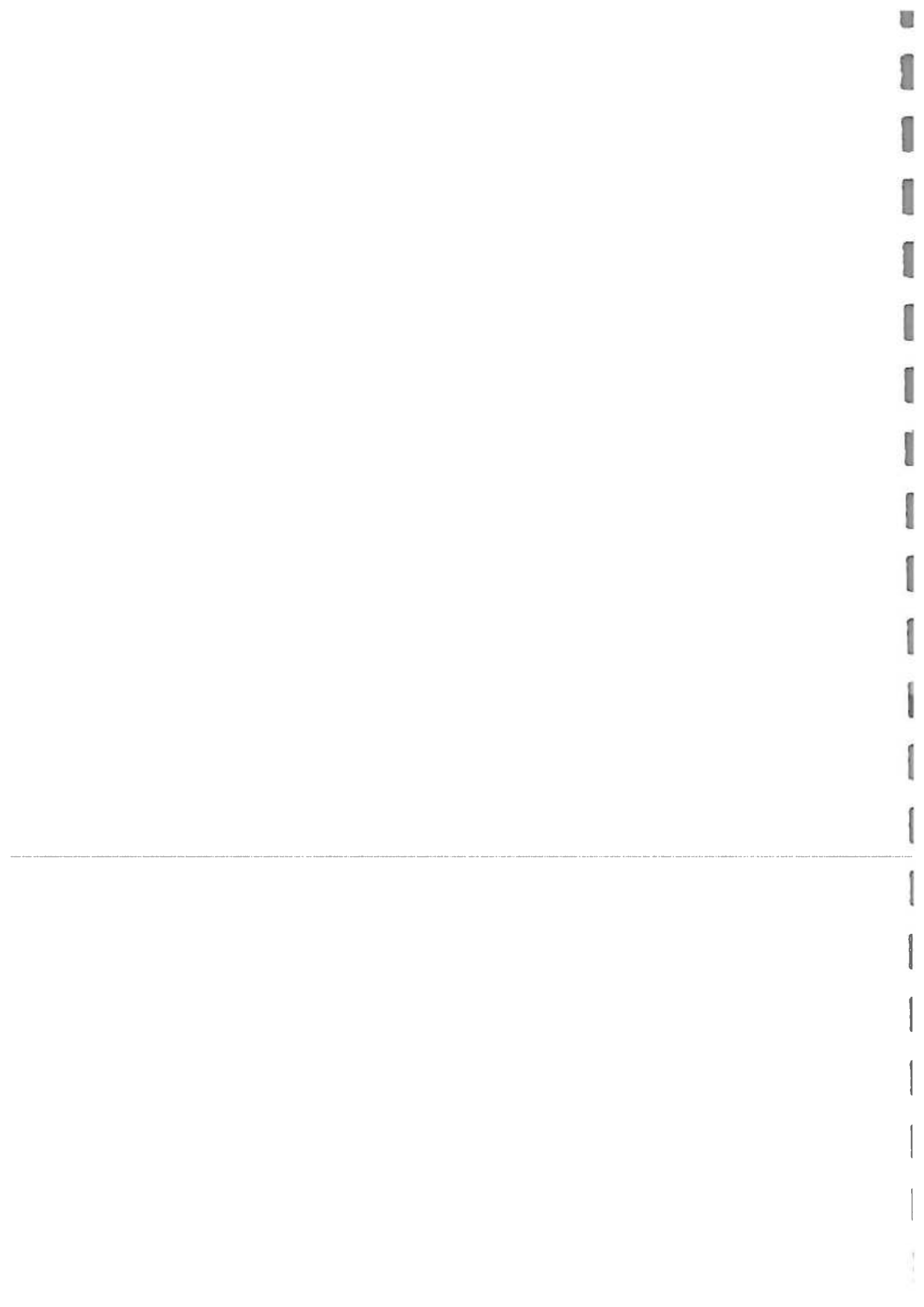
Adoption of reforms: A series of institutional, policy and technical reforms to mainstream climate change risk management into development planning has been proposed for six sectors. For these reforms to be effective they need to be officially adopted by each department.

Output 2

- **Build on successes of curriculum development:** Curriculum is an important part of preparing students to address climate change as future citizens and professionals, students develop their skills through various means both in and outside of the classroom. The TA initiated some important work on integrating climate change in both secondary and university curriculum and contributed to MOPE developing a rapport with key learning institutions. However, the number of grades and programs in which climate change is relevant is extensive. MOPE could continue its relations with the Curriculum Development Centre (Ministry of Education) and Nepal's major universities to regularly raise awareness and provide technical support for the continued updating and integration of climate change into learning programs. In addition, MOPE could identify activities to support youth education and engagement on climate change issues that also result in greater visibility on climate resilience at the community level.
- **Build on successes of media coverage:** Further development of tools and techniques for awareness-raising on climate resilience to the wider public is needed to increase the visibility of MOPE's climate change adaptation programs. Tools developed such as the radio program, bulletin and TV can be applied in other PPCR components in collaboration with MOPE to ensure that information on climate resilience continues to be disseminated after the end of the TA.
- **Focus on local level planners for climate change training:** Many of the spheres of activity for critical climate change adaptation measures that have the most impact on communities fall level planning responsibilities of the district, VDC and Wards. According to the process this type of planning must include community-level consultations. Local level planners need to be fully trained on climate change – not only at district level but also at Ward and VDC level in order to lead community members in understanding and designing measures to address climate change impacts. The Training program designed under the TA at the district level needs to continue. In addition, more training programs to target VDC secretaries and Ward Committee members are needed to ensure climate change is fully integrated at the local level.
- **Promote Action Research on Climate Change Adaptation:** The nature of climate change current and future impacts on Nepal is a constantly evolving sphere of knowledge. More efforts are needed for Nepali researchers to understand and design recommendations for policy-makers on how to deal with these impacts. Future research programs should be designed based on action research that is interactive with policy-makers, local planners and communities so that the findings reflect local realities and can be easily translated into action on climate change.

Output 3

- **Reporting to CIF:** As Nepal continues to receive CIF funding past the life of this TA, the GoN will be expected to continue monitoring and reporting against CIF Indicators. It is essential that MOPE identify a focal person for facilitating and implementing the Results Management Framework.



ANNEX A: THE TA TEAM

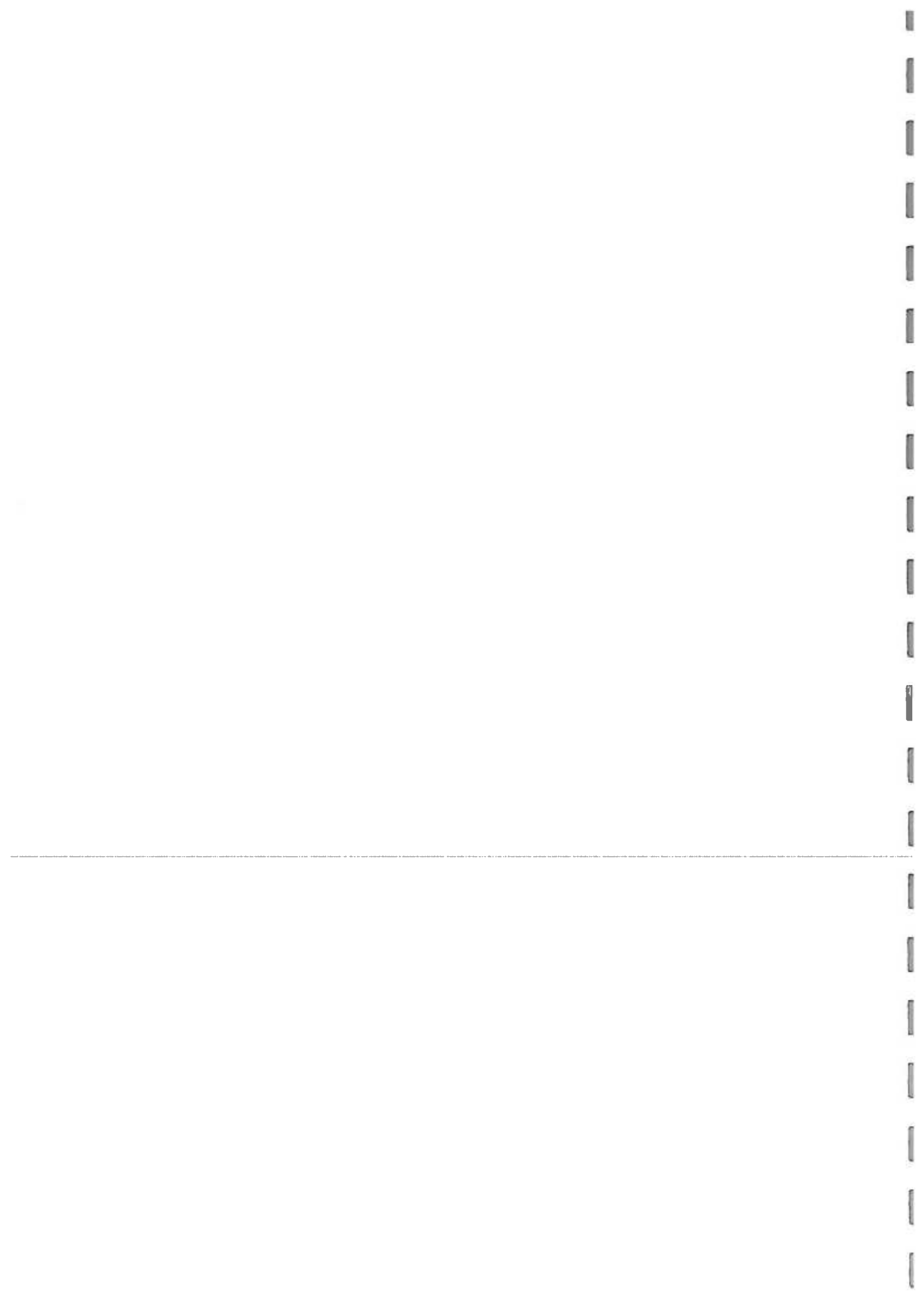
Team member:		Related Output	
ID	Position		
International			
1	Irrigation Engineering Expert	Anthony Key	Output 1
2	Roads and Bridge Design Infrastructure Research Engineer	Bleddyn Griffith	Output 1
3	Water Supply and Sanitation Research Engineer	Krishna Chintalapudi (R- D. Robert)	Output 1
4	Climate Change Vulnerability Impacts and Adaptation Specialist	Jeremy Carew-Reid	Output 1
5	Hydrology/Impact Assessment Modeler	Jorma Koponen	Output 1
6	Development Communications/ Capacity Building/ Participation Specialist	Kathleen McLaughlin	Output 2
7	Urban Planning and Water Resources Specialist	Wayne Stone (R-N. Pokhrel)	Output 1
8	Risk Management Specialist	Peter-John Meynell	Output 1
9	Water Resources Engineer	Robert Van Der Weert	Output 1
10	Climate Change Results Management Expert	Tarek Ketelsen	Output 3
11	Water Resources Expert: River Hydraulics/ Fluvial Geomorphology/ Sediment Transport Specialist	James Ramsay	Output 1
National			
12	Project Management Specialist	Gyanesh Bajracharya (R- M. P. Wagley)	Output 1 and Output 3
13	MIS Specialist	Ashok Manandhar	Output 3
14	Procurement Management Specialist	Rajendra Niraula	All
15	Hydrology/Impact Assessment Modeler	Bhrod Shakya	Output 1
16	Gender Expert	Dibya Gurung (R- Kanta S. Manandhar, G. Adhikari)	All
17	Water Resources Expert: River Process & Flood Management Expert 1	Hari Shrestha	Output 1
18	Project Development Expert	Batu Uprety	Output 1
19	Public Relations/ Knowledge Management Specialist	Dilip Kumar Munankarmi (R - C. Pradhan, L Devkota)	Output 2
20	Roads & Bridge Design Infrastructure Research Engineer	Suvash Bhatta (R- Santosh Bhattarai, M.G. Maleku)	Output 1
21	Urban Water Supply and Sanitation Engineer	Narendra Man Pradhan (R. - Gyanesh Nanda Bajracharya, D. Shrestha, M. Shrestha)	Output 1
22	Risk Management Expert	Pashupati Nepal (R- N.R. Khanal)	Output 1
23	Water Resources Engineer	Narendra Man Shakya	Output 1
24	Water Resources Expert: River Process & Flood Management Expert 2	Rijan Kayastha	Output 1

ID	Position	Team member	Related Output
25	Development Communications/ Capacity Building/ Participation Specialist	Upendra Phuyal (R - S. Singh)	Output 2
26	Irrigation Engineer	Prakash Paudel (R- J. Yadav)	Output 1
27	Urban Planning and Water Resources Specialist	Umesh B. Mallia	Output 1
28	Rural Water Supply and Sanitation Engineer	Kishore K. Shakya (R- Y.S. Kasari)	Output 1
29	Deputy Team Leader	Nahina Shrestha	Output 2
30	Senior Financial Management Specialist	Sudti Regmi (R - S. Adhikari)	All
31	Curriculum Development Specialist	Anjana Shakya	Output 2
32	GIS Specialist	Ajay Bhakta Mathema	Output 1
33	Website Development Specialist	Yogesh Shrestha	Output 2
34	Web Database Application Developer	Prem Ratna Ranjit	Output 3

ANNEX B: LIST OF DELIVERABLES

TA management deliverables

No.	Deliverable	Final submission date
1	Inception report	February 2013
2	Progress Report 1	May 2013
3	Progress Report 2	September 2013
4	Progress Report 3	May 2014
5	Progress Report 4	January 2015
6	Interim report	October 2015
7	Progress Report 5	October 2015
8	Progress Report 6	March 2016
9	Progress Report 7	September 2016
11	Final report	October 2016 (Draft)



Output 1 deliverables

Deliverable		Final version submission date
No.	Deliverable	
Deliverables listed in the Inception Report		
1	Baseline institutional analysis reports – one each for DWSS, DoR, DoLIDAR, DoI, DUDBC, DWIDP, DHM, MoFALD and MoPE	March 2013
2	Review of international experience - one each for DWSS, DoR, DoLIDAR, DoI, DUDBC, and DWIDP.	March 2013
3	District baseline and adaptation audit reports - one each for DWSS, DoR, DoLIDAR, DoI, DUDBC, and DWIDP	28 October 2015
4	Final sector adaptation audit - one each for DWSS, DoR, DoLIDAR, DoI, DUDBC, and DWIDP	21 September 2016
5	District adaptation plan guidelines - one each for DWSS, DoR, DoLIDAR, DoI, DUDBC, and DWIDP including write up of vulnerability assessment and adaptation planning case study in each district	13 March 2015
6	Sector adaptation plan frameworks for guidelines - one each for DWSS, DoR, DoLIDAR, DoI, DUDBC and DWIDP	1 June 2015
7	Sector CC standards and guidelines - one each for DWSS, DoR, DoLIDAR, DoI, DUDBC and DWIDP	10 August 2016
8	Sector CC screening tools and procedures - one each for DWSS, DoR, DoLIDAR, DoI, DUDBC and DWIDP	12 February 2016
9	Sector climate change risk management training plans and materials - one each for DWSS, DoR, DoLIDAR, DoI, DUDBC and DWIDP	5 June 2016
10	Sand mining case study report including sand mining adaptation audit and case study adaptation guidelines	February, June and July 2014
11	Sand mining adaptation guidance (combined with deliverable 12)	10 August 2016
12	Monitoring program for existing and new river bed sand mining operations (combined with deliverable 11)	10 August 2016
13	Sand mining adaptation training plan and materials	Approved by Steering Committee
14	GLOF case study baseline report ¹⁰ (combined with 15 and 16)	12 February 2016
15	GLOF case study VA and AP report (combined with 14 and 16)	12 February 2016
16	GLOF adaptation guidance (combined with 14 and 15)	12 February 2016
17	Modelling methodology report	20 February 2014

¹⁰ Note that due to recent events related to GLOFs and the Nepal 2015 earthquake, the relevance of the GLOF case studies completed earlier in the project is unclear. Therefore during the October 2015 ADB review mission ADB and GoM endorsed that reports 14, 15 and 16 are combined into one report covering the status of GLOFs in the context of climate change, and providing adaptation guidance for GLOFs in Nepal.

No.	Deliverable	Final version submission date
18	Modelling training plan	Various, last submitted in November 2015
19	Modelling report 1 with district climate change threat profile template, sector climate change threat profile templates, results, assumptions and advice on use of results	28 October 2015
20	Modelling report 2 with district climate change threat profiles, results, assumptions and advice on use of results	28 October 2015
21	Modelling report 3 with sector climate change threat profiles, results, assumptions and advice on use of results	12 February 2016
22	Modelling training report	Various, last submitted on 24 April 2016
23	Final modelling report with Nepal climate change threat reference manual, recommendations, assumption and advice on using the modelling results	29 April 2016
24	DWIDP revised hazard mapping	NA
25	Cross-cutting climate change vulnerability, impact and adaptation assessment training materials:	5 June 2016
26	Synthesis of good risk management practices identified by the project	Approved by Steering Committee
27	Recommendations to MoFALD for amendments to the local infrastructure environment policy and guideline ¹¹	12 August 2016
28	Report 1 identifying risk management approaches and opportunities	28 October 2015
29	Draft national adaptation plan framework including climate change risk screening tools, guidelines and recommendations for revised EIA guidelines	23 December 2015
30	Draft climate change risk management framework training plan and materials	
31	Final national adaptation plan framework including climate change risk screening tools and guidelines, recommendations for revised EIA guidelines and risk management techniques used to complement or make up for lack of robust CC forecasts	12 April 2016
32	Final climate change risk management framework training plan and materials	5 June 2016
33	Identification of high risk projects in each agency's portfolio and adaptation strategies to reduce the CC vulnerability of each high risk project or program	12 February 2016
34	Report outlining results of donor and sector review and consultation and shortlisted projects	December 2016
35	Short concept notes for 20 project ideas	December 2016
36	Five ADB Project Concept Paper level project proposals	December 2016

¹¹ On the 18th Feb 2016 MoFALD advised that this deliverable was no longer required. Instead a simple climate change check list will be prepared for district officers to review project proposals and EIAs/IEEs related to projects under their management

No.	Deliverable	Final version submission date
1	<p>Climate Change Risk Management Framework including:</p> <ul style="list-style-type: none"> • Initial screening tool to identify which projects need to undergo further VA and AP assessment • Detailed VA and AP process for new projects • IEE and EIA appraisal guidance for MOFALD and MOPE • Climate change resilience audit for existing infrastructure (using VA & AP process already prepared and used in trainings) 	<p>21st September 2014 21st September 2014 21st September 2014 21st September 2014</p>
2	<p>Supported the Mid-Hills urban development project to mainstream climate change into their project by preparing:</p> <ul style="list-style-type: none"> • Criteria for evaluating Draft Final Reports prepared by national consultants for the Mid-Hills project on Preparation of Integrated Development Plan of Ten New Towns • Training materials on climate change vulnerability assessments and adaptation planning for new towns • Note to trainer for climate change vulnerability assessments and adaptation planning for new towns • Sanphe Bagar case study report • A review of the Mid-Hills project national consultancies' draft Climate Change Adaptation Plans for the Mid Hill Town Development Project 	<p>30 August 2016 30 August 2016 30 August 2016 30 August 2016 23 September 2016</p>



Output 2 deliverables

No	Deliverable	Date submitted
Deliverables listed in the Inception Report		
1	Draft TORs for 2.1, 2.3 & 2.4 Service Providers	September 2012
2	Knowledge Management and Communications Strategy	September 2012
3	Final TORs, Qualifications, Selection Criteria for SP Recruitment	Phase 1 District Training January 2013, Phase 2 DT April 2014, Climate Change Research Grant Program November 2013
4	Service Provider Monitoring Plans	District Training Sept 2014, CCRGP November 2015
5	District Training Mid-Implementation Review Report	June 2014
6	District Training Final Evaluation Report	Phase 1 September 2014 & Phase 2 – September 2016
7	Curriculum Development Action Plans	Secondary December 2012 & University April 2013
8	Curriculum Development – Process review and lessons learned report	Completed
9	Research Grants- Mid-Implementation Review Report	In Interim Report March 2015 and Int'l DCS mobilization report February 2016)
10	Synopsis of Output 1 products	Summarized in March/April 2016 bulletin and Final bulletin
11	NCCCKMC Action Plan for KM System	Completed
12	TORs and documentation for procurement of Web design / developer for NCCCKMC	Completed
13	Documented inputs/recommendations for NCCCKMC web site design and maintenance	Completed
14	NCCCKMC Mid-Implementation Review Report	Completed and provided in Interim Report March 2015
15	Content for Newsletter/Newspaper articles (target 4)	14 English bulletins, 13 Nepali newsletters, 28 newsletter articles published
16	Update to PCR web site (target 3)	Completed on a regular basis
Deliverables not listed in the Inception Report		
17	PCR Video (On the path to climate resilient development) – English & Nepali	Completed
18	40 radio episodes on climate change and PCR	May 2016
19	3 TV programs on climate change and PCR + Video compilation	June 2016



No.	Deliverable	Date submitted
20	Poster on Climate Change Printed and distributed in 75 districts	December 2014
21	Student self-learning material on Climate Change	March 2015
22	Teacher Training Manual on Climate Change	January 2016



Output 3 deliverables

ID	Deliverables	Due date	Date of submission
Coordination			
1	Developing an Implementation and coordination mechanism for all PPCR and climate change adaptation projects – Climate Change Program Coordination Committee (CCPCC)	March 2013	June 2013
2	Consolidated CCP progress reports	End June 2014, 2015, 2016, 2017	<p>CIF July 2014 reporting - Dec 2014 Nepal 2015 Report for CIF - June 26, 2015</p> <p>Nepal 2016 Report for CIF - 5 July, 2016</p>
3	Briefings for CCPCC quarterly meetings	1 week before meeting	Only one CCPCC meeting held in June 2013
4	Meetings of the CCPCC	Quarterly	One meeting of CCPCC and 7 meetings of the CCPCC TWG
5	Climate Change Program (CCP) Bi-annual Review and Evaluation Report	July 2014, 2016 March 2017	See item 2
Results Management			
6	CIF indicators Baseline Indicator Roundtable workshop with 13 sector agencies and 5 development partners	July 2013	12 March 2014
7	CIF indicators Baseline Indicator report to Climate Investment Fund (CIF) Admin Unit (AU)	August 2013	25 March 2014
8	Development of NAPA score card for results monitoring on the contribution of the CCP to the NAPA	February 2014	25 March 2014
9	Consultations on Draft NAPA scorecard	March 2014	12 March 2014
10	Developing a Climate Change Program (CCP) Results Management Framework (RMF) - draft	30 April 2014	9 May 2014
11	Consultations on draft RMF	13 May 2014	13 May 2014
12	Draft final RMF submitted for Approval to CCPCC	30 June 2014	13 May 2014
13	CCP RMF Baseline and expected results report for NAPA results	31 July 2014	1 September 2014
14	Revision of PPCR 3 Project-level Results Management Framework (RMF)	November 2014	
15	CIF indicators annual reporting	End June 2014, 2015, 2016, 2017	Completed 2014, 2015 and 2016



ID	Deliverables	Date date	Data of submission
16	NAPA Indicators annual reporting	End June 2014, 2015, 2016, 2017	TBC
Management Information System (MIS)			
17	Draft MIS Framework	31 May 2014	25 th September 2016
18	CCP Consultations on Draft MIS Framework	March 2014, July 2014	Various
19	MIS Foundation system development	30 June 2014	1 st July 2013
20	Database input and data input (technical, results, knowledge)	31 July 2014	September 2015
21	Data updating and management	Quarterly	September 2016
22	MIS Annual review reports	End June 2014, 2015, 2016, March 2017	N/A



ANNEX C: LIST OF EVENTS

Output 1 events

ID	Event	Date/s held
Event listed in the Inception Report		
1	Orientation workshop: Consultation with MOPE and sector agencies for input into the TA Inception Report. To be held in July 2012 in Kathmandu	24-26 July, 2012
2	Core group workshop "Refining the vulnerability and adaptation method": Core group working session to create understanding of the international experience of impacts and adaptation solutions to climate change and to refine a Nepal specific climate change vulnerability assessment methodology through an initial application of the method in Chitwan district. To be held in February 2013 in Chitwan District	7-13 February, 2013
3	Sector climate change seminars: Series of seminars for wider participation of sector agency staff to share knowledge on climate change impacts on sectors and adaptation opportunities. To be held in February 2013 in Kathmandu	26 May 2013 (MOPE) 2 Aug 2013 (MOFALD) 13 Dec 2013 (DWSS) 24 Jan 2014 (DOLLIDAR) 22 Dec 2014 (DOI) 11 January 2015 (DWIDP) 4 March 2015 (DWSS) 17 March 2015 (DUDBC)
4	8 x district case study baseline consultation workshops: Workshop held in each case study district to consult with local sector agencies and collect baseline information. To be held between March to May 2013 in each of the case study district	8 district consultations have been completed during April 2013 to April 2014
5	8 x sector roundtables to discuss case study baseline: Sector round table in each sector agency to discuss and refine the baseline information collected. To be held in each sector agency during July 2013	Roads & Bridges (Major) sector – 9 Oct 2013 at DOR Roads & Bridges (Rural) and WATSAN (Rural) sectors – 11 Feb. 2014 at DOLLIDAR Water Induced Disaster Prevention sector – 18 Feb 2014 at DWIDP Urban Planning sector – 3 April 2014 at DUDBC WATSAN (urban) sector – 15 April 2014 at DWSS Irrigation sector – 7 May 2014 at DOI
6	Core group workshop "Vulnerability assessment and adaptation planning district example": Core group working session to demonstrate the VA & AP process in one district. To be held in one of the case study districts from July 2013	September 2013

ID	Event	Date/s held
7	8 x sector round tables to discuss VA& AP analysis: Sector roundtables to discuss and refine VA& AP analysis. To be held in each sector agency during March 2014	Urban Planning sector for DUBBC on 8 August 2014 WATSAN sector for DWSS & DOLIDAR on 8 August 2014 Roads & Bridges sector for DOR & DOLIDAR on 8 August 25 August 2014 Water Induced Disaster Prevention sector for DWIDP on 15 August 2014 Irrigation sector for DOI on 22 August 2014
8	Core group workshop "Reviewing and revising guidelines and policies": Core group working session to demonstrate the process of guidelines and policies reform. To be held in one of the case study districts in March 2014	22 and 23 September 2014.
9	Stakeholder workshop to collect project ideas from across the sectors. Workshop to consult with sectors on potential project ideas for preparation into Concept Papers. To be held in Kathmandu during April 2014.	Several consultations/ discussion sessions were held at the concerned sector departments and project Ideas were obtained from them which were communicated to the IA team through e-mails or official letters <ul style="list-style-type: none"> • DOI: 18 & 23 December, 2015 and 18 January & 22 February, 2016 • DUBBC: -23 & 24 December, 2015 and 17 & 18 January, 2016 • DOR: 1 January & 10 January and 2 March, 2016 • DOLIDAR: 28 January, 2016 and 1 March, 2016 • DWSS: 13 January, 2016 and 11 February, 2016 • DWIDP: 7 September, 2015 and 11 September, 2015 December 2016
10	Workshop to present project proposals to PPCR Coordination Committee. Workshop to present 20 project Concept Papers and shortlist to five projects for development into full project proposal. To be held during August 2014	
11	8 x sector round tables to discuss guidelines and policy reform Sector roundtables to discuss and refine guidelines. To be held in each sector agency during February 2014.	Roads & Bridges sector with DOR on 25 August 2014 Roads & Bridges sector with DOLIDAR on 26 August 2014; Water Induced Disaster Prevention sector with DWIDP on 31 August 2014 Urban Planning sector with DUBBC on 5 September 2014; WATSAN sector with DWSS on 10 September 2014; Irrigation sector with DOI on 15 September 2014 WATSAN sector with DWSS on 18 September 2014.

ID	Event	Date/s held
12	Core group workshop "Climate change risk management training": Core group working session to discuss methodologies for climate change risk management training. To be held in one of the case study districts during February 2015	14 August 2014
13	5 x regional climate change risk management training programs: Sector climate change risk management training. To be held in each of the five regions during February-May 2015	Pokhara (31 July - 4 August 2016) to cover Western Development Region and west part of Central Development Region Nepalguni (14 August - 18 August 2016) to cover Far Western and Mid-western Development Regions Biratnagar (28 August - 1 September 2016) to cover Eastern Development Region and east part of Central Development Region
Event not listed in the Inception Report		
14	Climate Change Threat Modeling Training for DHM technical staff I	17 February – 1 March 2013
15	Climate Change Threat Modeling Training for DHM technical staff II	27- 31 July 2014
16	Climate Change Threat Modeling Training for DHM technical staff III	8-19 March 2016
17	Orientation workshop on PCR/SPCR 3 held for DHM senior officials	16 October 2015
18	Training on climate change threat assessment modelling for senior DHM officials	7 February 2016
19	Training on change impact modelling and implications for sector departments	3-4 March 2016
20	Climate Change Threat Profiles validation workshop	11 May 2014
21	Infrastructure sector dialogue and capacity building program Part I: Combined program involving representatives of all line agencies held in Kathmandu Part II: Field training exercises held in Chitwan District	22-29 February 2016
22	Sector consultation meetings on sector climate change reforms	DUDBC consultation held on 24 th February 2016 DOI consultation held on 6 th March 2016 DOR consultation held on 11 February 2016 DOUDAR consultation held on 12 February 2016 DWSS consultation held on 21 February 2016 and 24 March 2016 DWIDP consultation held on 31 July 2015 and 6 December 2015
23	Final sector consultation meetings on Sector Synthesis Reports held in sector departments in presence of Director Generals and other high officials and the respective Sector Synthesis Reports endorsed:	DWIDP 11 September 2015 DOR 7 October 2015 DWSS 28 October 2015

ID	Event	Date/s Field
		DOLIDAR 30 October 2015 DOI 5 November 2015 DUDBC 11 December 2015

Output 2 events

No.	Event	Date held
Events listed in the Inception Report		
1	Initial Secondary Level Curriculum Development workshop	November 2012
2	Initial Tertiary Level Curriculum Development workshop	April 2013
3	Curriculum (Secondary) Material Development Workshop series (2 events)	February 2013 – June 2014
4	Curriculum (Tertiary) Material Development Workshop series (8 events)	April 2013 – December 2015
5	Climate Change Tiffin Talk Series (1 hour sessions - 6 events)	April 2013 – April 2015
6	Climate Change Knowledge Sharing Seminars (3 national events)	Featured project activities in 1 International (CBA8) and 2 national conferences (with ICMOD & World Environment Day)
7	Climate Change Knowledge Sharing Seminars (1 Regional event)	5 Regional Teacher Trainings on Climate Change with CDC: 2-4 June, 2-4 August, 9-11 September, 9 – 11 October, October 30 – November 1
Events not listed in the Inception Report		
8	Exhibits – World Environment Day	June 5 2014, 2015 & 2016
9	Presentations and display Community-based Adaptation Eight International Conference	April 2014
10	Gender training – integrating GESI into section adaptation planning	August 2016



ANNEX D: SUMMARY OF SECTOR SYNTHESIS REPORT RECOMMENDATIONS

DWIDP - Water induced disaster prevention sector	
Policy reforms	<ul style="list-style-type: none"> • The licensing for sand and gravel mining should be carried out in close coordination with DWIDP. • The policy that <i>no machinery and equipment may be used when DWIDP contracts for protection works are awarded to User Groups</i> should be amended to avoid low quality of the works. • The regulation with respect to Water Induced Disaster Planning should be approved as soon as possible to guarantee a smooth functioning of the sector activities. • Shift the focus of protection works more to the prevention of landslides and debris flows in the upper catchments in order to reduce their negative impact on downstream river training works.
Institutional reforms	<ul style="list-style-type: none"> • Promote the establishment of community groups that are prone to WIDs and their involvement in the planning and management of protection measures. • Set up a Study and Design Unit in DWIDP with permanent senior and junior staff to strengthen DWIDP's capability and knowledge base with respect to Disaster Mapping, Master Plan preparation, Design of Protection Works, and mainstreaming of climate change impacts on design and construction of protection works • Include all activities related to GLOFs in DWIDP to concentrate all expertise related to WIDs in one pool of experts. • Give DWIDP the authority to approve Master Plans for river training works and landslide prevention works in order to get budgets approved for their implementation. • Enhance the scope of the present Monitoring section at DWIDP to include Maintenance and Evaluation of protection works supported by a GIS-based Management Information System.
Technical guidelines, manuals tools reforms	<ul style="list-style-type: none"> • There is no set of consistent guidelines available at DWIDP for river training works. What is available are copies from textbooks and other institutions abroad, most of which is rather old and prepared at the Department of Irrigation prior to the establishment of DWIDP.
Specific guidelines and policies listed for revision	<ul style="list-style-type: none"> • Update design guidelines for bioengineering including determining embankment heights, revetment length and sloping spurs design, the materials to be used and the roles of local communities in monitoring and management.
Training and capacity building needs	<p>Capacity needs identified in the synthesis report: No specific recommendations on capacity building</p> <p>Additional needs mentioned in the synthesis report text:</p> <ul style="list-style-type: none"> • Disaster Mapping, Master Plan preparation, Design of Protection Works, and mainstreaming of climate change impacts on design and construction of protection works • Bioengineering for protection works • Prevention of landslides and debris flows in upper catchments • Maintenance and Evaluation of protection works

DOR - Strategic roads network sector	
Policy reforms	<ul style="list-style-type: none"> • A policy requirement that all 25 Divisions of DoR draw up an Annual Road Maintenance Plan (ARMP) to Prioritisation of Maintenance Procedures and Records of Road Closures
Institutional reforms	<ul style="list-style-type: none"> • In the short to medium term elimination the maintenance deficit must be considered the top priority. • Reconstruction or costly protection of an existing element in the road infrastructure should only be contemplated if there is strong evidence of likely failure of the element.
Technical guidelines, manuals tools reforms	<ul style="list-style-type: none"> • System on carrying out Vulnerability Assessments along the most important road links in order to determine which sections are most vulnerable to extreme events such as heavy wind and thundering etc.
Specific guidelines and policies listed for revision	<p>Specific revisions recommended for:</p> <ul style="list-style-type: none"> • Nepal Road Sector Assessment Study • Project Implementation Plan • Annual Road Maintenance Plan (ARMP) • Highway Management Information System (HMIS) • Environmental Management Guidelines (Geo-Environment Unit 1999) • Initial Environmental Examination (IEE) • Environmental Impact Assessment (EIA) • Design Standards (Road, bridge and structures etc)
Training and capacity building needs	<p>Specific capacity needs identified in the synthesis report:</p> <ul style="list-style-type: none"> • To build/strengthen the sector's climate resilience by using reforms, processes and adaptation planning tools developed by the training. <p>Additional needs mentioned in the synthesis report text:</p> <ul style="list-style-type: none"> • Increase the technical and physical capability of the Department to respond to disruption caused by severe weather events

DOLIDAR - Rural roads network sector	
Policy reforms	<ul style="list-style-type: none"> • District Transport Master Plan (DTMP) of all districts must be completed to enable and promote the maintenance/construction activities in priority.
Institutional reforms	<ul style="list-style-type: none"> • In the short to medium term elimination the maintenance deficit must be considered the top priority. • Vulnerability Assessments should be carried out along the most important roads links in order to determine which sections are most vulnerable to extreme events. • Reconstruction or costly protection of an existing element in the road infrastructure should only be contemplated if there is strong evidence of likely failure of the element.
Technical guidelines, manuals tools reforms	<ul style="list-style-type: none"> • A policy requirement that all 25 Divisions of DOLIDAR draw up an Annual Road Maintenance Plan (ARMP) to Prioritisation of Maintenance Procedures and Records of Road Closures
Specific guidelines and policies listed for revision	<p>Specific revisions recommended for:</p> <ul style="list-style-type: none"> • Nepal Road Sector Assessment Study • Project Implementation Plan • Annual Road Maintenance Plan (ARMP) • Highway Management Information System (HMIS)

DULIDAR - Rural roads network sector	
	<ul style="list-style-type: none"> • Environmental Management Guidelines (Geo-Environment Unit 1999) • Initial Environmental Examination (IEE) • Environmental Impact Assessment (EIA) • Design Standards (Road, bridge and structures etc)
Training and capacity building needs	<ul style="list-style-type: none"> • To build/strengthen the sector's climate resilience by using reforms, processes and adaptation planning tools developed by the training.

DUDBC - Urban planning and building construction sector	
Policy reforms	<ul style="list-style-type: none"> • Institutionalize the plan through a new Physical Development Act and Guidelines, or through amendment of the existing Town Development Act. • Proposed physical planning and development act is pending in the parliament in the form of the Bill since a number of years. Alternatively, appropriate amendment related to climate change adaptation could be incorporated in the existing town Development Act 1988. • Revise and adopt the draft 1994 Flood Plain and Land Zoning Guidelines: Model Municipal Land Use Regulations.
Institutional reforms	<ul style="list-style-type: none"> • Establish a Climate Change / Disaster Management Section within the Urban Development Division at DUDBC. • There is already a disaster management section combined with planning section under Housing Division of DUDBC. However, climate change (CC) presently falls within the environment section under Urban Development Division. Hence, there is a need of a dialogue with the DUDBC about the appropriate institutional arrangement regarding climate change adaptation issues.
Technical guidelines, manuals tools reforms	<ul style="list-style-type: none"> • Revise the National Building Code to include standards and norms to protect against climate change threats. • There is already a committee for code revision, and also a separate Building Code Section within the Building Division of DUDBC. Need of a consultation with the Building Code Section about the Code provisions needing CC incorporation. • Prepare guidelines for urban drainage master plan and planning in coordination with DWSS and DoR to ensure cross sector integration and collaboration on response to climate change. • The existing DUDBC document of urban drainage master plan needs to be reviewed for CC incorporation, and proper technical consultation with DWSS & DoR to be initiated. • Revise the Flood Plain and Land Use Zoning Guidelines (1994 and 2007) to include climate change risk zones and safeguards. • Positive Initiations to be undertaken to revise the guidelines. • Revise the Planning Norms and Standards 2013 to include revised drainage design guidance and location criteria for constructing new or relocating critical physical and social infrastructure. • Already published Planning Norms and Standards 2015 needs to be reviewed for CC incorporation. • Periodic planning Manual for the municipalities needs to be revised for CC incorporation.
Specific guidelines and	<p>Specific reforms recommended for:</p> <ul style="list-style-type: none"> • DUDBC Vision Paper 2007-2027

DUDBC - Urban planning and building construction sector	
policies listed for revision	<ul style="list-style-type: none"> • Building Act 2055 B.S. (1998) • Town Development Act 1998 and Amendments • National Urban Policy (NUP) 2007 –newly formulated National Urban development Strategy 2015 replaces NUP 2007. • Nepal National Building Code (1994) • National Building Code: Implementation Manual (2008) • Urban Planning Manual (2007) • Town Development Guidelines (Nepali) (2004) • Eco-city Guidelines and the concept of Urban Agriculture (2012) • Drainage Guidelines Manual for the Design of Urban Storm Water Management in Nepal (1991). Consultations suggested with WATSAN sector consultants. • Urban Environmental Management Guidelines (2010). • Urban road design manual of DUDBC also needs revision in consultation with DoR national and international consultants.
Training and capacity building needs	<ul style="list-style-type: none"> • Build capacity in conducting an integrated urban planning process using climate adaptation tools, during the formulation and implementation of the Mid-Hill Town Development Project • Building capacity in integrated urban planning process, using climate adaptation tools • Building capacity in preparing an urban drainage master plan which takes climate change into account. • There is a need for capacity building related to integrated urban planning process to be undertaken by the Mid-Hill Project. Need to involve all the MCCMD Infrastructure sectors. The consultants already hired by the project needs to be given proper orientation and training.

DOI - Irrigation sector	
Policy reforms	<ul style="list-style-type: none"> • Revise the Environment Protection Act and Environment Protection Rules to require coverage of potential climate change impacts in all EIAs and IEEs of irrigation projects. • Revise the Environment Protection Act and Environment Protection Rules and sector policies relating to EIA to ensure irrigation projects include appropriate adaptation and protection measures.
Institutional and procedural reforms	<ul style="list-style-type: none"> • Introduce procedures to ensure the new Environment and Climate Change Section of DOI regularly undertakes climate change screening of draft irrigation development plans and feasibility studies • Introduce requirements to ensure the new - Environment and Climate Change Section of DOI reviews the PDSP irrigation design manuals/guidelines/standards and - provides feedback and necessary amendments to -address climate change impacts • Develop procedures in -Groundwater Irrigation Division of DOI to ensure that Ground Water Resources Development Board is effectively involved in the climate change mainstreaming process.
Technical guidelines, manuals tools reforms	<ul style="list-style-type: none"> • Prepare guidelines so that individual projects IEEs and EIAs take into account any potential climate change impacts that might affect an irrigation project. • Ensure the Environmental Safeguard Guidelines (prepared by DOI under Water Resources Project Preparatory Facility) to be used effectively to assess and mitigate the potential environmental impacts that might be caused by development work on irrigation projects
Specific guidelines and policies listed for revision	Specific reforms proposed for: <ul style="list-style-type: none"> • National Water Plan (2005) • Integrated Water Resources Management Policy (2010) • Irrigation Policy (2013) • Irrigation Master Plan (1990)

DOI - Irrigation sector	
	Specific recommendations are provided for: <ul style="list-style-type: none"> • Environmental safeguard guideline currently being prepared by the Water Resources Project Preparatory Facility • M3 Hydrology and Agrometeorology¹² • M6 Groundwater • M7 Headworks, River Training Works and Sedimentation • M9 Drainage • M11 Infrastructure Planning • M13 Operation Maintenance and Management • D2 Field Design Manual In Three Volumes
Training and capacity building needs	<ul style="list-style-type: none"> • Using IEEs and EIAs to take into account any potential climate change impacts that might affect an Irrigation project • Climate change screening for reviewing draft irrigation development plans and feasibility studies • Clear understanding of the objectives of the vulnerability assessment and adaptive planning methodology to take account of climate change

DWSS - Water supply and sanitation sector	
Policy reforms	<ul style="list-style-type: none"> • Develop a sector DWSS Master Plan which includes climate change guidance and requirements • Development of a clear maintenance strategy for WATSAN Infrastructure vulnerable to extreme events
Institutional reforms	<ul style="list-style-type: none"> • Establish a dedicated climate change-focused unit or work team within DWSS¹³ • Establish a coordination mechanism between DWSS, WUSC, DoLIDAR and local government • Establish and maintain an asset inventory and maintenance and management system
Technical guidelines, manuals tools reforms	<ul style="list-style-type: none"> • Formulate Standard Operating Procedures for Community and Municipal Wastewater Treatment Plants and Disposal Management Systems taking climate change into account • Establish a mechanism for regular review and update of design guidelines and standards to integrate climate change factors based on new information and experience • Conduct detailed vulnerability assessments of WATSAN Infrastructure (at national level) and generate extensive asset database of specific vulnerable infrastructure and infrastructure categories (as recommended by the recent Joint sector review-2014).
Specific guidelines and policies listed for revision	All 12 Volumes reviewed and specific entry point identified for the following: <ul style="list-style-type: none"> • Procedural Guidelines • Design Criteria • Water Quality & Sample • O&M Manual : Policy & Procedures • General Specifications • Guidelines for Tubewells Program Policy revision suggested for the following: <ul style="list-style-type: none"> • Urban Water Supply and Sanitation Policy (2009) • Rural Water Supply And Sanitation National Policy And Strategy (2004)

¹² TA team support to be focussed on guidance M3

¹³ In response to the project, DWSS has established a climate change unit but it requires support and strengthening

DWSS - Water supply and sanitation sector	
	<ul style="list-style-type: none"> • The National Drinking Water Quality Standards (2005/06) • National Water Plan (2005) • National Sanitation Policy And Strategy (1994) • Water Resources Act (1992) • Government Of Nepal Twenty Year Vision (1997-2017)
Training and capacity building needs	<ul style="list-style-type: none"> • Improve the capacity of sector stakeholders to budget and finance their activities in a coordinated manner including Budgeting for climate change adaptation, • Climate change adaptation technical training for new staff • Monitoring & evaluation programs on asset performance, • Inventory Data management, • Research on climate change adaptation and generation of new scientific information. • Evaluating asset performance and inventory

ANNEX E: RESEARCH TOPICS FUNDED BY THE RESEARCH GRANT PROGRAM

No	Thematic Area	Title of the Project	Principal Researcher
1	AFS	Effect of climate change on Insect pests Incidence in major staple food crops	Mr. Kapil Kafle
2	AFS	Climate change impacts on livestock raising and household economy of Mustang District	Dr. Shreeram Prasad Neopane
3	AFS	Agriculture calendar shift due to climate conditions in three ecological regions of Sagarmatha zone, Nepal	Dr. Bed Mani Dahal
4	AFS	Study on autonomous adaptation measures of farmers to changing precipitation pattern	Dr. Gopi K. Sedhaln
5	AFS	Development of design guidelines of digester for biogas generation at high altitude	Prof. Dr. Bhagwan Ratna Kansakar
6	AFS	Vulnerability of livestock farming system to impact on climate change in the Terai region of Nepal	Mr. Shiva Chandra Dhakal
7	AFS	Impacts of climate change on cereal crop production and on food security: a case study of Dhading district	Mr. Surya Mani Dhungana
8	AFS	Understanding climate change adaptation by farmers in crop variety in Nepal.	Mr. Madhav Dhital
9	CID	Marsyangdi basin water-induced disaster triggered by climate change and its prognostic projection in the middle of 21st Century	Dr. Dinesh Pathak
10	CID	Developing a methodology for assessing damage and losses of adverse effects of climate change and variability in Nepal	Mr. Deepak Paudel
11	CID	Climate Change Impact and Adaptation Measures in Upper Mustang	Prof. Dr. Hari Krishna Shrestha
12	CID	High mountain facing severe climate influence and impact on the tourism and tourism dependent livelihood	Mr. Thakur Prasad Devkota
13	FB	Assessment of the effects of climate change on distribution of invasive alien plant species	Prof. Dr. Mohan Siwakoti
14	FB	Impact of climate change on the quality of herbal drugs: a threat to plant based traditional knowledge for livelihood	Dr. Rajendra Gyawali
15	FB	Climate change and hydro-ecological responses of Glaciarized Mountain Basins in Nepal Himalaya	Dr. Narayan Prasad Ghimire
16	FB	River ecological study: assessing the climate change and building the base for adaptation	Dr. Bibhuti Ranjan Jha

No	Thematic Area	Title of the Project	Principal Researcher
17	FB	Plant water relations and altitudinal shifts of <i>Quercus semecarpifolia</i> in response to drought and climate change at Hill, Nepal.	Prof. Dr. Kanta Poudyal
18	FB	Tree line shift in central Nepal Himalaya and climate reconstruction of past millennia	Mr. Yub Raj Dhakal
19	FB	Carbon sequestration in a fire ecosystem of pine forest	Dr. Biva Aryal
20	FB	In-vitro propagation of <i>Paulownia Tomentosa Steud</i> for commercial production and evaluate its carbon dioxide sequestration ability in a previously planted Paulownia trees.	Dr. Niranjan Parajuli
21	FB	Regeneration and distribution modelling of <i>Larix spp.</i> under climate change scenarios in Nepal Himalaya	Mr. Prakash Chandra Aryal
22	FB	Effect of climate change on secondary metabolite production in Lichen of Nepal	Mr. Bishnu Prasad Neupane
23	PH	Study and assessment of environmental burden of diseases attributable to climate change in Nepal	Prof. Dr. Sirjan Lal Shrestha
24	PH	Impact of climate change on cholera outbreak in Nepal	Mrs. Supriya Sharma
25	PH	Impact of climate change in the incidence of dengue virus in <i>Aedes</i> vectors	Mrs. Reshma Tuladhar
26	USI	Fostering climate change resilient cities through augmenting the blue land use: A case of Janakpur Municipality	Mr. Ajaya Chandra Lal
27	USI	Sustainable urban transport solutions to mitigate climate change, a case study of Kathmandu Valley, Nepal	Mr. Ashim Ratna Bajracharya
28	WRE	Climate change on spring water of mid hills of Nepal with special focus on drudgery on women	Dr. Prem Sagar Chapagain
29	WRE	Assessment of climate change impacts on Helambu sub-watershed	Mrs. Lachana Shresthacharya
30	WRE	Habitat loss of freshwater molluscs and their consumption trends among Tharu people in Kailali District, Nepal	Mr. Prem Bahadur Budha
31	WRE	Budhi Gandaki Hydropower Project under climate change: An assessment of hydro-sociality	Dr. Khada Nanda Dulal
32	WRE	Characterization of microorganisms isolated from hot springs of Nepal	Dr. Bhupal Govinda Shrestha

No	Thematic Area	Title of the Project	Principal Researcher
33	WRE	Study of the snow-melt run off for the sustainability of hydropower projects under climate change	Prof. Dr. Narendra Man Shakya
34	WRE	Selection of the best renewable energy resource for Nepal to mitigate the climate change: An Analytic Hierarchy Process (AHP) approach	Mr. Prabal Sapkota
35	WRE	An assessment of economic loss due to water-induced disaster of the Mahakali flood in 2013 in Darchula district in relation with climate change impact	Mr. Mahendra Bahadur Gurung
36	CID	Assessing the impacts of climate change induced displacement from gendered perspective in Darchula district, far western region	Dr. Sushila C. Nepali

ANNEX F: TOPICS COVERED BY RADIO AND TV PROGRAMS FUNDED BY THE TA

TV program

Title	Broadcast date	Content
Climate resilient watershed management and community based adaptation	June 2, 2016	25 minutes Featuring example of conservation techniques implemented under PPCR 1 – Building Climate Resilience of Watersheds in Mountain Eco-Regions Total Length: 25 minutes It contains a discussion between Mr Ram Singh Thapa and Dr. Narendra Shakya on sustainable watershed management.
Agriculture Management Information System for farmers	June 16, 2016.	25 minutes. The Episode covers a discussion on Use of Information Communication and Technology (ICT) materials to reduce Climate Change Impact in Agriculture with Mr. Shiva Nandan Shah, National Project Director and Dr. Dinesh Raj Bhuj, Academician, NAST. It features examples of farmers using the PPCR 2 developed Agriculture Management Information System
Television program on Climate Change and New Town Development (featuring sector related climate issues covered under PPCR 3 MCCRMD)	June 30, 2016	25 minutes. Contains discussion on integration of climate change in 10 new town development initiatives of the government with Mr Chakrabarti Kanthi, Chief Environment Division, Department of Urban Development and Building Construction and Bhushan Tuladhar, Environmentalist.

Radio program

Phase 1

Episode No	Broadcasting Date	Key Topics	Issue and person Covered
1	23 Aug 2015	Climate change and Nepal's effort to resilience	Climate change and Nepal's effort to resilience; Interview with MOPE Secretary Dr. Krishna Chandra Paudel; Field voice from Bardia and Lalpur
2	30 Aug 2015	PPCR initiatives towards climate resilience (Brief Information and activities)	Pilot Program for Climate Resilient, Interviews with Mr. Mahendra Man Gurung, Mr. Ram Singh Thapa, Dr. Rishi Ram Sharma, Mr. Shiva Nandan Sah and Short information on PPCR4
3	6 Sept 2015	Strengthening sectors climate resilience capacity – water and sanitation, urban planning	Issues on mainstreaming climate change in the infrastructure sectors, VA&AP tool; Report from Myagdi; Interview with Mr. Akhanda Sharma and Interview with Er. Gyanesh Bajracharya
4	13 Sept 2015	Sectoral climate resilience capacities-Irrigation	Issues on Irrigation sector and making Irrigation sector climate resilient; Report from Argeli irrigation in Palpa with voices of locals; Interview with Director General of the Dept of irrigation Mr. Madhav Belbase, and Interview with Mr. Binaya Kolrara, Chief, Environment and Climate Change Section

Episode No	Broadcasting Date	Key Topics	Issue and person Covered
5	20 Sept 2015	Sectoral climate resilience capacities - Water induced disaster	Discussion on water induced disaster sector and making WID sector climate resilient; Report from Narayan Jantako Tatbandha with voices of locals; Interview with Deputy Director General of the Dept of DWIDP Noor Mohammad Kha and Testimony of SDE Arbindra Kumar Gupta.
6	27 Sept 2015	Nepal's effort to climate resilience (NAPA and LAPA)	Brief on NAPA, LAPA and no. of LAPA prepared; Experience from Achham; Report from Dhankuta on LAPA preparation and Implementation; Interview with joint secretary Ram Prasad Lamsal on preparing NAPA, LAPA; Local Adaptation Plan for Action (LAPA), COP in Paris
7	4 Oct, 2015	Integrating climate change into university curriculum	Report on climate change integration in university curriculum; interview with Mr. Ajaya Bhakta Mathema-PU; Interview with Prof. Sadhana Pradhananga-TU; Interview with Dr. Dipak Aryal-TU
8	11 Oct 2015	Sectoral climate resilience capacities-Urban sector	Report on settlement at Bagmati River area; Interview with Er. Umesh Malla, Consultant-MCCRMD; Mr. Mani Ram Gejal, DDG-DUDBC.
9	18 Oct 2015	Sectoral climate resilience capacities-Road sectors	Report on rural road from Panchthar with local people, concerned stakeholders voices; Interview with Mr. Jivan Kumar Shrestha, DG-DOUDAR; Mr. Bijaya Kumar Mahato, Divisional Engineer, Dept. of Roads and Mr. Umesh Jha, DDG-DoR.
10	25 Oct 2015	Sectoral climate resilience capacities-WASH	Mainstreaming climate change in WASH sector; report on water issues; Report from Banke; Interview with Kul Mani Devkota DG-DWSS and WASH Expert; Interview with Ram Chandra Devkota
11	1 Nov 2015	Integrating CC in secondary education	Mainstreaming climate change in Secondary Education; report on necessary for climate change curriculum, experience of teachers experience on science and climate change issues; Interview with Mr. Dambar Angdambe, DDG-Curriculum Development Center.
12	8 Nov 2015	Enhancing district climate resilience capacity	Mainstreaming climate change in Local and Community-based Adaptation Planning; report on district level training; Interview with Mr. Mohan Joshi, Dept of Env; Interview with Ms. Ramila Bhandari, MoFALD; Interview with Mr. Sohan Shrestha, Rupantaran
13	15 Nov 2015	Rapid environmental assessment	Rapid Environmental Assessment, and Earthquake & Climate-friendly Housing; Report on earthquake impact on environment and resettlement issue; Interview with Dr. Krishna Chandra Paudel, Secretary-MOPE; Interview with Dr. Shankar Sharma, Team Leader, REA Study Team
14	22 Nov 2015	PPCR4: Climate smart farming	PPCR 4: Field based discussion with representative from Practical Action, Eastern Sugar Mills, farmers from Sunsari and Morang; Interview with Ms. Akira Dhakhwa, PPCR 4 Program Coordinator; Interview with Mr. Rajendra Upreti, District Agriculture Officer, Morang
15	29 Nov 2015	Indigenous knowledge and practices of climate resilience	Indigenous knowledge and practices on climate change adaptation; Field report from Lamjung on Gol Ghar (round house) with local people voices; Interview with Ms. Prava Pokharel, IDS; Mr. Raju Babu Pudasaini, NPM, MCCRMD

Episode No	Broadcasting Date	Key Topics	Issue and person Covered
16	6 Dec 2015	Hydrology and meteorology information to support communities from draught and flood	Hydrology and meteorology data for climate resilience, annual rainfall trend and temperature, probability of flood and landslide, GLOF, precautionary measures to be adopted and govt. efforts., community voices, district status, etc. Climate Modelling; Field report from Bardiya; Interview with Sarju Kumar Baidya and Bibhuti Pokharel
17	13 Dec 2015	Supporting communities for climate adaptable farming	Agriculture management information system and climate resilient agriculture, government's efforts to provide climate resilient farming practice - KISAN sim, push message, training, etc.; Interview with Shibnandan Shah, Project Director; Interview with Surendra Gautam, Agriculture, Social and Communication Consultant; Report from Banke; Information about AMIS and Kisan Sim
18	20 Dec 2015	COP 21 and Nepal's Participation	Nepal's participation and agendas in COP 21 and analytical view from independent experts; Interview with Hon'ble Minister Vishwendra Paswan; Interview with Secretary Dr. Krishna C. Poudel; Information and report of participants of the COP 21
19	27 Dec 2015	Managing climate change result	Result management framework and NAPA card, expert eye on achievement of climate change projects; Interview with Mahendra Man Gurung, NPD; Interview with Secretary Krishna C/ Poudel; Interview with Naresh Sharma, NPM, NCCSP
20	3 Jan 2016	Watershed management to enhance communities climate resilient capacity	PPCR 1 efforts to enhancing communities climate resilience capacity through watershed management, voices from the field and learning (interview with Community and NPD); Mr. Ram Singh Thapa, NPD
21	10 Jan 2016	Building scientific knowledge about how climate change is impacting Nepal- NAST Research 1	Enhancing climate resilience capacity through scientific verification and research. Case of Agriculture and Settlement; Interview with researchers Bed Mani Dahal; Interview with Hari Krishna Shrestha; VC of NAST Prof. Dr. Jib Raj Pokhrel and Academician Dr. Dinesh Raj Bhuju.
22	17 Jan 2016	Climate change and women verification through research – NAST 2	Voices from Sindhupalchok and Surkhet; Interview with researchers Prem Sagar Chapagain and Sushila Chataril Nepal; Academician Dr. Anjana Singh.
23	24 Jan 2016	Mainstreaming community-based adaptation plan into district planning	Mainstreaming community-based adaptation plan into district planning; Field discussion at Myagdi with citizen, local political leaders and policy makers
24	31 Jan 2016	Review of Radio Program Jalwayu Pariwarta	Review and summarizing produced and broadcasted 'Jalwayu Program'; Interview of Deputy Team Leader Ms. Nabina Shrestha; Feedback from Chitwan and Gorakha

Phase 2

Episode	Theme	Issues and persons interviewed	Broadcast date
25	CC Policy -1	Studio discussion: Climate modelling for infrastructure development <ul style="list-style-type: none"> Vox pop of DHM modelling training 	14 Feb 2016 (2 Fagun 2072)

Episode	Theme	Issues and persons interviewed	Broadcast date
		<ul style="list-style-type: none"> • Discussion among Er. Jivan Kumar Shrestha, Dr. Binod Shakya and Mr. Dipak Aryal 	
26	Water-1	Water related problem and workload to women <ul style="list-style-type: none"> • Report from Doti and Kathmandu • Effort of water conservation • Interview with Mr. Kiran Darnal, DWSS 	21 Feb 2016 (9 Fagun 2072)
27	Water-2	Flood and early warning system <ul style="list-style-type: none"> • Report from Holiya, Banke and Bagmati river, Kathmandu • Interview with Mr. Rajendra Sharma, DHM • Interview with Gyanesh Bajracharya • Testimony of flood survivors 	28 Feb 2016 (16 Fagun 2072)
28	Water-3	Drought effect in agriculture and adaptation measure <ul style="list-style-type: none"> • Report on drought in far-west • Interview with Mr. Tek Bahadur Bista, Chief, Regional Agriculture Office • Adaptation measure adopted by farmers in Bara • Interview with Mr. Shivanandan Sah 	6 March 2016 (23 Fagun 2072)
29	Water 4	Studio discussion: Too much water and too little water <ul style="list-style-type: none"> • Mr. Rishi Ram Sharma, DG, DHM, and Mr. Ram Chandra Devkota, DG, DWSS 	13 March 2016 (30 Fagun 2072)
30	Climate Change Mitigation 1	Nepal's effort to climate change mitigation and cycle as clean transport <ul style="list-style-type: none"> • Interview with non'ble minister Mr. Vishwendra Paswan • Interview with Secretary Mr. Vijay Malik • Interview with Mr. Yugan Manandhar • Vox pop and report on cycling in Kathmandu 	20 March 2016 (7 Chaita 2072)
31	Climate Change Mitigation 2	Mitigation through forest conservation, carbon sync Report from Gorkha <ul style="list-style-type: none"> • Interview with Jibnath Paudel, DFO Gorkha; • Interview with Narendra Bahadur Chand, Under Secretary 	27 March 2016 (14 Chaita 2072)
32	Climate Change Mitigation 3	Practicum, and youth and environment <ul style="list-style-type: none"> • Vox pop and discussion among students on VA at Shankharapur • Interview with Ajaya Mathema and Bhupendra Sharma 	3 April 2016 (21 Chaita 2072)
33	Land Use 1	Climate change and land-use: Indigenous land management practice <ul style="list-style-type: none"> • Report on Nawa Pratha of Solukhumbu • Interview with Mr. Ajaya Dixit, ISET 	10 April 2016 (28 Chaita 2072)
34	Land Use 2	Climate change resilient urban center <ul style="list-style-type: none"> • Report on New city of Burtibang • Interview with Chakrawarti Kantha, DUDBC • Interview with Mr. Umesh Mall, MCCRMD 	17 April 2016 (5 Baisakha 2073)
35	CC Policy -2	Field Discussion on district training and community based	24 April 2016

Episode	Theme	Issues and persons interviewed	Broadcast date
		climate change adaptation from Rupandehi <ul style="list-style-type: none"> • Vox Pop of participants • Discussion with Mr. Upendra Gyawali – DDC Rupandehi, Mr. Tuk raj Pandey, Secretary - Suryapara VDC, Ms. Rima BC, Joint secretary - NGO Federation, Rupandehi 	(12 Baisakha 2073)
36	Food Security 1	Climate change and agriculture: Improved paddy cultivation <ul style="list-style-type: none"> • Report from Sunsari • Interview with Mr. Yogendra Kr. Karki, MOAD • Interview on Biochar with Dr. Shree Prasad Bista 	1 May 2016 (19 Baisakha 2073)
37	Food Security 2	Field report on climate change effect and adaptation on livestock <ul style="list-style-type: none"> • Field Report from Chitwan • Interview with Dr. Shiva Dhakal, researcher 	8 May 2016 (26 Baisakha 2073)
38	CC Policy 3	<ul style="list-style-type: none"> • Climate change effect in high and low land • Report on Imza lake • Report from Sunsari with voice of local people • Interview with Arun Bhakta Shrestha, Senior Expert of Climate Change, ICIMOD 	15 May 2016 (2 Jeth 2073)
39	CC Policy 4 (Gender)	Studio Discussion on climate change and gender issue <ul style="list-style-type: none"> • Laxmi Basnet, Joint Secretary, MoPE • Dibya Devi Gurung, Gender Expert • Rama Ale Magar, Chair, HIMAWANTI 	22 May 2016 (9 Jeth 2073)
40	Wrap up	Wrap and feedbacks <ul style="list-style-type: none"> • Review on issue covered from episode 25 to 30 • Experience of Mr. BB Shahi, Rupantaran • Feedbacks from - Mr. Chandra Neupane, Station Manager, Saptakoshi FM; Ms. Meena Gurung, Station Manager, Radio Marsyangdi, Lamjung; Mr. Bishnu Prasad Paudel, DDC Myagdi; Mr. Satya Dev Mandal, Agrl Officer Morang 	29 May 2016 (16 Jeth 2073)

ANNEX G: MEDIA ARTICLES AND PUBLICATIONS PREPARED BY THE TA

No	Topic	Press Release Date	Type of Event
1	Integrating Climate Change into Secondary Curriculum	November 2012	Nepali National Daily (Gorkhapatra)
2	Project Inception and Workshop	December 2012	Nepali National Daily (Gorkhapatra)
3	Two short video on roads/bridges and water supply schemes (9 and 6 minute each) in Chitwan district prepared by journalists accompanying Output 1 technical team.	8-2013	Telecasted on Image and Himalayan TV
4	Study on Traditional & Local Practices for Climate Change	15 Dec 2013	Nepali Magazine (Narf Birnba)
5	Building Human Resources for Planning of Climate Change	16 Dec, 2013	Nepali National Daily (Annapurna Post)
6	Training for facing Climate Change	16 Dec 2013	Nepali National Daily (Nagarik Daily)
7	Govt launches new initiative for climate change adaptation	16 Dec 2013	English National Daily (Republica Daily)
8	Training on Climate Change	16 Dec 2013	Nepali National Daily (Samacharpatra Daily)
9	Nation-wide District Training Program on Climate Change and Community-based Adaptation Launches This Week	16 Dec 2013	Samuhik Abhyan (in both English and Nepali)
10	Informative Training on Climate Change	18 Dec 2013	Nepali National Daily (Gorkhapatra)
11	Training to tackle climate change impacts	19 Dec 2013	English National Daily (The Himalayan Times)
12	Training on CC Risk Reduction	22 Dec 2013	2 Nepali Daily (Kanchanjanga Times & Sindhuanchar Times)
13	Need Education on Climate Change	16 Feb 2014	Nepali National Daily (Gorkhapatra)
14	Government and Climate scientists to assess new method to project climate change in Nepal's districts	11 April, 2014	Press Releases
15	New model to project climate change impact	11 April 2014	Nepali National Daily (The Kathmandu Post)
16	Experts discuss climate change projections	12 April 2014	English National Daily (The Rising Nepal)
17	Climate change risks	12 April 2014	English National Daily (The Himalayan Times)
18	To Reduce Flood Threats Nepal Build Climate Risk into Planning	29 May 2014	Article and Photo Essay in one International Online Newspaper (TRF)

No	Topic	Press Release Date	Type of Event
19	Training on CC	30 May 2014	Nepali Daily (Kripa Newspaper)
20	Community Adaptation Training on effect of CC	30 May 2014	Nepali Daily (Bara Newspaper)
21	Field Study of Training in RDC	31 May 2014	Nepali Daily (Kripa Newspaper)
22	Nast launches grant for climate research	31st May 2014	Nepali National Daily (The Kathmandu Post)
23	Climate Change hits agriculture, hydropower, tourism sectors	31st May 2014	English National Daily (The Rising Nepal)
24	6 days District training on CC and Local Adaptation Planning at Gaur	28 June 2014	Nepali Daily (Rajdevi Daily)
25	Climate Resilient Infrastructure Development – Policy Reform Workshop	22 September 2014	2 English national papers
26	Govt 'prioritises' climate resilient development	23 September 2014	Nepali National Daily (The Kathmandu Post)
27	Nepal steps-up for Climate Resilient Development	23 September 2014	English National Daily (The Rising Nepal)
28	Editorial on Indigenous Practices for Climate Change Adaptation	February 2014	1-English national paper
28	Launch Phase II of District Training	November 2015	1 English and 1 Nepal national papers.

ANNEX H: CCPCC TOR

Climate Change Program Co-ordination Committee (CCPCC) and Climate Change Program 'Result Management Framework'-Technical Working Group (CCPRMF-TWG) were constituted in the then Ministry of Science, Technology and Environment (now Ministry of Population and Environment) on 22 May, 2013 for the purpose of keeping the results of earlier 5 component projects under PPCR (presently only 4 components as one was dropped), 2 UNDP funded climate change related projects and one NCCSP project (Nepal Climate Change Support Program) in the Result Management Framework and updating them regularly as per the provision in the approved Inception Report of PPCR 3. This was planned in order to have exchange of information and co-ordination among the different CC projects in Nepal.

A) The CCPCC was constituted with following as members:

No	Participant	Title
1	Joint Secretary, NPD-PPCR 3, MOSTE	Convenor
2	Joint Secretary, NPD/NPM-NCCSP, MOSTE	Member
3	NPD, PPCR 1 Component, Department of Soil Conservation and Watershed Management	Member
4	NPD, PPCR 1 Component, Department of Hydrology and Meteorology	Member
5	NPM/Focal Person (GIS section), Ministry of Agricultural Development	Member
6	Anupa Panta, PPCR 4, IFC	Member
7	NPD, PPCR 5, Department of National Parks and Wildlife Conservation	Member
8	Representative, UNDP, Ecosystem Based Adaptation (EBA)	Member
9	Representative, UNDP, GLOF	Member
10	Representative, National Planning Commission (Environment Section)	Member
11	Representative, Ministry of Finance	Member
12	NPM, PPCR 3, Output 1	Member
13	TA Team Leader, PPCR 3	Invitee
14	NPM, PPCR 3, Output-3	Member Secretary

B) The CCPRMF-TWG was constituted with following as members:

No	Participant	Title
1	NPD, PPCR, Comp-3 MoSTE	Convener
2	NPM, PPCR, Comp-3 Output	Member
3	NPM, PPCR, Comp-1, Department of Soil Conservation and Watershed Management	Member

No	Participant	Title
4	NPM, PPCR, Comp-2, Department of Hydrology and Meteorology	Member
5	NPM/Focal Point, Ministry of Agricultural Development	Member
6	NPM, PPCR-5, Department of National Parks and Wildlife Conservation	Member
7	Anupa Panta, IFC	Member
8	Representative, UNDP, Ecosystem Based Adaptation (EBA)	Member
9	Representative, UNDP, GLOF	Member
10	NPM, Nepal Climate Change Support Program	Member
11	Invitees: Team Leader, RM Specialist, MIS Specialist	Member
12	NPM, PPCR 3, Output-3	Member Secretary

Attached below is the scanned copy of the MOSTE/GON decision document in Nepali language and English languages.



नेपाल सरकार

विज्ञान, प्रविधि तथा वातावरण मन्त्रालय

टिप्पणी आदेश

पृष्ठ सं.

विषय: CCPCCR र CCPRMP- TWG गठन गर्ने बारे।

शीर्षक: एक वित्तवन्त

PPCR कार्ययोजना अन्तर्गतको Component 3: Mainstreaming Climate Change Risk Management in Development विषयक कार्यक्रम संचालन गर्ने ADB बाट स्वीकृत Inception Report नेपाल सरकार (संविधानसं: २०७२/१९७) रद भन्ने निर्णय अनुसार स्वीकृत भई तत्प अनुरार छ। अर्थात् न संश्लेषी Output 1, 2 र 3 अन्तर्गतका विभिन्न कार्ययोजनाहरू संचालन भई सकेका छन्।

Inception Report अनुसार सो कार्ययोजनाको Output 3 को Climate Change सम्बन्धी संचालन न चला कार्यक्रम/आयोजनाहरू (PPCR अन्तर्गतका २ वटा Component, UNDP मार्फत संचालित २ वटा र NCCSP आयोजना) बाट प्राप्त गरिएका (Output/Outcome) हरू बारेको मुल्यमापन Result Management निगरानी (RMF) मा समावेश गरी अपेक्षाक्षिप्त सङ्केत पनि प्राप्तयान रहेको छ। जस: उक्त आयोजनाहरू बीच प्रभावकारी सूचना प्रवाहका साथै समन्वयका लागि निम्नानुसारको निर्देश हुन अनश्लेष्य बेसि पेश गरेको छु।

१: Inception Report अनुसार त्रयपौन समीक्षा समितिका सदस्यहरू रहने गरी Climate Change Program Coordination Committee (CCPCCR) गठन गर्ने।

का CCPCCRका सदस्यकार्यहरू:

- | | |
|--|------------------|
| 1) Joint Secretary, NPT, PPCR 3, MoSTE | Chairman |
| 2) Joint Secretary, NPI/NPM, NCCSP, MoSTI | Member |
| 3) NPI, PPCR 1 Comp. DSCWM | Member |
| 4) NPD, PPCR 2 Comp. DIM | Member |
| 5) NPM/Forest Person (GIS Section) MoAD | Member |
| 6) Acting Paria, PPCR, Comp. 4, IRC | Member |
| 7) NPD, PPCR, Comp. 5, DNPWC | Member |
| 8) Representative, UNDP, Ecosystem Based Adaptation (EBA) | Member |
| 9) Representative, UNDP, GLOF | Member |
| 10) Representative, NPC (Environment Section) | Member |
| 11) Representative, MoF | Member |
| 12) NPM, PPCR 3, Output 1 | Member |
| 13) T.A. Team leader, PPCR, Comp. 3 | Invited |
| 14) NPM, PPCR, Comp. 3, ^{Output-3} Component-3 | Member Secretary |



बिपल सरकार

विज्ञान, प्रविधि तथा वातावरण मन्त्रालय

टिप्पणी आदेश

पाका नं.

विषय :

४. यही गरी उक्त CCPRME का संयोजकता लागि Climate Change Result Management Framework (CCPRME) Technical Working Group (CCPRME-TWG) समेत गठन गर्ने ।

CCPRME-TWG का पदाधिकारीहरू

1) NPM, PPCR, Comp-3 MoSTE	Chairman
2) NPM, PPCR, Comp-3 Officer 1	Member
3) NPM, PPCR, Comp-1, DSC/WA	Member
4) NPM, PPCR, Comp-2, DHE	Member
5) NPM/Forest Policy, MoAD	Member
6) NPM, PPCR 3, DN/PWC	Member
7) Anupam Panta HRC	Member
8) Representative, UNDP, Ecosystem Based Adaptation (EBA)	Member
9) Representative, UNDP, GLOF	Member
10) NPM, NCCSP	Member
11) Invited: Team Leader, RM Specialist, GIS specialist	Member
12) NPM, PPCR 3, ^{Sub-Task-3} Comp-3	Member secretary

यो दस्तावेज अनुसंधारकको सुनिश्चिकता आवश्यकता अनुसार पदाधिकारी सम्पन्न/हेरफेर गर्न सकिने छ ।

बि. वि. एम. शाखा
२०७०/१/२

श्रीमान सचिवको

सहीत PPCR Component-3 को Project Document मा
छावटका मन्त्रसचिवको (जसको नाम केन्द्रकार) Climate
Change Project Coordination Committee (CCPCC)
तथा Climate Change Program Result Management
Framework - Technical Working Group - CCPRME-TWG
गठन गर्न किनारा गर्ने जस्ता जस्ता हुने

CCPRME-TWG
को
सचिव



