



**REQUEST FOR: CEO ENDORSEMENT**  
**PROJECT TYPE: FULL SIZE PROJECT**  
**TYPE OF TRUST FUND: LEAST DEVELOPED COUNTRIES FUND (LDCF)**

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## PART I: PROJECT INFORMATION

<b>Project Title:</b> Reducing vulnerability and increasing adaptive capacity to respond to impacts of climate change and variability for sustainable livelihoods in agriculture sector in Nepal			
Country(ies):	Nepal	GEF Project ID: <sup>1</sup>	5111
GEF Agency(ies):	FAO	GEF Agency Project ID:	616181
Other Executing Partner(s):	Ministry of Agricultural Development (MOAD), Department of Agriculture (DOA), Department of Livestock Services (DLS), Nepal Agricultural Research Council (NARC) and Department of Hydrology and Meteorology (DHM)	Submission Date:	February 3, 2015
GEF Focal Area (s):	LDCF	Project Duration(Months)	48
Name of Parent Program (if applicable): ➤ For SFM/REDD+ <input type="checkbox"/> ➤ For SGP <input type="checkbox"/> ➤ For PPP <input type="checkbox"/>	NA	Project Agency Fee (\$):	255,502

### **A. FOCAL AREA STRATEGY FRAMEWORK<sup>2</sup>**

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (\$)	Co-financing (\$)
<b>CCA-1</b>	Outcome 1.1. Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas	Output 1.1.1. Adaptation measures and necessary budget allocations included in relevant frameworks	LDCF	150,000	250,000
	Outcome 1.3. Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Output 1.3.1. Targeted individual and community livelihood strategies strengthened in relation to climate impacts including variability	LDCF	900,000	5,500,000
<b>CCA-2</b>	Outcome 2.1. Increased knowledge and understanding of climate variability and change-induced threats at country level and in targeted vulnerable areas	Output 2.1.1. Risk and vulnerability assessments conducted and updated  Output 2.1.2. Systems in place to disseminate timely	LDCF	400,000	1,800,000

<sup>1</sup> Project ID number will be assigned by GEFSEC.

<sup>2</sup> Refer to the [Focal Area/LDCF/SCCF Results Framework](#) when completing Table A.

		risk information			
	Outcome 2.2. Strengthened adaptative capacity to reduce risks to climate-induced economic losses	Output 2.2.1. Adaptive capacity of national and regional centers and networks strengthened to rapidly respond to extreme weather events	LDCF	387,262	921,429
<b>CCA-3</b>	Outcome 3.1: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas	Output 3.1.1. Relevant adaptation technology transferred to targeted groups	LDCF	700,000	3,900,000
		Sub-Total		2,537,262	12,371,429
		Project Management Cost		152,236	618,571
<b>Total project costs</b>				2,689,498	12,990,000

## B. PROJECT FRAMEWORK

<b>Project Objective:</b> To strengthen institutional and technical capacities for reducing vulnerability and promoting climate-resilient practices, strategies and plans for effectively responding to the impacts of climate change and variability in agriculture sector						
<b>Project Component</b>	<b>Grant Type</b>	<b>Expected Outcomes</b>	<b>Expected Outputs</b>	<b>Trust Fund</b>	<b>Grant Amount (\$)</b>	<b>Confirmed Co-financing (\$)</b>
1. Strengthening of technical and institutional capacities and integrating adaptation into food and agriculture policies, strategies and plans	TA	<p>1.1 Strengthened technical capacity in Ministry of Agricultural Development (MOAD), Department of Agriculture (DOA), Department of Livestock Services (DLS) and Nepal Agriculture Research Council (NARC) and local stakeholders on climate change adaptation</p> <p>1.2 Climate change adaptation mainstreamed into agriculture and livestock plans and programmes at all levels</p>	<p>1.1.1: Capacity development programme implemented at national and district level to enhance technical capacity on climate change adaptation (at least 50 national and 200 district level staff trained and training manuals developed and integrated into MOAD's regular activities</p> <p>1.2.1 Technical capacity and cross-sectoral coordination mechanism strengthened within MOAD to facilitate integration of climate change adaptation into agricultural plans and programmes</p> <p>1.2.2 Updated national agriculture strategies and district adaptation/risk reduction plans available with climate change adaptation priorities, investment plans and budget (at least 5 strategies/ plans with budget allocation for adaptation actions prepared and endorsed by the Government).</p>	LDCF	268, 170	671,429

2. Assessment, monitoring and providing advance early warning information on vulnerabilities, risks of climate change and agrometeorological forecasts to assist better adaptation planning	TA	<p>2.1 Improved vulnerability and risk assessment tools, FAOs crop situation and yield assessment methods implemented at the national level</p> <p>2.2 Improved agrometeorological forecast disseminated in 6 districts in close coordination with similar initiatives at the national level</p>	<p>2.1.1 Improved tools and methods for assessment of climate change risks and vulnerability and crop yield assessment models introduced at the national level and core staff trained (&gt;25 staff at MOAD, DOA, DLS and NARC trained) and linked with at least 4 districts.</p> <p>2.1.2 Improved risk and vulnerability assessment methods (from output 2.1.1) used to develop spatial risk and impact information on agriculture for 12 Village Development Committees (VDCs) in 4 districts.</p> <p>2.2.1 Improved agrometeorological forecast products from the Department of Hydrology and Meteorology (DHM) planned under the World Bank's PPCR project disseminated to 120 farmer groups (at least 3000 men and women farmers) and wider rural communities in 12 VDCs of 4 districts and end-users trained using Farmer Field School (FFS) approach (new products introduced at the local level and sustainable mechanisms to interpret the forecasts established in 6 districts).</p>	LDCF	343,406	1,800,000
3. Improving awareness, knowledge and communication on climate impacts and adaptation	TA	3.1 Awareness raising, knowledge management and communication strategy improved and adaptation practices and livelihood strategies disseminated for location specific context	<p>3.1.1 Comprehensive and multi-stakeholder awareness raising, knowledge management and communication strategy formulated and agreed with the Government and non-governmental organizations at national, district and local levels and applied to fostering implementation of new and currently available adaptation practices outlined in Nepal's NAPA.</p> <p>3.1.2 At least 120 Farmer Field School (FFS) facilitators in 4 districts trained on climate change impacts and adaptation in agriculture as outlined in NAPA.</p> <p>3.1.3 At least 120 farmer groups involving a total of over 3000 farmers aware of climate change impacts, adaptation measures and alternative livelihood strategies by</p>	LDCF	300,534	1,762,000

			<p>implementing Farmer Field School (FFS) by trained facilitators in 4 districts of Nepal.</p> <p>3.1.4 Project-related good-practices elaborated ( at least 25) for further up-scaling and lessons-learned disseminated via publications, project website and others to facilitate upscaling by the Government and non-government organizations.</p>			
4. Prioritizing and implementing local investment for strengthened livelihoods and sources of income and transfer of relevant adaptation technology for reducing climate risks in agriculture	INV	<p>4.1 Livelihood alternatives and climate-resilient physical measures prioritised and implemented to improve livelihood assets and sources of income in target areas</p> <p>4.2 Adaptation technology relevant to agriculture implemented and new stress tolerant varieties introduced to reduce climate risks</p>	<p>4.1.1 Investment to strengthen livelihood alternatives and climate-resilient physical measures and adaptation technology prioritized through Local Adaptation Plans of Action (LAPAs) by involving the community and farmer groups (at least 24 LAPAs prepared and endorsed).</p> <p>4.1.2 Diversified livelihood strategies and alternate sources of income implemented/introduced (eg. Off-season vegetable production, multi-purpose tree species, tree-crop alley farming systems, livestock enterprises etc.,) in 24 Village Development Committees (in 4 districts)</p> <p>4.1.3 Physical measures implemented to conserve and protect livelihood assets at the community level (eg. water conservation, water harvesting, management of degraded community resources, bio-engineering for river bank protection etc.,)</p> <p>4.2.1 Improved agriculture and livestock management technologies implemented in at least 24 VDCs in 4 districts (eg. Improved cropping systems, sloping agriculture land technologies (SALT), crop and livestock management practices etc.,),</p> <p>4.2.2 New stress tolerant crop varieties of rice, wheat, maize and fodder (at least 10 varieties) introduced by Nepal Agriculture Research Council (NARC) in 4</p>	LDCF	1,625,153	8,138,000

			districts and implemented involving farmer groups (using FFS approach).			
Subtotal					2,537,262	12,371,429
Project management Cost (PMC) <sup>3</sup>					152,236	618,571
<b>Total project costs</b>					<b>2,689,498</b>	<b>12,990,000</b>

### C. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Please include letters confirming co-financing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Co-financing	Co-financing Amount (\$)
GEF Agency	FAO/UTF	Grant	8,620,000
GEF Agency	FAO/MTF	Grant	1,170,000
National Government	Government Programmes	In-Kind	3,200,000
<b>Total Co-financing</b>			<b>12,990,000</b>

### D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL, AREA AND COUNTRY<sup>1</sup>

GEF Agency	Type of Trust Fund	Focal Area	Country Name/ Global	(in \$)		
				Grant Amount (a)	Agency Fee (b) <sup>2</sup>	Total c=a+b
FAO	LDCF		Nepal	2,689,498	255,502	2,945,000
<b>Total Grant Resources</b>				<b>2,689,498</b>	<b>255,502</b>	<b>2,945,000</b>

<sup>1</sup> In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

<sup>2</sup> Indicate fees related to this project

### F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount (\$)	Co-financing (\$)	Project Total (\$)
Local consultants	618,150	950,000	1,568,150
International consultants	42,000	-	42,000

### G. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT?

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

## PART II: PROJECT JUSTIFICATION

### A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF<sup>4</sup>

1. Overall, the objective of the project, expected outcomes have not changed. There are very few changes to the project's results framework especially the outputs since initial PIF approval. The minor changes in the outputs are due to reorganization of some of the activities into more coherent components and the reformulation of outputs that

<sup>3</sup> PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below

<sup>4</sup> For question A.1-A,7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter “NA” after the respective question

adequately reflected the current circumstances and scope of activities as determined through extensive in-country consultations. The changes were as follows:

**2. Component 1:** The output 1.1.1 is reformulated to cover capacity development programme for both at national and district level and also to develop training manuals and integrate them into MOAD's regular training activities. The local level staff will also cover field level extension workers at the Illaka level. There will be two training programmes for selected 200 staff from four districts ( $4 \times 2 = 8$ ) one on the first year of the project and the second during the third year of the project. The trainees will also be included from NARC's regional research centers. There is no change to other outputs of the component 1.

**3. Component 2:** Overall the component two outcomes are not changed. However, based on the consultation with NARC and Agribusiness Promotion and Statistics (ABPS) division of MOAD, the output 2.1.1 is reformulated as "Improved tools and methods for climate change impact assessment, crop monitoring and yield forecasting introduced at the national level and core staff in NARC's environment Unit (5 staff) and Agribusiness Promotion and Statistics Division (ABPSD) (5 staff) of MOAD trained". The reformulation is based on the suggestion during the consultations and was agreed during the final PPG workshop. The output 2.1.2 is reformulated as "Improved risk and vulnerability assessment methods used and spatial risk and vulnerability information on agriculture for 24 village Development Committees (VDCs) developed".

**4. Component 3:** There are no changes in the component 3 outcomes and outputs, but there are very minor changes in the output description to make it more consistent. The output 3.1.2 aligned with the field level activities of the component 4 as the farmer field school will be conducted in close linkages to field demonstrations and implementation of adaptation practices at the community level.

**5. Component 4:** There are no specific changes in the component 4 outcomes, outputs and description. However, lots of additional details are included. The component 4 activities are closely aligned with the other components having Village Development Committee (VDC) level implementation.

6. As a result of this revised design, the distribution of costs between components has changed, as follows:

<b>Component</b>	<b>Original LDCF Financing</b>	<b>Updated LDCF financing</b>	<b>Original co-financing</b>	<b>Updated co-financing</b>
Component 1	300,000	268,170	1,775,000	671,429
Component 2	350,000	343,406	735,000	1,800,000
Component 3	311,427	300,534	1,500,000	1,762,000
Component 4.	1,600,000	1,625,153	4,796,196	8,138,000
Project management	128,071	152,236	440,310	618,571
Total	2,689,498	2,689,498	9,246,506	12,990,000

**A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Updates Reports, etc.**

7. In addition to already described national strategies and plans or reports and assessments under relevant conventions, some additional aspects are included under this section. The additional details were evolved or made available during the full project formulation stage. The descriptions for the additional details that have not been covered under PIF are climate change policy (2011), Climate Resilience Planning (2011), National Framework on Local Adaptation Plans for Action 2011 (LAPA Framework), Manual for Local Adaptation Plans for Action (LAPA) (2011), United Nations Development Frameworks for Nepal (2013-2017), Agriculture Development Strategy (ADS) (2013) and an Approach Paper to the Thirteenth Plan (2013/14 – 2015/16). For convenience, complete details including the additional details are provided under this section.

8. The project is consistent with Nepal's **Initial National Communication to the UNFCCC (2004)**. Some of the priorities outlined in the document and closely related to the project components are: develop and familiarize drought tolerant varieties of crops, promoting traditional and indigenous practices to reduce the impacts of climate change, assess the impact of climate change on crops and develop forecasting systems, identify agro-ecological zones particularly sensitive to climate change impacts and vulnerable areas, promote efficient utilization and conservation of water and promote adaptive farming systems.

9. The project is in line with the priorities and needs identified under the **National Adaptation Programme of Action (NAPA)** (September 2010), National Strategy for Disaster Risk Management (NSDRM – March 2008) and **National Agriculture Sector Development Priority (NASDP)** for the Medium-Term (2010/11 - 2014/15). The project focuses on proposed activities of the NAPA priority project profile 1 (Promoting community based adaptation through integrated management of agriculture, water, forests and biodiversity sector) and the priority project profile 2 (Building and enhancing adaptive capacity of vulnerable communities through improved system and access to services related to agriculture development). FAO, through its technical assistance programme to the Government of Nepal, has supported formulation of NAPA priority project profile on climate change adaptation in agriculture and food security through a broad consultation process. A brief account of the strategies, plans, reports and documents that outlines the immediate and long term needs of Nepal in agriculture is described below:

**10. Priority Framework of Action (2011 – 2020) (PFA)**<sup>5</sup> on Climate Change Adaptation and Disaster Risk Management is a comprehensive priority framework to support and provide strategic direction to the Ministry of Agricultural Development (MOAD), its technical services and agencies for the implementation of Climate Change Adaptation and Disaster Risk Management (DRM) in Agriculture and allied sectors. The framework was prepared and endorsed by the Government in 2011. Experience gained from FAO's assistance through a project (TCP/NEP/3201) on "strengthening capacities for disaster preparedness and climate risk management in the agriculture sector", especially field level activities, provided much information in the identification of priorities.

11. The PFA identifies five major priority areas: (i) Strengthening institutions, policy and coordination, (ii) Assessing and monitoring climate risks and vulnerabilities, (iii) Improved knowledge management, database and awareness raising, (iv) Implementing technical options by integrating community based approaches, and (v) strengthening capacities for effective risk preparedness, response and rehabilitation. Along the same line, the proposed LDCF project explicitly contributes to priority areas I, II, III and IV detailed above. As the PFA will be implemented by concerned line agencies, ministries and departments (e.g. MOAD, NARC, DOA, DLS and DHM), the same implementation arrangement will be considered for implementing this LDCF project.

12. Agricultural growth is a major priority in the **Tenth Plan** and continued in the ensuing **Three Year Interim Plan** (2007/08 – 2009/10) and current Three Years Plan (2010/11-2012/13). This three year Plan envisaged agricultural growth to increase by 3.9 % , as well as a reduction in food insecurity and malnutrition. Identified means to enable growth include: diversification and commercialization; enhanced supply and access to resources including irrigation, fertilizers; and improving market linkages. This project will contribute to diversification of livelihood activities and access to livelihood resources with a view to reduce vulnerability to climate risks and enhances adaptive capacity.

13. The plan also distinguishes the importance of disaster risk reduction, emphasizes the need to introduce changes into the prevailing national policies for the required shift of focus from disaster response to prevention, and preparedness, identifies challenges such as the need to foster coordination among the institutions, and seeks to promote better understanding of climate risks. The plan recognizes existing gaps such as the lack of institutional capacities at various levels, and emphasizes the need for systematic risk and vulnerability mapping, enhancing public awareness and technical capacities for climate risk assessment. These needs are taken into account under the project component 2 "Assessment, monitoring and providing advance early warning systems on vulnerabilities and risks to assist better adaptation planning at national, district and local levels".

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<sup>5</sup> Ministry of Agricultural Development (2011). Priority Framework for Action – Climate Change Adaptation and Disaster Risk Management in Agriculture. Government of Nepal, Kathmandu, Nepal.

14. The **National Agriculture Sector Development Priority (NASDP)** (2010/11 - 2014/15) acknowledged the importance of adaptation to climate change effects. The NASDP stresses the limited capacity for adaptation to climate change effects. The problems focused are irregular rainfalls, floods, droughts, cold waves, landslides and new pests and diseases. As these factors directly affect food production, the priority suggests that the country needs to enhance its capacity with adequate attention on vagaries of climate change effects in agriculture.

15. The Government of Nepal had brought into force the **National Agricultural Policy (2004)**, which takes into consideration aspects that are related to Climate Change Adaptation and Disaster Risk Management. One of the relevant priority is to enhance the capacity to assess the impact of heavy rainfall, droughts, diseases, insects and other natural calamities. This project (component 1 and 2) will support to deliver relevant tools and methods for impact assessment and monitoring.

16. Nepal's **National Strategy for Disaster Risk Management (NSDRM)** endorsed in 2008 is closely oriented along the lines of the Hyogo Framework for Action (HFA) and it implies a major shift in government policies away from an emergency response driven way of working toward a disaster risk management perspective, which puts equal emphasis on prevention, and preparedness, highlights the links between disaster management and development, as well as the cross sectoral responsibilities. The agriculture component of the strategy has five pillars similar to one described above under priority framework for action.

**17. Climate Change Policy (2011):** The Government of Nepal through the Climate Change Policy (CCP 2011) expressed urgency to address the climate change by implementing relevant programmes to minimize the existing and likely impacts in different ecological regions. One of the goals of the CCP is to promote climate adaptation and adoption of effective measures to address adverse impacts of climate change through technology development and transfer, public awareness raising, capacity building and access to financial resources. The goals of the policy also includes development of a reliable impact forecasting system to reduce the adverse impacts of climate change in vulnerable areas in natural resources and people's livelihood.

18. Out of the seven objectives of the CCP three are related to climate change adaptation and livelihood. First is to implement climate adaptation-related programmes and maximize the benefits by enhancing positive impacts and mitigating the adverse impacts. Second is to enhance the climate adaptation and resilience capacity of local communities for optimum utilization of natural resources and their efficient management. Finally, it is to improve the living standard of people by maximum utilization of the opportunities created from the climate change-related conventions, protocols and agreements.

19. The policy statements emphasize on climate change adaptation and livelihood. It calls attention to link and implement climate adaptation with socio-economic development and income-generating activities. The policy also underscores forecasting water-induced disasters and risks created from climate change and providing early warning information, developing necessary mechanism for the implementation of preventive measures and ensuring regular supervision, and enhancing capacity. Similarly, it includes identifying the people, communities and geographic areas impacted by climate change and implementing adaptation and impact mitigation measures based on local knowledge, skills and technologies. The policy emphasizes on identifying, developing and utilizing crop varieties and species that can tolerate drought and floods. It also includes soil and water conservation through measures such as source protection and rain water harvesting.

**20. Climate Resilience Planning (2011):** Climate Resilience Planning is a tool for long-term climate adaptation. Enhancing the resilience of development plans to climate risk is a strategic and proactive move that requires assessment of anticipated climate threats and building measures to reduce the threats. This document describes community resilience and adaptation under sectoral vulnerability under the development scenario including agriculture. This also presents climate framework strategy and screening approach for development actions.

**21. National Framework on Local Adaptation Plans for Action 2011 (LAPA Framework):** LAPA Framework (2011) is developed to support operationalization of NAPA (2010), National Climate Change Policy (2011) and Climate Resilience Planning (2011) through integration of climate change resilience into local-to-national development planning processes. The Framework supports the Local Self Governance Act (1999) to integrate local adaptation priorities into



village, municipality, district and sectoral level planning processes. The Framework adopts four principles, namely, bottom-up, inclusive, responsive and flexible to ensure the integration of climate change resilience into local-to-national planning.

22. The bottom-up planning starts from the households and moves upwards to the Ward and VDC level and higher. The inclusiveness requires dialogue between diverse stakeholder groups in decision making including men and women of different ages, castes or ethnicities. To be responsive, the planning processes should focus on building resilience of the most climate vulnerable communities first. The principle of flexibility refers to the ability of the planning processes to be iterative in their approach. The units for integrating climate change resilient planning are VDC and Municipality that capture location specific adaptation priorities within their territories.

23. The framework presents seven steps for LAPA development. The steps include details on climate change sensitisation, vulnerability & adaptation, prioritising adaptation options, developing an adaptation plan, integrating LAPA into local-to-national planning, implementing local adaptation plans and assessing progress through monitoring and evaluation. The framework describes 18 LAPA tools for use in the process.

24. The government with the aim of integrating climate change resilience into development planning processes at different levels developed a **Manual for Local Adaptation Plans for Action (LAPA)** in 2011. The manual can help planners, practitioners, trainers, community groups, citizen forums, women and indigenous communities in integrating climate change resilience into local-to-national planning processes and outcomes. The manual includes process, steps and tools for integration. The LAPA manual follows the planning process followed by MOFALD which is the lead institution for implementation of LAPA. It adopts bottom up planning process starting from Ward Citizens' Forum to VDC/Municipality and district level. The Manual recommends seven steps in preparing and implementing LAPA. The steps include climate change sensitization, climate vulnerability and adaptation assessment, prioritization of adaptation options, developing LAPA, integrating it into planning processes, implementing it and assessing its progress.

25. The Manual has identified some 19 tools for help adaptation which include climatic hazard trend analysis, disaggregated vulnerability matrix, hazard and impact risk assessment, climate adapted well-being assessment and gender and social inclusion integration among others. Some of the tools are highly useful for the LAPA development process in the proposed project.

**26. United Nations Development Frameworks for Nepal 2013-2017:** Government of Nepal and United Nations Country Team in Nepal developed United Nations Development Frameworks (UNDAF) for Nepal 2013-2017 in 2012. The Framework has proposed 10 outcomes divided into three components, namely, advancing equality through equity, protecting development gains and creating an enabling environment for enhanced international cooperation. The 7<sup>th</sup> outcome falling under the second component states that *"People living in areas vulnerable to climate change and disasters benefit from improved risk management and are more resilient to hazard-related shocks"*. The proposed project will help to achieve this outcome. The project is also somehow assist to the first component second outcome *"vulnerable groups have improved access to economic opportunities and adequate social protection"*.

**27. Agriculture Development Strategy (ADS) 2013:** A draft Agriculture Development Strategy (2013) is available for review. Considering the changed national and international contexts Government of Nepal developed ADS. The main objective of the ADS is to succeed the Agriculture Perspective Plan (APP) and give long term strategies for agricultural development in the country. The scope of the ADS is very wide including food security, agricultural productivity, connectivity and resilience; sustainable production and resource management through climate change mitigation; adaptation and improved land and water management and water allocation; increased private sector development (including cooperative sector), delivering fair reward to all stakeholders in the value chain; and policies, institutions, and investments. The policy options of the ADS support the LAPA as an implementation tool for the NAPA for climate change adaptation.

28. The ADS provisions some measures for improving resilience of farmers. The measures include promotion of research on identification and adoption of stress tolerant crop, livestock and fish species for the development of climate resilient agriculture. Similarly, another measure proposed is to establish early warning system and adopt early warning information in managing climate change risk in agriculture. It also proposes designing ICT based climate information

systems for farmers and crop yield forecasting system. Yet another recommendation is to establish Farmers Welfare Fund that would provide assistance to farmers under distress to overcome temporary losses of income. In addition, it also proposes for strengthening of food reserve system to cope with emergency. The ADS emphasizes on increasing land and labour productivity through agricultural research and extension, efficient use of agricultural inputs, efficient and sustainable use of natural resources, and increased resilience to climate change and disasters. The proposed project will assist to meet the objectives of the ADS.

**29. An Approach Paper to the Thirteenth Plan (2013/14 – 2015/16):** The approach paper is the basis for the 13<sup>th</sup> plan. It identifies climate change as one of the main challenges to attaining the expected outcomes in the agricultural sector. One of the seven strategies of the thirteenth plan approach paper is to implement development programs which support climate change adaption. One of the major objectives of the paper under Agriculture, Irrigation, Land Reform, and Forest sector is to develop and disseminate environment-friendly agro-technologies to minimize the adverse impacts of climate change.

30. The operative policy for this purpose is to promote adaptive techniques and practices to minimise the adverse impacts of climate change. The operating policies for food and nutrition include development of crops resilient to climate change and scaling up of these crops in food-insecure areas. Some other strategy includes making meteorological services reliable, trustworthy, regular and good-quality in order to mobilise them in efforts to mitigate the impacts of climate change. The review of the recent and pertinent policies, strategies and related documents shows that the proposed project is within the area of policy commitments of the government of Nepal as expressed in the policy documents.

#### **A.2 GEF focal area and/or fund(s) strategies, eligibility criteria and priorities.**

31. No change compared to the PIF.

#### **A.3 The GEF Agency's comparative advantage:**

32. There are some changes introduced under this section considering the recent developments related to FAO's new strategic objective operational from 2014. The complete descriptions of the changes are provided below.

33. FAO has been implementing several projects in Nepal in the field of agriculture, food security, climate risk management, disaster preparedness and emergency response. FAO's comparative advantage for the proposed project lies in its long-standing experiences working with Government agencies and more specifically with the Ministry of Agricultural Development (MOAD) on issues related to climate variability and climate change. Several FAO's programmes are complementary to the proposed project and will build on already established institutional systems.

34. The project draws on lessons learned from two projects technically assisted by FAO: (i) FAO assisted the Government of Nepal between 2008 and 2010 for strengthening capacity for climate risk management and disaster preparedness (TCP/3201 (D)) in agriculture sector through its Technical Cooperation Programme (TCP). Through this project, FAO has supported identification of agriculture and food security related priorities for NAPA by the Thematic Working Group (TWG) on Agriculture and Food Security.

35. The project included development of technical and institutional capacity, preparation of national priority framework for action on climate change and disaster risk management; preparation of district level risk management plans, and demonstration of risk reduction and adaptation practices in four districts covering 12 village development committees (VDCs); (ii) FAO had implemented FAO-UNDP Joint Programme on climate change adaptation and sustainable livelihoods for two years (2010-2011). This programme is closely linked to FAO TCP project, but covered additional district cluster covering one district in *Terai* and another in mid-hills.

36. FAO's activities are guided by a clear targeting policy which ensures that they reach poor rural women and men, who are usually the most vulnerable to climate change. FAO's operations are consistent with the national priorities especially on sustainable agriculture and food security. The proposed project matches with the FAO's comparative

advantage in capacity development in agriculture sector. FAO has been supporting Nepal's efforts to develop more resilient agriculture systems and national food security strategies. Technical support will be provided locally from the national level expertise and also from the FAO Regional Office for Asia and the Pacific (FAORAP) in Bangkok and from the climate impact and adaptation team of the Climate, Energy and Tenure Division (NRC) in FAO headquarters.

37. This Project is aligned with FAO's Global Strategic Objective 2 (SO2): Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner. The Project's focus to help local forest user groups improve their forest management practices while benefiting their own livelihoods will contribute in particular Organizational Outcome 1 (OO1) under SO2: Producers and Natural Resource Managers Adopt Practices that Increase and Improve the Provision of Goods and Services in the Agricultural Sector Production Systems in a Sustainable Manner.

38. In addition, the Project's work to strengthen the relevant policy framework in Nepal will contribute to SO2, OO2: Stakeholders in member countries strengthen governance – the policies, laws, management frameworks and institutions that are needed to support producers and resource managers – in the transition to sustainable agricultural sector production system. It is also aligned to SO5: Increase the resilience of livelihoods to threats and crises. The project contributes to increased resilience of livelihoods to threats and crises OO2 under SO5: Countries and regions deliver regular information and trigger timely actions against potential, known and emerging threats to agriculture, food, and nutrition.

39. The project fit into FAO-Adapt, an organization-wide framework programme launched in 2011. It provides general guidance and introduces principles as well as priority themes, actions and implementation support to FAO's multi-disciplinary activities for climate change adaptation. FAO-Adapt provide an umbrella to FAO's adaptation activities, including short-term and long-term adaptation measures. FAO-Adapt aim to enhance coordination, efficiency and visibility of FAO's adaptation work. FAO's Interdepartmental Working Group (IDWG) on Climate Change and its subgroup on adaptation facilitate the implementation process of FAO-Adapt. Technical units in FAO Headquarters and decentralized offices lead the delivery of outputs and actions consolidated under the priority themes defined in the FAO-Adapt Framework Programme.

40. The Project is also aligned to, and contributing to, the “*FAO Country Programming Framework (CPF) (2013-2017)*”. In particular, it will contribute to the CPF's CPF Priority Area 4. Natural resource conservation and utilization including adaptation to climate change. The outcome 4.3 is related to climate change and institutional and technical capacities for adaptation to climate change in agriculture strengthened and adaptive capacity of vulnerable communities enhanced.

41. This includes 4 outputs: *Output 4.3.1: Improved policy advice and institutional capacity building*: Capacity building of national (institutions for climate change adaptation and policy advice and guidance in the integration of climate change priorities into agriculture and food security policies, programmes and action plans and support in the implementation of prioritized adaptation practices under the National Adaptation Programme of Action (NAPA)); *Output 4.3.2: Improved assessment, monitoring, disaster risk management* (Support in assessment and monitoring of climate risks and vulnerabilities, improvement of early warning systems and strengthening of capacities, and procedures for effective disaster risk management at all levels with emphasis on community based disaster risk management and facilitates integration to the longer-term climate change adaptation initiatives); *Output 4.3.3: Improved community based adaptation approaches* to climate change in vulnerable districts and capacity building of local communities in the adoption of improved production practices, including adaptation innovations through ecosystem management and improved pasture, rangeland management and rehabilitation of degraded lands, promotion of Public Land and Private Land plantation and agro forestry to enhance coping capacity of farmers, and promotion of alternative energy sources and *Output 4.3.4: Improved knowledge management*, database of good practices, database on agriculture impacts of climate change on agriculture.

#### **A.4 The baseline project and the problem it seeks to address:**

42. There are significant changes in relation to co-financing projects. The changes are because of the fact that almost all of the co-financing projects outlined in the PIF have been completed now. Thus, new projects were identified in close collaboration with the implementing partners. The most relevant projects and interventions to which GEF financing would complement are listed below with details of interventions.

**43. Overall baseline problems of climate:** Nepal is a land-locked country situated in the central part of the Himalayas. This comprises of high mountains, mid-hills, Siwalik (the Churia range), and the Terai (Plains). Each of the physiographic regions has climatic characteristics varying from tropical to alpine conditions within a lateral span of less than 200km. The country ranks 193 out of 210 in terms of Gross National Income per capita adjusted for purchasing power. More than 70% of the population lives in less than USD2 per day.

44. Nepal's climate is influenced by the Himalayan mountain range and the South Asian monsoon. The climate is characterized into four distinct seasons: pre-monsoon (Mar-May), monsoon (Jun-Sep), post-monsoon (Oct-Nov) and winter (Dec-Feb). The monsoon rain is most abundant in the east and gradually declines as it moves westwards; while winter rains are higher in the northwest declining as it moves south-eastwards. Observed climate data from 1960s indicate consistent warming and rise in the maximum temperatures at an annual rate of 0.04 – 0.06° C. Warming is more pronounced in high altitude regions compared to the Terai and Siwalik regions. Annual precipitation data shows general decline in pre-monsoon precipitation in far and mid-western Nepal, with a few pockets of declining rainfall in the western, central and eastern regions. In contrast, there is a general trend of increasing pre-monsoon precipitation in the rest of the country. Monsoon precipitation shows general declining trends in the mid-western and southern parts of western Nepal.

45. Climate and its variability is already affecting Nepal's agriculture sector. The climate related hazards like floods, drought, hailstorms, heat and cold waves; and pests and diseases, soil erosion, deforestation, desertification are recurring and pose severe threats to the sector. From 2002 to 2009, 68 235 hectares of crops mostly dominated by important cereals like rice, wheat, maize and millet are damaged by climate related extreme events<sup>6</sup>. Reduced food, feed, fuel and fibre lead to distress, poverty, food insecurity, malnutrition and deficiency syndromes among the vulnerable communities mainly in the hills and mountains of Nepal. Rapid population growth, rainfed agriculture (about 65%), shrinking farm size, land degradation and faulty and marginal agricultural practices are leading to exposure of the vulnerable communities and their livelihoods to climate risks and inflicting substantial physical and economic losses.

46. The LDCF project focuses four districts in two development regions: Eastern Development Region (Udaipur and Siraha) and Western Development Region (Argakhanchi and Kapilbastu). In general, the focus districts represent two eco-regions - mid-hills (Udaipur and Argakhanchi) and tarrai (Siraha, Kapilbastu). The mid-hill districts have a varied ecology, with tropical to subtropical climate in southern churia hills and plains, and mild temperate type of climate in mid-hills. About 15-26 percent of the total land is cultivable in the midhill districts. The forest coverage ranges from 41-72 percent. The total average rainfall is 1,260 mm and the irrigation facilities are very poor. In terrai, the coverage of cultivable land ranges from 56-67% and the forest coverage ranges from 41-48 percent. The total average rainfall is 1,467 mm. The Tarai districts are considered productive, but poor irrigation is also a crucial problem.

### **Baseline problems of the focus region**

47. The poverty rate, or the percentage of the population below the poverty line, is the most common indicator for measuring monetary poverty for an area or population group<sup>7</sup>. Rural poverty rates in the above mentioned districts are high and increase the vulnerability of agricultural population to climate risks. In hills, average poverty rate is 34.5%, while in terai ecological zone (in 2 selected districts - Siraha and Kapilbastu) it is 27.6%. Poverty and frequent hazards lead to migration of rural population depending on agriculture to urban areas and to foreign countries. Once the productivity of both monsoon and winter crops decrease, many people from villages are compelled to go outside to engage in off-farm labour work for earning livelihood. In some areas, for example in one of the villages of Kapilbastu district, due to flood, 45-50 families have already migrated to land near the forest area at the bank of Kothi River. This

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<sup>6</sup> Bimonthly Bulletin of Crop and Livestock Situation in various years, ABPSD, Ministry of Agricultural Development (MOAD), Government of Nepal.

<sup>7</sup> ISDR (2009). Global Assessment of Risks, Nepal Country Report, ISDR Global Assessment Report on Poverty and Disaster Risks 2009, 193p.

internal population movement due to climate risks is already leading to conflict between existing forest user groups and people moving from outside of the area. Changing climatic conditions might worsen these problems if adequate adaptation measures are not taken up to protect the livelihoods of the most vulnerable population.

48. Farmers have inadequate knowledge and skills on improved farming like proper use of chemical fertilizer, early variety selection, and application of pesticide (time and amount) based on weather patterns, seed and nursery management and off-season vegetable production, soil fertility management techniques and post-harvest technologies. Poor marketing skills and information is another constraint. Farmers of terai are affected by subsidy policy of neighbouring countries on seeds, fertilizers, and irrigational facilities. Hence Nepali farmers are unable to compete with neighbouring farmers while selling the agriculture products. Maize, wheat and paddy are the major crops; the productivity trends are highly variable due to climate related constraints. The declining productivity of oil crops is perceived in all the study villages.

**49. Livelihood profiles in the focus region:** There are major five types of livelihood groups. They are agriculture, labour (inside), labour (outside), village groceries and services. Agriculture is the mainstay of majority (87-90%). Sharecropping and on-farm and off-farm labour work is the main coping strategy for food scarcity. There is a practice of buying livestock and its products to make certain household income and meet the dietary needs. Vegetable farming is one of the important occupations in recent years as an alternative income source. Commercial vegetable is found in terai than in the mid-hills. Horticulture activities are in decreasing order because of lack of irrigation facilities and growing emergence of diseases and pests. The access of people to livelihood assets is the key for improved adaptive capacity to climate risks. Access to natural resources is found more in mid-hills compared to terai. In terms of financial assets, the people of terai are in better position than that of mid-hill because of proximity to financial institutions. But, access to social assets is better in mid-hills because the mid-hill community networks are comparatively well organized and partly due to their remoteness. Contrary to this, the access to various physical assets is in better position in terai. In terms of human assets, terai is comparatively in better position than that of mid-hills.

50. Small, poor farmers, marginalized and disadvantaged communities and households (mostly socially excluded) are particularly vulnerable to baseline problems. In particular, women, children and aged people are the most vulnerable as they do not possess adequate access to land, property, means and resources to cope with the situation. Poor families can hardly protect themselves against the occasional shocks occurred due to droughts and floods. Owing to various difficulties related to the livelihoods, more than one million prime-age male adults have already migrated abroad for foreign jobs. Though the money remitted by them has provided some cushions for buying food for the family members at home, these migrations have also created shortage of agricultural labour in the villages.

51. In these 4 districts, small-scale farmers take agricultural loans and financial facilities to improve their irrigation systems, buy seeds, seeding materials, and chemical fertilizers. Small-scale farmers also obtain these loans, agricultural inputs and support services from the local markets (haat bazaar), District Agricultural Development Office (DADO), District Livestock Services Office (DLSO), local NGOs, Indian markets, cooperatives, private shops and agro-vet, and the Agriculture Development Banks (Nepal).

52. The DADO and DLSO usually provide technical trainings and inputs to farmer groups, promoting skills and knowledge on agricultural technologies and practices. However, trainings do not directly include climate-related risks. In the last few years, the Saving and Credit Groups and cooperatives have considerably grown, and some farmers prefer taking loans from them due to their lower interest rates. Barriers that are preventing climate change adaptation from being mainstreamed at local level, and undermining adaptive capacity of local farmers: i) the inadequate knowledge on climate impacts, ii) the poor market information, iii) the complicated processes to access loans is some, and iv) the growing trend of taking loans even at high interest rate (>36%) only for sustaining livelihoods.

### **Risks of climate change threatening the focus region:**

53. In addition to the baseline problems, **climate change** is expected to bring additional threats of greater magnitude. Studies on future climate change projections for the Himalayan region and Nepal are limited because of the lack of long-term climate records and the uncertainties related to downscaling of General Circulation Models (GCMs), which, however, are currently the best option for assessing climate change. MOSTE (2004) showed that the rise in average

annual temperature will be in the range of 2 to 4 °C across Nepal, with a doubling of atmospheric carbon dioxide (CO<sub>2</sub>). The temperature rise will be greater in western Nepal than other regions, with the winter season increase reaching 2.4 to 5.4 °C in Nepal's far-western region. Agrawala *et al.* (2003)<sup>8</sup> reported that significant and consistent increases in temperatures are projected for Nepal across various climate models, with somewhat larger increases for the winter months than the summer months. For all seasons, the rising gradient is from east to west. Overall, the temperature in the country is found to be rising at the rate of 0.41 °C/decade.

54. There is evidence of increasing occurrence of intense rainfall events, an increase in flood days and generally more variable river flows. These changes are consistent with a range of climate change models and are predicted to continue into the future. The summer monsoon is likely to become more intense, with increasing occurrence of heavy rainfall events, while winter precipitation is predicted to decline. Widespread glacial retreat is expected to continue, resulting in significant changes to hydrological regimes (flows) and increased risk of GLOFs. As glacier melt accelerates, increased runoff can be expected initially and followed by a steady decline.

55. In the model output analysis, the Geophysical Fluid Dynamic Laboratory (GFD3) model projects a general increase in precipitation for the whole of Nepal, with the gradient from southwest to northeast in the magnitude of 150 to 1 050 mm at doubled CO<sub>2</sub> level. The Canadian Climate Centre model (CCCM) projects a decrease in precipitation from 0 to 400 mm in the eastern region, but increases of up to 1 600 mm in other regions. The GCM projected precipitation scenario against observed precipitation values shows that the rainy season in Nepal will be more intense, with a particularly noticeable increase in June and July, and that winter and spring will be drier than they are now. Climate models also project an overall increase in annual precipitation, but with high standard deviation. The increase in precipitation during the summer monsoon months (June, July and August) will be more pronounced, with a slight increase in winter precipitation also reported.

56. FAO has conducted further analysis with data from the ECHAM5 model (Max Planck Institute for Meteorology [MPI]), which was also used for the IPCC fourth Assessment Report. In conclusion, scenario A1b is characterized by a strong change in temperature, which is fairly uniform in the *terai* belt, but heterogeneous in other zones. Both monsoon and annual rainfall are expected to decrease, mainly in the hill zone of the eastern region. Scenario B1 is characterized by changes in rainfall and its temporal distribution. The temperature will increase, but less than in scenario A1b.

57. According to scenario A1b, rainfall decreases are expected especially in the hills zones of eastern and western regions. Together with the temperature rise, this will exacerbate the drought phenomena, with a significant impact on agriculture. The agriculture sector may be affected by water stress, while the reduced rainfall will probably decrease the number of flood events. However, to confirm this more detailed model, consideration of daily rainfall is required. Scenario B1 predicts comparatively lower June/July mean daily temperature changes across Nepal. The model forecasts a rainfall decrease, mainly in the eastern region of the country. Given these changes, drought frequency may not increase significantly in the *terai* region, except in eastern parts. However, there are uncertainties in the model projections for evaluating hydrological processes.

58. Kulkarni *et al.* (2013)<sup>9</sup> applied the Hadley Centre's high-resolution regional climate model PRECIS (Providing Regional Climate for Impact Studies) to subregions in the Hindu Kush-Himalayan region – western, central and eastern Himalaya. The central and eastern Himalaya regions partly cover Nepal on the west and east, respectively. The key projections from these efforts were that monsoon rainfall may decrease over the central Himalaya region (western Nepal) in the near future (2011–2040), whereas there may be a 5–10 percent increase in rainfall in the eastern Himalaya (eastern Nepal). The ensemble projected changes in seasonal rainfall (2011–2040) showed decreases over central and eastern Himalaya. Average temperatures are projected to rise by 1–2 °C in 2011–2040; increases in mean annual temperature may be greater in central than eastern Himalaya.

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<sup>8</sup> Agrawala, S., Raksakulthai, V., Van Aalst, M., Larsen, P., Smith, J. & Reynolds, J (2003). *Development and climate change in Nepal: focus on water resources and hydropower*. Paris, OECD.

<sup>9</sup> Kulkarni, A., Patwardhan, S., Kumar., K.K., Ashok, K. & Krishnan, R. 2013. Projected climate change in the Hindu Kush-Himalayan region by using the High-resolution Regional Model PRECIS. *Mountain Research and Development*, 33(2): 142–151.

59. The following is a summary of anticipated changes in temperature, precipitation and runoff based on a review of current literature:

- Overall, temperatures will increase throughout Nepal, especially at high altitudes and during the winter season
- The numbers of days and nights considered hot by current climate standards will increase
- There will be a wide range of mean annual precipitation changes across the ecoregions of Nepal, with the tendency varying according to different scenarios and models
- Downstream river flows would be higher in the short term, but lower in the long term because of a shift from snow to rain in the winter months
- Extreme weather events will increase, especially floods during the monsoon season and the duration of droughts during the winter months.

60. FAO (2013) study<sup>10</sup> identified the major climatic hazards. In general, 2 mid-hills districts selected for the project (Udayapur and Argakhanchi) are frequently affected by floods, landslides, hailstorms, frost, droughts and epidemics of crops and livestock diseases and pests. Epidemics of diseases and pests of crops and livestock are other hazards. Similarly, in selected 2 terai districts (Siraha and Kapilbastu), the major hazards as perceived by the farmers are flood, drought, heat wave, cold wave, and frost, dew / pala (pala = winter fog causing blight in potato). The areas along the riverbank are suffering from sedimentation caused by flood. More irrigation is required in such land due to high percolation and seepage problem. Flood and landslides are mainly responsible for damage of standing crops, erosion of productive land along the riverbank or at the foothill areas. These hazards also cause damage to community's assets like road, schools, market centres, irrigation canals, drinking water systems, and forest resources. Frequent droughts are responsible for crop failure mainly the winter crops like wheat, oilseed, and pulses. Cold wave not only damages the productivity of winter crops but also makes life very tough particularly to elderly and children.

61. The frequencies of the occurrence of the climate risks are increasing both in mid-hill and terai districts. In farmers' view, the main reasons are changing climatic conditions, especially rainfall, temperature and extreme climate events such as floods and droughts. High temperature and breaks in rainfall season lead to longer droughts. The severity of these hazards are expected to further increase in future affecting particularly to productive land and community's assets like road, irrigation canal, school, markets, etc. The occurrence of different hazards not only challenged the people's lives and livelihood but also destroyed the land and community assets at local level.

62. The climate risks also affect the social environment. In the recent years, there are more cases of seasonal and permanent migration thus the workloads of elderly, women and children particularly have increased. Due to constant fear and losses of crops and agricultural livelihood assets due to various risks, tendency of shifting occupation from on-farm to off-farm is common in rural areas. With the tendency of continuous crop failure, people usually sell their land even in cheaper price and divert to small-scale business. With the increasing trends of climatic risks, evidences were also observed on conflict of indigenous and migrant population about the resource sharing. The outbreak of many respiratory and vector borne diseases such as Malaria, Dengue, Japanese Encephalitis, Kala-azar and communicable diseases like cough, cold, eye infection, etc were also perceived by the people.

63. Rainwater, surface irrigation, shallow tube well, conservation pond are some of the sources for irrigation. However, the reliability of irrigation facilities is also in decreasing trend. The reasons are frequent flood, longer droughts, depletion of forest resource in Churia area and irregular rainfall patterns. The longer droughts are responsible to lowering the ground water table, which affected the poor performance of deep and shallow tube-wells in terai. With the increasing sedimentation through high soil erosion in upstream, there is a seepage problem of water hence farmers are unable to divert the water from the river into the canal.

64. Erratic rainfall has negative impacts on agriculture sector in both mid-hill and terrain districts. Majority of the people opined that there are changes in rainfall pattern. Change in rainfall month as well as the negative impacts of decrease in rainfall are similar in both mid-hill and terai districts. The change pattern of hailstone is more observed in mid-hills. A household survey as part of FAO's baseline study indicates that about 59.2% respondents of mid-hills (Udaipur and Argakhanchi) and 62.3% of terai (Siraha and Kapilbastu) have reported significant changes in rainfall

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<sup>10</sup> FAO (2014) Managing climate risks and adapting to climate change in the agriculture sector in Nepal, FAO Environment and Natural Resources Service Series, No. 22 – FAO, Rome, 2014

pattern. Similarly, majority of the respondents (62.2% in mid-hills and 59.8% in terai) opined that they have clearly experienced the changed pattern of temperature. People have experienced the impacts of climate change but they have inadequate knowledge about underlying causes and how to manage them.

65. The projections of climate change indicate that the key impacts are likely to include: significant warming, leading to increased frequency of extreme events, including floods and droughts; and overall increase in precipitation during the wet season but reduced number of rainy days. An additional threat derives from climate change in the Himalayan environment, which is likely to further increase the number of hazardous events and their social, economic and environmental impacts. It is likely that new areas and a variety of different climatic-induced threats will further increase the impacts of hazards. Rapid population growth, shrinking farm size in *Terai* region, continued unplanned agriculture in climate risk prone areas is likely to further increase the exposure and loss of livelihoods, if no countermeasures are put in place. This BAU scenario poses a big challenge to the agriculture sector, which is expected to suffer livelihood losses and the reduction of crop and livestock production. Since agriculture is Nepal's principal economic activity (employing over 65% of the population and contributing to 33% of the GDP), country's vulnerability to climate change is extremely high.

66. Climate change is likely to affect the agriculture-dependent livelihoods and ultimately, food security. The per-capita food availability is eroding over the years because of increased population against almost stagnant performance of the agriculture sector. The per-capita holding size of agricultural land is less than 0.8 ha, which contributes farmers to meet about six months' food production from their farms in a low production environment. Around 42 districts (out of 75) in the country encounter food deficit every year. The impacts of climate change on agricultural production as calculated in Cline's models suggests a decrease of 17.3% production above a temperature increase of 2.5° C. These figures do not reflect the most likely negative impacts of extreme climate events on agriculture production. Recent impacts of extreme climate events suggest that production decline is obvious even with slight changes in temperature and rainfall regimes.

67. Nepal's vulnerable farming economy is facing risk due to changes in the reliability of stream flow, a more intense and potentially erratic monsoon rainfall, and the impacts of flooding. Decline in rainfall from November to April adversely affects the winter and spring crops. Rice yields are particularly sensitive to climatic conditions and these may fall in the western region where a larger population of the poor live and this could threaten overall food security. According to assessments for NAPA<sup>11</sup>, climate change is posing a threat to food security due to loss of some local land races and crops.

68. In addition to the baseline problems discussed in the PIF, the barriers to address threats of climate change vulnerabilities were identified and discussed in details. These barriers form the basis for identification of technical assistance and investment activities under the GEF project. The barriers are closely linked to the components of the project.

### **Remaining barriers to address threats of climate change vulnerabilities**

69. The baseline projects will make a significant contribution to addressing issues described above. However, these do not adequately address the following barriers to climate change adaptation in agriculture and livestock sub-sectors and management for food security and environmental sustainability: (i) Insufficient institutional and technical capacity for adaptation to climate change in agriculture sector, (ii) inadequate data and information on vulnerabilities, risks and lack of communication of timely risk information to users at all levels (including farmers); (iii) inadequate awareness raising and knowledge management at all levels and (iv) lack of enterprise diversification and inadequate linkages with supply chains and loss of livelihood activities due to climate related extremes.

**70. Barrier #1: Insufficient institutional and technical capacity for adaptation to climate change in agriculture sector:** The National Adaptation Plan of Action (NAPA) highlights the gaps in enabling environment for an effective climate change adaptation and sustainable agriculture. This capacity building need would require instituting appropriate institutional frameworks; providing research, training, education and scientific and technical supports in specialized fields relevant to climate change adaptation and also creating public awareness in climate change related issues. The

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<sup>11</sup> Ministry of Environment (2010). National Adaptation Programme of Action (NAPA), Government of Nepal, Kathmandu, Nepal.



agriculture and food security thematic assessment further highlights gaps in skills for vulnerability and adaptation assessment. The capacity building needs include the ability to conduct in-depth assessment of the impacts of climate variability and future climate change and identifying and developing measures to adapt to future climate variability and change.

**71.** Low level of scientific and technical capacity for effective climate change adaptation constraint has individual, institutional and systemic capacity needs dimensions which include training of Nepal's agricultural experts in specific aspects of assessment of impacts of climate change in agriculture and formulation of adaptation strategies and establishment of technology assessment and procurement facilities; and networking climate change actions at country level. The decision-making processes for sustainable climate change adaptation in agriculture require appropriate information that assist the policy- and decision-makers to arrive at well-articulated and relevant policies and plans that systematically integrates climate change concerns. Similarly, inadequate, weak and ineffective research – development linkages in the agriculture sector reduces transfer of technology from research to farmers. This capacity issue is common to both the agriculture and livestock sub-sectors.

**72. Barrier #2: Inadequate data and information on vulnerabilities, risks and lack of communication of timely risk information to users at all levels (including farmers):** This barrier limits adaptation at the local level. Inconsistent use of different information sources and lack of clear mandate for interpretation of climate information may lead to wrong decisions in the agriculture sector. There needs to be an official process for generating warnings that include communication between climate information providers and agriculture departments and communities where impacts are experienced. There is insufficient capacity within the Ministry of Agricultural Development (MOAD) to translate generic information into agriculture specific impact outlooks and alternate management plans. Without translation into information that can be easily understood by users, the information is unlikely to be used. It is also important to combine this information with known vulnerabilities and risks. There is a gap in terms of vulnerability assessment in agriculture and livestock sector at the local level.

**73. Barrier #3: Inadequate awareness raising and knowledge management at all levels:** At local level, there is a need to introduce and demonstrate through a guided learning by doing process, a set of locally adapted, innovative and gender-sensitive technologies for adaptation within the agriculture sector; this will further enhance: i) local awareness about disaster prevention and adaptation to climate variability and change; ii) the resilience of local communities against the impacts and unpredictability of current climatic extremes, which are expected to further increase in intensity and frequency in the context of forecasted climate change; iii) livelihood assets, on-farm employment and household food security; and iv) active participation of the most vulnerable men and women. Successfully tested technology options will provide the basis for further replication in similar agro-ecological settings elsewhere.

**74. Barrier #4: Lack of enterprise diversification and inadequate linkages with supply chains and loss of livelihood activities due to climate related extremes:** Lack of diversification and adoption livelihood alternatives and inadequate linkages between input availability, agriculture production, and marketing is a barrier to advance adaptation. Rainfed agriculture is a major source of employment and livelihood in Nepal. Erratic rainfall patterns and increasing drought frequency are implicated in soil degradation, decline in production of traditional crops, deepening poverty and food insecurity of farming households. Direct effects of the rainy season characteristics lead to loss of soil fertility, lower production, and loss of household income. The farming households have evolved and still rely to some extent on operational changes in farming activities, spreading risks, sharing losses and other risk management strategies (sale of assets, harvesting of natural forest food). All these efforts are ad-hoc and mostly reactive emergency mode and are not sustainable.

**75. Barrier #5: Climate impacts on crops and livestock enterprises constraints production and poses a threat to rural livelihoods depending on crop and livestock enterprises:** It is against this background that donor interventions in the crop and livestock sector have been few in the past when compared to other sectors. There is a clear need, to increase action-oriented and community based adaptation with a view to developing intervention packages. The objective of the technical interventions in livestock management should be to reduce the acute pressure on pastures and feed resources by better matching livestock requirements with the natural resource base and by increasing the efficiency of conversion of the natural resources into farmers' income.

76. Improvements are demanded in the delivery of livelihood diversification strategies, localized resource conservation practices, protection of livelihood assets and provision of quality agriculture support services and integration of climate change considerations into policy. Similarly, importance has to be given for improving technical and institutional capacity of institutions with a view to address the impacts of climate change in addition to baseline development programmes. In response to the **baseline problems** described above, the Government of Nepal with support of development partners including FAO have responded with several initiatives which constitute baseline (co-financing projects) for the proposed LDCF project.

#### **Baseline initiatives that will provide co-financing for the project**

77. A completely new set of baseline projects have not affected the LDCF activities. The government of Nepal programs the LDCF financing for implementation of the adaptation priorities identified through the Priority Framework for Action (PFA) of the Ministry of Agricultural Development (MOAD). Therefore, while the baseline projects identified during the PIF stage have been completed, the outcomes, outputs and activities for the proposed LDCF project remained unchanged given that they are focused on implementing the PFA and have not been addressed through other similar projects. It was evident from the assessment during the PPG stage that there was no new climate change related initiatives started between PIF completion and full project preparation. In other words, while the completely new set of baseline and co-financing projects identified address issues of local development, they do not consider climate change related priorities explicitly. In this sense, the proposed project will build on these activities to deliver the climate change adaptation benefits established in the PFA

**78. Agriculture and Food Security Project** (UTF/NEP/073/NEP: 2014 - 2018); Co-financing of USD 8.62 million from the Food Security Project. The main aim of this project is to contribute to nutrition and livelihood through Farmers Field Schools (FFS). This \$46.5 million GAFSP<sup>12</sup> funded project is to improve household food security through increased agricultural productivity, household incomes, and awareness about health and nutrition. The main objectives of the project are to (i) enhance the food security of vulnerable groups enlarging the livelihoods base for farm families; (ii) reduce food and health risks among vulnerable groups and improve income earning and employment opportunities for the poor households in targeted communities; and (iii) contribute to enhancing nutrition security in project areas through promotion of diversified diets, increased nutrient intakes and improved feeding and caring practices for pregnant and nursing women, and children up to 2 years of age. The project is specifically focused in the Mid-Western and Far-Western development regions. The project covers 19 districts (Darchula, Baitadi, Dadeldhuda, Humla, Jumla, Mugu, Dolpa, Kalikot, Bajhang, Bajura Jajarkot, Achham, Doti, Dailekh, Surkhet, Rukum, Salyan, Rolpa and Pyuthan).

79. The project aims to improve food security among the 150,000 small marginal farmers, 50,000 young mothers, children and adolescent girls, and 25,000 agricultural wage workers in the poorest and most food insecure regions in Nepal covering three major aspects of food security, namely – availability, access, and utilization. The project has four components, namely 1: technology development and adaptation; 2: technology dissemination and adoption; 3: food and nutritional status enhancement; and 4: project management. The first component is to help farmers to use appropriate technologies and resources such as seeds and breeds that contribute to increased productivity of crops and livestock. The second component is to enable farmers in the project area to adopt improved agricultural production technologies and management practices using the resources and technologies provided under the first component. Similarly, the third component is to enhance food and nutrition security through increased food availability for targeted households and promotion of diversified diets and improved feeding and caring practices.

80. The project activities at the national and regional level will directly complement the LDCF activities. The LDCF activities especially the component 2 assessments that cover the entire country will be used to prioritize location specific technology development and adoption. The LDCF would aim to build climate resilience and additionality into the baseline project while the baseline project would complement the LDCF by providing already tested good practices examples having livelihood diversification and income generation potentials. The LDCF project will also involve the

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<sup>12</sup> <http://www.gafspfund.org/content/nepal>

staff who works for the baseline co-financing projects in the technical capacity development activities as part of the component 1.

**81. Ginger Competitiveness Project:** Enhancing Sanitary and Phytosanitary Capacity of Nepalese Ginger Exports through Public Private Partnerships (PGM/MUL/Nepal Ginger; MTF /NEP/068/STF (STDF 329) – STDF contribution; and MTF/NEP/068/OPS - EIF contribution). It is a US\$ 1.17 million project initially planned for March 2012 to February 2014, now it is expected to be completed by December 2015. The objective of the project is to increase income level of ginger farmers through improvements in SPS arrangements and value addition for export to India and other countries. The project is to raise income of ginger-farmers in Eastern Nepal by improving the quality of ginger, increasing capacity to comply with SPS requirements and thereby enhancing market access. The follows value chain approach covering ginger farmers, collectors, traders, cooperatives and ginger producer/trader associations. This co-financing can help in improving livelihood options among the target farmers of this proposed GEF project districts.

82. Though the project is expected to overlap with LDCF project only for less than a year, the lessons learned especially on livelihood options and its potential for value addition can provide a huge opportunity for the farm women to diversify their household activities for increased income generation. The good practices examples generated from the Ginger Competitiveness Project will be integrated into the component 3 activities focusing on “Improving awareness, knowledge and communication on climate impacts and adaptation” and replicated through field demonstrations envisioned under component 4. By replicating the good practices identified from the Ginger Competitiveness Project through LDCF would benefit the project beneficiaries even after completion of the cofinancing project by December 2015. The replication through LDCF will specifically look at the additionality aspects.

**83. Annual budget of the Government of Nepal** for agriculture (crop) and livestock to the project districts is not less than US\$ 0.20 million per annum per district which comes to be US\$ 3.2 million during the project period. The amount goes to capacity building of the farmers and transfer of technology. In addition, the government will provide in kind support to the project that can be equivalent to USD 0.75 million. The in kind support will be in terms of office space and government staff counterparts.

**A.5 Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:**

84. There are minor changes to the description of additional cost reasoning and adaptation benefits. The revised text is presented below.

85. The additional activities requested for LDCF financing include implementing the Priority Framework for Action (PFA) and up-scaling of tested and new adaptation practices in agriculture. This is in-line with first two priority project profiles of NAPA. Emphasis will be given to address issues at the local level aiming to reduce the vulnerabilities and enhance adaptive capacity. The project will be implemented in four districts (Udayapur, Siraha, Argakhanchi and Kapilbastu) in 2 development regions (Eastern and Western). The project will be implemented by the Ministry of Agricultural Development (MOAD) along with district agricultural and livestock development offices (DADO/DLSO) under concerned departments (DOA, DLS).

86. The additional activities will be complementary to the baseline project activities as they will be aimed at integrating climate related concerns and priorities. The assumptions applied for additional cost reasoning refers to costs associated with the proposed activities that promote measures to cope with the adverse impacts of climate variability and change vulnerable communities to achieve their development goals. In a way, the additional costs correspond to projected loss of development benefits due to climate change. The section below describes the additional cost reasoning and alternative scenarios that is expected through the LDCF support to create adaptation benefits in safeguarding development results against climate change impacts.

**87. Component 1:** The specific weakness of the baseline projects are that climate risks are not addressed. Without considering the underlying vulnerabilities and climate risks, the performance of the baseline interventions will not be effective. The additional financing from LDCF will be used to strengthen the technical capacity in the Ministry of Agricultural Development (MOAD) and its departments (DOA, DLS and NARC) at national and district level on climate change adaptation. This will be achieved by assessing training needs and conducting need-based training programmes. Capacity building efforts will also target Ilaka (sub-districts) field offices and Village Development Committees (VDC), and other community-based organizations. To sustain the training programmes beyond the project cycle, the training curriculum will be integrated into the DOA and DLS regular/annual training activities within their respective training divisions.

88. The project will coordinate with similar activities of other projects in the country so that outcomes of the proposed project can be enhanced and made more sustainable. For example, the Agriculture and Food Security Project (AFSP) aims to enhance the food security of vulnerable groups enlarging the livelihoods base for farm families and to reduce food and health risks among vulnerable groups and improve income earning and employment opportunities for the poor households. This baseline project focuses on investments without considering the likely impacts of increasing climate variability and climate change.

89. Some of the activities under the proposed LDCF funded project, particularly agriculture based livelihood enhancement, is having similar objectives as the AFSP which will also be supporting local communities, farmer groups, producer groups in initiating activities (on and off-farm) that will directly impact their livelihood. The AFSP project will be implemented in 19 districts of Mid and Far-Western regions, and will benefit from the component 2 assessments on climate change impacts and vulnerabilities under the LDCF project. Thus, the LDCF project activities have clear focus on additional activities that have not been covered under the baseline projects. In addition, the national level capacity development activities will be carefully coordinated to enhance complementarity and synergies between the baseline projects and the LDCF.

90. To ensure sustainability of the project outcomes, the capacity development activities on climate change adaptation will be systematically designed by applying Farmers Field School (FFS) approach at the local level. This activity will build on the already established Farmer Field Schools (FFS) under the baseline projects (e.g. IPM), but incorporate climate change aspects. Systematic training needs assessment will be conducted at national, district and local level to design the curriculum for training programmes. The information necessary for preparation of training resources will be drawn from the documents such as National Communications, NAPA, research reports from NARC, and project reports of FAO and other development partners. Climate data collected from DHM as part of FAO project was already analysed and handed over to the Ministry of Agricultural Development (MOAD), and the data and results of the analysis will be used for preparation of training manuals. The training curriculum and necessary resources will be integrated into ongoing and regular training programme of MOAD, DOA, DLS and NARC to ensure sustainability.

91. This LDCF project will strengthen the Environment Unit (Climate Change) of Food Security and Environment Division of the Ministry of Agricultural Development (MOAD) with logistic and technical support, enabling the supervision of climate change adaptation activities. It will also seek to establish a mechanism for information exchange, collaboration, coordination between Ministry of Agricultural Development (MOAD), Ministry of Science Technology and Environment (MOSTE) and Ministry of Finance (GEF focal ministry) with regard to climate change.

**92. Component 2:** The LDCF resources will be used to improve databases, tools and methods for vulnerability and risk assessment and to define the hotspots of vulnerability (current and future) in agriculture sector. The LDCF project will improve the capacities of more than 20 governmental staff at the national level, training them on assessment tools and methods under the Training of Trainer's (ToT) model, to ensure sustainability. The LDCF project will be built on previous FAO's field experiences and will improve the quality of agro-meteorological advisories to farmers. At present, the Department of Hydrology and Meteorology is providing 24 hours forecast to 17 stations in the country; and it is expected that the PPCR project would aim to improve the lead time, timeliness and accuracy of the forecasts. This LDCF project will make use of the existing forecasts and also the new information products planned to be developed under the PPCR project for application at local level focusing specifically on agriculture sector. The LDCF resources will contribute to strengthening agro-climate monitoring infrastructure in selected 4 districts in close coordination with

PPCR and strengthen the expertise of district agricultural extension officers to interpret and use the climate data and information for decision making.

93. This LDCF project will strengthen the technical capacity of the Government agencies for agricultural and livestock services at district level (4 districts) to interpret weather and climate information and agro-meteorological information to be developed under the Component D: Agriculture Management Information System (AMIS) of PPCR project. This additional activity of the LDCF is relevant even with dissemination of currently available weather information (24 hrs) as this is not being applied for securing agricultural livelihoods at the local level. The LDCF will focus on strengthening of the current crop monitoring work of the Agribusiness Promotion and Statistics Division (ABPSD) of the Ministry of Agricultural Development and focus on application of information products at local level with farmers through Farmers Field Schools (FFS).

94. The training activities under the component 2 focuses only on specific aspects of risk and vulnerability assessment and application of weather, climate and agro-meteorological information and decision making, while the trainings under component 1 focuses on broader climate change adaptation. Government staff working for the co-financing projects is expected to participate in the training programmes to ensure introduction of climate resilience into the baseline and co-financing projects. Thus, the LDCF financing specifically targets additionality aspects with a view to promote vulnerability reduction and adaptive capacity to better manage climate related risks.

95. The weather and climate information will be disseminated at the village level through the Farmer Field Schools (FFS) already implemented by the baseline projects to ensure sustainability. The FAO project concluded in December 2011 on “climate change adaptation (CCA) and disaster risk management (DRM) for sustainable livelihoods in agriculture sector” supported up-gradation of 4 selected agro-meteorological observatories between 2008 and 2011 on pilot scale, but requires additional instruments. This LDCF project will focus on further up-gradation of 5 agro-meteorological observatories one each in Siraha, Udayapur, Kapilbastu, Argakhanchi. This activity will be coordinated with the component B (Modernization of the Observation Networks and Forecasting) of the PPCR project.

**96. Component 3:** The main objective of this component is to build a culture of innovation, and resilience, and to institutionalize awareness-raising on climate change adaptation. The expected outputs of Component 3 financed by the LDCF resources will include: i) Farmers Field School (FFS) approach implemented with at least 120 Farmers’ Groups in 4 districts and have sessions relevant to climate change adaptation; ii) packaging of at least 25 successfully tested and replicable adaptation practices; and iv) packaging of information on at least 5-6 new varieties of fruit trees or multi-purpose tree species suitable for reducing the climate related risks under changing conditions. The project will facilitate the formulation of awareness-raising, knowledge management and communication strategies, and their implementation through campaigns, field days and farmer exchange visits. The good practice examples will be screened based on the indicators: environment friendliness, potential to reduce the impacts of climate risks, economic viability, sustainability, social acceptability, gender sensitivity, income generation, enterprise diversification, seasonal relevance and community’s need. Screening of good practices examples for adaptation and packaging them through knowledge management portals and documents forms the additional activities that has not been covered under the baseline projects.

**97. Component 4:** The LDCF project will mobilize the local communities at village development committees (VDCs) to formulate **Local Adaptation Plans of Action (LAPA)** with an aim to prioritize local small-scale investments for strengthening livelihood assets, sources of income and for transfer of relevant adaptation technology for reducing climate risks. Prioritization of local/small scale investments and adaptation activities and subsequent implementation will be achieved by following Community Based Adaptation (CBA) and participatory tools and methods such as transect, risk and vulnerability mapping, hazard calendar, cropping calendar, matrix ranking, venn diagram and problem tree. The LDCF funding for these activities will be highly appropriate and additional that provides alternate livelihoods and income sources to vulnerable communities. The approach will be highly cost-effective and efficient as adaptation investments will be streamlined through the existing community networks, and will mobilize existing functional farmers’ groups/CBOs (Community-based Organizations). The LDCF project will promote sustainable, climate-resilient adaptation practices against climate change impacts in crop-agriculture and livestock sub-sectors to prepare and implement LAPAs in at least 24 VDCs covering 4 districts in 2 development regions. This proposed project will also include over 120 large-scale field demonstrations of new crop and fodder varieties in 5 agriculture seasons that has not been covered as part of the baseline projects and thus the investments under component 4 are considered additional.

98. The LAPA's investment priorities will incorporate climate risk management and adaptation practices in farming (soil and water conservation practices, water harvesting techniques, management of degraded land and community resources, sloping agricultural land technologies (SALT), off-season vegetable production, alternative livelihood options, risk-related seed storage and processing), agro-forestry (bioengineering for river bank protection, multi-purpose tree species, tree-crop alley farming systems) and livestock (improved livestock management, drought tolerant fodder species, vaccination, etc.) sectors. Field implementation of livelihood alternatives, climate resilient physical measures to improve livelihood assets and sources of income, transfer of adaptation technology relevant to agriculture and new stress tolerant varieties are expected to produce at least 25 innovative case studies to be integrated into national sectoral strategies (linked to component 1 and 3 of this project) and plans for up-scaling to similar areas in the country.

#### **A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:**

99. The consultations at the national and local level during the project preparation stage lead to identification of some additional risks. The risks from 7 to 11 are new to the already presented risks in the PIF. Most of the newly identified risks are low level. The corresponding mitigation measures are also presented in the table A6.

**Table A6. Risks, impacts, levels of risk and risk mitigation measures**

	<b>Risk</b>	<b>Impact</b>	<b>Level of Risk</b>	<b>Mitigation Measures</b>
1.	Civil unrest in the pilot districts, particularly in the <i>Terai</i> region	Delay or blocking of project operations at village level	L	Broader stakeholder consultations conducted to agree on the selection of village development committees. Local field monitors will be employed to oversee and assist the District Agriculture Development Office (DADO) and facilitate field work at the local level. The risk is low now compared to the past and FAO has the experience to manage this risk by employing local staff. The risk could be substantially reduced by strengthening the inter-ministerial steering committee and also multi-sectoral task team at the district level. FAO has facilitated creation of the above institutional mechanisms in the four selected districts of this LDCF project.
2.	Low level of participation of the most vulnerable communities and farmer groups in the project	Limitations in quality of project delivery and lack of ownership	M	A guided learning-by-doing strategy is built into the project to strengthen community mobilization and participation.
3.	Delay in procurement and delivery of inputs for demonstration of improved adaptation practices.	Delayed project implementation & loss of trust in project among farmers	L	An effective mechanism for procurement of inputs is agreed upon and will follow FAO's standard procedures relevant to identification of sources of inputs and efficient planning with suppliers.
4.	Area is again affected by climate extremes during project implementation	Immediate recovery needs do not allow to focus on longer term adaptation measures	L/M	Project activities are planned taking into consideration anticipated needs of the rainy season; crop calendars inform the planning and implementation of adaptation measures
5.	Risk of policy recommendations not adopted by policy makers	Limited improvements achieved in the institutional framework for adaptation and mainstreaming	L	Engaging stakeholders including policy makers in update of policies and strategies. Providing the project steering committee with suitable information about the importance of policy integration.
6.	Non-synchronization of co-financing projects with this LDCF project	LDCF project tends to support business-as-usual interventions	L	In-depth analysis of co-financing projects and its baseline interventions was done during the project preparation. Strong commitment was ensured from development partners and government agencies.
7	Risk of low quality of input supply (seed, breed, chemicals)	Expected production level is difficult to be achieved	L	All the farm inputs including seeds, breeds, and chemicals will be procured only after obtaining acceptable quality certification or quality test.
8	Delay in recruitment of project staff	Delay in project implementation	L	Schedule for recruitment of the project staff will be adhered to based on the agreed work plan.
9	Project staff may leave the project in between	Time loss in recruiting a new staff and the newly recruited	L	Staff selection criteria will be developed to identify staffs that are unlikely to drop in between. The facilities provided to the staff

	Risk	Impact	Level of Risk	Mitigation Measures
		staff takes time to fully run the project activities		will be commensurate with their qualification and experience. In case somebody drops, immediate steps will be followed to recruit new ones.
10	Transfer of government staff counterparts	Delay in project implementation due to learning time by the new staff	L	The government will be requested not to transfer the counterpart staff in between the project as far as possible. At least two staffs will be involved in project implementation from each counterpart office. The issue was discussed with DOA and DLS during the PPG final workshop.
11	Changes in political structure of local governments (likely to go to federal structure)	Changes in the political structure can change commitment of the local governments and aspirations of the people	M	New political structure will be briefed soon after it comes into power to get their commitment.

## A.7 Coordination with other relevant GEF financed initiatives

100. This section presents some new projects and other related initiatives in addition to already presented initiatives during the PIF stage that can benefit/complement implementation of GEF project is highlighted. The project will work in cooperation with other initiatives taken by the Ministry of Agricultural Development (MOAD), the Ministry of Home Affairs (MOHA), Ministry of Federal Affairs and Local Development (MOFALD), Ministry of Science, Technology and Environment (MOSTE), Ministry of Forestry and Soil Conservation (MOFSC) and Ministry of Irrigation (MOI), to improve synergies and cost-effectiveness.

**101. Project for Agricultural Commercialization and Trade (PACT)** (Project ID P087140) June 2009 – June 2018). The project was funded US\$ 26.5 million by the World Bank. The original objective was to improve the competitiveness of smallholder farmers and the agribusiness sector in selected commodity value chains in 25 districts. The project has three components, namely (i) agriculture and rural business development; (ii) support for Sanitary and Phytosanitary facilities and food quality management; and (iii) project management, and monitoring and evaluation. The first component administers competitive grant system to develop agriculture and rural businesses. The project issues calls for proposals from value chain participants and provides matching grants. These sub projects thus funded cover the agriculture commodities of cereal seeds, coffee, floriculture, ginger, potato seeds, rainbow trout, vegetables and others (<http://pact.gov.np>). Value Chain (VC) studies are conducted for some major commodities. The matching grants are for technology support and agribusiness support while pre-investment and advisory support from other organizations. The beneficiaries are producer organizations that operate for-profit businesses. The component two supports implementation of Sanitary and Phytosanitary facilities and food quality management through three line departments of the MOAD, namely DFTQC, Veterinary Standards and Drug Administration Office under DLS, National Plant Quarantine Program under DOA and also for private sector<sup>13</sup>.

102. The PACT was extended in October 2012 with additional US\$ 40 million financing from the World Bank up to June 2018. Out of this amount US\$ 4.00 million is taken as cofinancing for the proposed project. Additional financing of US\$ 22 million in credit and US\$ 18 million grant for increasing the coverage to all the 75 districts in Nepal. Revised project development objective is to improve the competitiveness of project supported smallholder farmers and agribusinesses within selected commodity value chains. The changes to the extended project are: a) extension of the closing date of the original project; b) revised objectives removing the restriction on project districts and scale up the scope of the project; and c) revised targets of outcome indicators to reflect scaling up of investments. For this added project, co-financing of the Nepal Government is US\$ 1.5 million.

**103. Irrigation and Water Resources Management Project (IWRMP) – Phase II:** Funded by the World Bank aims to improve irrigated agriculture productivity and management of selected irrigation schemes, and enhance institutional capacity for integrated water resources management. The project is implemented by Department of Irrigation, Department of Agriculture (DOA) and Water and Energy Commission. This project was started in 2007 with a budget

<sup>13</sup> <http://documents.worldbank.org/curated/en/2012/10/16902848/nepal-additional-financing-agricultural-commercialization-trade-project>

of USD 60,000,000 and the first phase was completed in 2013. The project is now extended to June 2018 with additional USD 50,000,000. This project covers: Taplejung, Sankhuwasabha, Terathum, Bhojpur, Okhlahunga, Khotang, Solukhumbu, Ramechhap, Mustang, Gorkha, Myagdi, Manag, Argakkanchi, Kapilbastu, Dailekh, Jajarkot, Salyan, Rolpa, Rukhum, Mugu, Humla, Achham, Darchula, Bajhang, Bajura. Two of the LDCF districts are part of the list, and good practices and lessons learned from this project will be used as part of the LDCF project.

104. The World Bank project is extended in November 2013 till June 2018 with additional US\$ 50 million funding (60% credit and 40% grant). The objectives and the components of the project remain the same<sup>14</sup> as the phase I. The fourth component, namely integrated crop and water management has a budget of US\$ 8.26 million. The World Bank funding of US\$ 65 million for December 2007 to June 2013 has been completed in 2013 and the major objectives were: to improve and sustain irrigated agricultural productivity and manage water resources efficiently through effective regulatory measures and harmonized water resources policy and acts. The objectives were achieved through (a) irrigation infrastructure development and improvement including promotion of micro-irrigation facilities for marginal and disadvantaged groups of farmers; (b) completion and consolidation of irrigation management transfer reforms; and (c) institutional and policy support for better water management and productivity.

105. The project has four components, namely (i) irrigation infrastructure development and improvement; (ii) irrigation management transfer reform; (iii) institutional and policy support for better water management; and (iv) integrated crop and water management. The first two components are implemented by the Department of Irrigation (DOI), the third component by Water and Energy Commission (WECS), and Department of Hydrology and Meteorology (DHM) and the fourth component jointly by DOA and DOI. The last component, which is much helpful for climate change adaptation, integrates the irrigation system rehabilitation and improved irrigation service provided with downstream agricultural activities. This is done through providing a package of modernized agriculture practices and institutional support for both on-farm and off-farm rural population towards achieving optimal level of agricultural production, reduction in rural poverty, enhancement of on-farm and off-farm income and food security<sup>15</sup>. Two of the IWRMP districts namely Argakkanchi and Kapilbastu are among the project districts of the proposed GEF project.

**106. High Value Agriculture Project in Hill and Mountain Areas (HVAP) (Jul 2010 – Sep 2017)** is funded (USD 18,900,000) by IFAD with the goal of reduction of poverty and vulnerability of women and men in hill and mountain areas of the Mid-Western Development Region. The project targets the rural poor, especially women and marginal groups and ensures to integrate in high value agriculture and value chains in 10 districts (Surkhet, Dailekh, Achham, Kalikot, Jumla, Jajarkot, Salyan, Mugu, Dolpa and Humla) and none of the districts are covered by this LDCF project. However, the good practices identified from the project will be considered for implementation through LDCF.

**107. High Mountain Agribusiness and Livelihood Improvement (HIMALI) Project (2011 – 2017)**, assisted by the ADB (USD 30,000,000) and seek to reduce poverty in highland areas, by improving income, employment opportunities and the nutritional status of poor farm families and women in particular; and by developing agriculture and NTFP and increasing the productivity of the livestock subsector through value chain development. The project provides grant assistant to farmers, farmers groups, cooperative, and other entrepreneurs to stimulate private sector for agribusiness development. The major component of HIMALI is economic growth environmental sustainability of private sector development. This project covers 10 districts (Jumla, Humla, Mugu, Dolpa, Mustang, Manang, Rasuwa, Dolakha, Solukhumbu, Sankhuwasabha) and there is no overlap with the LDCF districts. Though none of the district overlaps with the proposed project districts, experience of this project will be helpful for developing livelihood alternatives in the proposed project.

**108. Pilot Programme for Climate Resilience (PPCR) (2015 – 2018):** PPCR is funded by Climate Investment Funds and the fund (a budget of USD 31,300,000) is administered by Asian Development Bank (ADB), the International Finance Corporation (IFC) and the World Bank. Ministry of Science Technology and Environment (MOSTE) supervise the projects. This project aims to increase resilience to climate-related hazards by improving the accuracy and timeliness of weather and flood forecasts and warnings for vulnerable communities, as well as by developing Agricultural

<sup>14</sup> <http://documents.worldbank.org/curated/en/2013/11/18611641/nepal-additional-financing-irrigation-water-resources-management-project>.

<sup>15</sup> <http://documents.worldbank.org/curated/en/2007/05/8383289/nepal-irrigation-water-resources-management-project>.



Management Information System (AMIS) to help farmers mitigate climate-related production risks. This is planned to be achieved by establishing multi-hazard information and early warning systems, upgrading the existing hydro-meteorological system and agricultural management information system, and enhancing institutional and technical capacity. The proposed LDCF component 2 is related to this initiative and hence the synergies and complementarities will be considered to enhance effectiveness.

109. PPCR works with DHM for generating weather forecast and prediction and NARC to develop agro-advisory system that can include use of drought and flood resistant crop and improved production technology. District Energy, Environment and Climate Change Unit (DEECU) that represents Alternative Energy Promotion Center (AEPC) in the district is proposed as an implementing arm of the PPCR project. The DEECU draws representatives from all relevant agencies and their district implementing structures. This Unit is chaired by the Local Development Officer (LDO) and the secretariat is the District Energy and Environment Section (DEES). This section is responsible for coordinating all climate-related programs; ensuring synergies; and avoiding duplication and overlap. Though there is only one district Siraha overlapping with PPCR, the tools developed under PPCR will be used for this project in other districts as well. This project needs support to coordinate livelihood related meetings of the DEECU.

110. The LDCF project resources will not duplicate the planned activities of PPCR, but will compliment and establish synergy and make use of the early warning products and information for agricultural applications at local level in selected VDCs of 4 districts by engaging existing Farmer Field Schools (FFS). Further, the PPCR component D on creation of an Agricultural Management Information System (AMIS), development of agro-meteorological information products and capacity building covers only broader agricultural stakeholders within the Ministry of Agricultural Development (MOAD). But this LDCF will focus strengthening of current crop assessment role of Agribusiness Promotion and Statistics Division (ABPSD) by providing hands-on training on FAO's standard agro-meteorological tools and methods.

111. The existing Steering Committee for climate change adaptation and disaster risk management will provide necessary coordination mechanism and bring in services of other ministries. The Department of Hydrology and Meteorology (DHM) is also a member of the Steering Committee led by the Ministry of Agriculture and Development (MOAD) and thus potential overlaps with respect to component 2 of the project will be avoided. There is already a mechanism in place to coordinate research and extension (DOA/DLS/NARC) within the Ministry of Agriculture and Development. NARC will be involved in assessment of climate change impacts using model based analysis and the results will be better delivered on the ground applications especially to select adaptation strategies.

112. Coordination with initiatives of development partners will be enhanced by sharing information through climate change and development portal and Nepal Climate Change Knowledge Management Centre. Particular emphasis will be given to coordinate with other similar initiatives: UNDPs initiatives include - LDCF on Community Based Flood and Glacial Lake Outburst Risk Reduction, Comprehensive Disaster Risk Management Programme (CDRMP), Regional Climate Risk Reduction Project in the Himalayas (RCRRP) and Climate Risk Management Technical Assistance Support Project (CRM-TASP).

113. The proposed LDCF project will coordinate with a number of other initiatives by USAID on Sacred Himalayas Landscape, Hariyo Ban, and International Centre for Integrated Mountain Development's (ICIMOD) initiatives related to GLOF risk monitoring, SERVIR Himalaya (which deal with drought monitoring among others), UNEP's proposed GEF LDCF project focusing on NAPA combined profile on ecosystem management for climate change adaptation and Emergency Flood damage and Rehabilitation Project of ADB.

**114. Nepal Climate Change Support Programme (NCCSP):** Funded by DFID and the EU (USD 22,380,000), supports the Ministry of Science, Technology and Environment (MOSTE) to operationalize the Local Adaptation Plan of Action (LAPA). The first phase (2012-2015) of the NCCSP is implemented in 69 VDCs and one municipality in 14 districts in Mid and Far Western Development Regions. The beneficiaries are 300 thousand poor and most poor vulnerable people, disadvantaged and marginalized groups. The project develops district vulnerability profiles and VDC-level vulnerability ranking for the districts in Karnali zone. In each of the project districts, NCCSP implemented LAPA in five VDCs. NCCSP supports the most immediate and urgent needs in the plans that target most vulnerable wards, communities and households. The proposed project, though in different geographic areas, can benefit from the

experience of NCCSP in planning, preparation and implementation of LAPA. Literature developed by the NCCSP on the process of adaptation planning at local level, including training manuals for mobilizers will be highly useful. The brief description of LAPA preparation process is provided in the Annex.

**115. Community based Flood and Glacial Lake Outburst risk reduction project (CFGORRP):** CFGORRP, a USD 7,250,000 project for 2014 to 2017, is a joint undertaking of the GoN, GEF and UNDP. The lead implementing agency is the DHM. The objective is to reduce human and material losses from GLOF in Solukhumbu district and catastrophic flooding events in Udayapur, Siraha, Saptari and Mahottari districts. The project has two components, reducing risk of GLOF from Imja Lake and reducing losses of human and materials from recurrent floods in downstream areas. The specific project areas cover 8 VDCs of downstream four districts along river basins of Ratu, Khando and Gagan rivers, and Trijuga River, Hadiya and Kong tributary basins. Community-based early warning system (CBEWS) and strengthening of individual and institutional capacities for GLOF risk management can complement with the adaptation efforts of the proposed project in Udayapur and Siraha districts. Village Disaster Management Plans prepared and district line agency representatives trained on flood risk management will be useful for the proposed project as well.

**116. Himalayan Adaptation, Water and Resilience (HI-AWARE):** ICIMOD is developing a proposal for HI-AWARE research on Glacier and Snowpack Dependent River Basins in collaboration with Bangladesh Centre for Advanced Studies (BCAS), Energy Research Institute (TERI), Alternate Energy and Water Resources Institute (CAEWRI) of Pakistan Agricultural Research Council (PARC), and Alterra-WUR, Wageningen, the Netherlands. The stated goal of the project is to develop robust evidence to inform people-centred policies and practices for enhancing the adaptive capacities and climate resilience of the poorest and most vulnerable populations in the mountains and floodplains of Indus, Ganges and Brahmaputra rivers for improving their livelihoods. Knowledge generated by this project can be helpful to understand wider regional policies on adaptation that can complement the knowledge generated from the proposed project.

**117. Nepal Climate Change Knowledge Management Centre (NCKMC):** MOSTE and Nepal Academy of Science and Technology (NAST) hosted Nepal Climate Change and Development Portal ([www.climatenepal.org.np](http://www.climatenepal.org.np)) with supports of DANIDA, DFID, GEF and UNDP. This portal is the main outlet for Nepal Climate Change Knowledge Management Centre (NCKMC) developed under the NAPA project. The portal is to serve as a platform for coordinating and facilitating dissemination of climate-related knowledge for building capacity of the stakeholders. However, most of the Nepalese farmers have no access to internet and cannot read materials in English. This project will draw the experiences from various projects and consider development of adaptation options to be implemented in the selected districts.

**118. Coordination with USAID's Feed the Future initiative and other relevant programs at both the national and district level:** Coordination will be ensured with relevant programmes of USAID on climate change adaptation. Some of the programmes and projects are described below.

**119. Initiative for Climate Change Adaptation:** USAID under US Feed the Future Initiative funded a \$ 2 million five-year project (2012- 2017) "Initiative for Climate Change Adaptation (ICCA)" developed by IDE, Rupantaran and Resource Identification and Management Society Nepal (RIMS-Nepal). The project is to support targeted communities to adapt to adverse climate change impacts. More specifically, the project is to strengthen government capacity to implement policies on climate change adaptation and support planning to link forestry and agriculture. It is also to identify and facilitate suitable adaptation interventions, innovations, and technologies to enhance capacity of the community to improve livelihoods. It is also to help communities develop and implement LAPA and promote systems that allow stakeholders to participate in monitoring and evaluating climate change adaptation.

120. The project is to improve climate change planning and develop resilient income streams for 20 000 households in 8 districts (Nawalparasi, Rupandehi, Kapilbastu, Dang, Kaski, Parbat, Syangja and Rolpa) in western and mid-west development region of Nepal. The project is also to establish Community Climate Resource Centers (CCRC) with weather stations to measure temperature and rainfall. The project under implementation has already supported 10 VDCs to prepare their Local Adaptation Plan of Action; installed micro-irrigation technologies and broadcasted radio jingles on climate change adaptation for local FM radios. One district Kapilbastu of the ICCA is common to the proposed GEF

project. Any overlap in project VDCs is avoided in consultation with IDE Nepal. The experiences gained from this project will be helpful to implement the GEF project.

**121. CSISA Nepal:** Cereal Systems Initiative for South Asia Nepal (CSISA) is part of the Feed the Future Presidential Initiative that addresses key production challenges in rice, lentils and maize. CSISA Nepal receives most of its funding from USAID Nepal, with additional support from USAID Washington and the Bill & Melinda Gates Foundation. The project was launched in the fall of 2012. It is led by CIMMYT and partners are IRRI, IFPRI and ILRI. It aims to increase seed supply and demonstrate conservation tillage. CSISA Nepal supports the KISAN project of USAID and focuses on the mid-hill and Terai districts of Banke, Dadeldhura, Achham and Surkhet. Located in the mid-west and far west development zones of Nepal, CSISA Nepal's four priority districts also fall within USAID's Feed the Future target area 16 districts where it invests significant resources to combat household food insecurity. The project priorities include increasing the supply and accessibility of high quality seeds, farm mechanization and management technologies. The activities include an explicit focus on training for women farmers as well as providing technical backstopping for the newly funded KISAN project. One Adaptive Research and Training Center (ARTC) is established in each district and their locations were chosen based on a number of agronomic, socioeconomic and logistic factors.

122. CSISA Nepal activities include on-farm lentil trials to assess the effects of improved practices and spring maize trials with new hybrids and farm varieties to assess their performance under different management practices. It also facilitates access for women farmers to women-friendly, scale-appropriate machinery, including two-wheel tractors, seed drill and rice and wheat harvesting equipment. It will also do a participatory market chain analysis focused on three Terai districts (Kailali, Banke and Dang) to understand opportunities and constraints for strengthening seed systems and making markets work for smallholders.

**123. KISAN:** Knowledge-based Integrated Sustainable Agriculture and Nutrition Project (KISAN) is USAID's five-year (2013-2018), \$20.4 million project under Feed the Future initiative in Nepal. The project is a part of the Presidential Feed the Future (FTF) Initiative in Nepal. The project seeks to sustainably reduce poverty and hunger in Nepal by achieving inclusive growth in the agriculture sector, increasing income of farm families and improving nutritional status, especially of women and children in over 160,000 households. USAID will implement the project from 2013-2018 with Winrock International in collaboration with five Nepali organizations: Antenna Foundation Nepal; Development Project Service Center (DEPROSC); Center for Environmental and Agricultural Policy, Research, Extension and Development (CEAPRED); Nutrition Promotion and Consultancy Services (NPCS); and Nepal Water for Health (NEWAH). KISAN is expected to impact one million Nepalese in 20 districts namely Kapilbastu, Palpa, Argakhachi, Gulmi, Banke, Bardiya, Surkhet, Dailekh, Jajarkot Dang, Salyan, Rukum, Rolpa, Pyuthan, Baitadi, Kailali, Kanchanpur, Doti, Achham, Dadeldhura. Two of the project districts Kapilbastu and Argakhachi are common to the proposed GEF project. However, this project has not been considered as a potential baseline project due to slightly different focus including nutritional aspects and that LDCF project does not specifically addresses the nutritional issues. But, there are opportunities with respect to promoting complementarities by introducing sustainable agricultural practices.

**124. Agriculture and Food Security Project:** Ministry of Agricultural Development (MOAD), Ministry of Health and Population (MOHP), the U.S. Agency for International Development (USAID), and the World Bank are jointly launched a five year project Agriculture and Food Security Project (AFSP) in 2013 funded by Global Agriculture and Food Security Program (GAFSP). The projects will work in the west, mid-west, and far-west regions of the country. This project aims to improve food security situation of 150,000 poor and marginal households by increasing agricultural production and productivity, increasing livelihood options and household income, and improving utilization of food. The program will be implemented by MOAD with support from MOHP, with monitoring and supervision provided by the World Bank.

125. The project has four main components: technology development and adaptation; technology dissemination and adoption; food and nutritional status enhancement and project management. The priority target groups of the project are small and marginal farmers, landless households, indigenous population, and Dalits. The project is to be implemented in 19 hill and mountain districts of the mid- and far-western development regions of Nepal: Darchula, Baitadi, Bajhang, Bajura, Humla, Jumla, Dolpa, Mugu, Kalikot, Surkhet, Dailekh, Jajarkot, Salyan, Rukum, Rolpa, Pyuthan, Achham,

Dadheldhura and Doti. Though none of the project district is common to the proposed GEF project, the lessons learnt will be worth exchanging.

**126. Hariyo Ban (green forest):** USAID, under US Global Climate Change Initiative, is implementing a \$29.9 million five-year project Hariyo Ban (green forest) in Nepal. The project is designed to reduce threats to physical and biological diversity. It is also being implemented in Terai Arc Landscape and Chitwan-Annapurna Landscape. The project is aimed to build resilience to climate change in communities and ecosystems by conserving forests to improve livelihoods. It is implemented in close collaboration with the GON, CARE Nepal, National Trust for Nature Conservation and FECOFUN (Federation of Community Forestry Users Groups in Nepal).

## **B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:**

### **B.1. Describe how the stakeholders will be engaged in project implementation:**

127. This section presents some additional details that were not explicitly addressed during the PIF stage.

128. FAO and the MOAD will be the main co-partners for project execution. The implementation will be supported by NARC, DOA, and DLS at central level and at their field offices - located in the regions and districts where the LDCF project will be implemented. At local level, key stakeholders and beneficiaries will be the DDC (District Development Committee), VDCs (Village Development Committees), local governance bodies and community-based organizations (CBOs).

129. Project beneficiaries will be the poor and marginalized communities, and small-scale farmers, who are the most vulnerable to climate risks. The project will be executed in most vulnerable areas of selected four districts of Nepal, exposed to climate impacts, with no-access or low-access to information, knowledge and education; lack of resources, assets and income sources; and that rely on marginal and disaster-prone and degraded lands. Areas which possess less access to community and governmental services to cope with climate change risks.

130. FAO will provide supervision and oversight, as well as technical assistance in strengthening technical and institutional capacity for climate change adaptation, assessment, monitoring and provision of advance early warning information on vulnerabilities, risks and agro-meteorological forecasts to assist better adaptation planning and promoting community based adaptation to strengthen livelihood strategies and sustainable climate resilient agricultural practices.

131. Risk and vulnerability assessment and mapping, the District Disaster Risk Management (DDRM) plan, and LAPAs will be designed in collaboration with local actors: DDCs, local government agencies, local and indigenous communities, civil society, private sector organizations, and locally based NGO/INGOs and CBOs. Local communities will actively participate in awareness-raising activities and demonstrations, to better understand CC impacts and risks. Thus, they will be able to evaluate by themselves the sustainable adaptation options.

132. The Project Steering Committee established under the FAO-TCP project, which includes MOAD, FAO, MOHA, MoE, DHM, NARC, UNDP and others will be responsible for major decisions on project coordination and administration. Additional members representing the new baseline projects will be included as part of the Project Steering Committee (PSC). Consultations were also carried out with the other ongoing project partners such as Pilot Programme for Climate Resilience (PPCR) to ensure their participation in the Project Steering Committee (PSC) and agreed. The first PSC immediately after approval of the project will decide on the composition and roles and responsibilities of the PSC. An indicative Terms of Reference (TOR) for the PSC is presented in the project document.

133. The Government will provide logistic and administrative support to missions and meetings and will make arrangements for the clearance of experts, custom clearance of equipment and local purchase of project equipment. The National Project Directorate (NPD) in the MOAD will facilitates work in districts. The project office will be located in the MOAD or in the Department of Agriculture (DOA). In addition to a National Project Director, the Government will

provide at least two administrative staff for the lifetime of the project. The government will also provide services of the district and sub-district level officers/technicians for implementation of the project in all pilot districts.

134. The Project Steering Committee will meet twice a year and will be chaired by the MOAD. The members of this group will be authorized and released to assist the project on a flexible part time basis. The Project Steering Committee will assist establishment of technical implementation task group in the districts. The government will initiate and support local level authorities in launching and registering a farmer association in each of the pilot areas. The MOAD will identify potential participants for the training courses, and will release the selected staff from the various departments involved in project implementation from their normal duties to ensure their full time participation at the training workshops and demonstration activities at village level, and to fulfill other commitments related to the project's training activities at the pilot sites. The district agricultural office will provide training facilities and training logistics necessary for the training course, fieldwork and workshops.

135. The LDCF project will include **additional activities** that will apply a multi-criteria M&E framework tested by FAO. The impact of field demonstrations on the improvement of adaptive capacities and livelihoods, will be assessed through surveys (farmer groups and households) and comparison studies against the initial baseline scenario. Best CCA practices will be screened based on the indicators: environment friendliness, potential to reduce the impacts of climate risks, economic viability, sustainability, social acceptability, gender sensitivity, income generation, enterprise diversification, seasonal relevance and community's need. The LDCF funds will be used to carry out a mid-term and a final evaluation, and to disseminate good practices and lessons-learned.

136. Implementation arrangements will be further detailed and agreed during full project preparation, as well as the list of stakeholders showed below, which is preliminary:

Key Stakeholders	Roles and Responsibilities
Ministry of Agricultural Development (MOAD)	Lead national implementing partner. MOAD has a mandate to work on agriculture and food security issues and also climate change related issues in the sector. The MOAD will be the chair of the Project Steering Committee and draw members from other ministries and its departments and institutions. The existing Steering Committee formed as part of the previous FAO initiatives will be strengthened. The Steering Committee will ensure coordination of activities under different projects (e.g. Nepal Agriculture and Food Security Project – NAFSP) in agriculture sector so that outcomes of the proposed LDCF project can be enhanced and made more sustainable.
Department of Agriculture (DOA) and its district offices	Implementing partner. Responsible to provide office/unit and chair technical committees and provide technical staff for the implementation of project activities in collaboration with their district level offices and other project partners
Department of Livestock Services (DLS) and its district offices	Implementing partner. Responsible to provide office/unit and chair technical committees and provide technical staff for the implementation of project activities in collaboration with their district level offices and other project partners
Ministry of Environment (MOE)	It ensures alignment of the proposed project with Nepal's NAPA. MOE hosts climate change management division and is the Secretariat to the climate change council chaired by the Hon. Prime Minister of Nepal. Ministry of Environment has a coordinating role for NAPA follow-up programming.
Department of Hydrology and Meteorology (DHM)	Implementing partner. It will collaborate to apply weather and climate information and early warning systems to be developed by Pilot Programme for Climate Resilience (PPCR) project supported by the World Bank. The department will provide technical support to strengthen agrometeorological observatories in six districts that has been already assessed as part of the FAO's Technical Cooperation Programme (TCP).
Department of Soil and Water Conservation	It will collaborate on activities related to soil, land, water, agro/leasehold forestry and integrated landscape and watershed management.
Local communities,	Direct project beneficiaries. Participants in field activities, awareness-raising programmes to

farm households and farmers	reduce vulnerability, and adaptive capacity trainings. The communities will participate in preparation of Local Adaptation Plans of Action (LAPAs) in selected VDCs of the 6 project districts.
Community-based Organizations and local leaders	Direct beneficiaries of the project. Local leaders to conduct field level demonstrations, and awareness-raising programmes. The CBOs and local leaders will facilitate community involvement and ownership, as well as responsibility to sustain field level actions.
DDCs and VDCs	Participants in the preparation of district risk reduction plans and Local Adaptation Plans of Action (LAPAs)
Nepal Agriculture Research Council (NARC)	Responsible for research activities. Participant in the identification of improved CCA practices, adaptation options and in the demonstration of stress-tolerant crop varieties at field level. NARC will align the project activities to its out reach programme so as to make the project interventions more sustainable.
FAO	GEF Agency. FAO will provide technical support and be responsible for project supervision and oversight and will provide assistance in strengthening the technical and institutional capacity to manage climate change adaptation, assessment, monitoring and provision of technical advice on development of relevant early warning information on vulnerabilities, risks and agrometeorological forecasts to assist better adaptation planning in agriculture. FAO will also provide technical support to promote community based adaptation to strengthen livelihood strategies and sustainable climate resilient agricultural practices.
UNDP	UNDP, as part of the Project Steering Committee, will provide advise on project implementation and ensure complementarities between this project and related UNDP initiatives.
World Bank	Close coordination will be established with the PPCR project aiming to improving the accuracy and timeliness of weather and flood forecasts and warnings for vulnerable communities, as well as by developing Agricultural Management Information System (AMIS) to help farmers mitigate climate-related production risks. The component 2, output 2.1.3 will focus only on dissemination of improved weather and climate forecast products developed by the Department of Hydrology and Meteorology (DHM) and AMIS through World Bank's PPCR project for specific application in agriculture sector.
INGOs and NGOs	The INGOs/NGOs will be involved in the project steering committee. Based on the need, the organizations will be engaged as partners to support selected components. Practical Action (PA) Nepal, Practical Action Consulting (PAC), Nepal Development Research Institute (NDRI) are partnered with FAO to assist Government of Nepal on climate change adaptation in the recent past. Detailed discussions were carried out with these partners during the PPG stage and their specific roles and responsibilities during the project implementation were discussed.

**B. 2. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):**

137. At the village development committee (VDC) level, community-based participatory approaches employed through this LDCF project will improve the gender equality, social inclusion, equity and empowerment through increased participation of women and socially disadvantaged groups such as poor, marginal, indigenous and tribal communities (men and women) towards adoption of climate-resilient adaptation practices. The over-burdening and drudgery of works for women with respect to fetching of water for household needs and fodder for livestock will be improved by the project interventions. LDCF funds will reduce the vulnerability of communities in 4 districts and at least 30 VDCs by improving alternative income generation opportunities. The project will have awareness raising activities on climate impacts and adaptation with the farmers by leveraging existing extension methods. Over 120 Farmer Field Schools (FFS) will directly benefit 3600 farmers and 50% of the farmer groups will be women groups. The large scale field demonstration of adaptation practices and implementation of alternate livelihood strategies will directly engage at least 4800 farmers.

138. The LDCF project will lead to socio-economic empowerment of women and socially disadvantaged and excluded local communities on climate change adaptation. It will increase ownership of men and women in the project activities through their equal participation in social forums, workshops, Farmer Field Schools (FFS), training and exchange visits. The expected socio-economic and environmental benefits from the project will be the reduction of huge recurrent economic damages or losses in disaster-prone areas, and changes in the socio-economic status of vulnerable communities. Enhanced farm productivity will improve farmers' economic conditions while reducing their vulnerability and generating adaptation benefits. Climate-risk information will also become accessible to farmer groups including women groups.

139. Gender sensitivity analysis carried for NAPA preparation through a consultative process, including the transect appraisal and gender differentiated impacts of climate change revealed that men and women differ with respect to climate vulnerability. Since women are largely engaged in climate sensitive sectors, any degree of adverse climate change effect increases their vulnerability. Household dependent on natural resources base become more vulnerable than those whose livelihoods come from sectors that are less climate sensitive. For example, any degree of changes in the availability of water, firewood, and agricultural production directly affects their quality of life.

140. The adaptation interventions that will engage specifically women and vulnerable communities are small scale vegetable cultivation on the reclaimed lands along the river banks, homestead vegetable cultivation with drought tolerant and short duration crops, roof rain-water harvesting, diffused light storage of potato, women's participation in community seed banks, small-scale tunnel farming for off-season vegetable cultivation and conservation of traditional crop species. Sloping Agricultural land technology (SALT) such as hedge row contour planting, alley cropping, terrace improvement and uniform soil fertility management have been identified as suitable technologies for slope and terrace stabilization and also to benefit the women and most vulnerable communities especially in inner and mid-hills districts (Udayapur, Argakhanchi and Surkhet).

141. At national and district levels, the project funding will enable the Ministry of Agricultural Development (MOAD) to implement the 10 -year Priority Framework for Action (PFA), and to channelize its efforts on climate change adaptation through its departments (DOA and DLS), and Nepal Agriculture Research Council (NARC). It is expected that at least 300 staff from different departments will benefit from capacity development programmes.

### **B.3 Explain how cost-effectiveness is reflected in the project design:**

142. The additional costs associated with loss of development benefits due to climate change and increased climate variability need to have close synergies and complementarity with the baseline project interventions. This means the activities of the partners in the baseline cover most of the basic development issues but some of the key considerations to climate change and increasing climate variability have not been considered. With a baseline and co-financing of over USD 12.99 million, the FAO/GEF costs are 22.7% of the entire Project.

143. The Project follows on from previous collaboration between FAO and Nepal on adaptation and livelihood alternatives. The Project will build on the lessons and implementation approach of the previous phases of the support to ensure cost-effectiveness. The present Project builds on the specific implementation arrangements developed during the previous FAO support between 2008 and 2011. This includes development of technical capacity in the MOAD at national and district levels.

144. Several alternative approaches were considered for cost-effectiveness. These alternatives included combination of institutional, technical capacity development and are closely linked to field level implementation of viable adaptation practices. The alternative approach of participatory decision making promotes learning-by-doing approach compared to conventional extension approaches. The field level activities will be channeled through 120 Farmer Field Schools (FFS) to be established as part of the project.

145. The Project aims to minimize the mobilization of international experts. This will reduce the costs associated with travel and consultancy. International experts will be hired on specific topics such as knowledge management & communication and climate impacts, climate information systems and data analysis for which local experts are not

available. At the local level, the Project will rely extensively on farmer-farmer experience sharing through Farmer Field Schools.

## C. DESCRIBE THE BUDGETED M&E PLAN

Table C1. Summary of the main M & E reports, responsible partners, time frame and budget

Type of M&E Activity	Responsible Parties	Time-frame	Budgeted costs
Inception Workshop, annual planning meetings, final project workshop	PMU, supported by the LTO/LTU, BH	Inception workshop within three months of project start up, annual workshops as per the schedule and work plan agreed and final workshop a month before closure of the project	Total five workshops/planning meetings @ US\$ 2000/event. Total cost works out to US\$ 10,000.
Baseline survey for impact evaluation (questionnaire design, survey, travel expenses)	PMU and external experts. The project team and LTO/LTU to provide support to design the survey questionnaire.	Within three months from start of the project	USD 8 000
Mid-term Evaluation (Including questionnaire design, survey and compilation)	External Consultant in consultation with the project team and other partners (includes survey of participating households, travel expenses and report writing)	After completion of two years of implementation	USD 8 000 for independent consultants and associated costs. In addition the agency fee will pay for expenditures of FAO staff time and travel
Final impact evaluation (Including questionnaire design, survey and compilation)	FAO evaluation unit and the project team. In addition a detailed ex-post analysis will be made based on the survey with participant households (5 participants per group), survey of control households, travel expenses, impact evaluation report writing and final evaluation.	At the end of project implementation	USD 30 000 for external, independent consultants and associated costs. In addition the agency fee will pay for expenditures of FAO staff time and travel
Supervision visits and rating of progress in PPRs and PIRs	LTO, other participating units	Annual or as required	The visits of the LTO/LTU will be paid by GEF agency fee. The visits of the NPD and NTC will be paid from the project travel budget
Monitoring by the Regional Directorates of DOA and DLS	Regional Directorates in close collaboration with concerned DADOs. PMU will coordinate the monitoring in collaboration with the technical experts.	Twice in a year	USD 16 000 (USD 8000 for each regional directorate for four years)
Project M & E reports (includes project progress reports, co-financing reports, terminal reports)	PMU, with inputs from NPD, NTC and other partners. The project implementation report by PMU supported by the LTO/LTU and cleared and submitted by the GCU to the GEF Secretariat.	Semi-annual/annual or as required	USD 10 000 (as completed by NTC and PMU)



Type of M&E Activity	Responsible Parties	Time-frame	Budgeted costs
Terminal Report	NTC, LTO/LTU, TCSR Report Unit	At least two months before the end date of the Execution Agreement	From respective contracts and consultants working for the project.
<b>Total Budget</b>			<b>USD 82 000</b>

**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):**  
(Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFF endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Lal Shankar Ghimire	Joint Secretary	Ministry of Finance Foreign Aid Coordination Division, Singhdurbar, Kathmandu, Nepal Tel: + 977 1 42 11 371 Fax: + 977 1 42 111 65 EMail: <a href="mailto:lghimire@mof.gov.np">lghimire@mof.gov.np</a>	5 APRIL 2012

**B. GEF AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.					
Agency Coordinator, Agency Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Gustavo Merino Director Investment Centre Division Technical Cooperation Department FAO Viale delle Terme di Caracalla (00153) Rome, Italy <a href="mailto:TCI-Director@fao.org">TCI-Director@fao.org</a>		02/03/2015	Selvaraju Ramasamy Climate Impact, Adaptation and Environment Unit Climate, Energy and Tenure Division (NRC), FAO, Rome	+3906 57056832	<a href="mailto:Selvaraju.Ramasamy@fao.org">Selvaraju.Ramasamy@fao.org</a>
Jeffrey Griffin Senior Coordinator FAO GEF Coordination Unit Investment Centre Division, FAO				+3906 57055680	<a href="mailto:GEF-Coordination-Unit@fao.org">GEF-Coordination-Unit@fao.org</a>

**ANNEX A:PROJECT RESULTS FRAMEWORK** (either copy and paste the framework from the Agency document, or provide reference to the page in the project document where the framework could be found)

**Component 1: Strengthening of technical and institutional capacities and integrating adaptation into national food and agriculture policies, strategies and plans**

Results chain	Indicators	Baseline	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
Outcome 1.1: Strengthening technical capacity in the Ministry of Agricultural Development (MOAD), Department of Agriculture (DOA), Department of Livestock Services (DLS) and Nepal Agricultural Research Council (NARC) and local stakeholders on climate change adaptation	MOAD, DOA, DLS, NARC and local stakeholders be able to incorporate climate change adaptation priorities into decision making at all levels	Capacity of the government agencies and local stakeholders is inadequate to respond to impacts of climate variability and change in agriculture sector	Training module/manual developed	Capacity developed	Reflected in decision making and response measures	Improvement in institutional and technical capacity sustained within the institutional system	Technical capacity of government institutions and local stakeholders strengthened in climate change adaptation	Government decisions published in the form of reports such as policy report, plans, annual progress and evaluation reports	Trained staffs will get involved in planning, policy and decision making
Output 1.1.1: Capacity development programme implemented at national and district level to enhance technical capacity on climate change adaptation	<p>Number of trainings organized</p> <p>Number of staff trained at national and district levels</p> <p>Number of training manuals developed.</p> <p>Number of regular training with CCA integrated into government regular training programmes</p>	<p>No separate training module available.</p> <p>A few staffs trained on climate change adaptation (1 from MOAD, 3 from DOA, and 3 from NARC).</p> <p>Two short trainings organized as part of FAO pilot project (2008 – 2011)</p> <p>No climate change adaptation training manual available.</p> <p>One class on climate change in general is introduced in</p>	1 training module developed and first batch of training for 25 participants organized	<p>Training modules developed and TOT organized for 200 participants in 4 districts</p> <p>Staffs of training centres get included in the training)</p>	<p>Second batch of training of 25 participants organized</p> <p>Training manuals included in regular training activities of the government</p>		<p>2 trainings conducted with 25 participants each at the national level &amp;</p> <p>8 trainings conducted with 25 participants each at the district level</p> <p>2 manuals developed and integrated to regular training programs of DOA/DLS</p>	<p>Training completion reports</p> <p>Annual reports</p> <p>Training manual</p> <p>Training curricula of training institutes in MOAD/DOA/DLS</p>	<p>NAPA remains the priority of the government</p> <p>Commitment of the government staff to prioritize climate change concerns</p> <p>Training centres be ready to revise their curriculum to mainstream climate change adaptation</p>

Results chain	Indicators	Baseline	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
		DOA/DLS curriculum  Other training centre have no specific module in climate change							
Outcome 1.2: Climate change adaptation mainstreamed into national agriculture and livestock policies, plans and programmes	Number of policies, plans and programs in agriculture and incorporated with climate change concerns  Type and No. of relevant policies and in agriculture and food security with climate elements	Some recent policies, plans and strategies such as climate change policy, approach paper of three year plan and ADS has some mentions of NAPA and climate adaption	Documents for mainstreaming identified	Facilitation and strategy revisions conducted at the national level	Endorsement process initiated	Mainstreamed strategies endorsed	Climate change adaptation mainstreamed into selected national policies, programmes and plans	Publications of the government in hard copies as well as web portal	Existing policy documents are revised giving chance for mainstreaming climate change adaptation during the project implementation phase
Output 1.2.1: Technical capacity and cross-sectoral coordination mechanism strengthened to facilitate integration of climate change adaptation into agricultural plans and programmes	Number of training organized  Number of staffs trained  A mechanism established/strengthened with guidelines and rules and responsibilities	No such training reported so far. There are some assessments conducted but needs further interventions  Climate Change Council and Multi-sectoral Climate Change Initiatives, Coordination Committee formed for cross-sectoral coordination.  Food Security and Environment Division of MOAD has no specific mechanism	Training curricula developed and reviewed  Coordination mechanism established and agreed with the implementing partners	Training conducted  MOAD leads the coordination within agriculture sector and act as the focal point for climate change related activities in agriculture and food security	-	-	1 training with 25 participants conducted  At least one mechanisms identified, developed and facilitated within MOAD	Training completion reports  Reports of the cross sectoral coordination meetings	The national level implementing partners are willing to make use of the trainings  MOAD is willing and capable of coordinating the climate change activities in agriculture sector

Results chain	Indicators	Baseline	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
		available for coordination							
Output 1.2.2: Updated national agriculture strategies and district adaptation/risk reduction plans available with climate change adaptation priorities of NAPA, investment plans and budget (at least 5 strategies/ plans with budget allocation for adaptation actions prepared and endorsed by the Government).	<p>Number of strategies/plans developed and endorsed by the government</p> <p>Type and No. of development frameworks that include specific budgets for adaptation</p> <p>Type and No. of sectoral strategies that include specific budgets for adaptation actions</p>	<p>ADS has incorporated some concerns on CCA.</p> <p>District Disaster Relief Committee (DDRC)</p> <p>Disaster Preparedness and Response Plan (DPRP) and District Disaster Management Plan (DDMP) available in all 4 districts</p>	Strategies and plans identified and reviewed	Strategies and plans revised incorporating adaptation priorities of NAPA based on the advice from the government	Initiate government procedure to endorse the documents	Endorsed by the government	At least 5 strategies/plans updated incorporating climate change adaptation priorities	Publications of the government and other agencies and updated plans	NAPA remains in the government priority

**Component 2: Assessment, monitoring and providing advance early warning information on vulnerabilities, risks of climate change and agrometeorological forecasts to assist better adaptation planning**

Results chain	Indicators	Baseline	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
Outcome 2.1 Improved vulnerability and risk assessment tools, FAOs crop situation and yield assessment methods introduced and implemented at the local level	<p>Type and Number of methods introduced and implemented</p> <p>Proportion of farmer groups implementing adequate risk reduction measures, disaggregated by gender</p> <p>Per cent population covered by adequate risk information disaggregated by gender</p> <p>Number of farmers reacting or acting</p>	<p>No use of vulnerability and risk assessment tools reported.</p> <p>Farmers spontaneously using risk reduction measures such as choice of crop varieties, planting time, irrigation and pesticide applications. But, not based on customized agro-climatic risk information</p> <p>Less than 5% of the target population</p>	Tools and method identified and implementation initiated	Tools and methods implemented at national level (NARC & MOAD)	Sustained communication of early warning and risk information communicated to the vulnerable communities		Tools and methods adopted by the government and vulnerable communities in 24 VDCs receive timely risk information	<p>Publications of district line agencies</p> <p>Discussion with the communities</p> <p>Discussion with the communities and also the progress reports of district line agencies</p>	Farmers can understand the importance and usefulness of the tools and methods

Results chain	Indicators	Baseline	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
	according to early warning system.	receive some form of risk information.  No early warning system is available to the farmers in the project locations.						Discussion with communities	
<b>Output 2.1.1:</b> Improved tools and methods for assessment of climate change risks and vulnerability and crop yield assessment models introduced at the national level and core staff trained (>25 staff at MOAD, DOA, DLS and NARC trained) and linked with at least 4 districts.	Climate Risk Information System for farmers implemented.  Number of tools introduced  Number of staffs trained Number of farmers accessing early warning information	Participatory Vulnerability Analysis (PVA), Vulnerability and Capacity Assessment (VCA), CRiSTAL (Community-based Risk Screening Tool-Adaptation and Livelihoods), Vulnerability Assessment Framework available, but staff not trained Vulnerability assessment methods and tools not available to guide implementation of suitable adaptation measures	Tools and methods identified.  Training modules and manuals prepared for impact and vulnerability assessment in agriculture	Training on impact assessment and crop yield model and crop forecasting system conducted and relevant system established	The information on products are delivered at the district levels for decision making	-	Tools and methods identified and implemented at the national level for impact assessment and crop monitoring and yield forecasting system established  Crop Yield Model provided to for NARC with its application through training and capacity building of NARC and DHM Technical Staffs	Publications of the government and other agencies Project monitoring and evaluation reports  Regular crop assessment reports available  Spatial information products on climate risk and vulnerability available	MOAD and NARC both interested in handling the model for crop yield projection based on the climate change scenario at national level  Climate change adaptation and Disaster Risk reduction trainers available in National level
<b>Output 2.1.2:</b> Improved risk and vulnerability assessment methods (from output 2.1.1) used to develop spatial risk and impact information on agriculture for 24 Village Development Committees (VDCs) in 4 districts.	Baseline information about agriculture vulnerability at the district level available and weekly data of climate provided  DisInventor database used in vulnerability	Nepal Disaster Risk Reduction Portal, an online information system on DRR, under MOHA provides all kind of information related to disaster risk management	The spatial information on risk and vulnerability developed  Selected staff trained	Reported and disseminated Seasonal basis/monthly basis of	Reported and disseminated Seasonal basis/monthly basis of	Reported and disseminated Seasonal basis/Monthly	Risks and vulnerability assessment tools identified and used at central and local levels.	Publications of the government and other agencies; Project monitoring and	Local level staffs can understand the importance of such tools and methods. Disaster and climate related

Results chain	Indicators	Baseline	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
	assessment at Village and district levels  Data and information collection format standardized  The existing practices of vulnerability assessment in disaster risk and climate change improved.	( <a href="http://www.drrportal.gov.np">www.drrportal.gov.np</a> ).  SAHANA System established for data management under the National Emergency Operation Center (NEOC).  Data base related to disaster and agriculture not yet available for systematic management at district level.	for the use of several data sources and their analysis in agriculture perspective  Prepared Data Collection Format specific to Agriculture impacts, production	information of agriculture impacts and linked with early warning system	information of agriculture impacts and linked with early warning system	basis of information of agriculture impacts and linked with early warning system	Spatial information on vulnerability and risk available for 4 districts	evaluation reports  Data collection format Vulnerability assessment tool for agriculture perspective	data base system available at National level that can be used for project districts in coordination with the concerned institutors
<b>Outcome 2.2: Improved agrometeorological forecast disseminated in 4 districts in close coordination with similar initiatives at the national level</b>	Number of the farmers and farmers' groups using at least one improved agro-meteorological forecast products	Daily weather forecasts is available through radio, but most farmers do not listen and those listen do not get confidence or time for action	Improved agrometeorological forecast products identified	FFS farmers trained to receive and understand the forecast	Use of forecast by the farmers facilitate and monitored	Use of forecast by the farmers facilitated and monitored	Usable forecast information relevant to local context is available in 4 districts	Discussions with the communities Publications of DADO and DLSO	
<b>Output 2.2.1:</b> Improved agrometeorological forecast products from the Department of Hydrology and Meteorology (DHM) planned under the Climate Investment Fund's PPCR project disseminated to 120 farmer groups (at least 3000 men and women farmers) and wider rural communities in 24 VDCs of 4 districts and end-users trained using Farmer Field School (FFS) approach (new products introduced at the local level and sustainable mechanisms to interpret the forecasts established in 4 districts).	Number of improved agro-meteorological products availed from PPCR and disseminated to farmers  Number of groups of the farmers have access to improved forecast products  Number of FFS with access on early warning information  Number of agriculture experts skilled with CMS  Number of climatic	The farmers groups in the project areas are not getting climate information/risk information products.  DADO Udayapur organized 2 FM program and DADO Siraha organized 28 FM radio programs  One day weather forecast from radio is being received, but farmers do not use them for decision making  Under PPCR project	Improved agrometeorological forecast products identified for early warning for agriculture.  Improved 3 Climatic Stations in Udayapur, Kapilbastu and Argakhanchi and developed	The forecast products taken to the FFS. Effective Used AMIS system under PPCR programme in Siraha District  Disseminated through Agro-	Use of forecast by the farmers monitored and facilitated. Effective used of Agro advisory system in 120 FFS. Use of forecast by the farmers facilitated and	Disseminated mitigation measures through Agro-advisory system in 120 FFS. Use of forecast by the farmers facilitated and	Developed effective mechanism of dissemination of forecast system of DHM in all 120 FFS  Trained end users farmers to make them able to use forecasting information  Improved climatic stations of 4	Publications of the government and other agencies Availability of the Forecasting system at forecasting division of DHM. annual progress report of DHM. Weather web based system available.	Reliable forecast products are available in time. EWS Mechanism and Dissemination of Weather related information in line with Agriculture promotion will be in place through PPCR during the GEF project

Results chain	Indicators	Baseline	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
	stations upgraded	Weather Research Forecast (WRF) Model for weather forecast for 3 days is being planned and dissemination of early warning system in agriculture and Agro-Advisory System through web-portal and printed form is anticipated.		advisory system in 120 FFS	advisory system in 120 FFS	monitored.	districts and linked with 120 FFS Available and reliable forecast tools taken to the farmers.	Adaptations measures available based on the model based crop yield products	

### Component 3. Improving awareness, knowledge and communication on climate impacts and adaptation

Results chain	Indicators	Baseline#	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
<b>Outcome 3.1 Awareness raising, knowledge management and communication strategy drawn, agreed and implementation plan prepared.</b>	<p>Awareness raising, knowledge management and communication strategy formulated</p> <p>Target population awareness of predicted adverse impacts of climate change and appropriate responses, disaggregated by gender (Score)</p> <p>Proportion of population affirming ownership of adaptation processes, disaggregated by</p>	<p>No such strategy available now</p> <p>No such predicted product is available in the villages</p> <p>No planned adaptation processes was found at the district and village levels</p>	Workshops facilitated and strategy developed	Strategies endorsed at the national level	-	Strategy implemented at all levels	Awareness raising, knowledge management and communication strategy formulated, implemented and monitored	<p>Publications of DADO and DLSO</p> <p>Discussion with the communities</p>	



Results chain	Indicators	Baseline#	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
	gender (% of population)								
Output 3.1.1: <b>Comprehensive and multi-stakeholder awareness raising, knowledge management and communication strategy formulated and agreed with the Government and non-governmental organizations at national, district and local levels and applied to fostering implementation of new and currently available adaptation practices outlined in Nepal's NAPA</b>	Strategy formulated and number of government agencies agreed To implement	No such strategy is formulated for agriculture sector	Stakeholder awareness raising, knowledge management and communication strategy facilitated	Strategy endorsed at the national level			Awareness raising, knowledge management and communication strategy formulated, implemented and monitored	Publications of the government agencies	Government and non-governmental organizations come into a common decision to make use of the strategy
Outcome 3.2: Knowledge and awareness on climate change increased and improved adaptation practices and livelihood strategies disseminated for location specific context	Number of climate change adaptation practices adopted  Number of farmers adopted improved livelihood strategies	No improved practices are found to match the needs of the climate change impacts	Typology of practices and new knowledge documented and applied	Lessons learned documented	Publications prepared	Published hardcopy and via nets	Knowledge and lessons learned updated, compiled and published for wider replication and upscaling	Discussion with communities and district level line agencies  Discussion with farmers and data published by line agencies  Published products related to good practices examples	Government and non-government organizations will replicate and upscale the good practices and lessons learned
<b>Output 3.2.1:</b> At least 120 Farmer Field School (FFS) facilitators in 4 districts trained on climate change impacts and adaptation in agriculture as outlined in NAPA.	Number of the FFS facilitators trained  Number of FFS implemented	17 IPM FFS TOT trained persons in rice and 1 in vegetables in Kapilbastu.  Some FFS facilitators developed in other districts,	FFS strategy prepared, 24 facilitators trained and 24 FFS initiated in the first season. 96 facilitators trained and 96 FFS started in the second	120 FFS continued	120 FFS monitored and facilitated	120 FFS monitored and facilitated	120 FFS will adopt climate change adaptation technologies in agriculture	Training reports FFS reports. Annual reports of DADO, DLSO. PPCR progress documents (especially Siraha case)	

Results chain	Indicators	Baseline#	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
		but numbers are not available	season						
<b>Output 3.2.2:</b> At least 120 farmer groups involving a total of over 3000 farmers aware of climate change impacts, adaptation measures and alternative livelihood strategies by implementing Farmer Field School (FFS) by trained facilitators in 4 districts of Nepal.	Number of farmer groups trained  Total number of farmers continuously engaged in FFS	Nepal Government follows group approach of agricultural extension. Commodity specific or general groups are also formed by various projects.  Awareness among the farmers about climate change issues is very low about these issues	FFS initiated and livelihood strategies identified	FFS are supported to diversify livelihood	Support continued	Support continued	Livelihood of 3000 farm households strengthened through climate change adaptation	Discussions with communities	No extreme natural calamities to the extent to counter the improvement through adaptation
<b>Output 3.2.3:</b> Project-related good-practices (at least 25) elaborated and lessons-learned disseminated via publications, project website and others to facilitate up-scaling and integration into policies and plans by the Government and replication in similar situations by non-government organizations.	Number of good practices elaborated  Number of publications on good practice examples  Number of awareness raising activities	Some good practices are identified by FAO-UNDP joint project, but not yet up-scaled.  More than 20 good practices are identified and integrated into TECA database of FAO and available widely.	Good practices identified and tested through field demonstrations	Good practices identified and elaborated and lessons learned compiled	The documents revised	Good practices and lessons learned published	Climate change adaptation good-practices (at least 25) elaborated and lessons-learned published and disseminated	Publications, web portals	Government and non-government organizations will replicate and upscale the good practices and lessons learned

# Precise baseline for the farm level will be developed through baseline survey before the commencement of the project interventions.

**Component 4. Prioritizing and implementing local investment by promoting Community Based Adaptation (CBA) to strengthen livelihood strategies and transfer of adaptation technology in targeted areas.**

Results chain	Indicators	Baseline#	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
<b>Outcome 4.1: Livelihood alternatives and climate-resilient physical measures prioritized and implemented by promoting Community Based Adaptation (CBA) to climate change</b>	<p>Number of climate resilient physical measures adopted by the farmer groups</p> <p>Number of farmers groups adopting climate resilient physical measures</p> <p>Type and No. resilient infrastructure measures introduced</p> <p>Households and communities have more secure access to livelihood assets (Score)</p>	<p>No LAPA developed in the pilot VDCs</p> <p>FAO pilot project implemented adaptation and livelihood measures in 4 districts.</p> <p>Some farmers are having tubewells and irrigation facilities</p> <p>Farmers have land and livestock as livelihood assets, but some lands are highly degraded</p>	<p>24 LAPA developed</p> <p>CBA initiated through FFS</p>	<p>FFS supported through physical measures</p>	<p>FFS supported through physical measures</p>	<p>FFS supported through physical measures</p>	<p>24 LAPAs developed covering all selected VDCs and endorsed by the VDC council</p>	<p>Publications of line agencies</p> <p>Discussions with development workers and line agency staffs</p> <p>Discussion with communities</p>	<p>The VDC council owns the LAPA and the local adaptation practitioners use it as guide for replication</p>
<b>Output 4.1.1:</b> Investment to strengthen livelihood alternatives and small-scale climate- resilient physical measures prioritized through Local Adaptation Plans of Action (LAPAs) by involving the community and farmer groups (at least 24 LAPAs prepared and endorsed).	<p>Number of LAPAs prepared and endorsed</p> <p>Type and No. of adaptation actions prioritized and introduced at the local level</p> <p>Type and No. of risk reduction actions introduced at local level</p>	<p>No LAPA prepared in project districts</p> <p>No planned adaptation action introduced in the area</p> <p>VDC Council approves annual plan, but no adaptation actions integrated</p>	<p>24 LAPA developed</p>	<p>LAPA endorsed</p> <p>Key measures of LAPA related to agriculture implemented in 5 FFS per VDC</p>	<p>Small scale physical supports provided for LAPA implementation in agriculture</p>	<p>Small scale physical Supports continued</p>	<p>24 LAPAs Reports prepared and endorsed. Climate-resilient physical measures prioritized by LAPA and livelihood strengthened</p>	<p>Publications</p> <p>Discussions with line agency staffs</p> <p>Discussions with the farming communities</p>	<p>The VDC council use LAPA as guiding document for adaptation actions</p>
<b>Output 4.1.2:</b> Diversified livelihood strategies and alternate sources of income (eg. Off-season vegetable cultivation, multi-purpose tree species, tree-crop alley	<p>Household income from alternative sources</p> <p>Sales revenue of farm products</p>	<p>The population migrated are</p> <p>22060 – Udayapur; 45790 – Siraha; 39929 – Argakhanchi; 29792 – Kapilbastu</p>	<p>Livelihood strategies identified for each group</p>	<p>Income generating activities identified and</p>	<p>Support to income generating activities continued</p>	<p>Support to income generating activities continued</p>	<p>Livelihood of 3 000 farm households diversified and strengthened</p>	<p>Discussions with the communities</p>	<p>Women in the villages will be able to adopt income generating activities in absence of their male counterparts</p>

Results chain	Indicators	Baseline#	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
farming, livestock enterprises etc.,) implemented in 24 Village Development Committees (VDCs) of 4 selected districts.		The trends of out migration is very high because of the low household income		impleme nted					
<b>Output 4.1.3:</b> Small-scale physical measures implemented to conserve and protect livelihood assets at the community level (eg. water conservation and harvesting, management of degraded community resources, bio-engineering for erosion control etc.,) in 24 VDCs of 4 districts	Number and types of small-scale physical measures implemented, by category	The baseline data is provided in foot note <sup>16</sup>	Major livelihood assets that needs immediate protection identified	Small scale physical measure s interven ed to protect liveliho od assets	Improveme nts monitored and support continued, modified, realigned	Progress monitored and lessons learned compiled	Livelihood assets of 3,000 farm households in 120 groups protected.	Progress reports of DADO and DLSO  Discussion with the farming communities	No large investment needs will arise for protection of livelihood assets during the project implementation.
<b>4.2. Adaptation technology relevant to agriculture implemented and new stress tolerant varieties introduced to reduce climate risks</b>	Proportion of the farmers adopting transferred adaptation technologies by technology type, disaggregated by gender  Yield of major crops (rice, wheat, maize)  Food sufficiency from own production (months in a year)  Type and No. of climate resilient agricultural practices introduced to	Farmers in the project VDCs have less access to the technologies and crop yields are low <sup>17</sup>  No such practices are introduced, most of the farmers are using local varieties which are adapted to the local situations but give low yield	Identificat ion and evaluation of stress tolerant varieties	Establis hment and conduct of field demonstr ations	Establishm ent and conduct of field demonstrati ons	Establishment and conduct of field demonstration s		Publications of district level line agencies  Discussions with the staff of regional research centres of NARC  Discussions with communities	

<sup>16</sup> In Udayapur: rice, wheat, maize seeds for 53 ha, secature/saw 10, power tiller 1, metal seed bin 4; small irrigation 22 in 2011/12; In Siraha: fish fry 550,000, sprayer 38, buckets 38, watering can 608, water pump 38, tubewell 38, small irrigation 21, pheromone traps 50 in 2012/13; In Kapilbastu: fish fry 400,000 small irrigation 26, shed improvement 20, In Argakhanchi: plastic tunnels 6, bee hive 10, shed improvement 10, sprayer 120, metal bin 123, tractor 27, pump set 195 thresher 2, beehive 10 (Annual Agriculture Development Program and statistics of respective DADO. In Udayapur: fodder seed 600 kg, fodder saplings 10,000, Siraha fodder seed 2200 kg, In Kapilbastu fodder seeds enough for 114 ha, saplings 50 ha in 2012/13 and In Argakhanchi fodder seed enough for 16 ha and saplings enough for 115 ha, shed improvement 20 (Annual Progress Report of respective DLSO).

<sup>17</sup> Rice yield per ha is 3.75 tons in Udayapur, 1.72 tons in Siraha, 2.93 tons in Argakhanchi and 2.89 tons in Kapilbastu. The wheat yield is 3.18 tons, 1.90 tons, 1.87 tons and 2.98 tons respectively. Maize yield is 2.45 tons, 1.80 tons, 2.92 tons and 2.39 tons respectively.

Results chain	Indicators	Baseline#	Milestones				End of project target	Means of verification and responsibility	Assumptions
			Year 1	Year 2	Year 3	Year 4			
	promote food security  Number of farmers adopting stress tolerant and high yielding seed varieties and other adaptive technologies								
<b>Output 4.2.1:</b> Improved agriculture and livestock management technologies (eg. Improved cropping systems, improved seed storage, sloping land agriculture technology, crop and livestock management practices etc.) implemented to reduce climate risks in at least 24 VDCs of 4 selected districts	Type and No. of adaptation technologies transferred  Number of technologies adopted.	No specific adaptation technologies are transferred. District line agencies are providing technologies for form and livestock production	Improved technologies identified and implemented through FFS	Adoption of improved technologies continued through FFS	Adoption of the technology monitored and additional technology transferred	Technology adoption monitored and supported	Improved crops and livestock technology adopted for climate change adaptation	Discussion with farming communities  Progress reports of DADO and DLSO	
<b>Output 4.2.2:</b> New stress tolerant crop varieties of rice, wheat, maize and fodder (at least 10 varieties) introduced by Nepal Agriculture Research Council (NARC) in 4 districts and tested and validated involving farmer groups using FFS approach.	Number of varieties introduced for each crop. Amount of stress tolerant and high yielding seed and adaptive technologies introduced to farmers. Number of farmers introduced to stress tolerant and high yielding seed and adaptive technologies.	Most of the farmers are using local varieties of crops. Some farmers are using high yielding varieties but not specifically the stress tolerant	Stress situations identified for each of 120 FFS  Stress tolerant varieties identified for each stress situation  Seeds multiplied	Performance of stress tolerant varieties assessed  Suitable stress tolerant varieties identified	Performance of stress tolerant varieties assessed  Stress tolerant varieties validated.	Performance of stress tolerant varieties assessed  Stress tolerant varieties validated.	Stress areas identified and validated. At least 10 varieties of rice, wheat, maize and fodder adopted in stress tolerant areas.	Discussion with farming communities  Progress reports of DADO and DLSO	

# Precise baseline for the farm level will be developed through baseline survey before the commencement of the project interventions.

**ANNEX B: RESPONSES TO PROJECT REVIEWS** (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

**USG Comments on LDCF – Nepal Reducing vulnerability and increasing adaptive capacity**

**Dated 1 April 2013**

Dear GEF Secretariat:

Thank you for the opportunity to review the PIF entitled “**Reducing vulnerability and increasing adaptive capacity to respond to impacts of climate change and variability for sustainable livelihoods in the agriculture sector in Nepal**” under consideration for LDCF funding.

The United States welcomes this project concept. We appreciate the proposal’s emphasis on strengthening the technical capacity of several key line ministries to integrate adaptation into their planning and programs. We also appreciate the fact that FAO will utilize products developed through the PPCR project. We encourage FAO to continue to find ways in which to avoid duplication of resources with the PPCR as well as to leverage synergies in order to scale up impact.

With a view toward further strengthening this proposal, we would like to urge FAO, as it prepares the proposal for CEO endorsement, to:

Expand on how the Ministerial Steering Committee mentioned as part of Component 1 will function and its expected deliverables. We appreciate the establishment of such an inter-ministerial steering committee, and note that the government of Nepal has demonstrated leadership and innovation when it comes to inter-ministerial coordination on climate change. We also note, however, the challenges related to coordinating between various ministries and ensuring inter-ministerial ownership of program activities;

Provide more information on the proposed up-gradation of 5 agro-meteorological observatories described under Component 2 (page 17). The proposal suggests that agro-meteorological monitoring tools and infrastructure will be procured using LDCF resources (page 13), but does not describe the specific infrastructure nor how it will be used and by whom.

Expand on how the climate information products – under Component 2 – will be developed in consultation with farmers so that the information is useable and actionable at the farm level – and on how the information will be disseminated through user-friendly channels.

We also strongly urge FAO as part of section B.6 to coordinate with USAID’s Feed the Future initiative and other relevant programs at both the national and district level, especially given USAID’s current role as chair of the Global Climate Change donor coordination committee.

Thank you again for the opportunity to provide feedback on this important PIF. We look forward with anticipation to seeing our feedback incorporated in the project proposal at the CEO endorsement stage of this process.

**Comment 1:**

- Expand on how the Ministerial Steering Committee mentioned as part of Component 1 will function and its expected deliverables. We appreciate the establishment of such an inter-ministerial steering committee, and note that the government of Nepal has demonstrated leadership and innovation when it comes to inter-ministerial coordination on climate change. We also note, however, the challenges related to coordinating between various ministries and ensuring inter-ministerial ownership of program activities;

**Response 1:**

The project will strengthen already constituted inter-ministerial steering committee led by MOAD. The steering committee was established in 2009 as part of the FAO TCP project on “Strengthening Capacity for Disaster Preparedness and Climate Risk Management in the Agriculture Sector (TCP/NEP/3201 (D). The same mechanism was further strengthened during the implementation of FAO-UNDP Joint Programme on “Enhancing Capacities for Climate

Change Adaptation and Disaster Risk Management for Sustainable Livelihoods in the Agriculture Sector” (UNJP/NEP/005/UNJ) implemented in six districts of Nepal between 2008 and 2012. The possibility of including additional members into the steering committee in close coordination with PPCR project was discussed during the project preparation and was agreed.

The project Steering Committee (PSC) will be chaired by Secretary MOAD. The PSC will give strategic directions to the project. It will approve adjustments in project plan and budget, if any and will also the progress review of the project. The PSC will meet twice a year. The MOAD will appoint a National Project Director (NPD) and the NPD will be the main linkage of the project team with the government.

The coordination between various ministries and inter-ministerial ownership of project activities has been ensured by strengthening existing mechanisms at different levels. For example, at the national level, project steering committee ensures involvement of multiple agencies and ministries to provide directions and also empower their respective decentralized offices to closely involve in project implementation. At the district level, the district project unit is responsible for coordination of activities with other agencies belong to various ministries. At local level, LAPA preparation team will have close linkages with VDC members.

**Comment 2:**

- Provide more information on the proposed up-gradation of 5 agro-meteorological observatories described under Component 2 (page 17). The proposal suggests that agro-meteorological monitoring tools and infrastructure will be procured using LDCF resources (page 13), but does not describe the specific infrastructure nor how it will be used and by whom.

**Response 2:**

Based on the consultations with the Department of Hydrology and Meteorology (DHM), the number of stations proposed for up-gradation is reduced to 4 stations. This will strengthen the selected 4 stations with additional manual instruments. The proposed improvement will consist of constructing stone walls with gates around the perimeters of sites, fixing 50-mm angle poles, setting up of nets, installing cup counter anemometers, re-setting Stevenson’s screens and rain gauges, and painting the walls and screens. New instruments were installed where required, including thermometers, rain gauges with measuring scales, open pan evaporimeters and cup counter anemometers.

**Comment 3:**

- Expand on how the climate information products – under Component 2 – will be developed in consultation with farmers so that the information is useable and actionable at the farm level – and on how the information will be disseminated through user-friendly channels.

**Response 3:**

The development of new weather and climate information products will be based on the needs assessment with the farmers in all 24 VDCs selected for the project implementation. The needs assessment will be conducted with the 120 farmer groups to be established in all the VDCs. Similarly, the value added weather and climate information will be communicated to the farmer groups through the 120 FFS. In addition, the information products will also be delivered by the national focal units at the Department of Agriculture (DOA) and Department of Livestock Services (DLS) to the concerned district level offices for wider dissemination. The value added products with impact outlooks and management alternatives to reduce the impacts of climate risks will be specific to the locations based on the type of agricultural activity and needs of the farmers.

**Comment 4:**

- We also strongly urge FAO as part of section B.6 to coordinate with USAID’s Feed the Future initiative and other relevant programs at both the national and district level, especially given USAID’s current role as chair of the Global Climate Change donor coordination committee.

**Response 4:**

In response to the comments by USG, consultations were carried out and details collected in relation to climate change related initiatives of the USAID in Nepal. Coordination with USAID’s Feed the Future initiative and other relevant programs at both the national and district level will be ensured. The most relevant programmes and projects are: US

Feed the Future Initiative funded (\$ 2 million) five-year project (2012- 2017) - “Initiative for Climate Change Adaptation (ICCA)” developed by IDE, Rupantaran and Resource Identification and Management Society Nepal (RIMS-Nepal); Cereal Systems Initiative for South Asia Nepal (CSISA) - part of the Feed the Future Presidential Initiative that addresses key production challenges in rice, lentils and maize; Knowledge-based Integrated Sustainable Agriculture and Nutrition Project (KISAN) as part of USAID’s five-year (2013-2018), \$20.4 million project under Feed the Future initiative in Nepal; Agriculture and Food Security Project – a joint project involving the Ministry of Agricultural Development (MOAD), Ministry of Health and Population (MOHP), the U.S. Agency for International Development (USAID), and the World Bank; and Hariyo Ban (green forest) under US Global Climate Change Initiative to reduce threats to physical and biological diversity. Detailed description of all the initiatives are provided under section A7 of this document.



## ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS<sup>18</sup>

A. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

<b>PPG GRANT APPROVED AT PIF:</b>			
<b><i>Project Preparation Activities Implemented</i></b>	<b><i>GEF/LDCF/SCCF/NPIF Amount (\$)</i></b>		
	<b><i>Budgeted Amount</i></b>	<b><i>Amount Spent To date</i></b>	<b><i>Amount Committed</i></b>
Activity 1: Stakeholder consultations, PPG completion workshops	8 786	6 000	2 786
Activity 2: Analysis of institutional gaps, capacity development needs and strategies for enhancing coordination mechanisms	4 000	4 000	0
Activity 3: Establishment of analytical frameworks, methods and tools for assessment of vulnerability and climate impacts and location specific early warning systems	9 000	8 109	891
Activity 4: Stocktaking and preparing a list of tested adaptation practices in agriculture sector	6 500	6 100	400
Activity 5: Assessment and identification of knowledge management tools and methods	6 500	6 118	382
Activity 6: Detailed design of project components, results framework, financial plan and budget	15 214	6 327	8 887
<b>Total</b>	<b>50 000</b>	<b>36 654</b>	<b>13 346</b>

<sup>18</sup> If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent funds, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for activities.

**ANNEX D: CALENDAR OF EXPECTED REFLOWS** (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)