UNDP Project Document

Government of Peru

United Nations Development Program

Second National Communication of Peru to the UNFCCC

This project aims at enabling Peru to prepare its Second National Communication (SNC) to the United Nations Convention on Climate Change (UNFCCC), according to decision 17/CP8 and Peru's National Strategy on Climate Change, which is the framework for all the policies and activities performed in Peru regarding Climate Change. The geographical areas of influence and addressed topics considered by the project reflect the diverse situation and different issues encountered throughout the country, and allow the allocation of resources in the most effective manner. The project will apply bottom up and participatory approaches for those sectors and geographic areas prioritized, generating Climate Change Scenarios and Vulnerability and Adaptation Assessments as an input for the Adaptation Strategy. The development of a GHG inventory management system is considered, in order to make possible the periodical reporting of comparable and verifiable GHG emission inventories. Focus is given to the LULUCF sector, due to its influence in the balance of GHG emissions in the country. Mitigation Options for prioritized sectors will be identified as inputs for a mitigation strategy proposal. Moreover, the development of a detailed analysis of constraints and gaps related to technical and capacity needs of the climate information system and research agenda in Peru is considered to be an important part of the project. Indicators will be also developed to assess the impact of the National Communication process in national policy, sectoral planning, and in the development agenda (sustainable development and poverty reduction policies and the Millennium Development Goals). Finally this project is expected to build on the existing information and strengthen the ongoing capacity building activities, to support Peru's strategy to incorporate climate change in its development and poverty reduction processes.

Table of Contents

Section **Page**

Acronyms

APF	Adaptation Policy Framework
BCR	Central Reserve Bank
CC	Climate Change
CDM	Clean Development Mechanism
CP	Country Program
CEPLAN	National Strategic Planning Center
CENTRO	Center for Gender Studies
CEPAL	Latin American Commission for Economic Development
CO_2	Carbon Dioxide
CONAM	National Environmental Council
CONCYTEC	National Council on Science and Technology
CONFIEP	Business Confederation of Peru
FONDEBOSQUE	Forestry Development Fund
FSP	Full Size Project
CCA	Common Country Assessment
GCF	Global Cooperation Framework
GCM	Global Circulation Models
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Green House Gases
GIS	Geographic Information System
IGP	Geophysical Institute of Peru
IMARPE	The Peruvian Sea Institute
INAGGA	Andean Institute of Glaciology and Environment
INRENA	National Institute of Natural Resources
I&M	Inventories and Mitigation
FEN	El Niño Phenomena
FNC	First National Communication
FONAM	National Fund for the Environment
LULUCF	Land use, land use change and forestry
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MEF	Economics and Finance Ministry
MINEM	Ministry of Energy and Mines
MMF	Multi-annual macroeconomic framework
MTC	Ministry of Transport and Telecommunications
NC	National Communication
NCCC	National Commission on Climate Change

NES	National Environmental System
NSCC	National Strategy on Climate Change
NCOS	National Climate Observation System
NGO	Non-governmental organization
NSS	National Strategy Study
OAS	Organization of American States
PCM	Presidency of the Ministers' Council
PESEM	Sectoral Strategic Multi-annual Plan
PROCLIM	National Program on Climate Change and Air Quality
PRODUCE	Production Ministry
PROFONANPE	Fund for Protected Natural Areas
QA/QC	Quality Assurance/Quality Control
SENAMHI	National Meteorological Hydrological Service
SNC	Second National Communication
SNIP	Public Investment National System
SRES	Special Reduction Emission Scenario
UEP	Implementation Unit of PROCLIM
UN	United Nations
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
V&A	Vulnerability and Adaptation

SECTION I: Second National Communication of Peru to the UNFCCC. A Narrative Description

PART I: Situation Analysis

Context and global significance

1. Peru is located in the Western Coast of South America (Pacific Fire Rim). This nation spans an area of 1,285,215 square km, being the third-largest country in South America after Brazil and Argentina, and is among the world's 20 largest nations. It is located at a seismic zone and consequently is affected by earthquakes. The territory of Peru has a highly uneven morphology, which greatly determines its highly diversified climate. The Andes range, which runs longitudinally from South to north of the country, is one of its most significant landmarks. It does not only originate three geographical regions known as coast (Chala), highlands (Andes) and rainforest (Amazonian), but also divides the air masses from the Pacific and the Atlantic Oceans hence acting as a barrier against the circulation of winds between the Pacific and Atlantic basins. This feature is one of the most important factors to climate heterogeneity making Peru's climate extremely diverse and complex to monitor and model.

2. Peru holds the origin of the Great Amazon River and co-hosts with Brazil its path to the Atlantic Basin. This great river produces approximately 20 percent of all the fresh water coming from all the world's rivers. Approximately 75% of Peruvian territory is located within the Amazonian Watershed. The country has the second largest Amazonian forest after Brazil, the longest Andean mountain chains, 71%[1] of the world tropical glaciers and, 84 of the 117 life zones identified worldwide. Peru is one of the 16 Mega diverse Countries, holds its way over the sea up to 200 miles from the Peruvian coast and has territorial rights to an area of 60 million hectares in the Antarctic, which enrich its biodiversity and territorial assets.

3. Peru has approximately 28 million inhabitants mostly settled along the arid coastline. Peru is a nation of mixed ethnic origins. Throughout its history, Peru has been the meeting ground for different nations and cultures. The Spaniards joined the indigenous population 500 years ago. As a result of this encounter, and later enriched by the migration of African blacks, Asians and Europeans, Peruvian man emerged as the representative of a nation whose rich ethnic mix is one of its leading characteristics.

4. To date Peru's GDP (measured in purchasing power parity) reaches US$155.3 billion[2], mostly fed by the revenues associated to its strong mining industry and high prices for copper, gold and zinc. However, this dependence on minerals and metals makes its economy very sensitive to fluctuations in world prices. This fact and a lack of infrastructure decelerate the general growth of trade and investment. After several years of volatility, the Peruvian economy grew by an average 4 percent per year during the period 2002-2004, with a stable exchange rate and low inflation. Risk premiums on Peruvian bonds on secondary markets reached historically low levels in late 2004, reflecting investor optimism regarding the government's prudent fiscal policies and openness to trade and investment. Despite the strong macroeconomic performance, unemployment and poverty have stayed persistently high.

[1] INAGGA, High Mountain Hydro Resources Vulnerability Study, 1998.
[2] Central Reserve Bank, Economic Report, June 2005.

5. Hydroelectric energy is the main source of electricity of Peru, representing 85%[3] of the total electricity produced in the country. However, the recent development of its natural gas fields is generating new energy options, revealing a need to guide and support the energy policy-making process to ensure its long-term sustainability.

6. Peru has been ranked third[4] on the list of countries with more risks to climate hazards, after Bangladesh and Honduras. According to preliminary national climate change scenarios (PROCLIM, 2004), future climate change would exacerbate this condition. Statistics from the National Institute of Civil Defense (in charge of managing hazard impacts and disaster responses) show that emergencies due to natural hazards have increased about 650% in the last 10 years (1995-2004), and at least 72% of these hazards were climate related.

7. The annual loss of nearly 261,000 hectares of forests (National Institute of Natural Resources, INRENA, 2002), fueled by ever increasing migrant agriculture activities, is the major emission source for LULUCF activities totaling 55% of the Net CO_2 emissions and 73%[5] of the total CO_2 national GHG emissions. Furthermore, the Andean glaciers melting pose significant risks to food, energy, water security and sustainability of the Pacific basin cities. Basic studies demonstrate that in the last 30 years, Peru has lost 22% of its glaciers' surface, representing the loss of at least 7,000 million cubic meters of water.

8. Although there is no direct quotation to climate change into the CP/GFC/CCA UNDAF situation analysis, there are lines devoted to energy, environment and capacity strengthening areas. A quick look into GEF supported activities within Peru showed an important allocation of GEF support into a number of projects focused on specific topics, such as technical assistance to obtain bio-fuels and non-wood cellulose fiber, rural electrification projects, among others, with scope and benefits at the local level. To date, GEF activities in Peru have not included an overall assessment of policy options to mitigate GHG emissions from the energy and industry sides, nor the strategies for their possible implementation within Peru's institutional context or the integration of climate change adaptation and mitigation factors into the sustainable development agenda of Peru. This proposal is structured in response to this gap, in line with the Strategic Priority of "Enabling Activities in support of National Communications for Non Annex I Parties of the Convention" within the GEF Operational Strategy for "Climate Change" and in line with the UNFCCC guidelines for Non Annex I National Communications (Decision 17/CP. 8).

Threats, root causes and barriers analysis

9. Although Peru has gathered and generated information and has been developing capacities to deal with climate change through its First National Communication to the UNFCCC and the PROCLIM[6] program, there is still insufficient information for decision making, coupled with lack of awareness of the issues, and inadequate institutional capacities to deal with climate change and comply with its UNFCCC commitments. Much progress has been achieved in terms of raising the technical capabilities of government institutions regarding diverse thematic areas of climate change. However, Peru still requires considerable effort to integrate and mature institutional know-how and responses to climate change. These facts prompt us to propose an enabling activity for the Second National Communication, which by building on the existing information

[3] 2004 Energy Balance, Ministry of Energy and Mines.
[4] Brooks, N. and Adger, N. 2003. Country level risk from outcome data on climate – related disasters: an exploration of the Emergency Events Database. Tyndall Centre, University of East Anglia.
[5] First National Communication to the United Nations Framework Convention on Climate Change, 2001.
[6] PROCLIM, National Program on Climate Change and air quality, Jan. 2003-Sep 2005.

and strengthening the ongoing capacity building activities, will be essential to the Peruvian strategy to incorporate climate change into the development and poverty reduction processes.

10. The fact that 52% of the population lives under the poverty line increases the country's vulnerability conditions. Especially for poor populations, climate change threatens to exacerbate this situation.

11. On the road to development, all Peruvians do not go at the same pace. Strong differences in education, socioeconomic level, gender and geographical location jeopardize the synchronized progress of the whole society. In a society where the principle of "first come, first served" applies, the socioeconomic development gap along Peru can be enhanced through the differentiated exposure to climate change, therefore leaving the poor even further behind. Different socioeconomic groups and geographical areas of Peru have different exposure to Climate Change. This may prevent the timely achievement of, at least, two of the Millennium Development Goals: "Eradicate extreme poverty and hunger" and "Ensure environmental sustainability".

12. The ongoing development of Peru and the upcoming logging activities to be boosted by the Inter Oceanic Peru-Brazil highways menace any effort to mitigate much of Peru's emissions. More than 55% of Peruvian GHG of the net CO_2 emissions comes from LULUCF sector. This share could rise sharply if there is no GHG inventory management system in place to foresee or monitor the impact, in terms of emissions, of policies and programs implemented along the Peruvian Amazonian (the second largest after Brazil).

13. In light of the recent availability of natural gas resources, Peru has focused most of its recent efforts to materialize the Camisea Natural Gas project. While it is of common interest to count on a reliable energy supply, most political and government settings are not aware of the need to diversify Peruvian energy options including those representing climate friendly alternatives such as hydro, wind, geothermal and biomass sources. In this context, the threat to Peru is to base energy supply and usage decisions solely on short-term criteria without considering the long-term implications. This is exacerbated by the lack of long-term policies and planning capacities within the industry, transport, and forestry and, to a lesser degree, the energy sector.

14. The only agenda for most sectors across Peru is of a short-term nature. This poses the menace of allocating resources to issues or targets that in principle could be useful for the day-to-day needs of Peru, but do not necessarily reflect the real needs of Peru in terms of Climate Change. Much of the knowledge generated regarding the Peruvian response to Climate Change can be easily overlooked in the future. This know how is at risk of being excluded from the policy making decision process not only in Peru but in other countries where some of the Peruvian practices can shed light on how to proceed regarding Climate Change. The natural venue to disseminate this knowledge and information is the SNC.

15. A detailed analysis of the rationale behind the identification of needs and the definition of outcomes and outputs as well as the rationale for prioritizing addressed problems is presented in Section IV. For further information relating the barrier analysis undertaken for the SNC project proposal, see the barrier analysis matrix on Section IV Part V

Institutional, sector and policy context

16. Unlike other countries where environmental management is centralized through a Ministry, Peru uses a coordinated and participative environmental management system where the National

Authority and Policy Maker role is assumed by the National Environmental Council (CONAM). CONAM started to operate in October 1995 as a subsidiary institution of the Presidency of the Ministers' Cabinet. Since then, this agency has designed and is currently implementing the National System for Environmental Management as a framework to harmonize sectoral policies with the national environmental policy, and to promote the coordination of the inter sectoral management and the decentralization of environmental management capabilities. Through this framework, CONAM coordinates the formulation, development and implementation of national environmental policies, leaving the execution and day-to-day operations to the Ministries, regions and local governments. This framework fosters an approach to Climate Change based on a participative and socially owned process. Peru signed the UNFCCC on June 12th, 1992, ratified it on June 7th, 1993 and entered into force by March 21st, 1994. The Congress of the Republic of Peru through Legislative Resolution Nº 27824, dated September 6th, 2002, approved the Kyoto Protocol. The ratification of the Kyoto Protocol received the status of national law through Supreme Decree Nº 080-2002-RE dated September 9th, 2002.

17. The National Commission on Climate Change (NCCC) was created through supreme Resolution Nº 359-RE. The main task of the NCCC is to coordinate with the different sectors the fulfillment of the Climate Change Convention (UNFCCC). The NCCC members are the National Council on Science and Technology (CONCYTEC), the National Meteorological and Hydrological Service (SENAMHI), the Ministry of Foreign Affairs, the Business Confederation of Peru (CONFIEP), the National Fund for the Environment (FONAM), the Peruvian Sea Institute (IMARPE), the National Institute of Natural Resources (INRENA), the Economics and Finance Ministry (MEF), the Ministry of Transport and Telecommunications (MTC), the Ministry of Energy and Mines (MEM), the Production Ministry (PRODUCE), NGOs and Universities. The presidency of the NCCC was handed to the National Environmental Council (CONAM) through Supreme Resolution No. 085-96-RE dated March 13th, 1996.

18. One of the first results of the Commission was the National Strategy on Climate Change, which was approved through supreme decree 086-2003-PCM from the Presidency of the Ministers' Cabinet. The National Strategy on Climate Change is the framework for all Peruvian policies and activities regarding Climate Change. In addition, based on the findings and recommendations of a National Strategy Study (NSS) performed in 2002, CONAM devised a National Strategy for the Clean Development Mechanism Implementation, which has contributed to improve basic climate change awareness within a fraction of the business sector.

19. Based on a prioritized section of the National Strategy of Climate Change, Peru carried out the Peruvian Program on Climate Change and Air Quality (PROCLIM). This program, coordinated by CONAM and conceptually designed by 13 Peruvian institutions, seeks the internalization of Climate Change and Air Quality issues in the management of their respective jurisdiction. The primary objective of the program is to strengthen national capabilities for an effective performance of the human, institutional, and financial resources to face Climate Change and manage Air Quality in prioritized geographic areas and cities of Peru. The institutions participating in PROCLIM are the National Environmental Council, the National Fund for the Environment, the Ministry of Energy and Mines, the Ministry of Production, the Ministry of Transport and Telecommunications, the Piura Chira Hydrographic Basin Autonomous Authority, the National Council for Science and Technology, the Geophysical Institute of Peru, the National Service of Meteorology and Hydrology, the General Directorate of Environmental Health associated to the Ministry of Health, the National Institute of Natural Resources, the international NGO Intermediate Technology Development Group and the Center for Gender Studies CENTRO NGO, all of them working on 21 mutually-articulated sub-programs for the period January 2003-September 2005.

20. The National Environmental Council (CONAM) is the CDM Designated National Authority while the promotion of the CDM is performed by the National Fund for the Environment (FONAM) through the execution of a sub-program in the context of PROCLIM.

21. Within the framework of the National Strategy on Climate Change and in the context of PROCLIM, the first effort to strengthen capabilities to generate climate scenarios and bottom up V&A assessments was done. The Geophysical Institute of Peru (IGP) and the National Service of Meteorology and Hydrology (SENAMHI) conducted studies on the generation of Climate Scenarios for the basins of Mantaro and Piura, and the dynamic downscaling of Climate Change Models from the global to the regional level. On the other hand, seven institutions have developed climate change adaptation proposals to be implemented at the basins of Mantaro and Piura, based on the results of the climate change scenarios mentioned above. These proposals have being developed through a participatory process, which ensures its social ownership and increases its sustainability. Gender issues and socio-human approach are being complemented by a simultaneous public awareness strategy.

22. Within the thematic line of Vulnerability and Adaptation to Climate Change, the main gaps include lack of capacities to mainstream risk management, vulnerability and adaptation policies into the short and long term development planning, and national capacities to generate a continuous stream of climate information vital for any attempt to model climate change scenarios and assess future climate change vulnerability. Within the SNC we expect to continue the process of increasing knowledge on climate change vulnerability, promote adaptation and promote decentralized capabilities on prioritized areas and sectors. All this in line with the UNFCCC guidelines for Non Annex I National Communications (Decision 17/CP. 8) and Peruvian aspirations to Sustainable Development.

23. Within the thematic line of Inventories and Mitigation, there is a gap on emissions inventory development since the detail and availability of activity level information are not homogeneous among sectors and the need to develop a GHG inventory management system is crucial to the sustainability of capacities built by PROCLIM. Important capacity gaps were identified during PROCLIM in the non-energy side. One of the main constrains found was the lack of available basic and updated data, collection procedures and official reports especially from the LULUCF sector. Therefore capabilities to quantify emissions associated to this sector are still at an early stage of development. A considerable amount of work and investment shall be performed to boost the institutional capabilities of actors in the LULUCF sector to have basic data available, comparable information and standardized procedures to assure the accuracy and sustainability of the GHG inventory management system.

24. Regarding policies and measures to protect / enhance GHG sinks, the National Forestry law promotes conservation, sustainable management, reforestation and forestation activities fostering in a sense the protection and enhancement of GHG sinks. Besides that, there is still insufficient information regarding roots and main drivers that influence land use change processes especially in the Amazon region. Therefore a coordinated study among relevant institutions will be developed within the SNC project.

25. The energy sector, however, seems to enjoy an effective medium to long term planning capacity. It currently produces an energy referential plan, as well as long-term policy frameworks but it is somehow divorced from the development paths of the other sectors and does not seem to have developed a recurring, regular long-term policy coordination process. This sector has not developed to the same degree its capacity to strategically assess emissions trends nor general

environmental impacts. Likewise, its relations to the CONAM remain loose. Most other line ministries lack long term planning capacity, and superficial review of their technical capacity suggest that their ability to evaluate long term environmental impacts is reduced.

26. As can be seen, some general progress has been achieved through the FNC and the PROCLIM Program. It is apparent, though, that there are areas for further improvement of capabilities for i.e. generating inventories and developing mitigation and adaptation assessments, and that much could be gained if mitigation and adaptation policies were cross sectoral in nature. Bearing this in mind, it is important to notice that the critical success factor to fully develop and implement a cross sector capacity regarding mitigation as well as adaptation is related to the institutional strength of the National Environmental System, and CONAM itself. While CONAM, as the head of the NES, has transversal capacity to coordinate policy, it still need to develop long term capacity planning as well as the capacity required to carry forward transversal policies required to correct significant impacts to the environment.

Stakeholder analysis

27. The First National Communication constituted the first step into promoting and bringing climate change issues to a limited number of stakeholders in the country (including the Climate Change Commission and relevant Ministries). For the first time, institutions were exposed to topics related to Climate Change effects in Peru. Important information was generated by consultants and specialists hired to develop the National Communication, but the level of knowledge and resources available at that time did not allow to envisage the participatory process needed. Further capacity building activities were developed within the PROCLIM program, creating technical capacity among the project's stakeholders whose learning now allows them to approach climate change with more confidence and technical competence that, however, needs to be strengthened. Considering that a good level of coordination and multi-institutional teamwork culture has been developed within PROCLIM, most stakeholders involved in the previously mentioned project have roles in the upcoming Second National Communication. Through meetings and workshops additional institutions that, due to their competence and action range were identified as relevant, have been also incorporated.

28. The design process of the SNC has involved the participative work of institutions from the private and public sectors, as well as civil sector representatives that will help implement the project. Their involvement in the whole process is expected to set the ground for future implementation of adaptation and mitigation strategies. This SNC aims to be a relevant and reliable information source for decision-making regarding climate change, development planning and management of the country. The geographical areas of influence and topics considered by the project reflect the diverse situations and issues encountered throughout the country. The transversal nature of climate change and the diversity of Peru oblige to involve as many and diverse stakeholders as possible from all over the nation, in order to develop long lasting and sound results and proposals. Stakeholders involved, at the moment, include 6 co-executing and 50 participating institutions (see classification in Part III Management Arrangements), with more than 200 specialists to be involved from all over the country. In Section IV, Part IV, a detailed Stakeholder Involvement Plan and a description of the design process are included, as well as a Stakeholders' Matrix describing their role in implementing the SNC project.

PART II: Strategy

Project Rationale and Policy Conformity

29. Peru, as a developing country Party, has agreed under the UNFCCC to undertake actions and comply with commitments described under article 4, paragraph 1, of the Convention according to its specific national and regional development priorities. One of these commitments refers to providing to the UNFCCC with adequate information on the status of implementation of these commitments. As called for in Article 12.1, National Communications are required to include an inventory of net anthropogenic emissions of GHG and a general description of steps taken or envisaged to implement the Convention.

30. All the previous statements prompt us to propose an enabling activity for the Second National Communication, which by building on the existing information and strengthening of the ongoing capacity building activities, will be essential to Peru's strategy to incorporate climate change in the development and poverty reduction processes.

31. This project has been prepared considering the UNFCCC guidelines for Non Annex I National Communications (decision 17/CP8), and therefore, fits in the Strategic Priority of "enabling activities in support of the National Communication for Non Annex I parties of the convention" within the GEF operational Strategy for Climate Change.

32. The GEF provides the agreed full costs for Peru to fulfill the UNFCCC commitments and guidelines for the preparation of the Second National Communication to the Conference of Parties.

33. In the default scenario, without GEF intervention climate change activities in Peru would be limited to the financial resources in the National Peruvian Budget, which would not be sufficient to allow the implementation of the UNFCCC in the country. Furthermore, it would be difficult to continue the implementation of Peru's National Climate Change Strategy, with the possibility of jeopardizing the progress already achieved through previous efforts in capacity building and institutional strengthening.

Project Goal, Objective, Outcomes and Outputs/activities

34. Although Peru has gathered and generated Climate Change information and has been developing capacities to deal with Climate Change through its First National Communication to the UNFCCC and the PROCLIM program, there is still insufficient information for decision making, lack of awareness of the issues and inadequate capabilities to comply with the commitments in accordance to article 4.1 and 12.1 of the UNFCCC.

35. Therefore, an enabling activity for the Second National Communication, building on the existing information and strengthening the ongoing capacity building activities, is considered essential to ensure Peru's strategy to incorporate Climate Change in the development and poverty reduction processes and continue Peru's progress towards the implementation of the UNFCCC.

36. The **development objective** of this project is to develop and enhance national capacities and facilitate the process of mainstreaming climate change issues into national development and poverty reduction processes, thus enabling the country to deal with climate change and consider it not only as a separate environmental issue but as an issue of sustainable development.

37. The **project objective** is to enable Peru to prepare and submit its Second National Communication to the UNFCCC, in accordance with guidelines in decision 17/CP8 and with articles 4 and 12 of the Convention. The project is envisaged as comprising the six outcomes and their related outputs and activities outlined below (for further information see Section IV, Part X and XI)

38. **Outcome 1: Adaptation Strategy for prioritized areas and sectors**

39. As has been already stated, Peru is a very diverse country because of its location and the presence of the Andes Range, which gathers various climates (28 of 35 identified climates around world), ecosystems and life zones (84 of 117 worldwide life zones). This diversity also makes Peru more vulnerable to climate hazards as floods, droughts, hailstorms, freezing fronts, heat waves, among others, that impact severely our society and its assets. The fact that 52% of its population live under poverty conditions, a high hydropower dependence (located on glacier basins) and an important fraction of the economy based on primary activities (i.e. agriculture and fisheries) deepens our conditions of vulnerability. Just as an example, El Niño Phenomenon of 1997/98 caused about US$ 3,500 millions in economic losses, about 4.5% of the GDP on that year.[7] Climate change is expected to exacerbate climate hazards and increase extreme weather events. Therefore, climate change issues must be considered in the development planning and management of the country.

40. Currently, there is a lack of linkages among environmental management, development planning, investment (main guidelines for public and private investment) and public budget allocation. For a country with such a dependence on climate variability, vulnerability reduction and increase of resilience, particularly for the poorest populations and the most vulnerable infrastructure to current climate risks, are important variables to be taken into account.

41. The NSCC considers in its 2 first strategic lines the promotion of scientific research and policies, measures and projects to adapt to climate change. With the FNC, information regarding climate variability (in particular El Niño Phenomena) impacts was gathered and with PROCLIM we were able to build some capacity and generate information on climate change scenarios, including V&A assessments in two previously prioritized river basins (Piura and Mantaro). These assessments, with the gathered information and capacity building activities provided the necessary tools to identify adaptation options and general policies for this two prioritized river basins, but the development of adaptation projects and strategies were not achieved.

42. Therefore the SNC aims to reinforce current capabilities to allow the preparation of an Adaptation Strategy that comprises measures to enhance resilience to climate change while generating complementary and necessary information to support the efforts of mainstreaming these concepts into the sustainable development and poverty reduction processes in the country (refer to the adaptation strategy scheme in Annex XI, Output1.5).

43. This will be done with the involvement of the major possible group of stakeholders at the national level and in prioritized river basins. It is expected that with the number of institutions involved in the SNC project and the information gathering, the quality of the assessments will be improved considerably. This, coupled with new institutional arrangements, will provide a sound basis for the development of an Adaptation Strategy.

[7] Corporación Andina de Fomento, CAF, Lecciones del Fenómeno El Niño, 2001

44. Supporting effective adaptation to climate change in the context of sustainable development requires a deep knowledge of the institutional framework for the planning and policy making processes and mainly, the potential barriers and gaps set by economical policies and national decisions for budget allocation and investments processes.

45. Due to Peru's diversity already referred, the SNC will apply a bottom up participatory approach for developing V&A assessments for those sectors (national level), geographical areas (two river basins) and ecosystems (glaciers) that are considered most vulnerable to climate change. This broad analysis will provide a good sample of different situations, processes, impacts and solution proposals to be included in a comprehensive Adaptation Strategy:

    - *National level*. The four sectors prioritized for the SNC are agriculture, energy, transportation and water. These sectors were selected based on two criteria: (1) level of loss registered due to El Niño 1997/98 and (2) their importance for socio-economic development. The V&A assessments will be done at the national level, considering the impacts quantification and expected losses and damages to evaluate adaptation policy frameworks.

    - *River basin level*. The two geographical areas of intervention are the Santa and Mayo river basins, in the highlands and the Amazonian region, respectively. They were selected based on two criteria: (1) current vulnerability on the basis of food security (presence of agro biodiversity), human development index (poverty level), and current climate-related risks; and (2) potential for replicability. The map of Prioritized Areas for V&A assessments (Section IV Part IX) shows the selected areas highlighted: in blue for V&A assessments to be developed in the SNC. The red circles on the map show areas where PROCLIM developed V&A assessments corresponding to the northern desert region (Piura River Basin) and Central Highland (Mantaro river basin); while the yellow circled areas correspond to prioritized areas for future assessments.

    - *Ecosystem level*. The glaciers, as a fragile mountainous ecosystem, have been chosen because of the increasing evidence of the impact of global warming in glacier melting and the need of assessing potential impact of their retreat on water availability in the future. Most of glacier river basins flow to the Pacific Ocean through the coastal zone that presents about 70% of national population, mainly urban, and receives less than 2% of the water available in the country. The mayor irrigations projects are located in these coastal areas, with a current investment of more than US$ 5 billion; these projects are the basis of Peruvian agricultural exports. Due to the Andean morphology, the main hydro electrical power plants and hydro electrical potential are placed near these areas, and there are no estimates of how these potential could be affected due to water scarcity or alteration of the hydrological cycle.

46. It is important to notice that all these assessments are interrelated, and as such, will be implemented coordinately and benefit from each other. Joint training and project planning activities will be performed among all stakeholders participating in this outcome. This will ensure that standardized methodologies for the assessments that are going to be used throughout all the outputs and that all the needed complementary information is generated on time at the different levels.

47. All the information generated by the above mentioned V&A assessments will contribute to the preparation of an integrated climate change assessment in Peru, which will be the basis for the preparation of an Adaptation Strategy that integrates sectoral and river basins V&A results, and proposal to incorporate climate change considerations into national economic models, budget allocation and public investment system.

48. Using UNDP's APF and with support of The Organization of American States (OAS), which will escort the entire preparation process for the proposed Adaptation Strategy, the process for developing the Adaptation Strategy considers training sessions, workshops and seminars; technical assistance on methodologies for assessing the impacts, selecting and prioritizing adaptation options; developing institutional frameworks; identifying barriers and opportunities to insert vulnerability reduction and adaptation into policies and planning processes, and dissemination and validation of the Adaptation Strategy proposal.

49. A more detailed explanation of the five outputs that contribute to the achievement of this Outcome is presented below:

50. **Output 1.1:** Climate Change Scenarios at national level and 2 river basin level (see details in Section IV Part XI)

51. The FNC did not include a scenario generation, due to the lack of national capacities to generate and use them. Within the PROCLIM program, capacities have been created to downscale Global Circulation Models (GCM) and simulate future climate at the national level and in-country selected areas using SRES (A2 and B2), specifically in the Piura and Mantaro´s river basins.

52. Current available capacities need to be strengthened to downscale GCM´s and regional climate models (as CCM3 and RAMS) to produce NATIONAL climate change scenarios with a spatial resolution of 60 x 60 km grid, and climate change scenarios for the two prioritized river basins, with a spatial resolution of 20 X 20 km grid. This will be the basis for the assessments of expected impacts of climate change and evaluate adaptation options in prioritized sectors (national level) and river basins and glaciers. It is crucial to develop scenarios for each of the two prioritized river basins due to the difference in climate and geomorphology. The Santa river basin goes from "0" m.a.s.l. to about 6,700 m.a.s.l. It drains its waters in the Pacific Ocean and comprises many Andean and coastal differentiated ecosystems and populations. The Mayo River basin, on the other hand, is a trans Andean basin, located in the Amazonian tropical rainforest, in what is called the Selva Alta region (high tropical rain forest, that goes from 500 m.a.s.l to about 2,000 m.a.s.l) and drains its water to the Selva Baja areas (tropical rainforest located at less than 500 m.a.s.l).

53. Activities associated with this output are:

    a) Strengthening of capacities to generate climate change scenarios
    b) Compilation and preparation of basic information
    c) Identification of current climate variability and climate change trends
    d) Downscaling of models at a National Level (60 x 60 km)
    e) Downscaling of models for the two river basins with a resolution of a 20 x 20 km grid, adjusted to their specific conditions.

54. **Output 1.2:** Integrated V&A assessments in prioritized river basins and sectors that provide a representative sample of climate change impact and responses according to Peru's diversity (see details in Section IV Part XI)

55. The FNC only developed a preliminary general assessment of the impacts of El NIÑO phenomenon in different sectors and the impacts of climate variation in 4 Glaciers (for the years 1970 to 1998). However, no climate change scenarios were taken into account for these assessments and no sector analysis was performed. On the other hand, this first assessment did

not enable Peru to propose any adaptation measures. With PROCLIM, two integrated V&A assessments were developed for the first time (in prioritized areas of Piura and Mantaro River Basins) using bottom-up approaches. Bottom-up participatory processes are increasingly considered the most appropriate approach for addressing local adaptation needs and adaptation policies (document FCCC/SBSTA/2004/INF.13).

56. The methodologies and processes to be carried out for the V&A assessments are those recommended by the IPCC and the UNDP´s Adaptation Policy Framework, that comprises current vulnerability assessments, the use of climate change and socioeconomic scenarios to assess future climate risks, and the formulation of an adaptation strategy. The involvement of stakeholders is considered during the whole process.

57. This assessments will be done considering the main sectoral and river basins assets (services, goods, natural resources, main livelihoods) and how they are affected by current climate variability (short term) and expected impacts due to climate change (long term). This will be the basis for the identification and formulation of adaptation options. Institutional frameworks assessments will be also carried out in order to identify planning and policy making processes that could be used to mainstream the incorporation of identified adaptation options at the river basin and sectoral levels

58. When developing these assessments, the knowledge and experience gained during the V&A assessments under the PROCLIM Program will also be applied. Socio economic scenarios will be developed using Climate Change scenarios provided by SENAMHI as a result of the previous output 1.1. This activity will be closely linked to national and regional development priorities. Key conditions as population size, water and food demand, urban growth, industrial and commercial growth will be modeled as part of the evaluation of vulnerability and adaptation[8].

59. To generate integrated V&A assessments in two river basins, Santa and Mayo, and in four prioritized sectors, Agriculture, Energy, Transportation and Water, the project will carry out the following activities:

    a) Involvement of stakeholders at different levels (sectors, national planning institutions, river basin authorities) and responsibilities (technical people, decision makers, civil society) to participate in validating the vulnerability assessments and identifying adaptation options. This will be done through regular meetings, presentations and training sessions, as well as through emails updating them on the progress made and needs of information.
    b) Evaluation of vulnerability and damage costs caused by current climate variability and climate hazards in the selected river basin and sectors activities and assets.
    c) Evaluation of vulnerability and damage costs caused to river basin and sector activities and assets due to future impacts of climate change.
    d) Assessment of institutional frameworks and capacity needs to mainstream adaptation options and measures into prioritized sectors and river basins planning and policy making process.
    e) Evaluation and prioritization of adaptation measures, to mainstream vulnerability reduction and adaptation options into sector and river basin development planning and budgetary assignment process.

[8] The development of scenarios is one of the tasks to be performed under outcome 3 (Mitigation Strategy Proposal), output 3.1. These tasks will be performed under the same terms of reference to ensure that requirements from both outcomes (adaptation and mitigation) are covered and that no overlapping occurs.

60. **Output 1.3:** Determination of the relationship between climate change, glaciers retreat, and impacts on water availability in Peru (see details in Section IV Part XI).

61. The FNC included only a preliminary general assessment of the impacts of climate variations in 4 Glaciers (for the years 1970 to 1998) and glacier retreat trends. A glacier surface loss of about 22% (around 500 Km^2) was estimated in the Peruvian Andean tropical glaciers. Furthermore, PROCLIM generated climate change scenarios to estimate water availability for the next 200 years in the Santa River Basin, fed by glacier water. The study results show an initial increase of water availability due to glacier melt and a decrease in water availability 50 years later (2050), due to high dependence on rainfall. Since Peru is extremely dependant on water coming from glacier sources (i.e. 85% of the nation's energy comes from hydroelectric power plants, most of which are located in the Andean Region), it is crucial to estimate the impacts of climate change in water availability in glacier basins for the whole country in the future.

62. In this sense, the SNC will update and validate a previous glacier retreat assessment and evaluate the impacts in water availability nationwide for the next 50 years. These results will be evaluated in conjunction with those obtained with the V&A assessment for the water sector (output 1.2) so the adaptation measures for the water availability due to climate change will be established in the sectoral assessment taking into account the results of this output.

63. Activities associated with this output are:

    a) Analysis of current glacier hydrology, including an update of previous glacier inventories, glacier variations, and record of glacier melt hazards and disasters. This activity will be accomplished through information gathering, use of GIS to systematize the records of local events in the year 2005, determination of Peru's national glacier surface area, and the determination of timely and spatial interrelationship between glacier behavior and hydro meteorological variables.
    b) Estimation of the availability of water resources due to glacier melt at the national level up to 2050. Climate change scenarios, rain fall and hydrological analysis of glacier river basins will be used to estimate water availability within the country. This activity will use as an input the results from previous studies developed in the Santa River Basin, where climate change scenarios were used to assess water availability due to glacier melt. The development of this activity will generate useful information for the V&A assessment to be developed in the Santa river basin (output 1.2). Tasks that will be also performed are: Evaluation of the local hydro climate conditions of the glacier basins, such as the extreme temperature values, daily thermal fluctuation and variation of the hydrologic records in rivers of glacier hydrographic system; projection of the impact of climate change on glacier cover, glacier melt volume, and modification of the hydrologic regime by climate change scenarios evaluated for the next 50 years.
    c) Evaluation of adaptation strategies in the management of hydro resources in the basins with a glacier component under climate change conditions. This activity will be performed in conjunction with the water sector V&A assessment of output 1.2.

64. **Output 1.4:** Proposal for the incorporation of climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system (see details in Section IV, Part XI).

65. The V&A assessments from previous outputs will enable us to gain a good understanding of Peru's vulnerability to climate change and adaptation options for different sectors and river basins. A critical success factor to the future implementation of adaptation options is the coherent

allocation of public and private resources. The coherence in this process will be achieved if current and future investments in the country make an early identification of climate hazards and allocate resources (as part of the investment) to manage the related risks.

66. In the framework of the SNC we aim to incorporate the climate factor into the processes that influence public budget and investment allocation of Peru: the Multi Annual Sectoral Strategic Plans- PESEM and the National System for Public Investment (SNIP). The main actors in these processes are the Ministry of Economy and Finance, the Central Reserve Bank (BCR) and the Strategic Planning Center – CEPLAN annexed to the Presidency of the Ministerial Cabinet. The early involvement of these actors is one of the cornerstones of this output. This will favor a future implementation of the "corrected" budget allocation processes and will be supported by detailed information on the benefits of incorporating the climate factor (e.g. losses, damages and impacts of climate-related hazards) into the development planning process.

67. This output will develop a strategy to link V&A issues within four main groups of instruments or systems: the Multi Annual Macroeconomic Framework (MMF) including the National Strategic Plan (developed by MEF) and PESEM, policy guidance documents prepared by the recently created Strategic Planning Center – CEPLAN, the National Public Investment System-SNIP, and the public budget allocation process. On this basis, a proposal that identifies ways and means to mainstream climate change into the development planning, budgetary process and national System for public Investment (SNIP) of Peru will be developed. The associated activities are:

    a) Estimation of the potential losses caused by climate change events in prioritized sectors (strong links and coordination with sectoral V&A assessments of output 1.2 will be established).
    b) Evaluation of ways to incorporate the impact of climate change in the MMF, the National Strategic Plan, and Policy guidance documents prepared by CEPLAN, PESEM and other policy guidance documents.
    c) Awareness raising through workshops for key government staff (MEF, BCR and PCM's CEPLAN).
    d) Long - and medium-term economic estimates for the MMF, including a consideration of potential climate change related shocks.
    e) Development of methodologies and procedures for including climate change into budget making cycles and multi-annual programming for the public sector and in the National System for Public Investment-SNIP.

68. **Output 1.5:** Adaptation Strategy (see details in Section IV Part XI)

69. The UNDP Adaptation Policy Framework for Climate Change (APF) will be adopted to guide the process of developing the Adaptation Strategy. The key issue is how to effectively incorporate the adaptation strategy into relevant existing processes and plans. Following the APF guidance, adaptation options identified in the assessments above mentioned will be prioritized and assembled into a comprehensive strategy. The strategy will outline types of measures and policy options, implementation plans, barrier analysis, institutional support needed, stakeholders involvement, capacity building needs, and monitoring activities. It will also address options for integrating adaptation within existing processes and plans. Outcomes of the Adaptation Strategy will be used as input for the Adaptation Learning Mechanism (ALM) that will be established by UNDP to enhance adaptive capacity and create an adaptation knowledge network. The project team will coordinate with UNDP on the procedures to gather information and lessons learned for the ALM. Furthermore, UNDP will provide guidance on adaptation learning resources and on the process to link the Adaptation Strategy with ALM activities.

70. Based on outputs 1.2 and 1.4, an Adaptation Strategy document will be prepared. The Adaptation Strategy will be the tool that consolidates the current information and capacities achieved with PROCLIM and complemented by the SNC. The adaptation strategy will place emphasis on incorporating climate hazard risk management into development planning of the prioritized sectors and selected river basins addressing short term and long term climate change issues (inputs from outcome 1.2). It will also incorporate guidance to include climate change consideration in the national development planning systems and instruments (inputs from output 1.4). As the Adaptation Strategy will outline ways to make local communities and sectors more resilient to the impacts of climate variability and climate change, the participation of organized communities in the process will be a key element in the development of this document.

71. The Adaptation Strategy in the context of this SNC is considered as a process that escorts the development of all these outputs from the beginning. It takes part of the initial involvement of stakeholders, and includes activities such as technical support to the V&A assessments, the systematization of previous experiences (i.e. PROCLIM), conducts the process of prioritizing the adaptation measures to be incorporated in the Adaptation Strategy and the drafting of it, and its process of consultation before its endorsement by the regional governments and ministries.

72. Activities associated with the development of an Adaptation Strategy Proposal include

    a) Synthesize previous information in V&A assessments: activities carried out under this component of the SNC seek to ensure the use of outputs and results from previous V&A assessments and synthesize the current state of what is known about vulnerability and adaptive capacity. This will involve results from PROCLIM and existing information in prioritized sectors and river basins.

    b) Support the process of V&A in prioritized river basins and sectors: technical support will be provided throughout the entire process of developing the Adaptation Strategy, to actors and representatives of sectors (including Economy and Finance) and river basin institutions. Participants from the public and private sector will acquire basic information and skills to develop V&A assessments and adaptation proposals (enhancing activities and results considered in output 1.2). Capabilities to be strengthened will focus on methods and approaches to incorporate climate hazard risk management into sector and river basins planning. This will be done by an initial general training workshop, seminars for specific thematic and training workshops for each sector and river basins. This will ensure that standardized procedures and methodologies are applied throughout the process and that compatible results are generated.

    c) Integration, prioritization and selection of adaptation options identified in river basins and sector assessments: Institutions and relevant stakeholders will support the integration and prioritization of sectoral, multisectoral and cross sectoral measures and adaptation policies considering the results of output 1.2 (V&A assessments in sectors and river basins) and output 1.4 (Proposal for macroeconomics, budget allocation and public investment). For this purpose qualitative and quantitative methods and criteria for the selection and prioritization of adaptation options will be used, such as cost-benefit analysis, expert judgment, among others.

    d) Formulation of an Adaptation Strategy (AS) for prioritized sectors, and river basins. An Adaptation strategy will be drafted comprising and integrating sectoral adaptation and territorially based strategies. It will include the diagnosis on V&A in Peru, proposals to mainstream climate variability and climate change into development planning and

investment, action plan and the institutional framework needed for its implementation. The AS will be disseminated and validated by sectoral and river basin stakeholders.

73. **Outcome 2: Development of a National GHG Inventory Management System**

74. Peru developed and reported its first GHG inventory taking 1994 as its base year within the framework of its FNC. This inventory found constraints of diverse nature such as limited information availability across all sectors, not detailed fuel consumption, and scarce information from the LULUCF sector, among others. It also lacks of completeness and transparency since it presents poor documentation on activity data, emission factors and assumptions used, verification documents, archiving records and QA/QC procedures. This makes its detailed reviewing and comparison with further inventories a difficult task. The fact that this inventory was developed by a group of external consultants did not help to create institutional capabilities.

75. Within the framework of the PROCLIM program, a second inventory was developed taking 2000 as the base year. For this endeavor, PROCLIM focused its efforts on creating institutional capabilities to develop GHG inventories. For this, it devised an inter-institutional task force to develop the 2000 GHG National Inventory. This team was composed of government officials and specialists (many of whom are now full time staff in the government sector) in the following institutions: Production Ministry, Energy and Mining Ministry, Transport and Telecommunications Ministry, the National Institute for Natural Resources, the Environmental Health Directorate and the National Environmental Council. Inventory preparation started a capacity building process across 20 different Peruvian institutions including the ministries above mentioned. The 2000 National GHG Inventory was developed following COP decision 17/CP.8, the Revised IPCC Guidelines for National GHG Inventories and the IPCC Good Practice Guidance. This second inventory made progress in improving the quality of activity data, documenting methodologies, data used and assumptions made, and archiving information, but serious constraints were still found in the process of colleting data especially from the industry, transport and LULUCF sectors. This limited progress has been only partially institutionalized within participating entities and is not homogeneous across the inventory process stakeholders. For instance, in the LULUCF sector a heterogeneous level of maturity in terms of land use information systems and GIS capabilities across Peruvian institutions prevents a complete accounting of LULUCF GHG emissions. In that sense, a coherent effort is necessary to advance on the task of quantifying GHG emissions and give robustness to the emissions inventories and the inventory process itself. Within the framework of the SNC, Peru will report its 2000 GHG National Inventory and will focus on the development of a national inventory management system to ensure the sustainability of the inventory process. It will address institutional arrangements, data base management and methodological issues, among others. The development of the inventory management system will be based on the experience gained in the preparation of the 1994 and 2000 national GHG inventories.

76. **Output 2.1:** Perform an analysis on information, legal, capacity and technological constraints and needs of the inventory process considering the FNC and PROCLIM experiences.

77. The results of this output will serve as a reality check and aim to feed the design of the inventory management system. Activities associated with this output will consider the learning points acquired during the FNC and PROCLIM. The activities included are:

    a) Analysis of the capacity needs for the inventory process at the individual (e.g. training), institutional (e.g. resources and jurisdiction) and systemic (e.g. procedures) levels.

b) Analysis of the technological constraints and needs of the inventory process. This activity will undertake specific assessment of the technological baseline of potential inventory actors and the desired technological level for a sound inventory management system. Particular attention will be given to databases and statistical systems of the ministries, as well as to the LULUCF sector, where intensive computing and GIS use is foreseen as needed.
c) Analysis of the legal issues related to the inventory process. Emphasis will be placed on identifying legal constraints and their corresponding solutions of the potential inventory actors. Issues to be addressed are: accessibility of information and its interinstitutional flow, confidentiality, institutional competences, the national statistical system, private company's information accessibility, etc. This will ease the drafting of feasible public and private resources allocation strategies for an inventory process, as well as institutional duties and inter-institutional arrangements for the information flow.
d) Integration of the diagnosis of constraints and needs of the inventory process and presentation to the stakeholders that will participate in the design of the system.

78. **Output 2.2:** Participative design of an inventory management system.

79. Taking into account the diagnosis on constraints and needs of the inventory process, an inventory management system proposal will be developed jointly with key stakeholders. This points to increase its implementation feasibility. Activities associated with this output are:

a) Stakeholder involvement for a sustainable inventory process. The activities carried out under this component of the SNC seek to ensure that the inventory process can become permanent. The strengthening of relations with national institutions will create a more proactive network and new relations within the government, and with other stakeholders, particularly for "win-win" joint activities such as utilizing inventory data for other national activities. These will comprehend: Awareness-raising activities on GHG inventory focused on promoting the importance of an institutionalized inventory process beyond the national GHG inventories to policymakers; presentations on the progress of the SNC project, beginning with a presentation of the integrated diagnosis on constraints and needs of the inventory process; an early definition of the roles of institutional stakeholders, that will be formally established for the short term through commitment documents and inter institutional agreements; a national information exchange network to promote the active participation of stakeholders, training activities and participative development of activities b and c stated below.

b) Development of systemic tools and procedures. This will include activities such us developing procedures for documenting methodologies, emissions factors and their applications, activity data and assumptions; data management and collection; strategies for data generation and improvement; systems for data archiving and record keeping; mechanisms for synchronization and cross-feeding between emission inventories, national energy balances and relevant sector surveys; guidance for technical peer reviews and procedures for QA/QC. The QA/QC and a peer review procedures developed for every individual sector will be used against the 2000 GHG inventory, to both 'test' the applicability of these procedures and identify any pitfalls of the 2000 inventory. This process will also help the inventory team make any necessary changes or corrections to the 2000 inventory for the Second National Communication.

c) Development of institutional arrangements for the national inventory management system. Based on the diagnosis developed in output 2.1, the definition of key stakeholders for the inventory, and the systemic tools and procedures developed, the institutional arrangements needed for developing a national management inventory system will be designed. This activity will outline the necessary legal (i.e. mandatory roles for participating in the inventory, free

access to data and inter institutional information flow), technological and resource allocation measures to implement the inventory management system and ensure its sustainability.

d) Development of the proposal of the National GHG Inventory Management System: With the inputs of the previous activities a proposal will be drafted, validated by key stakeholders and presented to high level decision makers.

80. **Outcome 3: Strategy to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors.**

81. Peru has various challenges to face at the same time in the energy (transport, industry and energy) and non energy side (LULUCF); its ability to address them effectively cannot be separated from climate change issues.

82. Regarding the energy side, Peru requires significant expansion of its energy supply in the most optimal and climate friendly way, to increase access of Peruvian households to modern energy sources if the current extreme income and energy imbalances throughout Peruvian population are to be redressed. Furthermore, in the current context of natural gas availability, Peru is focusing most of its efforts on the introduction of natural gas within the energy and industrial sectors. This is being done without taking into account its climate change implications and its impact on the Country's sustainable development priorities. For instance, the promotion of natural gas may be inhibiting the promotion of zero emission options such as hydraulic and other renewable energies in geographical areas where natural gas will not be available. This menaces not only the homogenous development of Peru but it works as an incentive to centralize the industrial development of Peru along its gas pipelines preventing long term energy schemes encompassing sound GHG mitigation and zero emission diversification measures.

83. Regarding the non energy side, Peru finds the biggest share of its emissions coming from the LULUCF activities. In that sense, it is of remarkable importance to demonstrate policy makers that GHG mitigation options of the LULUCF sector will bring benefits not only to the global environment, but will give inputs for a better land use planning and to the sustainable development process of Peru. The land use change process has a direct influence on the GHG emissions and removals by sinks and hence on the net national GHG emissions of Peru. According to the FNC, the emissions from LULUCF were 37 196.80 CO2 Gg, that represents 55% of the net CO2 Emissions in the country. The main geographical areas subject to land use changes have been identified and measured in the framework of PROCLIM, but information regarding the causes or drivers of these changes have not been analyzed. This information gap, that applies to the energy side as well, prevents the development of a mitigation strategy proposal for the LULUCF sector. The implementation of this proposal would be of remarkable importance not only because they could mitigate emissions but also for their impact over the country's biodiversity.

84. In the framework of the FNC, a very first analysis of mitigation projects was performed and consisted of an identification and preliminary assessment of project driven mitigation options such as reforestation projects, fuel change projects in electricity generators, technical test on transports fleets and efficiency improvement projects in boilers. However these projects did not constitute policy options nor were they analyzed in the framework of national and sectoral priorities. This early mitigation assessment included a preliminary estimation of the project's potential GHG emissions reductions and the identification of their implementation barriers. The IPCC methodology was employed to estimate potential GHG reductions. The UNEP Collaborating Center for Energy and Environment from RISOE was used to estimate incremental

costs of energy projects while a cash flow analysis was performed on forestry projects. Furthermore, their project specific orientation prevented their use to shape mitigation policies for the energy, industry, transportation and LULUCF sectors.

85. Further efforts on the subject include a very first projection performed within the framework of a previous enabling activity. This projection was based on a macroeconomic model and gave us some insight on the future carbon intensity of the Peruvian economy for two scenarios: business as usual and a limited introduction of natural gas into the energy matrix of Peru. However, the lack of detail per sector and economic activity limited its usage to guide future mitigation policies and measures. In addition, the business as usual scenario used for that projection is now outdated and the energy options for Peru now go beyond natural gas. Within the framework of PROCLIM, the mitigation work was mainly addressed to the development of a National CDM Portfolio and no national or sectoral mitigation assessment was performed. Other energy projects have been financed by the GEF, but resources have focused on specific topics such as technical assistance for renewable energy systems to obtain biofuels and non-wood cellulose fibers, rural electrification projects, among others with a limited local scope and benefits. In terms of mitigation assessment technical resources, some experience exists in the country regarding the use of the LEAP bottom up model, but its application has been limited to estimate fuel consumption growth for energy balances from the Ministry of Energy and Mines.

86. In light of these facts and considering that Peru needs to define its sustainable development path, the SNC will help Peru to develop a mitigation strategy proposal closely linked with its political agenda in four prioritized sectors: energy (due to recent development as a result of the introduction of natural gas and urgent energy diversification), industry (identified as the main consumer of natural gas), transport (identified as having the fastest growing share of GHG emissions) and LULUCF (due to an ever increasing deforestation process). While the FNC mitigation assessment was project focused, the SNC will be policy based. This process comprehends a mitigation assessment and the development of a mitigation strategy proposal for the prioritized sectors. An early stakeholder involvement in all activities of this outcome will give a participative nature to the proposal, which will give cross sectoral ownership to the proposal and will favor a subsequent implementation of the mitigation strategy.

87. The prioritization of Climate Change in the political agenda of Peru will be possible only if we are able to demonstrate the ancillary benefits of putting in place mitigation policies. The definition of the following outputs and activities takes into account the need for sound projections and likely scenarios for the Peruvian future as a basis to construct cross sectoral coherent mitigation options and their integration into a mitigation strategy proposal.

88. **Output 3.1:** Assessment of options to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors.

    Activities associated with this output are:

    a) Stakeholder involvement activities. These activities point to engage all possible stakeholders on the outcome process. The activities include a kick off meeting with identified stakeholders and the definition of their role within this output. In addition, training on mitigation assessment will be provided to government and private companies' representatives. The training will focus on developing capabilities on mitigation assessment for the Energy, Industry, transport and LULUCF sectors.

    b) Analysis of the main drivers and root causes for Peru's historical and current emissions regime.

Since the nature of emissions on the energy and non energy side have their own complexities, this analysis will differentiate the critical factors affecting emissions for the LULUCF, Energy, Industry and Transport sectors. Having said that, this activity will undertake specific analysis on the socio cultural factors influencing the dynamics of LULUCF GHG emissions in the Amazonian rainforest. In the transport sector the main socio cultural factors and practices that affect emissions (e.g. driving practices, cultural barriers to fuel change, etc) will be analyzed. In the energy and industry sectors, the main socio cultural factors affecting both business decisions and emissions regimes will be analyzed (e.g. a lack of efficiency culture, socio cultural barriers to the operation of Energy Service Companies-ESCOs, etc.).

Furthermore, an assessment of the main economic factors that influence GHG emissions will be performed. This will include an assessment of the energy costs, emissions regimes, electricity tariffs policies and how they affect final energy usage and emissions. In addition, large scale equipment replacement options and Peru's cogeneration potential will be outlined and analysis assessing the overall economic benefits associated to efficiency gains in the steel, cement, ceramic, and glass industries will be performed. On the LULUCF sector, case studies in prioritized geographical areas will be performed. This will include a cost-benefit and tax regime analysis of the main economic activities (e.g. logging, agriculture, etc.)

The influence of policies, plans and programs on GHG emissions will be assessed for the LULUCF, energy, industry and transport sectors. Furthermore, a detailed analysis of the institutional and legal framework ruling the LULUCF sector and its impact on GHG emissions will be performed. In addition, two types of case studies in prioritized geographical areas with a river basin approach trying to involve different ecosystems will be performed. The first type will focus on the assessments of the impact of the construction, rehabilitation and extension of the terrestrial transportation ways in the LULUCF GHG emissions. The second type will focus on the influence of the establishment of natural protected areas in LULUCF GHG emissions.

c) Participative development of national scenarios to 2015 and 2050. These scenarios will be developed using prospective techniques such as Delphi, APC, HP, ROT and others and will take possible sectoral and country policy lines as one of the inputs. Three emissions projections (i.e. business as usual, optimistic and pessimistic) will be performed for each scenario. Technical resources to be used comprehend bottom up models such as LEAP for energy alternatives modeling, COPATH to estimate carbon flows related to forest use and top down models of the like of but not limited to ENPEP and MARKAL. The country background on the subject is limited to the experience of the Energy and Mines Ministry using LEAP to perform short term (1-4 years) fuel consumption projections to update national energy balances. In this framework training workshops will be conducted on the subject to enable institutions to perform their own scenario development and projections.

d) Feasibility analysis of mitigation options. This will take into account the main drivers, root and causes of historical and current emissions, and results of the projections. Each option will comprehend sectoral as well as country policy lines. These options will be fed by specific policy assumptions giving origin to each scenario. For instance, in the transport sector these options could comprehend a political decision toward inhibiting private transport and taxing fuels. Under this assumption the projection will determine the degree of GHG emissions reduction and hence will help us to determine the effectiveness of the particular option. Using a similar methodology each option will be analyzed determining its effectiveness. Indicators for the referred effectiveness go from US$ invested/CO2 reduced to US$ invested/ US$ in energy

savings passing by qualitative indicators such as degree of preservation of carbon sinks. Among the co benefits we may quote reduction in air pollution and healthy impact, competitiveness increase, technological improvements, positive environmental and social impacts, among others. These results will feed a final cost effectiveness, cost benefit and feasibility analysis (technical, social, environmental, economical and financial) for each mitigation option.

89. **Output 3.2:** Development of a Mitigation Strategy proposal for the Energy, Industry, Transport and LULUCF sectors.

The activities included are:

a) Prioritization, consultation and validation process of the mitigation options with government officials of the Energy, Industry, Transport and LULUCF sectors and other key stakeholders. This activity seeks to ensure that the information generated in output 3.1 is understood by those stakeholders that would be in charge of implementing the mitigation strategy and make them themselves prioritize the options to be included in the mitigation strategy. This will include the dissemination of technical papers and organizing workshops to analyze and prioritize the options.
b) Development of the Mitigation Strategy proposal and circulation for comments to governmental institutions and key stakeholders.
c) Presentation of the Mitigation Strategy proposal and results of the assessment of mitigation options, focusing on their impact on GHG and Air pollutants emission reductions and their collateral benefits, to high level decision makers of governmental institutions and key stakeholders. This will include representatives from the MEF and CEPLAN (in charge of planning activities of the country). This activity seeks to ensure that the importance of the proposal is understood not only at the technical level, but at the highest level in the participating institutions, in order to prepare the path for its future implementation.

90. **Output 3.3:** Steps to be taken to mainstream the mitigation strategy proposal into national and sectoral policies.

This output will encompass activities leading to the mainstreaming of the mitigation strategy proposal into policies at the national and sectoral levels. The output activities will be:

a) Dissemination, among high level decision makers, of policy papers on mitigation and sustainable development for the Energy, Industry, Transport and LULUCF sectors.
b) Joint workshop with the Center for Strategic Planning (CEPLAN) to outline a mainstreaming plan.

Joint workshops with CEPLAN and the Energy and Mines Ministry, Economy and Finance Ministry, Agriculture Ministry, National Institute of Natural Resources, Production Ministry and Telecommunications and Transport Ministry to disseminate and obtain sectoral support to the mitigation strategy proposal.

91. **Outcome 4: Description of Steps taken to integrate climate change and development**

92. Several of the issues addressed by the Second National Communication of Peru (SNC) are, directly or indirectly, related to sustainable development and the Millennium Development Goals (MDGs).

93. As come out from the description of the preceding outputs, some of the most positive impacts of an enabling activity are the creation of conditions to facilitate, among others:

- Capacity development and strengthening.
- Improvement of energy efficiency, energy innovation and clean energy diffusion.
- Mitigation assessment for prioritized sectors
- Identification and assessment of vulnerability and adaptation strategies, based on vulnerability evaluation.
- Address rural area sustainable development, as part of the poverty reduction policies.

94. As an enabling activity, the SNC could create the adequate environment, contribute to capacity building and strengthening at systemic, institutional and human level, in line with the need to address sustainable development challenges. In addition, it gives an opportunity to identify and define criteria and measurable indicators to assess the impact of the national communication at different levels. This includes, specially, the impacts on technical capacity, institutional strengthening, policy-making, public awareness, community participation, and research activities.

95. The SNC will propose indicators to assess the relation between the National Communication processes. Such indicators will be tested, where possible, during the implementation of the national communication project. It is expected that, also, they provide insights on how to ensure the sustainability of the national communication process itself.

96. The involvement of key stakeholders, relevant institutions and decision makers from the beginning, should ensure the understanding of climate change and its several dimensions to push the integration of climate change issues in policy design and implementation. As Climate Change cannot be considered as a policy in itself, the key challenge is the crosscutting integration of adaptation or mitigation issues in national, regional and sectoral public policies.

97. The SNC strategy to facilitate the mainstreaming of climate change issues into national development priorities include the following:

- Making the relevant stakeholders and decision makers aware about the implications of climate change, the results of the V&A assessments, the options for adaptation and mitigation, and the tools for incorporating Climate Change into development policies and strategies.
- Maintaining them informed of the progress made within the SNC project while providing an open channel to discuss and incorporate their views and inputs throughout the preparation of the SNC.
- Involving them in the information flow, the prioritization exercises at the different levels to evaluate and prioritize the adaptation proposals and strategy as well as the mitigation options and determine ways to incorporate the results in their respective development planning (sector, regional, and national).
- Identify key relation and positive impacts between SNC expected results and the objectives included in the National Agreement, Climate Change Strategy and MDGs.

98. The strategic lines to generate positive impacts on technical capacity, institutional strengthening, policy-making, public awareness, community participation, and research activities, will include instruments and tools, which will be evaluated and proposed in the framework of the SNC, (i.e. learning by doing approach, workshops and training activities).

99. The evaluation and development of indicators to assess the impact of the SNC process in aggregated and sector policies and development agenda, such as poverty reduction policies and the MDGs will be based on the logical framework included in the correspond chapter.

100. In addition it seems that so far, studies related to sustainable development and MDG achievement have not been looking at what will be required on a more permanent basis. Experience has shown that if major support is not properly institutionalized, countries can easily reverse to their business as usual situation.

101. **Output 4.1** Develop dissemination and capacity building activities for relevant stakeholders and decision makers to evaluate, prioritize and support generated mitigation and adaptation strategy proposals. (See details in Section IV Part XI).

102. During the FNC process, the basic foundations for this outcome were defined and built. This included capacity building and raising awareness activities for members of the National Commission on Climate Change (NCCC) that resulted on the elaboration of our National Climate Change Strategy (NCCS), and the construction of a basic climate change informative web site. The National Program for Climate Change and Air Quality (PROCLIM) worked on strategic lines of the NCCS, including the development of dissemination and capacity building activities through one of the four program components. The results of PROCLIM – such as raising awareness and dissemination campaigns for two prioritized areas designed and implemented though a participative process, institutional capacity strengthening, mainstreaming of climate change into regional policies and the generation of information instruments such as a centralized web site and a preliminary climate change research agenda – represent an initial significant step forward on this issue.

103. Capacity Building is a crosscutting issue which transcends all of the activities relating to the preparation of the SNC, including dissemination activities for relevant stakeholders and decision makers to evaluate, prioritize and support generated mitigation and adaptation strategy proposals. The purpose of this output is to generate a participative mechanism that involves stakeholders and decision makers in an active flow of information exchange. It comprehends the participation of relevant actors in the collection, generation and validation of the information needed to develop the SNC and will lead to a sustainable process to generate this information. The proposed mechanism will include awareness raising and dissemination activities leading to capacity building activities. Since some of the SNC stakeholders participate in development planning at the national, regional and local level, this output will set the ground to effectively integrate climate change into medium and long term development planning.

104. Complementary outputs include the creation of interactive spaces for stakeholders to exchange and provide access to information (web networking, workshops) and the publication of generated information, in order to make it available to relevant actors.

105. Activities associated with this output are:

a) Raising awareness activities for stakeholders and policy makers, capacity building activities, stakeholder consultation process and systematization of inputs, integration process of opinion flows into useful information for the SNC.
b) Implementation of an interactive web based support platform.
c) Printed and electronic publication and distribution of relevant information;

106. **Output 4.2.** Evaluation and development of indicators to assess the impact of the National Communication process in national policy, sectoral planning, and in the development agenda, such as poverty reduction policies and the Millennium Development goals (see details in Section IV Part XI).

107. In Peru, there are two main instruments for evaluating the progress made in achieving sustainable development in the country; the National Agreement, is the official document that constitutes the framework of basic lines to define the vision, key policies, objectives and related strategic lines to implement the priorities for sustainable development; and the Millennium Development Goals, an international commitment assumed by the Government of Peru. As such, any sector or general policies should be in line and in coherence with the aim and priorities of the National Agreement and the MDGs. Clearly, climate change will likely affect the ability of Peru to reduce poverty and achieve sustainable development objectives as captured in the MDGs and in the public policies (10 and 19) proposed by Peru's National Agreement.

108. This output seeks the development of clear relationships between the indicators of the SNC process (defined in the Log Frame), results and effects of the SNC (e.g. V&A assessments, mitigation strategy proposal, inventory management system, etc.) and indicators already defined for the implementation of the most relevant policies of the National Agreement (poverty reduction and sustainable development) and the MDGs. These indicators would be used to monitor how the NC process, results, and impacts lead the country to the achievement of its development goals.

109. A key contribution of the SNC is the opportunity to generate awareness, and identify feasible strategies to include Climate Change as part of a sustainable development path. While governments must build the initial frameworks for sustainable development, the private productive sector and civil society are key players in bringing about the economic, social and political viability of these plans.

110. This output will design quantitative and / or qualitative indicators to measure the results expected from the SNC process and the impact of the Second National Communication in the development process. These indicators will be measure these achievements and impacts in different moments of the process, as follows:

    1. During the process of developing the Second National Communication, through the evaluation of process indicators detailed in the logical framework. These indicators are aimed to measure the impact, within the scope of the Second National Communication activities, on technical capacity, institutional strengthening, policy-making, public awareness, community participation, and research activities. As an example of indicators outlined in the Logical framework are: level of awareness of climate change issues, authors of the SNC, number of people and institutions trained, number of people and institutions that participate in the development of the SNC, options or strategies endorsed by ministries and regional /(river basin) governments, technical reports generated and disseminated, among others.

    2. Indicators to assess the mainstreaming of Climate Change issues onto national and sectoral development planning. These indicators will assess the level of implementation of the measures identified during the Second National Communication and their impact on technical capacity, institutional strengthening, policy-making, public awareness, community participation, and research activities. They will focus specifically on assessing how the measures identified have been incorporated in the national, regional and sectoral policies in the country. Some examples of the indicators that could be used are: number and level of additional political and institutional endorsement to the SNC proposals; amount of public budget allocated to climate change measures (e.g. inventory management system); number of mitigation and adaptation options adopted per sector; number of SNC stakeholders that participate in the implementation of SNC proposals and results; amount of public budget and investment allocated following the incorporation of the climate factor into the Multi Annual

and SNIP processes; number of references made to the SNC within scientific, technical and policy making publications; policies at the national, sectoral and regional (river basins) levels that incorporate climate change considerations (i.e. shift in national and regional investments because of adaptation requirements); level of awareness of climate change issues; new technical and scientific research developed; among others.

3. Indicators that measure the impact of the SCN, after the implementation of the policies and measures that incorporate climate change measures. These indicators will be aimed to measure the impact in the sustainable development and poverty processes (key strategies and indicators of the MDGs and the National Agreement) of the implementation of policies and measures that incorporate climate change considerations. Some examples of the indicators that could be used are: Reduction in estimated air pollution emissions or concentrations per unit of GHG; fuel savings associated to efficiency improvement inspired by the SNC; reduction in expenses in rehabilitation projects related to climate hazards; percentage of reduction in losses after a extreme weather event; decrease in deforestation areas, etc.

111. The activities that will be developed under this output are:

a) Identification of key policies and indicators established in National Agreement to reduce poverty and improve sustainable development
b) Identification of relevant dimensions for Peru between CC and MDGs
c) Prioritization of these policies and indicators as the result of an assessment of their relation to CC issues and SNC objectives;
d) Identification of key components and outcomes of the adaptation strategy, GHG inventory system and mitigation strategy;
e) Development of criteria to establish a verifiable relation between key outcomes of SNC and key policies or strategies identified by the National Agreement;
f) Definition of a set of feasible indicators in accordance with expected applicability, availability of information, replicability in other regions, areas or sectors and scope and relevance of the added value generated by the indicator.
g) Development of a report to measure the achievements of the SNC during its implementation.
h) Development, with the participation of relevant stakeholders, a methodology that includes the criteria and indicators identified, to follow up on these indicators after finishing the SNC.

112. **Outcome 5: Prioritized Analysis of Constraints, Gaps and Needs of a National Observation System and Climate Change Research.**

113. **Output 5.1.** Identification and prioritization of constraints, gaps and needs (technical, methodological, institutional and financial) of the climate information system and climate change research (see details in Section IV Part XI)

114. Preliminary needs related to financial, technical and capacity were identified in the FNC, and were confirmed and amplified through the PROCLIM program, involving different national institutions. Among these needs, the number one priority is related to the climate observation system and climate research. The NSCC, in its first Strategic Line includes as an objective the "Improvement of observing capacities in order to increase the understanding of the adverse effects of the climate system and the prediction abilities". The UNFCCC also recognizes[9] the

[9] UNFCCC, Art. 4, par. 1 (g), Art. 5

need to support climate change research and systematic observation. This priority is also supported in the fact that Peru comprises 28 of 35 world climates. There is a gap between the national needs and the current capabilities to observe processes and generate useful data for climate analysis and research. Efforts within PROCLIM were focused on strengthening capacities for climate scenarios generation at the national and sub-national levels. Part of the main obstacles found for developing these studies in the prioritized areas, was the lack of adequate climate information or the access to it.

115. Climate Change research in Peru is very scarce at the moment, though informal mechanisms have been implemented to promote it. The PROCLIM program developed a preliminary proposal of a Scientific Research Agenda that considers the needs of research in climate change issues.

116. The SNC will help to develop an integrated evaluation of the current status of the Peruvian national climate observation network, and the specifics needs for climate observation and research.

117. The associated activities are :

a. Assessment of current state of the climate observation network, identifying gaps and needs for a National Climate Observation System-NCOS, that includes:
   - Coordination and meetings with the National Weather Service managing staff and training of its regional offices to support the development of the assessments
   - Generation of information required for the inventories of the observation network and for the NCOS (including institutional, normative, financial and technological aspects)
b. Dissemination of the preliminary climate research agenda document, validation, and update and follow up of the preliminary climate research agenda document and explore mechanisms to promote it.
c. Disseminate the results, achievements and benefits of a NCOS and the research needs on Climate Change.

118. **Output 5.2:** Proposal of a multi - phase national climate system focusing in the previously identified constraints, gaps and needs. (See details in Section IV Part XI).

119. Based on the previous output, a proposal of a National Climate Observation System will be developed. It will engage the main public and private climate observation networks (land, sea and upper air) and will be focused on ensuring the accessibility and availability of climate data for climate research priorities.

120. The associated activities are:

a. Identification of deficit and possibilities of a possible/optimum hydro meteorological Observation Network;
b. Evaluation of the implementation and operation costs of the NCOS;
c. Quantification of the requirements and process for implementing the Possible/Optimum NCOS.

121. **Outcome 6 : Report - Second National Communication**

122. To comply with the Preparation, approval and submission of the National Communication to the UNFCCC there is a local process that has to be considered involving not only technical but also

political aspects. This process was identified during the First National Communication, where the relevant authorities that need to review, comment and approve the National Communication were identified according to the national circumstances, and the average period of time that the approval process undertakes was for the first time set. Therefore, the need of separating the preparation, revision and approval process as an output considering the activities involved and assigning them the necessary time and budgetary allocation.

Output 6.1: Preparation, revision, approval and dissemination of the Second National Communication

123. The main result of this output is the Document of the Peruvian Second National Communication approved and published in Spanish and English (only the Executive Summary), presented to the UNFCCC and disseminated.

124. This output will include the following activities:

a) Expert review of the Studies;
b) Writing of Second National Communication Report;
c) Revision process (Ministries, National Commission on Climate Change, CONAM Board; Transectoral Environmental Commission)
d) Document Approval process
e) Submission to UNFCCC.
f) Final presentation of the Second National Communication

Project Indicators, Risks and Assumptions

125. Project indicators, risks and assumptions are detailed in the Logical Framework attached as Section IV Part X. These have been developed for each outcome and output.

126. The main risks identified and assumptions made for the implementation of the SNC communication are almost applicable to all objectives and outcomes, and are very similar to the ones assumed for the PROCLIM Program (of a similar size and complexity of the SNC project).

127. Taking into account the work that had been developed in the preparation of the FNC and the experience acquired with the PROCLIM program, it is assumed that all the reports and studies to be prepared under this project will be completed timely and with the highest quality possible. CONAM has an already experienced project management unit (PROCLIM's) that will be responsible for the technical implementation of the project, providing the technical assistance needed, as well as taking care of planning, monitoring and evaluation activities. CONAM will establish bilateral agreements with co executive and participant institutions, where CONAM's responsibilities and theirs clearly outlined. In Most of them have acquired technical competences and have the experience, through the PROCLIM program, of working interrelated and in close coordination. Where competences are still to be developed or strengthen, capacity building activities and technical assistance have being included. To ensure the quality of reports and documents developed, expert reviews are also considered. These facts minimize the risk of not having the reports finished on time and of them not being of a high quality.

128. Another general assumption of the Project is that the political, financial and social conditions will not experience a great variability, showing a relative stability and that government regulations will not directly affect the project development. The institutional stability and commitment with the project is considered crucial for the project development. Bilateral inter institutional

agreements mentioned above are meant to minimize the impact of any institutional change experienced by the different co executors and participants. During PROCLIM, some major changes of institutions and regulations were experienced, but the implementation unit in CONAM (UEP PROCLIM) was able to cope with them and the delays behind them, and the results obtained were those originally expected. On the other hand, another underlying assumption is that outputs will give us the expected impacts assuming no major natural disaster or political variation takes place.

Country Ownership: Country Eligibility and Country Drivenness

129. The National Environmental Council (CONAM) is in charge of the National System for Environmental Management, which is the framework to:
    - Harmonize sector policies with the National Environmental Policy
    - Coordinate the management and decentralization of environmental capabilities in the different sectors.

130. This system, based on a participative and socially owned environmental management, is an excellent platform to deal with Climate Change.

131. One of the early activities of the NCCC, was to support the development and presentation of Peru's First National Communication (FNC) in 2001. The FNC focused on developing the National GHG inventory with base year 1994 and presenting information on national circumstances and environmental law in Peru. A preliminary assessment of the impacts of El Niño and glacier retreat was also reported, along with a brief analysis on mitigation options, as well as financial and technological needs and limitations.

132. Another task of the NCCC was to develop the National Strategy on Climate Change (Supreme Decree 086-2003-PCM) that serves as a framework for all the policies and activities performed in Peru regarding climate change. To ensure its long term breath and socio-political ownership, this strategy was based on Country Policies 10 and 19 (addressing Poverty Reduction and Sustainable Development) of the National Agreement. An important part of this strategy is being worked within the framework of the enabling activity named "Peruvian Program on Climate Change and Air Quality – PROCLIM"[10] (supported by Dutch Cooperation, 2003 – 2005). The program, coordinated by CONAM, seeks to strengthen national capabilities for an effective management of human, institutional, and financial resources to face climate change and air quality issues in priority geographic areas and cities of Peru. Among the latest achievements of the program are:

    - A National Emissions Inventory integrating GHG and Air Pollutants Emissions with base year 2000.
    - A deforestation map with base year 2000.
    - Climate change scenarios, downscaled from Global Circulation Models (GCM models)
    - Vulnerability assessments and adaptation proposals for the basins of Piura and Mantaro.
    - Public awareness campaign on climate change in the Piura and Mantaro river basins.
    - Climate change scenarios and water resources availability models for the Santa River Basin.

[10] PROCLIM was conceptually designed by 13 public and private Peruvian institutions seeking the internalization of the issues of Climate Change and Air Quality in the management of their respective jurisdictions.

133. Much of Peru's actions on climate change have been developed in the context of the FNC and the PROCLIM Program with the support of ongoing public awareness efforts.

134. The contents of the public awareness campaigns in two pilot areas have been fed by the ongoing results on local vulnerability and adaptation assessments. The first steps to draft the most effective public awareness campaign were based on the consideration of actual impacts and future ones based on regional climate change scenarios.

135. Available information was used to generate participative dissemination strategies translating initial technical and scientific vulnerability knowledge into feasible communication products. This information was complementary to the public awareness campaign comprising a participative campaign design, training of local leaders and authorities, as well as press and media releases.

136. Climate change can jeopardize the chances for the sustainable development of Peru, thus the nation must incorporate climate change issues into its development and poverty reduction processes. Activities so far have generated momentum among 70 institutions currently working on Climate Change that can be built upon by the SNC. However, much of the supporting information to persuade high decision making levels to achieve this goal is still to be generated on the short term. The Second National Communication is viewed as a key milestone in the route to that accomplishment.

Sustainability

137. The SNC is building upon what has been achieved with the FNC and the bilateral cooperation for the National Program on Climate Change and Air Quality – PROCLIM, applying the experiences already gained and lessons learned in both processes.

138. In order to ensure institutional sustainability, the SNC will be executed using the same institutional arrangement that the PROCLIM program, coordinated by the National Environmental Council, has been applying successfully for the last three years. This means that the SNC will maintain strategic partnerships and agreements with the co-executors of PROCLIM, taking advantage of and strengthening the technical and managerial capacities already built. The incorporation of now qualified personnel (consultants trained by PROCLIM) into some of these institutions, and the mechanisms and team culture implemented to coordinate and relate tasks have set the ground for a participative development of the SCN.

139. Moreover, to ensure the effective and compromised implementation of the Second National Communication, the co-executors and new collaborators have been part of the design of this project document; the co-executors have committed a matching contributions for the implementation and most of them have subscribed a letter of intent to assist in jointly implementing the project. Formal agreements will be signed when funding becomes available. Current and new actors have expressed their will to participate in further steps of the Climate Change Agenda, with some of them having incorporated certain activities in their operational and budgetary plans.

140. Social sustainability will be ensured by applying learning-by-doing processes and broad but focused participation mechanisms, making stakeholders understand from the beginning the importance of the NC, what is expected from them, the use of information for their own purposes, and the mechanisms that are to be implemented to ensure their active participation. This approach has been successful in raising public awareness on climate change in selected areas and sectors of

Peru. Public awareness will be sustained by social networks with growing relationships to local governments, empowered to disseminate basic knowledge and measures as part of adaptation and mitigation processes. Focused training exercises, a web page and an effective information archiving system will be used to collect and disseminate whatever related information is available and improve knowledge on the problems and solutions.

141. Environmental sustainability is to be achieved though generating methodologies and information on climate change that influences decision making processes. Efforts will be focused on ongoing processes in the areas of Air Quality, Risk Management Planning, and the Biodiversity and Desertification Conventions, among others.

142. Financial sustainability of the National Communication process is aimed to be achieved in the longer term with the inclusion of high level ministry representatives in the co-execution of the SNC project, especially from the Ministry of Economy and Finance. They will be in charge of developing studies to demonstrate the benefits of incorporating climate change in the development, planning and building of instruments to allocate public budget taking into account climate change vulnerabilities and opportunities, and making investment climate-proof. The development of indicators and evaluation of the impact of the NC into national policies will be also performed by high level representatives of these ministries and the National Commission on Climate Change.

Replicability

143. The Peruvian SNC considers a holistic and decentralized approach to climate change issues, including adaptation and mitigation issues. Due to the diverse geographical, cultural, social and economic conditions that Peru presents, a “one fits all” approach is not a viable option for Peru.

144. The project proposes to cover a wide range of representative national conditions including as replicable assets, the methodological frameworks for V&A and mitigation assessments, inventory development, participatory strategies and experiences, and activities to mainstream climate change into regional and sector development processes. The efforts to develop a National GHG Inventory System, to demonstrate the benefit of incorporating Climate Change into development planning and evaluating its impacts before making investments, and indicators to evaluate the impact of NC into national policies, are tools designed to be used nationwide on a continuous basis, and as an example for other environmental issues.

145. Previous enabling activities have helped to achieve the national capacity for downscaling climate scenarios from Global Circulation Models. These capacities will be replicated in the national level and in prioritized regions to make projections and available climate predictions for decision making.

146. All the information generated and collected with the SNC will be systematized, diffused and made publicly available, and become an input for national and regional policies.

PART III: Management Arrangements

SNC Organization Process

147. CONAM, as Peru's national environmental council, has conducted the design of the SNC. The project document is the result of a common effort from several institutions that have contributed their resources and experience to the document's creation and organization, and have committed their institutional participation and support along the entire process.

148. The activities and objectives proposed are within the National Strategy on Climate Change and the National Environmental Agenda action plan up to 2007. Likewise, the organization of the present project has taken as reference the Environmental Management System Law, considering the competencies and legal attributions of the joint executive institutions in regard to its execution.

149. It is important to point out the participation in all stages of the project's organization process, both in joint working groups as well as in institutional and specialized groups in which coordination, consultation and proposals have taken place and in most cases were accepted by general consent.

150. This proposal, agreed by general consent and known by all representatives has brought clearness, as well as quality to the process, and therefore agreement amongst all participants. Section IV Part IV has a list of all project participants as well as a listing of all workshops that have taken place during the organization process.

Co Executive Entities and Participants in SNC

151. SNC execution will take place under CONAM. Nevertheless, according to set up objectives it will be necessary for several institutions both public and private to participate directly or indirectly participate in the project's execution. Depending on their participation and resources allocation from SNC, the participating entities in the project execution will be classified in two groups:

- ***Co executive Entities***: Those entities in charge of preparing specific products needed in order to accomplish objectives set up by SNC. For developing these products they will require joint financing both from the entity as well as from the cooperating source. The established budget, arising from GEF, will be executed through CONAM according to internal procedures established for that purpose and which agree with the outlines established by UNDP and GEF.

- ***Participating Entities:*** Those entities that participate, within their field of competence, directly in the project's execution. They will not receive any financial resource from SNC. Nevertheless they will participate as main actors in several activities the execution of which is needed to accomplish the project's goal.

152. In both cases, CONAM will materialize the entities' commitment by means of Inter-Institutional Cooperation Agreements for Joint Executive Entities or by means of Commitment Letters for participating entities that will develop a specific activity within the project, without any resource allocation to them. This will ensure all the organizations' participation independently of their participation level along the process. (Refer to Section IV Part I).

153. In case of Inter-Institutional Cooperation bilateral agreements between CONAM and each of the joint executive entities, the latter can also agree with other institutions to reinforce some aspects related to SNC subject matter, such as the case of information exchange. The same applies for agreements with joint executive entities; the parties agree that CONAM will, on demand of the joint executive entity, administer and be in charge of all needed expenses required by such entity to meet the budget established in order to fulfill such activities and obtain expected outcomes.

154. These bilateral agreements are the base tool that will allow establishing the conditions for activities' execution which will be made by joint executive entities counting with resources from SNC. Those agreements will gather the parties' responsibilities, the guidelines to be followed in order to execute the resources, and the responsibilities both from CONAM and from the joint executive entities. In addition, the agreements will include the following elements:

- Information or evaluation requests, audits to be made by CONAM which can also be extended to joint executive entities
- The information generated by joint executive entities within the Agreement framework will be available for CONAM and all other joint executive entities
- Some considerations included in the Agreement that will be subscribed by CONAM with the Cooperative Source are extended to the joint executive entities.
    - The Cooperative Source would be able to investigate within the Project framework, and the joint executive institutions should grant all related documents.
    - The Cooperative Source reserves the right to use all products developed within the SNC
    - Printed publications as well as all other publication medias should state the corresponding Cooperative Source (GEF and UNDP)
- Commitment and disposition to approach and include considerations and methodologies in executing their activities
- Commitment and disposition to approach and include considerations and methodologies in the SNC's objectives and activities' execution.
- Budget and activities to take place, considering flexible mechanisms for budget execution
- Appointment of responsible officials and their work status
- Commitment to include project activities in operative plans in their corresponding institutions
- Commitment to include, within future operative plans, tasks identified as necessary in the information obtained
- Commitment to a balanced policy for the hiring of professionals
- List of products and activities to take place
- Commitment to provide information and reports
- Commitment not to subcontract the activities obliged due to contract, allowing the hiring of individual support consultants
- Commitment to present established products as well as the final report on activities made.
- Commitment to participate in periodical meetings for consultation, workshops, coordination meetings and all other activities related to the project execution.

155. The responsibility distribution for co executor and participating institutions in SNC is listed in Section IV Part IV. Likewise, the Organization Chart (refer to Section IV Part II) shows the whole project structure, including the proposed plan for executing the SNC.

SNC Coordination

156. CONAM will assume technical and funds' management responsibility, working in along the guidelines established by UNDP and GEF. Likewise, CONAM will be responsible for fulfilling the project's goals, its sustainability and the efficient use of resources.

157. CONAM, as the national environmental authority, is in charge of promoting sustainable development in close coordination with government and civil society. In that sense, it is authorized to enter agreements, contracts and other administrative and legal procedures in order to fulfill their goals and objectives. CONAM, as responsible entity for SNC execution, and considering the terms and commitments involved in the execution of such a complex project as this is proposes to create an Executive Unit which will directly report to the Climate Change Unit and CONAM´s Executive Office.

158. The Executive Unit would be a specialized entity within CONAM responsible for project direction and management. It will provide technical and administrative assistance to joint executive entities participating in the process, thus ensuring proper and efficient project execution at the actions and activities level. Its object is to guarantee results and expected impacts in order to achieve planned objectives.

159. The project's organizational structure is detailed in the Project's Organizational Chart (See Section IV Part II). The main duties for the project Executive Unit are as follows:
    - Direct, plan, administer and coordinate all types of activities and tasks related to SNC execution
    - Provide technical support to joint executive entities when executing their corresponding activities
    - Ensure and verify that the budgets are executed according to foreseen activities
    - Facilitate inter and intra institutional coordination for effective project administration
    - Monitor and evaluate Program advances in their Executive Unit, Joint Executive Entity and Participant level
    - Coordinate the Agreement preparation and follow up their corresponding fulfillment

160. The Project Coordinator will directly report to the Climate Change Unit and to CONAM Executive Secretary. He/she will be responsible for directing the UEP in order to fulfill the project's objectives through the coordination and follow up of activities and tasks.

161. The Project Coordinator will be supported by an assistant who will mainly be in charge of providing operative and secretarial support during the project's execution.

162. Likewise, he/she will also be assisted by a management planner, who will be in charge of planning the project as well as fulfilling the procedures established by UNDP, CONAM and the joint executive entities. He/she will control expense execution and evaluate budget changes, and ensure Agreements and their respective follow up in order to fulfill project tasks.

163. In addition, the Project Coordinator will be assisted by two Thematic Units: Vulnerability and Adaptation and Inventory and Mitigation. (Refer to Section IV Part III). Each unit will have a Thematic Coordinator whose main tasks will be to technically support joint executive entities and participants, as well as coordinate and establish activities for the Project's development.

164. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, and, but not limited to, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding project funding by

GEF should also accord proper acknowledgement to GEF. The UNDP logo should be more prominent and slightly separated from the GEF logo if possible, as UN visibility is important for security purposes.

PART IV: Monitoring and Evaluation Plan and Budget

165. Because of the institutional complexity of SNC, it is necessary to establish an effective evaluation and monitoring system, which will ensure the timely and quality fulfillment of the foreseen objectives. Therefore, in addition to the standard UNDP/GEF M&E practices for Full size Projects, an internal monitoring system will be put in place under CONAM's direction, as SNC coordinator entity. It will consider the monitoring model, evaluation and experiences successfully established and developed during the execution of the National Capabilities' Reinforcement Program to manage the Impact of Climate Change and Air Pollution - PROCLIM, executed by CONAM during the period 2003-2005, with a financing of 2 millions dollars obtained by means of a non-reimbursement contribution agreement from Dutch cooperation.

166. Activities both from CONAM as well as from joint executing entities have been prepared under standard formats which include activity timelines specifically detailing planned tasks, expected goals, duration, expenses, budgets, activities' timelines and expenses execution schedules. In addition, the Logical Framework turns into the main tool on which project evaluation and monitoring will be based.

167. In addition, it is important to point out that many activities are related among themselves and they are subject to results from other participants. This ensures the integration of planned objectives but requires special attention to planning.

168. In the SNC the monitoring and evaluation system will consider three different action levels which require different formats and methodologies:
    - *Total Project Level*: Evaluation and monitoring of outcome's fulfillment based on outputs, as related to their contribution to achieve the project's objective.
    - *Outcome Level*: Evaluation and monitoring of outputs and activities established in the project, related to their contribution in order to achieve the related outcome.
    - *Output Level*: Evaluation and monitoring of activities, their related sub activities and tasks established in the project for its implementation.

169. Obtained results will have different levels. They start from partial outcome monitoring and output advances, activities and tasks that will allow us to have established products in the required time. For that purpose, activities, indicators and verifying sources for each outcome have been assigned in all different levels (as it is established in logical background).

170. As of established formats, UEP-CONAM will plan and daily monitor the project and internal project evaluations which will take place according to the following information:

For Planning:

1. Develop an Initial Induction Workshop with joint executors and all other project participants.

For Monitoring:

1. Documents that will be used as reference for comparing specific outcomes and outputs in a certain period of time:

Project Level	Outcome Level	Output Level
Program's Logical Framework Project documents Joint results network[11] Project Budget	Outcome Logical Framework Outcome Results Network[12] Outcomes Budget	Annual Operative Plan Output Logical Framework Activities Schedule Output Budget

2. Formats for periodical reports that all joint executive entities must provide UEP-CONAM with, in order to evaluate efficacy and effectiveness in their corresponding activities execution. The following standardized formats will be used:

   - Monthly expenses report format
   - Monthly progress report format
   - Quarterly progress evolution format

   It is important to point out that formats to be applied to joint executive entities will also be used by UEP thematic coordinators, in relation to their specific objectives, and by project management for monthly expenses reporting.

   <u>For evaluation</u>:

   1. Organization of semi-annual workshops in order to totally evaluate the project's specific progress towards its objectives.
   2. Organization of meetings with joint executive entities and participants to assess the achievement of objectives and their real impact.
   3. Organization of field trips in order to verify the fulfillment, progress to and impact of activities in the intervention areas.

171. The already described procedure summarizes the activities and procedures that will be used by Project's UEP in order to apply "Day to day monitoring of implementation progress". In the same way, Section IV Part VII includes a detailed monitoring and follow up flowchart for the SNC. See further information refer to Section IV Part VI *M&E Plan and Budget for FSP*.

[11] The results web is under development
[12] The results web of the objectives are under development

PART V: Legal Context

172. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Peru and the United Nations Development Program, signed by the parties on May 24th 1993. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

173. UNDP acts in this Project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to UNDP as per the terms of the SBAA shall be extended mutatis mutandis to GEF.

174. The UNDP Resident Representative in Peru is authorized to effect in writing the following types of revisions to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

    a) Revision of, or addition to, any of the annexes to the Project Document;
    b) Revisions which do not involve significant changes in the immediate objectives, outcomes, or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation.
    c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
    d) Inclusion of additional annexes and attachments only as set out here in this Project Document

SECTION II: STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT

PART I: Incremental Cost Analysis

Not applied. Enabling Activity for National Communication

PART II: Logical Framework Analysis

Refer to Annex B of the Executive Summary and for further details see Section IV Part X

Table 2: Indicative Outputs, Activities and Quarterly Work plan

Workplan											
Code		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	**OUTCOME**										
1	Adaptation Strategy for prioritized areas and sectors.										
1.1	**Output**										
	Climate Change Scenarios at national level and two river basin level.										
	Activities										
A	Strengthening of capacities to generate climate change scenarios.										
B	Compilation and preparation of basic information.										
C	Identification of current climate variability and climate change trends.										
D	Downscaling of models at a National Level (60 x 60 km)										
E	Downscaling of models for the two river basins with a resolution of a 20 x 20 km grid, adjusted to their specific conditions.										
1.2	**Output**										
	Integrated V&A assessments in prioritized river basins and sectors, that provide a representative sample of climate change impacts and responses according to Peru's diversity.										
	Activities										
A	Involvement of stakeholders at different levels (sectors, national planning institutions, river basin authorities) and responsibilities (technical people, decision makers, civil society).										
B	Evaluation of vulnerability and damage costs caused by current climate variability and climate hazards in the selected river basin and sectors activities and assets.										
C	Evaluation of vulnerability and damage costs caused to river basin and sector activities and assets due to future impacts of climate change.										
D	Assessment of institutional frameworks and capacity needs to mainstream adaptation options and measures into prioritized sectors and river basins planning and policy making process.										
E	Evaluation and prioritization of adaptation measures, to mainstream vulnerability reduction and adaptation options into sector and river basin development planning and budgetary assignment process.										
1.3	**Output**										
	Determination of the relationship between climate change, glaciers retreat, and impacts on water availability in Peru.										
	Activities										
A	Analysis of current glacier hydrology including an update of previous glacier inventories, glacier variations, and record of glacier melt hazards and disasters										
B	Estimation of the availability of water resources due to glacier melt at the national level up to 2050.										
C	Evaluation of adaptation strategies in the management of hydro resources in the basins with glacier component under climate change conditions.										
1.4	**Output**										
	Proposal for the incorporation of climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system.										
	Activities										
A	Estimation of the potential losses caused by climate change events in prioritized sectors										
B	Evaluation of ways to incorporate the impact of climate change in the MMF, the National Strategic Plan, policy guidance documents prepared by										

Workplan

Code		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
	CEPLAN, and PESEM.										
C	Awareness raising through workshops for key government staff (MEF, BCR and PCM's CEPLAN).										
D	Long - and medium-term economic estimates for the MMF, including a consideration of potential climate change related shocks.										
E	Develop of methodologies and procedures for including climate change in budget making cycles and multi-annual programming for the public sector and in the National System for Public Investment-SNIP.										
1.5	**Output**										
	Process to develop the Adaptation Strategy										
	Activities										
A	Synthesize previous information in V&A assessments.										
B	Support the process of V&A in prioritized river basins and sectors.										
C	Integration, prioritization and selection of adaptation options identified in river basins and sector assessments.										
D	Formulation of an Adaptation Strategy for prioritized sectors and river basins.										
2	**OUTCOME**										
	Development of a National GHG Inventory Management System										
2.1	**Output**										
	Perform an analysis on information, legal, capacity and technological constraints and needs of the inventory process considering the FNC and PROCLIM experiences.										
	Activities										
A	Analysis of the capacity needs for the inventory process at the individual (e.g. training), institutional (e.g. resources and jurisdiction) and systemic (e.g. procedures) levels.										
B	Analysis of the technological constraints and needs of the inventory process.										
C	Analysis of the legal issues related to the inventory process.										
D	Integrate diagnosis of constraints and needs of the inventory process and present it to the stakeholders that will participate in the design of the system.										
2.2	**Output**										
	Participative design of an inventory management system.										
	Activities										
A	Stakeholder involvement for a sustainable inventory process.										
B	Development of systemic tools and procedures.										
C	Development of institutional arrangements for the national inventory management system.										
D	Development of the proposal of the National GHG Inventory Management System										
3	**OUTCOME**										
	Strategy proposal to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors										
3.1	**Output**										
	Assessment of options to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors.										
	Activities										
A	Stakeholder involvement activities										
B	Analysis on the main drivers and root causes for Peru's historical and current emissions regime										
C	Participative development of national scenarios to 2015 and 2050										
D	Feasibility analysis of mitigation options										
3.2	**Output**										

Workplan

Code		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
	Process to develop a Mitigation Strategy proposal for the Energy, Industry, Transport and LULUCF sectors.										
	Activities										
A	Prioritization, consultation and validation process of the mitigation options with government officials of the energy, industry, transport and LULUCF sectors and other key stakeholders.										
B	Development of the Mitigation Strategy proposal and circulation for comments to governmental institutions and key stakeholders.										
3.3	**Output**										
	Steps to be taken to mainstream the mitigation strategy proposal into national and sectoral policies.										
	Activities										
A	Dissemination, among high level decision makers, of policy papers on mitigation and sustainable development for the Energy, Industry, Transport and LULUCF sectors.										
B	Joint workshop with the Center for Strategic Planning (CEPLAN) to outline a mainstreaming plan.										
C	Joint workshops with CEPLAN and the Energy and Mines Ministry, Economy and Finance Ministry, Agriculture Ministry, National Institute of Natural Resources, Production Ministry and Telecommunications and Transport Ministry to disseminate and obtain sectoral support to the mitigation strategy proposal.										
4	**OUTCOME**										
	Action Plan to integrate climate change and development.										
4.1	**Output**										
	Develop dissemination and capacity building activities for relevant stakeholders and decision makers to evaluate, prioritize and support generated mitigation and adaptation strategy proposals										
	Activities										
A	Raising awareness activities for stakeholders and policy makers, capacity building activities, stakeholder consultation process and systematization of inputs, integration process of opinion flows into useful information for the SNC.										
B	Implementation of an interactive web based support platform.										
C	Printed and electronic publication and distribution of relevant information.										
4.2	**Output**										
	Evaluation and development of indicators to assess the impact of the National Communication process in national policy, sectoral planning, and in the development agenda, such as poverty reduction policies and the Millennium Development goals										
	Activities										
A	Identification of key policies and indicators established in National Agreement to reduce poverty and improve sustainable development.										
B	Identification of relevant dimensions for Peru between CC and MDGs.										
C	Prioritization of these policies and indicators as the result of an assessment of their relation to CC issues and SNC objectives.										
D	Identification of key components and outcomes of the adaptation strategy, GHG inventory system and mitigation strategy.										
E	Development of criteria to establish a verifiable relation between key outcomes of SNC and key policies or strategies identified by the National Agreement.										
F	Definition of a set of feasible indicators in accordance with expected applicability, availability of information, replicability in other regions, areas or sectors and scope and relevance of the added value generated by the indicator.										

Workplan

Code		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
G	Development of a repot to measure the achievements of the SNC during its implementation.										
H	Development, with the participation of relevant stakeholders, a methodology that includes the criteria and indicators identified, to make a follow up of these indicators after finishing the SNC.										
5	**OUTCOME**										
	Prioritized analysis of constraints, gaps and related financial, technical and capacity needs										
5.1	**Output**										
	Identification and prioritization of constraints, gaps and needs of a National Observation System and Climate Change Research										
	Activities										
A	Assessment of current state of the climate observation network, identifying gaps and needs for a National Climate Observation System-NCOS										
B	Dissemination of the preliminary climate research agenda document, validation, update and follow up of the preliminary climate research agenda document and explore mechanisms to promote it.										
C	Disseminate the results, achievements and benefits of a NCOS and the research needs on Climate Change										
5.2	**Output**										
	Proposal of a multi - phase national climate system focusing in the previously identified constraints, gaps and needs										
	Activities										
A	Identification of deficit and possibilities of a possible/optimum hydro meteorological Observation Network.										
B	Evaluation of the implementation and operation costs of the NCOS.										
C	Quantification of the requirements and process for implementing the Possible/Optimum NCOS.										
6	**OUTCOME**										
	Preparation, revision, approval and dissemination of the Second National Communication										
	Activities										
A	Expert Review of studies										
B	Second National Communication Report Writing										
C	Revision process										
D	Document approval process										
E	Submission to the UNFCCC										
F	Final presentation of the Second National Communication										

SECTION III: TOTAL BUDGET AND WORKPLAN

(For further details refer to Section IV Part XII)

Activity in Second National Communications	In Kind	GEF	TOTAL
0. National Circumstances	**25,000**	**0**	**25,000**
I. Adaptation Strategy for prioritized areas and sectors	**480,000**	**710,000**	**1,190,000**
1.1 Climate Change Scenarios at national level and two river basin level	15,000	80,000	95,000
1.2 Integrated V&A assessments in prioritized river basins and sectors, that provide a representative sample of climate change impacts and responses according to Peru's diversity	250,000	400,000	650,000
1.3 Determination of the relationship between climate change, glaciers retreat, and impacts on water availability in Peru	75,000	50,000	125,000
1.4 Proposal for the incorporation of climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system	40,000	100,000	140,000
1.5 Development of an Adaptation Strategy	100,000	80,000	180,000
II. Development of a National GHG Inventory Management System	**100,000**	**100,000**	**200,000**
2.1 Perform an analysis on information, legal, capacity and technological constraints and needs of the inventory process	29,000	29,000	58,000
2.2 Participative design of an inventory management system	71,000	71,000	142,000
III. Strategy to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors	**225,000**	**375,500**	**600,500**
3.1 Assessment of options to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors	100,000	193,500	293,500
3.2 Development of a Mitigation Strategy Proposal for the Energy, Industry, Transport and LULUCF sectors	100,000	157,000	257,000
3.3 Steps to be taken to mainstream the mitigation strategy proposal into national and sectoral policies.	25,000	25,000	50,000
IV. Description of Steps taken to integrate climate change and development	**50,000**	**100,000**	**165,000**
4.1 Develop dissemination and capacity building activities for relevant stakeholders and decision makers to evaluate, prioritize and support generated mitigation and adaptation strategy proposals	40,000	40,000	80,000
4.2 Evaluation and development of indicators to assess the impact of the National Communication process in national policy, sectoral planning, and in the development agenda, such as poverty reduction policies and the Millennium Development Goals.	10,000	60,000	70,000
V. Prioritized analysis of constraints, gaps and needs of National Observation System and Climate Change Research	**27,500**	**96,500**	**124,000**
5.1 Identification and prioritization of constraints, gaps and needs (technical, methodological, institutional and financial) of the climate information system and climate change research	25,000	75,000	100,000
5.2 Proposal of a multi - phase National Climate Observation System - NCOS focusing in the previously identified constraints, gaps and needs	2,500	21,500	24,000
VI. Preparation-Second National Communication (Outcome 6)	**25,000**	**50,000**	**75,000**
VII. Technical Assistance	**0**	**50,000**	**50,000**
VIII. Project Management	**80,000**	**218,000**	**298,000**
IX. Monitoring and reporting	**0**	**100,000**	**100,000**
Total US$	**1,012,500**	**1,800,000**	**2,812,500**

SECTION IV: ADDITIONAL INFORMATION

This section includes the following parts:

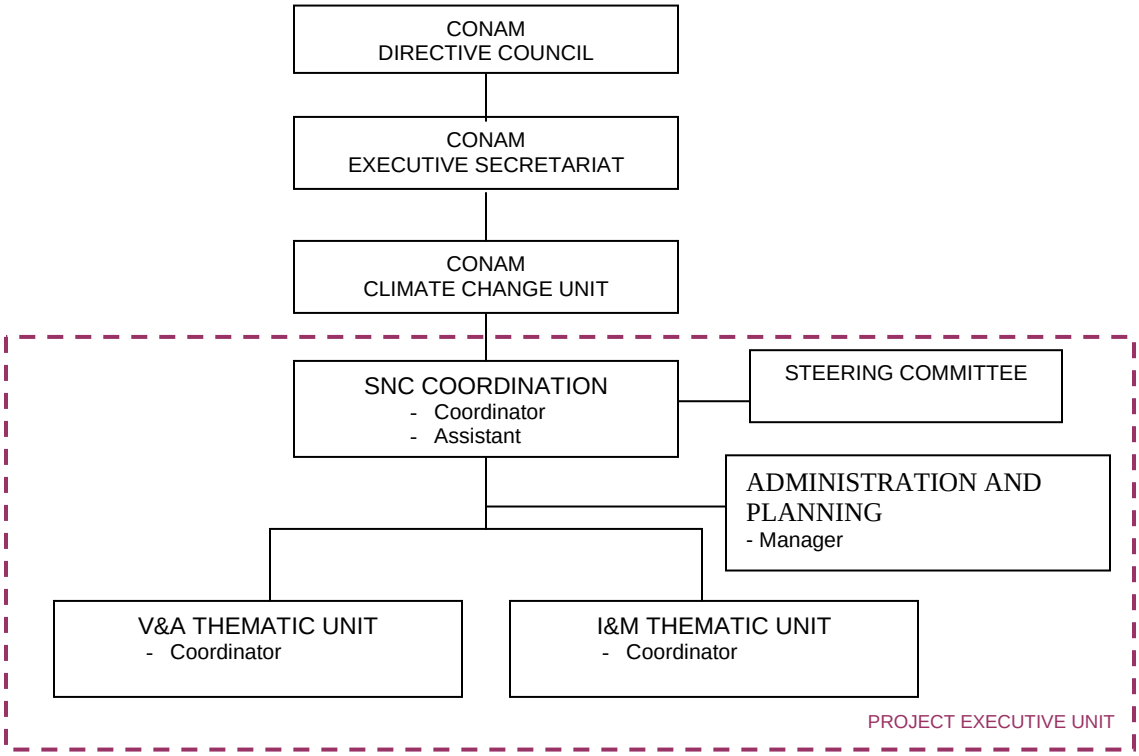
Part I	**Endorsement Letters (See endorsement letters attached)**
Part II	**Project Organization Chart**
Part III	**Terms of References for key project staff**
Part IV	**Stakeholders Involvement Plan (includes the Stakeholders Matrix)**
Part V	**Barrier Analysis**
Part VI	**MEE Plan & Budget for FSP**
Part VII	**Monitoring Follow up Flow chart**
Part VIII	**Project Institutional Background**
Part IX	**Map of Prioritized Areas for V&A Assessment**
Part X	**Logical Framework**
Part XI	**Detailed Outcomes**
Part XII	**Detailed Budget**

Part I *Endorsement Letters*

(See endorsement letters attached)

PART II: *Project Organization Chart*

TABLE Nº 1: PROJECT ORGANIZATION CHART



PART III Stakeholder Involvement Plan

175. The Project of the Second National Communication has been developed with broad participation. In its design, all potential stakeholders identified as needed for its implementation were invited and took part of the development of this proposal. This approach was used with the PROCLIM program and was one of the key issues for its success during its implementation. At the moment, letters of intent have been received by CONAM from most of the stakeholders that will take part of the execution of the project (Section IV Part V).

176. The stakeholders that will take part of the implementation of the SNC are divided into categories:
- Co-executors: institutions that are in charge of the coordination a specific outcome or output of the project and responsible for reaching their related goals. They co-finance the SNC.
- Participants: institutions that will actively participate in project development according to their competencies and interests, but are not in charge of delivering any specific outcome or output

177. While developing the SNC any other institution or stakeholder that finds an interest in the project or may be affected or benefited by it, and desires to participate, will be encouraged to do so. Stakeholder participation ensures that the project will remain open, transparent and relevant to the country. It provides an avenue for feedback regarding concerns and it allows interested parties to learn about all aspects of the project. The goal involving stakeholders is to ensure interested stakeholders are afforded the opportunity to participate in the success of this project and to provide the stakeholders with the information they need to make decisions and provide input during project development and implementation. Stakeholder involvement has played an essential role in every project regarding climate change developed by CONAM and this one is not an exception.

178. The project design draws from previous developed projects addressing Climate Change, namely the First National Communication with UNDP technical cooperation, and the PROCLIM program. In this last one, different national institutions (participating as co-executors) and CONAM reached the goal of taking the first steps to strengthen national capabilities for an effective performance of the human, institutional, and financial resources to face Climate Change and manage Air Quality in prioritized geographic areas and cities of Peru.

179. The development of the National Communication is a multidisciplinary effort, which should involve institutions from all regions of the country. Since its preparation should be the result of a continuing process, the Second National Communication will be built upon the lessons learned in the First National Communication and the previously developed PROCLIM program. Some institutions that worked in PROCLIM have already allocated certain human and financial resources for the development of climate change related activities. As more institutions get involved in this SNC, it is expected more capacity building (including staff trained). With the experience in the previous program it is expected institutional strengthening not only of governmental institutions, but of all stakeholders involved in the preparation of the SNC.

180. Therefore, in the SNC the institutions and specialists that have been working in the FNC, PROCLIM, the SNC project proposal design and new ones will be involved. Given the size and complexity of the project, the National Environmental Council - CONAM, will establish inter-institutional agreements with co-executors to empower national institutions and guarantee the compliance by project proponents with the principle of participatory planning, necessary for a long-term Climate Change Strategy. They will be responsible for the technical implementation of the project and coordination of its activities. CONAM will act, as successfully done in

PROCLIM, as the main executor, coordinating the whole project, monitoring and planning its implementation and providing the technical assistance needed.

181. The constant flux of information among stakeholders is envisaged as a necessary tool and considered as the most effective and transparent approach to involve a wide range of stakeholders and monitor the progress of project implementation. Planning and evaluation meetings involving relevant stakeholders will be held every six months, as well as frequent meetings, visits and communications. Publication of information in a Climate Change Web Site will strengthen the capacity to decentralize the preparation of the National Communication, enabling the total involvement of all the relevant institutions, regardless of their location, and establishing a formal channel to bring together and disseminate information.

Process of developing the proposal for the SNC:

182. The SNC project proposal was developed through the regular assessments done as part of the PROCLIM project, a number of workshops and bilateral meetings. This was undertaken to ensure that the SNC would build upon past experiences (FNC, PROCLIM), be focused on priorities of different sectors and regions, and identify the necessary activities to accomplish the previously mentioned outcomes. The workshops guided the development of this proposal, ensured stakeholder involvement and identified their responsibilities and roles within the project's implementation. The first one was held in August, 2004. In this design, more that 100 divisions of 70 institutions from all sectors of society and 250 persons have participated. The progress and plans for the development of these projects was presented in the National Commission on Climate Change. A workshop list in chronological order is presented below.

183. **Workshop 1:** Implementation of National Strategy on Climate Change. Representatives from the National Commission on Climate Change and the PROCLIM Program. The workshop prepared an assessment of the gaps and priorities for implementing the Strategy, and developed the basic prioritization for components and activities to be incorporated in the SNC.

184. **Workshops 2 and 3:** Third and Fourth PROCLIM Planning and Evaluation Workshops. The main objective was to develop a draft proposal for continuing the PROCLIM program identifying gaps and further needs in the country to deal with Climate Change issues. PROCLIM's co-executors were involved during these workshops. The workshops identified some drafts of the outcomes of the second phase of the PROCLIM program and established a tentative program to develop the proposal. The outcomes demonstrated the level of involvement and commitment of the participating institutions through their continuing work to address climate change.

185. **Workshop 4:** Design of the Project for the Second National Communication. The main objectives of the workshop were: (1) the assessment of the progress made on the different components of the SNC; (2) the identification of the main problems and needs to be addressed by the SNC per component; (3) to develop activities that should be included in the project as a Draft for the Logical Framework (4) identification of other stakeholders that should be involved as well as beneficiaries, and (5) to coordinate dates for meetings for further development after the workshop and steps to be taken to continue the project's design. Representatives from 40 institutions participated in the workshop. This workshop started as a plenary and then four breakout groups under specific objectives were formed according to stakeholders' interests - (1) Sector and Regional V&A, (2) glaciers and water availability, (3) GHG mitigation assessments, and (4) GHG Inventory System. Each group developed a draft logical framework for different outcomes of the project document, and developed its own schedule, needs and procedure to develop the SNC proposal. Some identified, given the big number of stakeholders needed to be

involved in the design of the SNC and the location for implementation (in the regions), that a number of workshops would be needed (i.e. LULUCF GHG system and LULUCF mitigation, Regional V&As). Others established the need of having a consultant to integrate the proposal based on regular meetings and bilateral meetings with them.

186. **Workshop 5:** Preparation of the Climate Change Project Vulnerability and Adaptation in the Mayo River Basin. This workshop was planned in coordination between CONAM-PROCLIM and the PEAM (Alto Mayo Special Project), a stakeholder that works in the Mayo River Basin and was identified as a potential co-executor for project implementation. The workshop was held on site (the Amazonas Department) with representatives from 12 institutions. The main objectives were to give and share information related to climate change and the Economic Macro and Meso Zoning process of San Martin Region and the Upper Mayo Watershed, and to prepare a project proposal for the Vulnerability Assessment to Climate Change and adaptation proposals in the framework of the Economic Zoning and Land Use Planning. During this workshop a group was organized to coordinate the Mayo River Basin proposal in greater detail in preparation for its implementation.

187. **Workshop 6:** Preparation of the Climate Change Project Vulnerability and Adaptation in the Santa River Basin. This workshop was held in Huaraz (Andean mountain basin area). The main objectives of this workshop were to develop time-framed activities and identify possible stakeholders in charge of each activity, and establish identification and prioritization criteria for choosing areas for project implementation. During this workshop, a group was formed to coordinate the proposal for the Santa River Basin in greater detail in preparation for its implementation.

188. **Workshop 7**: Vulnerability to Climate Change in the Santa River Basin and its effects in La Libertad department. This workshop was held in Trujillo, La Libertad (coastal basin area), with 53 representatives. The main objectives were to give and share information related to climate change and its effects in La Libertad Department; to identify the specific topics to be addressed by the project, the time needed for the activities, and the stakeholders in charge of the development of each activity and those who should be included as participants in project implementation.

189. **Workshop 8:** Development of a GHG Monitoring System of the LULUCF sector (held in Iquitos, Loreto, the biggest region of the Amazon in Peru). In this workshop a draft proposal to establish a GHG monitoring system developed by PROCLIM was presented, in order to get comments and opinions as well as possibilities for institutional involvement and analyze the proposal existing gaps.

190. **Workshop 9:** Identification of the existing problems in the LULUCF sector that influence GHG emissions through present deforestation in the Peruvian Amazon. The two main outcomes of this workshop were the clear identification of the need of a National Monitoring System for LULUCF activities in the Peruvian Amazon and the need to have relevant information about land use change processes in order to identify mitigation options in the LULUCF sector. The workshop outlined some factors that influence GHG emissions in the LULUCF sector and a number of proposals for developing mitigation options.

191. **Workshop 10:** Analysis of needs related to establishing of a LULUCF monitoring system as a periodical provider of information for the GHG inventory of the LULUCF sector. Fussy logic was used to identify the steps to be taken for developing a monitoring system. It also helped to

identify satellite information and papers available in different institutions related to land use change.

192. **Workshop 11:** Presentation and analysis of the activities for the second Phase for the PROCLIM program in the LULUCF sector in the SNC framework. The objectives of this workshop were to present the activities to be developed through the SNC, collect opinions and comments about the project proposal related to the LULUCF sector with 16 relevant stakeholders. The different institutions' involvement and responsibilities within the project implementation were outlined.

193. **Workshop 12:** Consolidation and validation of the SNC proposal. This workshop had the following objectives: (1) To present the proposal of the SNC to the stakeholders, after the series of workshops and meetings held and adjust it where needed; (2) To develop a detailed and interrelated schedule of results and activities, involving co-executors and main participants; (3) To discuss the process and requirements for the co-execution agreements.

194. All these workshops (1 to 12) were complemented with periodical meetings and visits, as needed. The components referred to the sector V&As, glaciers and water availability, mitigation in the energy sector and gaps and needs for Climate Information System and Research were developed through more focused meetings with the institutions in charge of specialized consultants, under the coordination of the PROCLIM - CONAM Unit. All stakeholders were informed throughout the process.

195. A Stakeholders Matrix is provided to show their roles in the SNC implementation process

Stakeholders Matrix

Name of institutions / stakeholders	Specific Department	Kind of Participation	Role in the Project	Reasons for their inclusion in the Project
PUBLIC INSTITUTIONS				
National Environmental Council-CONAM	National Environmental Council-CONAM	Project Coordinator Institution	Coordinate the action of the other stakeholders involved in the project through the establishment of interinstitutional agreements.	CONAM is UNFCCC and CBD focal point and Head of the NCCC. Has Institutional Capacities in Inventories and Mitigation, Vulnerability and Adaptation and experience in developing National Communication and programs addressing Climate change issues.
Energy and Mining Ministry-MINEM	General Directorate of Mining Environmental Issues	Participant	Participates in the proposal of a National GHG Inventory System for the Mining sub sector w/ bottom up approach **(Outcome 2)**	As the National Authority of the Mining and Energy Sector, this specific directorate is in charge of environmental management and is capable of developing GHG emissions inventories. Participated in the PROCLIM program developing the GHG emissions inventory for the Mining sector based in year 2000 and has given inputs for this project.
Energy and Mining Ministry-MINEM	General Directorate of Mining Environmental Issues	Participant	Participates in the proposal of a National GHG Inventory System for the Energy sub sector **(Outcome 2)**	As the National Authority of the Mining and Energy Sector, this specific directorate is in charge of the environmental management of the energy sub sector. Participated indirectly in the PROCLIM program providing information needed for the development of the GHG inventory bases in year 2000 and has given inputs for this project.
Energy and Mining Ministry-MINEM	General Directorate of Planning and Budget	Participant	Participates in the integrated systematization of the National Energy Balance and proposal of a National GHG Inventory System for the Energy sector w/ top down approach **(Outcome 2)**. Participates in the formulation of mitigation options for the Energy and Mining sectors **(Outcome 3)**	As the National Authority of the Mining and Energy Sector, it develops annual National Energy Balances, a fundamental tool to design the National Energy Policy. This specific directorate participated in PROCLIM providing information for the top-down GHG Inventory based in year 2000.
Energy and Mining Ministry-MINEM	General Directorate of Electricity	Participant	Coordinates the Vulnerability and Adaptation Assessment for the Energy sector and coordinates with other directorates to accomplish their work within the project **(Outcome 1)**	Proposes Electricity sector policy. Prepares and evaluates the Referential Electricity Plan, Electricity Development Plan, and the Energy Development Plan. Promotes investments and sustainable development to upgrade electricity technology. Designs technical and regulatory framework proposals for the electricity industry.
Production Ministry – PRODUCE	National Directorate of Environment Fisheries Sector-DINAMA	Participant	Participates in the proposal of a GHG Inventory System of the Fisheries sector w/bottom up approach **(Outcome 2)**	PRODUCE is the National Authority in Production Economic Sector. This specific directorate is in charge of the environmental management of the Fisheries Sub-sector. It can effectively develop GHG emissions inventories. Participated in PROCLIM by developing the GHG emissions inventory for the Fisheries sector based on year 2000 and has given inputs for this project.

Name of institutions / stakeholders	Specific Department	Kind of Participation	Role in the Project	Reasons for their inclusion in the Project
Production Ministry – PRODUCE	National Directorate of Environment Industrial Sector- DIMA	Participant	Participates in the development of a GHG inventory of the Industrial Sector w/bottom up approach **(Outcome 2)**	PRODUCE is the National Authority in Production Economic Sector. This specific directorate is in charge of the environmental management of the Industry Sector. Is in capacity of developing GHG emissions inventories. Participated in PROCLIM developing the GHG emissions inventory of the industry sector based on year 2000 and in this project proposal giving inputs for its formulation.
Production Ministry – PRODUCE	National Directorate of Industry-DNI	Participant	Participates in the development of mitigation options for the Industry sector **(Outcome 3)**	PRODUCE is the National Authority in the Production Economic Sector. This specific directorate participated in PROCLIM supporting and giving inputs for the development of the GHG inventory of the Manufacturing sector based in year 2000.
Ministry of Transport and Communications – MTC	General Directorate of Socio-Environmental Issues	Participant	Participates in the development of a GHG inventory of the Transport sector w/bottom up approach **(Outcome 2)**	MTC is the National Authority of the Transport sector. It promotes and provides safe and sustainable adequate maritime, air and land infrastructure. It also promotes the sustainable development of and access to communication services.This specific directorate is in charge of the environmental management of the transport sector and is capable of developing GHG emissions inventories. It participated in PROCLIM in the development of the GHG emission inventory for the Transport sector based on year 2000 and has given inputs for this project.
Ministry of Transport and Communications – MTC	General Directorate of Land Circulation	Participant	Participates in the development of mitigation options for the Transport sector **(Outcome 3)**	MTC is the National Authority of the Transport sector. It promotes and provides safe and sustainable adequate maritime, air and land infrastructure. It also promotes the sustainable development of and access to communication services. This specific directorate is in charge of Transport sector management. It participated in PROCLIM providing inputs for the GHG emissions inventory of the Transport sector based on year 2000.
Ministry of Transport and Communications – MTC	General Directorate of Trains and Roads; Office of Land Emergencies.	Participant	Coordinates the Vulnerability and Adaptation Strategy for the Transport sector **(Outcome 1)**	In charge of giving the legal framework for infrastructure development in the Transport sector. It formulates, proposes and executes policy, strategy and development plans for the Transport sector.
Ministry of Transport and Communications – MTC	Provias National	Participant	Coordinates with other related offices in the ministry to develop the Vulnerability and Adaptation strategy for the Transport sector **(Outcome 1)**	MTC has a wide-ranging impact on the economic and social development of Peru through its two key sub sectors: transport and communications. Of these, transport is particularly important to the decentralization process. The modernization and decentralization of the transport sub sector in MTC has divided the management of highway infrastructure into Provias Nacional charged with the national highway network; Provias Departmental charged with the departmental or secondary highway network.

Name of institutions / stakeholders	Specific Department	Kind of Participation	Role in the Project	Reasons for their inclusion in the Project
Ministry of Transport and Communications – MTC	Directorate for Socio Environmental Evaluation -DESA	Participant	Provides information and inputs regarding the Vulnerability and Adaptation Strategy **(Outcome 1)**	DESA is in charge of the evaluation and approval of socio environmental studies in the Transport sector and following up on compliance with management plans.
Ministry of Health –MINSA	Environmental Health General Directorate - DIGESA	Participant	Participates in the proposal of a GHG Inventory System (**Outcome 2)** and provides inputs for the GHG emissions projections **(Outcome 3)**	DIGESA is a specialized bureau under the Health Ministry in charge of defining policies and regulations, and protecting environmental quality in order to improve living and health standards.
Ministry of Agriculture – MINAG	National Program of Watershed Management and Soil Conservation - PRONAMACHS	Participant	Participates in the Mitigation Assessment for LULUCF Sector **(Outcome 3).** Participates and provides information for the development of the Vulnerability and Adaptation Assessment **(Outcome 1)**	PRONAMACHS is a public institution charged with proposing and coordinating with various public and private institutions the formulation and implementation of strategic policy related to natural resource management.
Ministry of Agriculture – MINAG	General office of Agricultural Planning - OGPA	Participant	Coordinates the Vulnerability and Adaptation Assessment in the Agriculture sector **(Outcome 1)**	In charge of the formulation and evaluation of national policy related to natural resources and agriculture sector, it evaluates the influence of macroeconomic policies on the Agriculture sector.
Ministry of Agriculture – MINAG	General Directorate of Agricultural Information -DGIA	Participant	Provides information for the Vulnerability and Adaptation Assessment in the Agriculture sector and provides inputs for the implementation **(Outcome 1)**	In charge of the compilation of agricultural information, elaboration of data bases related to agricultural activities in Peru. It organizes diffusion activities and annual publications for sector development.
Ministry of Agriculture – MINAG	Sub sector project of irrigation -PSI	Participant	Gathers, organizes and provides information for the V&A assessment. Develops V&A assessment for the Water sector **(Outcome 1)**	In charge of promoting more efficient water management for agriculture, developing diffusion documents about water for agriculture and strengthening capacities among users.
Ministry of Agriculture – MINAG	National Council for South American Camelids (CONACS)	Participant	Participates and provides information related to their area of influence about the pastures and livestock management of South American Camelids for Vulnerability and Adaptation Assessment **(Outcome 1)**	Promotes, norms, and supervises the development of activities related to south American camelids management and pastures associated, coordinating with several relevant institutions of the public and private sector.
National Institute of Natural Resources – INRENA	Forest and Wildlife Intendancy	Participant	Co-executes the project with focus on Mitigation Assessment, Land Use, Land Use Change and Forestry Sector **(Outcome 3)**	IFFS is in charge of policy and regulatory proposals for the sustainable use of forest and wildlife resources, through constant socialization with various sector actors.
National Institute of Natural Resources – INRENA	Hydrological Resources Directorate	Participant	Participates in the Vulnerability and Adaptation Assessment for the water sector **(Outcome 1)**	Develops hydrological resources inventory for surface and ground water. Supervises, promotes and evaluates research and projects related to water use. Supervises and gathers information about water resources and hydrological public infrastructure.
Ministry of Economy and Finance -MEF	Directorate of the Public Budget	Participant	Develops the study to demonstrate the benefits of incorporating climate variability and climate change scenarios in the current economic models and the distribution national budget **(Outcome 1).** Benefits from sensitization and capacity building activities	Designs, proposes, executes and evaluates Peru's economic and financial policy. Promotes national economic growth.

Name of institutions / stakeholders	Specific Department	Kind of Participation	Role in the Project	Reasons for their inclusion in the Project
			within the project.	
Central Bank of Peru – BCRP	Economic Studies Directorate	Participant	Participates in the activities for integrating climate change into the current economic models, gives and generates information; benefits from sensitization and capacity building activities within the project (**Outcome 1**).	BCRP is in charge of regulating the currency and credits in the national financial system, and managing foreign currency reserves placed in its care.
Presidency of the Council of Ministers - PCM	Senior Team of the Strategic Planning Center	Participant	Participates in the activities for integrating climate change into the current economic models, Give and generate information; benefits from sensitization and capacity building activities within the project (**Outcome 1).**	PCM coordinates Executive Branch intersectorial and interinstitutional activities and prioritizes them in line with government policy.
Center for strategic Planning – CEPLAN	CEPLAN	Participant	Participates in the definition of criteria and identification of main actors involved in the planning of long term investments. For the incorporation climate change into the current economic models and long term planning (**Outcome 1)**	Is an institution subscribed to the Presidency of the Ministerial Cabinet to impulse the actions of the State on the base of a strategic planning that it orients the resource allocation and actions needed to reach the national objectives of development, growth and suitable integration of the national economy.
National Commission of Development and Live without Drugs –DEVIDA	Division of Environmental Management	Participant	Participates in the development of the design of a LULUCF inventory **(Outcome 2)** Participates in identifying drivers and root causes of LUC and analyzing mitigation options for the LULUCF sector **(Outcome 3)**	DEVIDA designs and consults drug enforcement policy, promotes and coordinates programs and projects to control drug production and. Since the Amazon Region is a critical drug growing area involving DEVIDA in the project is extremely important.
National Service for meteorology and hydrology - SENAMHI	General Directorate of Meteorology	Participant	Provides information for the emissions projection in the Peruvian Amazon **(Outcome 3)**. Coordinates the diagnosis of the current status of the climate observation network. Develops the proposal of the Climate Observation System and climate research and data availability **(Outcome 5)**	Peru's weather, hydrological, agro-meteorological and environmental science and technology agency, it participates in the global atmospheric watch and renders specialized services for Peru's sustainable development, security and progress.
National Office for Services of Sanitation – SUNASS	National Superintendent for Water and Sanitation Utilities - SUNASS	Participant	Provides available information related to the water sector for the Vulnerability and Adaptation Assessment and provides inputs for outcome development **(Outcome 1)**	SUNASS is the water and sanitation regulator and is responsible for service quality, tariff and coordination, and regulation and supervision of investment plans.
The Investment Supervisor Organism in the Energy Sector – OSINERG	Investment Supervisor Organism for Energy Sector -OSINERG	Participant	Participates providing information and inputs for a Vulnerability and Adaptation Assessment for the Energy sector **(Outcome 1)** Participates giving inputs for analyzing the activities in the Energy sector to develop mitigation options in the Energy sector **(Outcome 3)**	Electricity and hydrocarbons sub sectors legal and technical regulator, it also acts as watchdog environmental conservation and protection agency for these industries.

Name of institutions / stakeholders	Specific Department	Kind of Participation	Role in the Project	Reasons for their inclusion in the Project
Water and Sanitation Services Company of Lima -SEDAPAL	Environmental Management Team	Participant	Participates in the Vulnerability and Adaptation assessment related to the water for human consumption **(Outcome 1)**	A state-owned private company under the Ministry of Housing, Construction and Sanitation, SEDAPAL is Lima's water utility and executes the government's policy regarding the operation, maintenance, control and development of basic water and sanitation in Lima.
ACADEMIA & RESEARCH INSTITUTES				
La Molina Agrarian University – UNALM	Faculty of Forest Science –FCF	Participant	Participates in the development of the design of an Agriculture and LULUCF inventory, coordinates some relevant activities **(Outcome 2)** Participates in the emissions projections for the LULUCF sector **(Outcome 3).** Participates in identifying and analyzing mitigation options and developing scenarios **(Outcome 3)**	Forestry Department gathering the faculty, graduate student body, researchers and students engaged in studying, researching and disseminating knowledge regarding forestry issues.
La Molina Agrarian University – UNALM	Conservation Data Base Center -CDC	Participant	Participates in the development of the GHG inventory system in the Agriculture and LULUCF sectors **(Outcome 2)** Participates in the identification of roots and drivers of Land Use change and in the emissions projections of the LULUCF sector **(Outcome 3)**	CDC is a Management Information Unit concerned with biological and ecological diversity in Peru. It gathers important information about Peru's Natural Protected Areas analyzes their condition and proposes management measures. Its data base is permanently updated through information analysis and processing, and is open to the interested public.
Ucayali National University -UNU	Faculty of Forest Science	Participant	Participates in the development of the design of the LULUCF inventory (**Outcome 2)**. Participates in Identifying and analyzing mitigation options in the LULUCF sector **(Outcome 3)**	Forestry university department in the Peruvian Amazon, it is devoted to the study, research and diffusion of forestry-related topics.
Research Institute of the Peruvian Amazon-IIAP	FOCAL FOREST	Participant	Participates in the design of a GHG emissions inventory system of the LULUCF sector **(Outcome 2)**. Participates in identifying and analyzing the main drivers and roots for Land Use change, in the identification of options and in the development of scenarios for the GHG emissions projections **(Outcome 3)**	IIAP, a public independent organization scoping the whole Peruvian Amazon, conducts research on the conservation and sustainable use of natural resources in the Amazon region. This specific project aims at strengthening its capacity for developing sustainable forest management in the Amazon.
The Agricultural Research and Extension Service –INIEA	Agricultural Research and Extension Service - INIEA	Participant	Provides information about technologies that are applied in the Agriculture sector and participates in the Vulnerability and Adaptation Assessment of the Agriculture sector **(Outcome 1)**	Responsible for researching, promotion and technology transfer in the jungle (east), Andes (highlands) and coastal areas. It encourages using new technologies in agricultural and agro industrial processes in Peru.
Peruvian Central National University- UNCP	Research and Air Management Group (GEAIRE)	Participant	Participates in the analysis of the LUCF sector and identification of Mitigation Options in the Land Use Change and Forestry Sector **(Outcome 3)**	A research think tank working on the effects of deforestation and forest slash and burn practices on Amazon forest climate.

Name of institutions / stakeholders	Specific Department	Kind of Participation	Role in the Project	Reasons for their inclusion in the Project
Investigation for Development Institute - ININDETEC	Investigation for Development Institute - ININDETEC	Participant	Participates in identifying and analyzing and giving inputs for mitigation options in the LULUCF sector **(Outcome 3)**	Conducts research in CO_2 emissions and capture in different ecosystems.
INVESTMENT PROMOTION INSTITUTIONS				
Forest Promotion and Development Fund-FONDEBOSQUE	Forest Promotion and Development Fund-FONDEBOSQUE	Participant	Participates in identifying and analyzing LUC and giving inputs for the development of scenarios, and giving inputs for the Mitigation Assessment on LULUCF sector **(Outcome 3)**	FONDEBOSQUE is engaged in a broad range of forestry activities. It fosters the environmental and economic valuation of forest resources, and develops forest sector competitiveness in Peru through the valorization of forest goods and services. It promotes public and private forest investments, including financial mechanisms. It contributes to strengthening capacities among forest users and beneficiaries.
Private investment promotion agency-PROINVERSION	Private Investment Promotion Agency-PROINVERSION	Participant	Participates in providing information about investments within the country to develop the Vulnerability and Adaptation Assessments **(Outcome 1)** and for the scenarios for GHG emissions projections **(Outcome 2)**	PROINVERSION encourages private investment in order to boost Peru's competitiveness and sustained development and thus raise people's quality of living and living standards. It also provides strategic support for doing business in Peru.
INTERNATIONAL ORGANIZATIONS BASED IN PERU				
Conservation International Peru - CI	Conservation International Peru -CI	Participant	Participates in the participative development of the inventory system in the LULUCF sector **(Outcome 2)** Participates in identifying and analyzing roots and drivers for Land Use change, providing information on their project's area of influence and giving inputs for mitigation options **(Outcome 3).**	CI aims to conserve the Earth's living natural heritage and global biodiversity. In Peru CI aims at strengthening management capacities within National Protected Areas and promotes the participation of civil society in conservation. It contributes to the understanding and diffusion of Peruvians biodiversity and encourages including ecological criteria in development policies. CI creates joint ventures with different social and institutional actors to develop their activities based on technical and scientific criteria.
United Nations Organization – UNO	United Nations Office on Drugs and Crime - UNODC	Participant	Participates in the development of the design of a LULUCF inventory **(Outcome 2)** Participates in identifying and analyzing roots and drivers for Land Use change, providing information on their project's area of influence and giving inputs for mitigation options **(Outcome 3)**	UNODC supports the government of Peru in its illicit drug enforcement efforts within a MDG and human rights approach. It also supports the government of Peru in governance and social stability issues and in combating threats against the basic conditions needed to achieve Peruvian development goals. Its initiatives include all programs and activities related to environmental issues, conservation of natural resources and protection of indigenous communities.

Name of institutions / stakeholders	Specific Department	Kind of Participation	Role in the Project	Reasons for their inclusion in the Project
World Wildlife Fund PERU- WWF Peru	Forest program	Participant	Participates in the development of the design of a LULUCF inventory (**Outcome 2).** And in the identification of mitigation options in the LULUCF sector **(Outcome 3)**	WWF-Peru is working in the creation and management of forest Natural Protected Areas and to introduce natural restoration in high value habitats. An important part of WWF work is to increase awareness among government, business, users and consumers of the problems caused by illegal logging and assisting in improving better transport law enforcement in Peru.
World Wildlife Fund PERU- WWF Peru	CEDEFOR- Program	Participant	Participates in identifying and analyzing roots and drivers for Land Use change, providing information on their project's area of influence and giving inputs for mitigation options **(Outcome 3)**	Manage and achieve forest certification of one million hectares by year 2006, and reduce deforestation by promoting the sustainable use of forest resources.
NGOs				
Andean Institute of Glaciology and Environment (INAGGA)	Andean Institute of Glaciology and Environment (INAGGA)	Participant	Participates in and coordinates the development of the study to determine the relation between climate change and glacier retreat **(Outcome 1)**	An NGO conducting research in glacier retreat and water.
Forest Society and development -BSD	Forest Society and Development -BSD	Participant	Participates in the development of a GHG inventory system in the LULUCF sector**.(Outcome2)** Participates in identifying and analyzing roots and drivers for Land Use change, providing information on their project's area of influence and giving inputs for mitigation options **(Outcome 3)**	A Peruvian NGO specifically devoted to the Peruvian forest sector, it chairs the Peruvian forest sector dialog and coordination round table and is an important player in Peru's forestry sector.
Peruvian Society of Environmental Law- SPDA	Peruvian Society of Environmental Law- SPDA	Participant	Participates in identifying and analyzing deforestation causes, providing information on the forest legal framework and national policy, and giving inputs for mitigation options **(Outcome 3)**	SPDA analyzes Peru's environmental regulatory framework and identifies and makes proposals for sustainable development laws and policy.
National Forestry Chamber	National Forestry Chamber	Participant	Participates in identifying and analyzing deforestation causes, providing information related to Projected Scenarios for Peru and giving inputs for mitigation options **(Outcome 3)**	An association actively participating in forums dealing with forestry issues in Peru, it participated in preparing the existing Forest Act and the National Forestry Strategy. Its members are involved in the policy making process in the forest sector and they work on specific projects related to forest management and research.
Fundación Peruana para la Conservación de la Naturaleza- PRONATURALEZA	PRONATURALEZA	Participant	Participates in the development of the inventory system focusing in the LULUCF sector **(Outcome 2)** Participates in identifying and analyzing LUC **(Outcome 3)**	ProNaturaleza aims to conserve Peruvian natural heritage, especially its biodiversity. It promotes and executes actions related to conservation, natural resources management, and awareness rising.

Name of institutions / stakeholders	Specific Department	Kind of Participation	Role in the Project	Reasons for their inclusion in the Project
Institute for promotion of mater management – IPROGA	Institute for Better Water Management - IPROGA	Participant	Participate providing information and inputs for the Vulnerability and Adaptation Assessment **(Outcome 1)**	Promotes and proposes participatory public policy and initiatives for better water use; facilitates management tools for more rational use of natural resources, contributes to articulate and tap various institutional and professional experiences and capacities available in Peru.
PRIVATE SECTOR				
Committee of Economic Operations of the National Interconnected System (COES-SINAC)	Committee of Economic Operations of the National Interconnected System (COES-SINAC)	Participant	Develops the Integrated Vulnerability and Adaptation Assessment in the Electricity sector **(Outcome 1)**	A technical organization gathering the electricity utilities, transmission systems and generation plants in the National Interconnected System. It ensures the quality and continuity of electricity supplies and encourages optimum use of energy resources.

PART IV: Barrier Analysis

Threats	Root Causes	Barriers	Analysis	Shall be done within the Framework of the SNC	Output
On the road to development all Peruvians do not go at the same pace. Strong differences in education, socioeconomic level, gender and geographical location jeopardize the synchronized progress of the whole society. In a society where the principle of "first come, first served" applies, the socioeconomic development gap along Peru can be enhanced through the differentiated exposure to climate change, leaving the poor behind. Different socioeconomic groups and geographical areas of Peru have different exposure to Climate Change. This may prevent the timely achievement of two of the Millennium Development Goals: "Eradicate extreme poverty and hunger" and "Ensure environmental sustainability".	Adaptation capacities along Peru are conditioned to the socioeconomic level, economical activity and location.	Diversity of climate regimes, weak "hands on" capacities of national and regional government. No single approach to assess vulnerability is valid along Peru. An integrated intervention in a given area is prevented by an intermittent presence of the State.	The high diversity of climate regimes, geographical and socioeconomic conditions found along Peru demand a National Adaptation Strategy fed by ad-hoc considerations and a sound sampling of sectoral issues. On a first phase, this can be achieved by prioritizing areas (Santa and Mayo River basins) and sectoral exposures to climate change.	Adaptation Strategy for prioritized areas and sectors **(SNC Outcome 1)**	Climate Change Scenarios at national level and two river basin level
					Integrated V&A assessments in prioritized river basins and sectors, that provide a representative sample of climate change impacts and responses according to Peru's diversity
					Determination of the relationship between climate change, glaciers retreat, and impacts on water availability in Peru
					Proposal for the incorporation of climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system.
					Process to develop the Adaptation Strategy
	Multiple and unfinished state reforms resulted in divorced ministries with poor intersectoral links	Scarce coordination across sectors. Lack of synchronization in terms of intervention areas and modalities. Development criteria have not been incorporated into sectoral policies if any.	Within the framework of the SNC an opportunity exists to use climate change as a Trojan horse to get into sectoral work plans and devise an agenda to integrate climate change and development.	Description of Steps taken to integrate climate change and Development **(SNC Outcome 4)**	Develop dissemination and capacity building activities for relevant stakeholders and decision makers to evaluate, prioritize and support generated mitigation and adaptation strategy proposals
					Evaluation and development of indicators to assess the impact of the National Communication process in national policy, sector planning, and in the development agenda, such as poverty reduction policies and the Millennium Development Goals.
The ongoing development of Peru and the upcoming logging activities to be boosted by the Inter Oceanic Peru Brazil highways menace the efforts to	Weak or no presence of the government in most of the	Technical and organizational barriers comprehending non standardized GIS for	In view of the intricacies and complexities faced by the 2000 GHG inventory development, we need to fill the gap to make	Development of a National GHG Inventory Management System	Perform an analysis on information, legal, capacity and technological constraints and needs of the inventory process considering the FNC and PROCLIM experiences.

Threats	Root Causes	Barriers	Analysis	Shall be done within the Framework of the SNC	Output
mitigate much of Peru's emissions. More than 60% of Peruvian GHG emissions come from LULUCF and Agriculture activities, this share will rise sharply if there is no GHG Inventory system in place to foresee or monitor the impact, in terms of emissions, of policies and programs implemented along the Peruvian Amazon (the second largest after Brazil).	Amazonian Forests. Social pressure for land access and poverty in the Andean region promotes the migration to rainforest areas tearing apart ecosystems, enhancing GHG emissions and eliminating carbon sinks.	LULUCF monitoring and a restricted information flow across institutions working on the subject making difficult to quantify LULUCF GHG emissions increasing the uncertainty of the national GHG Inventory.	possible the periodical reporting of comparable and verifiable GHG inventories. Since the LULUCF side has the biggest emissions share but at the same time is the less matured, we will focus our activities on the LULUCF section of an inventory system while capitalizing the progress to date on the energetic side.	**(SNC Outcome 2)**	Participative design of an inventory management system
In light of the recent availability of natural gas resources, Peru has focused most of its recent efforts to materialize the Camisea Natural Gas project. While it is of common interest to count on a reliable energy supply, most political and government settings are not aware of the need to diversify Peruvian energy options including those representing a climate friendly alternative such as hydro, thermal and biomass. In this context, the threat to Peru is to base energy supply and usage decisions solely on short term criteria without considering the long term implications. This is exacerbated by the lack of long term policies and planning capacities within the industry, transport, forestry and in less degree the energy sector.	Multiple and unfinished state reforms resulted in divorced ministries with poor intersectoral planning capacities. Although the energy sector has some degree of referential planning it does not reach a detailed desegregation per sector which may be useful for guiding promotion policies for GHG mitigation in the short, medium and long term.	CONAM is prevented from engaging the energy, industry, transport and forestry sectors into a cross sectoral GHG mitigation agenda since it has no base mitigation options to start the discussion with.	There is a clear opportunity to devise and assess a set of long term energy supply and demand options for Peru integrating GHG emissions considerations. We point to engage this task on the current priority of competitiveness increase followed by Peru. Since most emissions in the short and medium term come from LULUCF activities they require special attention, for which we define a specific outcome.	Strategy proposal to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors **(SNC Outcome 3)**	Assessment of options to mitigate GHG emissions in the Energy, Industry, transport and LULUCF sectors Process to develop a Mitigation Strategy Proposal for the Energy, Industry, Transport and LULUCF sectors
The only agenda for most Peruvian sectors across Peru is of a short term nature. This poses the menace of allocating resources to issues or targets	Although Peru has a National Strategy on Climate Change and that much of	The lack of climate information and time series is one of the biggest barriers to effectively	In order to count on reliable climate system information, Peru needs to devise a climate information system. This	Prioritized analysis of constraints, gaps and related financial technical and	Identification and prioritization of constraints, gaps and needs (technical, methodological, institutional and financial) of the climate information system and climate change research

Threats	Root Causes	Barriers	Analysis	Shall be done within the Framework of the SNC	Output
that in principle could be useful for the day to day needs of Peru but do not necessarily reflect the real needs of Peru in terms of Climate Change.	the needs are outlined there, much work is pending to define precise needs and their respective priority.	implement climate modeling along Peru. This is an imperative prerequisite in all our attempts to assess actual and future vulnerability.	system will be of fundamental importance to bring sustainability to the vulnerability assessments and adaptation efforts of Peru in the long term.	capacity needs **(SNC Outcome 5)**	Proposal of a multi - phase national climate system focusing in the previously identified needs, gaps and constraints
Much of the knowledge generated regarding the Peruvian response to Climate Change can be easily overlooked in the future. This know how is on risk from being excluded from the policy making decision process not only in Peru but in other countries where some of the Peruvian practices can shed light on how to proceed regarding Climate Change.	Weak awareness on decision making spheres regarding the Peruvian exposure to Climate Change and hence not enough allocation of resources and man hours to climate change issues makes it difficult to bring the issues across relevant stakeholders.	Scarcity of resources to publish and disseminate much of the know how acquired on Climate Change and the Peruvian response to it.	The SNC breadth and depth will constitute the white book of Peru regarding Climate Change. It aims to assist Peruvian leaders, in the government and private sectors, on their decision making process considering climate change as one of the cross cutting issues to take into account.	Preparation, revision, approval and dissemination of the Second National Communication **(SNC Outcome 6)**	Peruvian Second National Communication prepared, approved, published in English and Spanish, presented to the National Commission on Climate Change and to the UNFCCC, and disseminated.

Part V M&E Plan and Budget for FSP and MSP

196. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF.

197. The following sections outline the main components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

1. MONITORING AND REPORTING

1.1. Project Inception Phase

198. A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQ) as appropriate.

199. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's log frame matrix. This will include reviewing the log frame (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

200. Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF expanded team which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasing.

201. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed in order to clarify for all, each party's responsibilities during the project's implementation phase.

1.2. Monitoring responsibilities and events

202. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time

frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

203. *Day-to-day monitoring of implementation progress* will be the responsibility of the Project Coordinator, Director or CTA (depending on the established project structure) based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

204. The Project Coordinator and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

205. Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop and tentatively outlined in the indicative Impact Measurement Template at the end of this Annex. They will be measured through subcontracts or retainers with relevant institutions (e.g. vegetation cover via analysis of satellite imagery, or populations of key species through inventories) or through specific studies that are to form part of the project's activities (e.g. measurement carbon benefits from improved efficiency of ovens or through surveys for capacity building efforts) or periodic sampling such as with sedimentation.

206. *Periodic monitoring of implementation progress* will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently if necessary. This will allow parties to take stock of and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

207. UNDP Country Offices, and UNDP-GEF RCUs as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon scheduled to be detailed in the project's Inception Report / Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

208. *Annual Monitoring* will occur through the Tripartite Review (TPR). This is the highest policy-level meeting of the parties directly involved in a project's implementation. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.

209. The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to

resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

Terminal Tripartite Review (TTR)

210. The Terminal Tripartite Review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO and LAC-GEF's Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The Terminal Tripartite Review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learned can be captured to feed into other projects under implementation or formulation.

211. The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

1.3. Project Monitoring Reporting

212. The Project Coordinator in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and strictly related to monitoring, while (g) through (h) have a broader function and their project specific frequency and nature will be gradually defined throughout implementation.

a. Inception Report (IR)

213. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided in quarterly timeframes detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months timeframe.

214. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project-related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.

215. When finalized, the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

b. Annual Project Report (APR)

216. The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self-assessment report by project management to the CO and provides input to the country office reporting process and the ROAR, as well as forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

217. The format of the APR is flexible but should include the following:
- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
- The constraints experienced in the progress towards results and the reasons for these
- The three (at most) major constraints to achievement of results
- AWP, CAE and other expenditure reports (ERP generated)
- Lessons learned
- Clear recommendations for future orientation in addressing key problems that result in lack of progress

c. Project Implementation Review (PIR)

218. The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the CO together with the project. The PIR can be prepared at any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned RC.

219. The individual PIRs are collected, reviewed and analyzed by the RCs prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyze the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs play a key role in this consolidating analysis.

220. The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

221. The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP/GEF has prepared a harmonized format for reference.

d. Quarterly Progress Reports

222. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team. See format attached.

e. Periodic Thematic Reports

223. As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities for which a report is needed. These reports can be used as a form of lessons-learned exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary, it will allow the project team reasonable timeframes for their preparation.

f. Project Terminal Report

224. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learned, objectives met, or not achieved structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

g. Technical Reports (project specific - optional)

225. Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

h. Project Publications (project specific- optional)

226. Project Publications will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc. These publications can be based on Technical Reports, depending upon the relevance, scientific worth, etc. of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these publications in a consistent and recognizable format. Project resources will need to be identified and allocated for these activities as appropriate and in a manner commensurate with the project's budget.

2. Independent Evaluation

227. The project will be subjected to at least two independent external evaluations as follows:-

a. Mid-term Evaluation

228. An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

b. Final Evaluation

229. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

c. Audit Clause

230. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

3. Learning and Knowledge Sharing

231. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

- The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP/GEF shall establish a number of networks, such as Integrated Ecosystem Management, eco-tourism, co-management, etc, that will largely function on the basis of an electronic platform.

- The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

232. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format for and assist the project team in categorizing, documenting

and reporting on lessons learned. A percentage of project resources will be allocated to these activities.

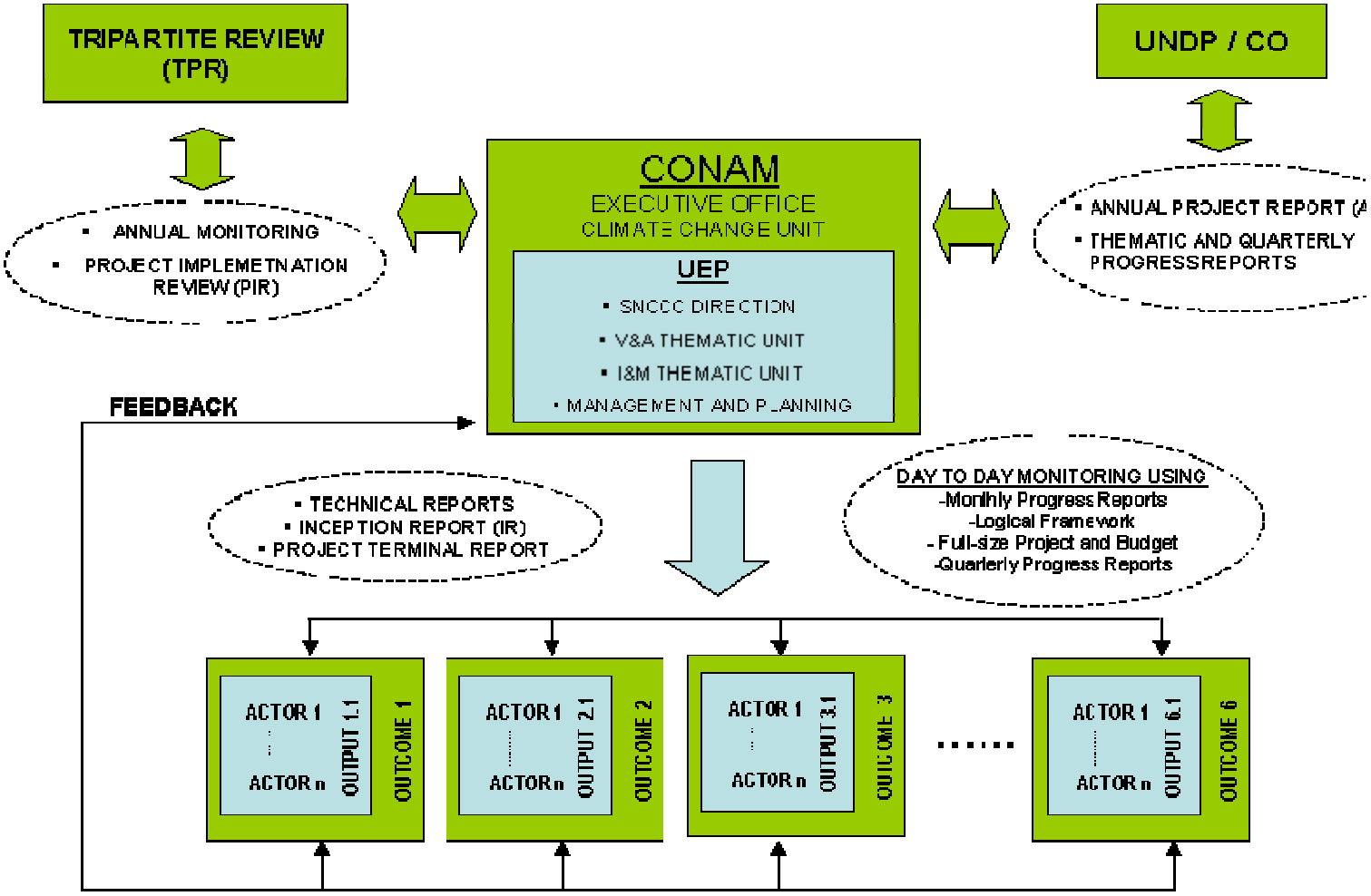
TABLE H-1: INDICATIVE MONITORING AND EVALUATION WORK PLAN AND CORRESPONDING BUDGET

Type of M&E activity	Responsible Parties	Budget US$ *Excluding Project Team staff time*	Time frame
Inception Workshop	▪ Project Coordinator ▪ UNDP CO ▪ UNDP GEF	None	Within first two months of project start up
Inception Report	▪ Project Team ▪ UNDP CO	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	▪ Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	To be finalized in Inception Phase and Workshop. Indicative cost US$ 15,000.00	Start, middle and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	▪ Oversight by Project GEF Technical Advisor and Project Coordinator ▪ Measurements by regional field officers and local IAs	To be determined as part of the Annual Work Plan's preparation. Indicative cost US$ 10,000.00	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF	None	Annually
TPR and TPR report	▪ Government Counterparts ▪ UNDP CO ▪ Project Team ▪ UNDP-GEF Regional Coordinating Unit	None	Every year, upon receipt of APR
Steering Committee Meetings	▪ Project Coordinator ▪ UNDP CO	None	Following Project IW and subsequently at least once a year
Periodic status reports	▪ Project Team	US$ 2,000.00	To be determined by Project Team and UNDP CO
Technical reports	▪ Project Team ▪ Hired consultants as needed	US$ 5,000.00	To be determined by Project Team and UNDP-CO
Mid-term External Evaluation	▪ Project team ▪ UNDP- CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team)	US$ 6,000.00	At the mid-point of project implementation
Final External Evaluation	▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. Evaluation Team)	US$ 6,000.00	At the end of project implementation
Terminal Report	▪ Project team ▪ UNDP-CO ▪ External Consultant	None	At least one month before the end of the project
Lessons learned	▪ Project Team ▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc)	US$ 7,500.00 (average 3,000 per year)	Yearly (2.5 year)
Audit	▪ UNDP-CO ▪ Project Team	US$ 2,500.00 (average $1,000 per year)	Yearly (2.5 year)
Visits to field sites	▪ UNDP Country Office	US$ 6,000.00	Yearly (2.5 year)

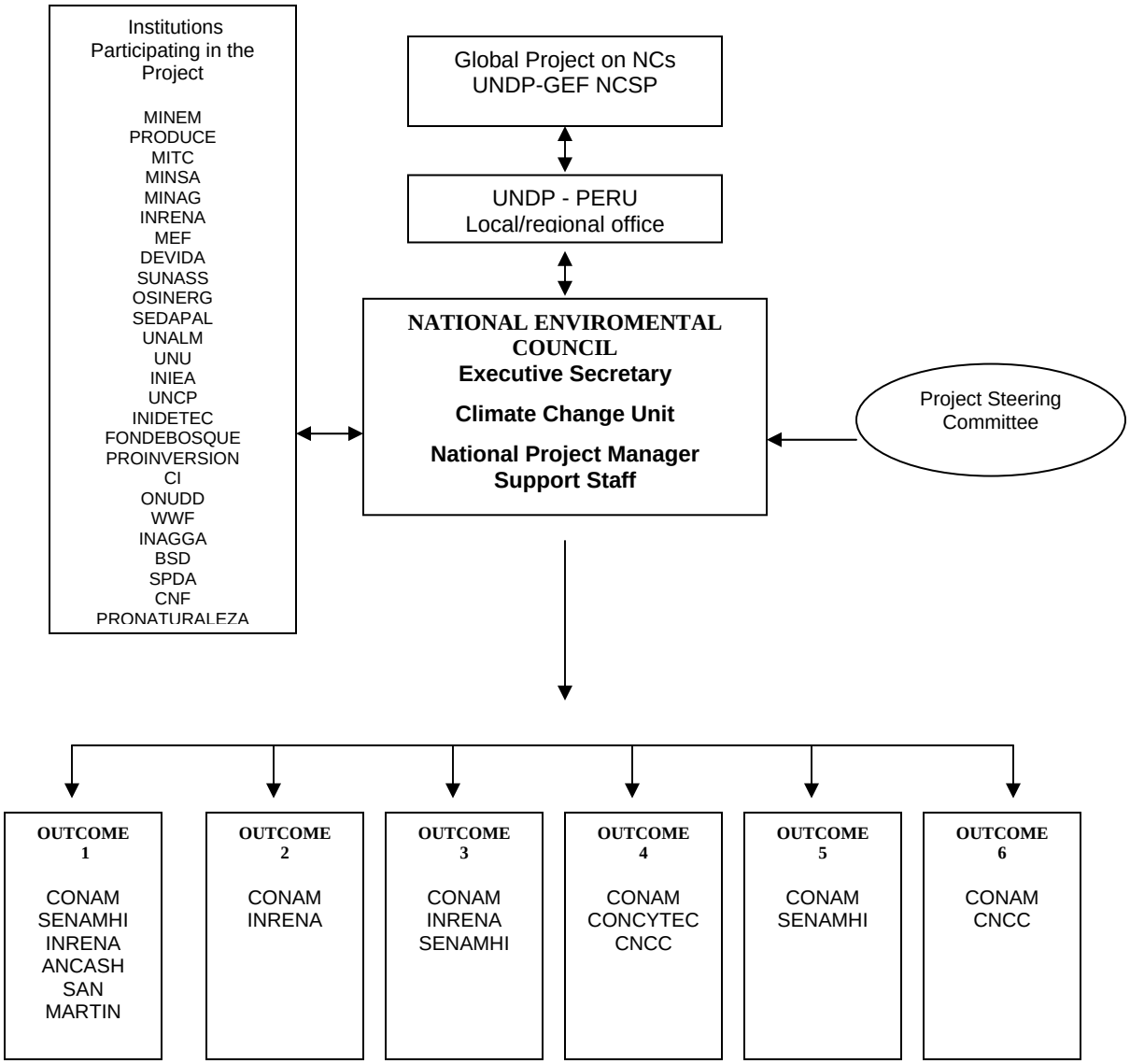
Type of M&E activity	Responsible Parties	Budget US$ *Excluding Project Team staff time*	Time frame
(UNDP staff travel costs to be charged to IA fees)	▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives	(average one visit per year)	
TOTAL INDICATIVE COST *Excluding Project Team staff time and UNDP staff and travel expenses*		US$ 60,000.00	

Refer to Section IV Part VII, Monitoring Follow up Flow Chart

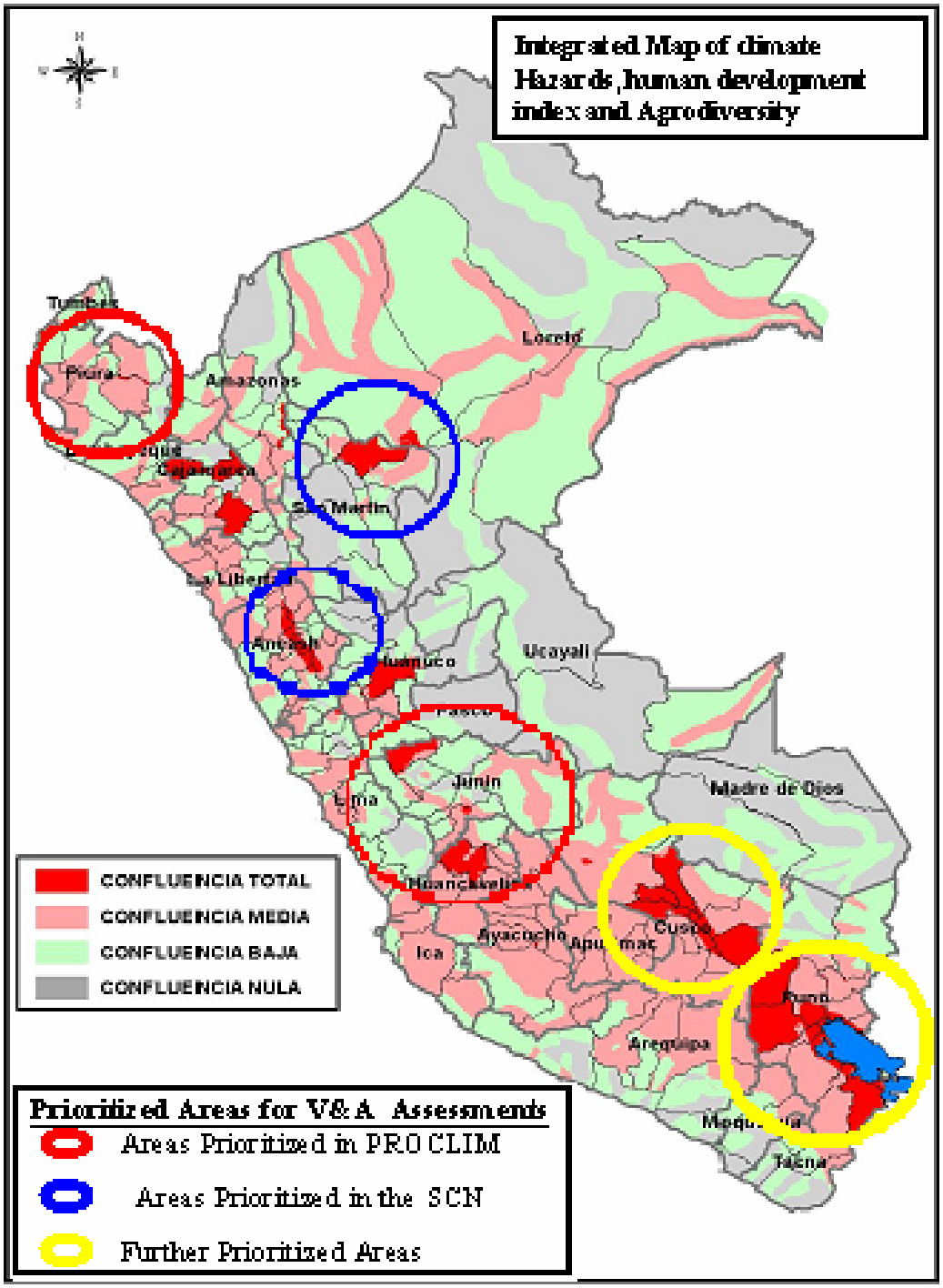
Part VI: *Flow Chart of the Monitoring and Evaluation System*



Part VII: Project Institutional Background



Part VIII: Map of Prioritized Areas for V&A Assessment



Part IX: Logical Framework

Logical Framework: PERU'S SECOND NATIONAL COMMUNICATION

	Goal/result	Indicator	Verifying means	Assumption
Final Goal				Stable institutional arrangements and political support for project implementation are in place. Co-financing commitments are maintained.
To enable Peru to prepare and submit its Second National Communication to the UNFCCC, in accordance with guidelines in the decision 17/CP8 and with articles 4 and 12 of the Convention				
1 OUTCOME				
Adaptation Strategy for prioritized areas and sectors	• An Adaptation Strategy has been endorsed by two regional governments and four ministries. • At least thirty professionals from the prioritized areas and sectors are capable of developing vulnerability and adaptation assessments and strategies. • At least forty institutions (governmental, research institutions and NGOs) have participated in the development of the Adaptation Strategy.	• Adaptation Strategy document • Number of institutions that endorse the Adaptation Strategy • Number of professionals capable of developing adaptation assessments and strategies • Number of institutions that participate in the development of the proposal	• Document printed and published on the web • Endorsement Documents • List of authors of the adaptation strategy • List of institutions that participate in the development of the adaptation strategy	
1.1 Output				
Climate Change Scenarios at national level and two river basin level	• National climate change scenarios with a spatial resolution of 60x60km and climate change scenarios for two river basins (Santa and Mayo) with a spatial resolution of 20x20km (period 2010-2050), have been presented to high level decision makers and specialized institutions.	• Documents containing the Climate Change Scenarios • Number of presentations and documents given to high level decision makers and specialized institutions.	• Documents printed and published on the web • List of people that receive documents and/or attend presentations	
1.2 Output				
Integrated V&A assessments in prioritized river basins and sectors, that provide a representative sample of climate change impacts and responses according to Peru's diversity	• Integrated V&A assessments for 2 prioritized river basins (Santa and Mayo) and 4 prioritized sectors (agriculture, energy, transportation and water) have been developed in a participative way, and presented to high level decision makers of the respective sectors and river basins	• Documents of the Integrated V&A assessments • Number of institutions and specialists that participate in the V&A assessments • Number of training workshops and participants • Number of meetings, presentations and documents given to high level decision makers and specialized institutions.	• Documents printed and published on the web • List of authors and participants of V&A assessments • Workshops reports published on the web, including materials used and list of participants • List of people that receive documents and/or attend presentations/meetings	

		Goal/result	Indicator	Verifying means	Assumption
1.3	**Output**				
	Determination of the relationship between climate change, glaciers retreat, and impacts on water availability in Peru	• A national study on the relationship between climate change, glacier retreat and its impact on water availability, has been developed	• Study document	• Document printed and published on the web	
1.4	**Output**				
	Proposal for the incorporation of climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system.	• A proposal for the incorporation of climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system has been endorsed by the Ministry of Economy and Finance. • A cost benefit study to demonstrate the advantages of incorporating climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system has been developed.	• Document of the proposal • Cost benefit study document • Institution that endorses the proposal • Number of training seminars, institutions and specialists that attend.	• Documents printed and published on the web • Endorsement Document • Training material • List of participants that attend training seminars.	
1.5	**Output**				
	Process to develop the Adaptation Strategy	• At least forty stakeholders have contributed to the process of developing the Adaptation Strategy.	• Number of Adaptation training sessions and seminars developed, and institutions and specialists that attend. • Number of workshops to identify, validate and prioritize adaptation measures and participants. • Comments received to the draft of the adaptation strategy	• Workshops, training sessions and seminars reports published on the web, including materials used and list of participants • Document synthesizing comments received. • Final draft of the Adaptation Strategy incorporating comments.	

		Goal/result	Indicator	Verifying means	Assumption
2 OUTCOME					
	Development of a National GHG Inventory Management System	• The National GHG Inventory Management System proposal has been validated by 4 ministries and 4 other governmental institutions. • At least thirty professionals are capable of developing GHG inventories. • At least thirteen institutions (governmental, research institutions and NGOs) have participated in the development of the National GHG Inventory Management System proposal • The 2000 National GHG Inventory has been validated	• National Inventory Management System proposal • Number of professionals capable of developing GHG inventories • Number of institutions that participated in the development of the proposal • Document containing the 2000 National GHG Inventory	• Document printed and published on the web • Document synthesizing comments received from institutions that validate proposal. • List of authors of proposal • List of institutions and participants of the proposal • Document printed and published on the web.	
2.1	**Output**				
	Perform an analysis on information, legal, capacity and technological constraints and needs of the inventory process considering the FNC and PROCLIM experiences.	• A Diagnosis that includes legal issues, institutional and individual capacity and technological constraints and needs to develop a sustainable National GHG Inventory Management System, has been developed and presented to stakeholders.	• Diagnosis document • Number of meetings, presentations and documents given to stakeholders.	• Document published on web • List of stakeholders that receive documents and/or attend presentations/meetings	
2.2	**Output**				
	Participative design of an inventory management system	• A National GHG Inventory Management System has been designed with the participation of at least thirteen institutions and presented to high level decision makers.	• Number of training workshops developed, and institutions and specialists that attended. • Number of meetings, presentations and documents given to high level decision makers • Number of institutions that are part of the national information exchange network • Procedures developed for improving the quality of the inventory (QA QC, EF and AD documentation and update, peer reviews, etc.)	• Workshop reports published on the web, including materials used and list of participants • List of high level decision makers that receive documents and/or attend presentations/meetings • Network implemented on web • Documents containing procedures printed and published on the web.	

		Goal/result	Indicator	Verifying means	Assumption
3	**OUTCOME**				
	Strategy proposal to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors	• The mitigation strategy proposal has been validated by at least four ministries, four governmental institutions and seven stakeholders and presented to high level decision makers. • At least thirty professionals from the prioritized sectors are capable of performing mitigation assessments and develop sectoral mitigation strategies. • At least twenty institutions (governmental, research institutions and NGOs) have participated in the development of the mitigation strategy proposal.	• Mitigation Strategy proposal document • Number of institutions that validate the strategy proposal • Number of meetings, presentations and documents given to high level decision makers • Number of professionals capable of performing mitigation assessments and develop sectoral mitigation strategies. • Number of institutions that participated in the development of the proposal	• Document printed and published on the web • Document synthesizing comments received from institutions that validate proposal. • List of authors of the proposal • List of institutions that participate in the development of the proposal • List of high level decision makers that receive documents and/or attend presentations/meetings	
3.1	**Output**				
	Assessment of options to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors	• An assessment of options to mitigate GHG emissions has developed in a participative way, including a diagnosis of the root causes and main drivers of emissions from the prioritized sectors, national scenarios to 2015 and 2050 and the corresponding emissions projections.	• Assessment document • Technical reports (diagnosis, scenarios and projections) • Number of training workshops, institutions and specialists that attend.	• Document and repots printed and published on web • Workshops reports published on the web, including materials used and list of participants • List of authors of the assessment and technical reports. • List of institutions that participate in the assessment	
3.2	**Output**				
	Process to develop a Mitigation Strategy Proposal for the Energy, Industry, Transport and LULUCF sectors	• At least 16 institutions have contributed in the development of the Mitigation Strategy Proposal for the Energy, Industry, Transport and LULUCF sectors.	• Number of training sessions and seminars developed, and institutions and specialists that attend. • Number of workshops to identify, validate and prioritize mitigation options and the mitigation strategy • Comments received to the draft of the proposal strategy	• Workshops, training sessions and seminars reports published on the web, including materials used and list of participants • Document synthesizing comments received. • Final draft of the Mitigation Strategy Proposal incorporating comments.	
3.3	**Output**				
	Steps to be taken to mainstream the mitigation strategy proposal into national and sectoral policies.	• High level decision makers of at least 4 institutions are familiar with the Mitigation strategy Proposal and its co benefits.	• Number of meetings, presentations and documents given to high level decision makers	• List of high level decision makers that receive documents and/or attend presentations/meetings	

		Goal/result	Indicator	Verifying means	Assumption
4	**OUTCOME**				
	Description of Steps taken to integrate climate change and Development	• A report synthesizing actions taken to integrate CC and development and level of participation of the SNC to ensure the sustainability of the process, presented to national development institutions.	• Document containing the report • Number of presentations and participants	• Documents printed and published on the web • List of participants hat attend presentations	
4.1	**Output**				
	Develop dissemination and capacity building activities for relevant stakeholders and decision makers to evaluate, prioritize and support generated mitigation and adaptation strategy proposals.	• At least fifty people and forty institutions of each prioritized river basin and sectors have received and provided information related to climate change, and participated in the process of implementation of the SNC project. • Relevant stakeholders and policy makers have increased their level of awareness of climate change issues.	• Number of people that participate and inputs/person received through the interactive web based support platform involved • Number of capacity building and raising awareness activities • Level of awareness of relevant stakeholders and policy makers	• Web platform counter • Reports of raising awareness and capacity building activities, including list of participants and materials used. • Results of survey on level of awareness	
4.2	**Output**				
	Evaluation and development of indicators to assess the impact of the National Communication process in national policy, sectoral planning, and in the development agenda, such as poverty reduction policies and the Millennium Development Goals.	• A methodology, including a set of indicators to measure the impacts of the national communication process and assess the relationship between climate change communication activities and selected sustainable development objectives. • An evaluation of the results achieved during the implementation of the SNC.	• A document containing the results achieved during the process of development the SNC. • A document including the methodological approach and the set of criteria and indicators. • Number of workshops and training sessions, institutions and specialists that participated in the development of indicators and were trained to make a follow up of the indicators.	• Reports printed and published on the web • Workshop reports published on the web, including materials used and list of participants	

		Goal/result	Indicator	Verifying means	Assumption
5	**OUTCOME**				
	Prioritized analysis of constraints, gaps and needs of a National Observation System and Climate Change research	• A report of constraints, gaps and related financial technical and capacity needs, has been developed.	• Report document	• Report documents printed and published on the web	
5.1	**Output**				
	Identification and prioritization of constraints, gaps and needs (technical, methodological, institutional and financial) of the climate information system and climate change research	• A diagnosis of the National Climate Observation Network and of research needs related to climate variability and climate change has been developed and presented to high level decision makers.	• Diagnosis document • Number of workshops developed, institutions and specialists that attend. • Number of meetings, presentations and documents given to high level decision makers	• Documents printed and published on the web • Workshop reports published on the web, including materials used and list of participants • List of high level decision makers that receive documents and/or attend presentations	
5.2	**Output**				
	Proposal of a multi - phase national climate system focusing in the previously identified constraints, gaps and needs	• A proposal of the National Climate Observation System - NCOS has been presented to high level decision makers.	• Final draft of the NCOS proposal document. • Number of institutional comments to the proposal document • Number of meetings, presentations and documents given to high level decision makers	• Final draft of the proposal incorporating comments, printed and published on web • List of high level decision makers that receive documents and/or attend presentations	
6	**OUTCOME**				
	Preparation, revision, approval and dissemination of the Second National Communication	• Second National Communication has been prepared, approved, published and disseminated	• One Peruvian second National Communication elaborated	• Second National Communication document published and sent to the UNFCCC	

Part X: Detailed Outcomes

233. The main objective in this project is the preparation of Peru's Second National Communication to the UNFCCC. Preparing the contents of each outcome of this proposal involved different institutions that worked in coordination and held various workshops and meetings to develop a consolidated proposal for each outcome and in some cases provided detailed inputs. This section of the document presents the detailed outcomes to give further information about the outputs and related activities to be developed within the project.

Outcome 1:	Adaptation Strategy for prioritized areas and sectors
Outcome 2:	Development of a National GHG Inventory System
Outcome 3:	Strategy to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors.
Outcome 4:	Description of steps to integrate Climate Change and Development
Outcome 5:	Prioritized analysis of constraints, gaps and needs of a National Observation System and Climate Change Research.

OUTCOME 1: ADAPTATION STRATEGY FOR PRIORITIZED AREAS AND SECTORS. THE FOLLOWING OUTPUTS ARE FOCUSED

Output 1.1 Climate Change Scenarios at national level and two river basin level.

I. JUSTIFICATION

In the framework of PROCLIM, and for the very first time in Peru, Global Circulation Models (GCM) were downscaled and further coupled with regional climate models of the like of CCM3 and RAMS. This initial endeavor was focused on the river basins of Piura, Santa and Mantaro. This fed the development of climate change scenarios for the referred basins covering the period 2025 – 2050 and with spatial resolutions going from 20kmx20km to 80kmx80km., that were used for V&A assessments in the mentioned river basins.

While this effort represented a major step developing domestic capacities on the subject, the completeness of its results needs to be improved if we aim to count on an adequate sampling of the diverse climate realities to be found along Peru. The SNC aims to complete a sound sample of scenarios and ecosystems as an input for an adaptation strategy for a set of prioritized sectors and basins.

This project is proposed as a follow up of the previous work aimed at establishing national level scenarios on climate change. The same methodologies employed in the study mentioned before will be used to determine possible future impacts in Peru. The use of Global Circulation Models (GCM) and results analysis will allow the identification of tendencies of possible future climate changes and also provide basic information to apply regionalization techniques with regional models to achieve greater and more detailed information that takes into account of Peru's complex topography while observing possible impacts at regional level, such as the rainforest, Andes Range, etc.

Furthermore, the Project aims at establishing regional high resolution scenarios for specific regions and offer more detailed information for river basins and valleys to be included in V&A assessments and sustainable development plans. The selected regions are the Mayo basin, in the Peruvian Amazon, and the Santa basin in the Andean Pacific coast foothills. In both regions extreme poverty coexists with an enormous biodiversity that offers a great potential for economic development based on agricultural exports. The protection of these regions must take into consideration climate as a fundamental underpinning for development since recurring extreme events and climate changes may increase their vulnerability and hamper sustainable development.

II. ASSIGNED BUDGET FROM GEF

US $ 80,000

III. DESCRIPTION OF OUTPUT AND ACTIVITIES

OUTPUT 1.1 National climate change scenarios and for 2 prioritized river basins

This output will cover current available capacities needs through reinforcement to downscale GCM's and regional climate models (as CCM3 and RAMS) to produce national climate change scenarios with a spatial resolution of 60 x 60 km grid and for two prioritized river basins, with a spatial resolution of 20 X 20 km grid. This provides the basis for the assessments of expected impacts of climate change and evaluates adaptation issues in prioritized sectors and areas.

With capabilities obtain during PROCLIM, the National Weather Service -SENAMHI is able to downscale Global Circulation Models with IPCC Special Reduction Emission Scenarios-SRES A2 and B2. For the SNCC the following GCM will be used to downscale scenarios for the national and 2 river basins level:

- Model CSM –NCAR of the National Center for Atmospheric Research, NCAR-USA
- HadCM3, from Hadley Centre (outputs from 2070-2100)
- ECHAM4Poyc3 from Max Planck Institute of Germany

The results of these models will be use for:

Analysis of Global Circulation Model (GCM) scenarios: SENAMHI will process the Community Climate Model 3 - CCM3 to produce climate change macro scenarios in Peru. This is the Model currently used by SENAMHI for weather forecast. A progressive analysis of the numerical data will be developed for every 10 years until 2050 and using currently available programs will adapt global data (GCM) to the CCM3 outputs.

Dynamic regionalization of climatic scenarios at national level and River basin level: Processing of Regional Atmospheric Modeling System- RAMS Model will be used for the downscaling to national and river basin level, based on the extreme scenario of emission (SRES A2, from IPCC).

The following activities will be performed:

a) Strengthen capacities to generate climate change scenarios. To strengthen capacities we plan to run personnel training activities for which we consider the following Sub activities:

   A.1- Parallel computer training through an Internship at the Universidad de Los Andes in Merida (Venezuela).

   A.2-Generation of institutional strengths that help develops climate change scenarios. Amongst these are: Implementation and coupling of hardware devices to CLUSTER for the generation of climate scenarios. R-configuration of LINUX operating system with its respective initial performance tests. The configuration of the RAMS model and the determination of domains for processing regionalization at a national level and in priority regions and performance tests with implemented system.

b) Compilation and preparation of basic information
   In this activity we take into consideration the gathering and preparation of basic information and initial and borderline conditions produced by World Centers for Numerical Prognostication such as the Max Planck Institute of Germany, the Hadley Centre (UK) or the NCAR (US National Center for Atmospheric Research), as well as the evaluation and adjustment of information available to the specified RAMS formats.

c) Identification of current climate variability and climate change trends
   The scientific evidence for the identification of climate changes in Peru embraces the determination of modifications in climate tendencies in the last thirty years. Later, with the results of regionalization at a national level, the possible variations in the current rates of change of the different parameters and climate indicators will be evaluated.

   This activity will select representative hydro meteorological stations in different geographic regions at a national level depending on availability of continuous quality and consistent records.

This information will be used in preparing charts and graphs to identify and determine current trends in climate change, analyze likely extreme events at the national level, and to prepare charts and maps with results of current climate change evaluations.

d) Downscale models at a National Level (60 x 60 km)
This activity has been divided into 4 main Sub activities listed below:

D.1-Analysis of Global Circulation Model (GCM) scenarios: SENAHMI will process the CCM3 Global Model to produce likely macro scenarios of climate change in Peru. A progressive analysis of the numerical data every 10 years until 2050 will be conducted and programs implemented to adapt global data to the regional model and statistical modeling.

d.2-Dynamic regionalization of climatic scenarios at national level: Processing of Regional RAMS Model (downscaling) based on the extreme scenario of emission (A2) will allow to determine likely climate change scenarios in Peru and provide the basis for data processing at a more specific regional (valley and basin) scale. An expert scientist with experience in regional models for climatic simulations will be retained to provide advice in this field.

Regional modeling with RAMS considers the operative processing of extreme climatic scenarios (in relation to the emission scenario A2, IPCC-SRES, 1977), with results every 10 years until 2050 and resolution at 60km scale. It then analyzes the ten year numerical data and introduces required corrections and adjustments for subsequent comparison with results of the statistical modeling and final tuning up.

D.3-Ulterior processing of the climate simulation: This activity will allow ex post design of programs to generate maps and charts with future climate trends, and to prepare a database of scenarios to analyze extreme events and conduct hydrologic modeling.

We will analyze extreme events and approximations to the analysis of events such as droughts, intense rains, and frost, amongst others. Hydrologic modeling will permit to perform approximations to determine hydro balance, periods of return for dry periods, etc.

D.4-Statistical regionalization of climatic scenarios at national level: This activity considers applying statistical methods to the extreme emission scenario (A2) and thereby determines likely scenarios for climate change in Peru while providing the basis for regional scale (valley and basin) data processing throughout the nation.

e) Downscaling of models for two river basins with a resolution of a 20 x 20km grid, adjusted to their specific conditions. This activity has been divided into 2 main Sub activities:

e.1-Identify current climate variability and climate change trends. National level information will be downscaled to develop climate scenarios for the Santa and Mayo basins. Hydro meteorological stations in the two areas will be selected depending on available continuous, quality and consistent control records.

e.2-Develop atmospheric modeling at the sub-national level
Regional scenarios for the Mayo and Santa basins will be generated. Detailed information on these basins will be analyzed to obtain evidence of region-wide climate change, together with dynamic regionalization at 20km resolution in the areas of interest. Statistical regionalization and extreme events in both priority areas will be identified. The new information will be used to prepare maps for both areas.

IV. EXPECTED RESULTS

OUTPUT 1.1 RESULTS

- National climate change scenarios with a spatial resolution of 60x60km and climate change scenarios for two river basins (Santa and Mayo) with a spatial resolution of 20x20km (period 2010-2050), have been presented to high level decision makers and specialized institutions.

  Activity results:

  a) Scientific staff with capacities in "state of the art" climate change scenarios, generation techniques and models
  b) Information for downscaling GCM models
  c) Climate change trends in the last 30 years (national and regional levels)
  d) National Climate change scenarios (60Km x 60Km resolution) in a decadal basis until 2050
  e) Climate change trends of the last 30 years and Climate Change scenarios for 2 river basins (20 x 20 Km resolution) on a decadal basis until 2050

V. PARTICIPATING INSTITUTIONS

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Service for Meteorology and Hydrology -SENAMHI	General Directorate of Hydrology	Science and technology agency that conducts meteorological, hydrological, agro-meteorological and environmental research in Peru. Participates in the global atmospheric watch and provides specialized services for the sustainable development, security and progress of Peru.

VI. IMPLEMENTATION STRATEGY

It is considered important to improve our knowledge of climate change and its regional impact to use it in vulnerability and adaptation studies and projects, and to design adaptation measures proposed together with institutions participating in Outcome 1 of the Second National Communication.

SENAMHI's current capabilities in numerical models processing acquired for the implementation of PROCLIM will be strengthened. This will require:

- Peruvian professionals receiving fellowships and training courses in internationally renowned climate modeling institutions
- Coordination with Brazil for the development of Climate Scenarios specially regarding the Amazonian Region.
- Generating information appropriate for Peru through the regionalization of global climatic models prepared by renowned international institutions and through direct access to information generation and processing sources
- Institutionalizing information and knowledge within each organization
- Promoting constant updating in the use of global models to design regional climate change scenarios

VII. PROJECT BENEFICIARIES

DIRECT BENEFICIARIES:

Through the Project for Regionalization of Models for Generation of Climate Scenarios, SENAMHI will reinforce its existing capabilities gained with the PROCLIM program for the processing and generation of global and regional climate scenarios in Peru. This will permit to preserve the capabilities acquired and the development of climatic scenarios as a basis to evaluate vulnerability and adaptation at a national level and in the areas of interest or national priority.

Direct users of the information generated during this project will be the participants of Outputs 1.2, 1.3, 1.4 and 1.5 of Outcome 1 of the SNC. Users include the Regional Governments and representatives of La Libertad, Ancash, San Martin, representatives of the Agriculture, Energy, Transport sectors and institutions involved in water-related issues, also Ministry of Economy and Finances, Central Reserve Bank, among others.

Adequate processing and presentation of the diverse climatic scenarios generated will allow to provide pertinent information to decision makers and local, regional and national authorities, about future climate conditions in vulnerable areas of Peru, initially in the sectors mentioned before and the basins of the Santa and Mayo rivers.

INDIRECT BENEFICIARIES:

Indirect beneficiaries will be the community involved in the activities of the sector or those who depend upon the services and activities of the prioritized sectors (Agriculture, Energy, Transport and Water) and the population of the basins of the Mayo and Santa rivers, as long as the evaluation of the proposal of adaptation considers the use of the information generated with this project for decision making towards sustainable development and with less impact from climate change.

At the same time, universities, researchers, professionals and citizens in general who are interested in the subject matter may also be users of the information about the climatic scenarios. It will be available freely to whomever requests it and will be presented in the end in such a way that it may be used and distributed freely.

Output 1.2: Integrated V&A assessments in prioritized river basins and sectors, that provide a representative sample of climate change impacts and responses according to Peru's diversity

I. JUSTIFICATION

Peru's vulnerability to climate variability has been shown throughout the years. Many studies report on the effects of glacier retreat and impacts due to El Nino phenomena on health, agriculture, transport and infrastructure. These reports assess the economic damage caused to Peru and demonstrate the urgent need to identify and execute an adaptation strategy to reduce the country's vulnerability.

Climate change affects people's living conditions, livelihoods as well as water availability. It becomes evident that climate (hydro-meteorological) events cause damage because of their magnitude, frequency and characteristics, altering health conditions and exacerbating food security fragility, impacting adversely impact on health conditions and increases child morbidity.

According to the article 4 of the UNFCCC, priorities for all nations (industrial and developing nations alike) include:

- Preparing national programs with adaptation strategies oriented at mitigating the impacts of climate change.
- Preparing for the impacts of adaptation to climate change, and designing suitable plans for managing water resources, in particular in coastal areas.
- Incorporating climate change in their social, economic and environmental measures and policies, and preparing environmental impact assessments.

Also the proposal is based on the first two strategic lines adopted by the National Strategy on Climate Change (approved by Supreme Decree Nº 086 – 2003 – PCM). The governing principle of the National Strategy is to reduce Peru's vulnerability to climate change and to increase national adaptation capacities.

In the same line environmental management forms part of Peru's national policies, and has been adopted in the National Agreement as follows:

- National environmental policy shall be incorporated into the economic, social, cultural and territorial arrangement policies with a view at combating poverty and accomplishing sustainable development.

- Public and private environmental management must be institutionalized so as to preserve biological diversity, facilitate the rational use of natural resources, ensure protection of the environment protection and accomplish better quality of living in cities and towns, especially for the most vulnerable populations of Peru.

Therefore the project also falls in the context of the Millennium Development Goals to alleviate poverty and provide better access to drinking water.

A way to combat poverty may consist in the implementation of adaptation strategies and encouraging people are encouraged to adopt practices aimed at reducing the negative impact of climate change on water supplies and adopt better agricultural practices, linking climate change adaptation to sustainable development.

Assessing the vulnerability to climate change will allow identifying the investments and the technical, financial and methodological conditions needed to ensure sustained development of a kind that cannot be easily disrupted by current climate variability and long term climate change risks.

Likewise, vulnerability evaluations will provide reliable information on the impacts and opportunities presented by climate change. This information can then be used to prepare a policy and technical proposal for decision-makers at all levels so they will evaluate the potential adverse impacts of climate change in the planning process for individual sector development and abate them through the implementation of adaptation measures.

Efforts made in the preparation of the FNC and in PROCLIM have developed capabilities and information focused on reducing that gap, and that will be fully used for the SNC. With the enlargement of the number of institutions to be involved in this SNC, it is expected to reduce considerably this gap and be provided with basic needed elements to develop an Adaptation Strategy.

For that purpose, the SNC will enhance national capabilities in climate change scenarios generation that will be the basis for the V&A assessments to be carried out in this output and will take into account the UNDP´s GEF Adaptation Policy Framework methodological approach. The V&A assessments will have the technical assistance of the Organization of American States-Office for Sustainable Development.

Due to Peru's diversity already referred, the SNC will apply a bottom up participatory approach for those sectors (national level), geographical areas (two river basins) and ecosystems (glaciers) that are considered most vulnerable to climate change. This broad analysis will provide a good sample of different situations, processes, impacts and solution proposals that can be included in the Adaptation Strategy:

- *National level*. The four sectors prioritized for the SNC are agriculture, energy, transportation and water. These sectors were selected based on two criteria: (1) level of loss registered due to El Niño 1997/98 and (2) their importance for socio-economic development. The V&A assessments will be done at the national level, considering the impacts quantification and expected losses and damages to evaluate adaptation policy frameworks.

- *River basin level*. The two geographical areas of intervention are the Santa and Mayo river basins, in the highlands and the Amazonian region, respectively. They were selected based on two criteria: (1) current vulnerability on the basis of food security (presence of agro biodiversity), human development index (poverty level), and current climate-related risks; and (2) potential for replicability. The map of Prioritized Areas for V&A assessments (Section IV Part IX) shows the selected areas highlighted, in blue the areas included for V&A assessments in this SNC. The red circle shows the areas where PROCLIM developed V&A assessments: northern desert region (Piura River Basin) and Central Highland (Mantaro river basin), while the yellow circled areas correspond to prioritized areas for future assessments.

Integrated Vulnerability and Adaptation assessment in the Mayo river basin

Regarding the Mayo river basin an integrated local assessment has been considered with the participation of different institutions, regional and local, including at national level, with a technical-scientific character, by the ones that have responsibility for studies and operative management at regional level and in the river basin.

A very good balance is needed between the investigation, the application of the results in the basin and its sustainability, which will lie on the proper use of the technical-scientific information and the changes of behavior and attitudes of the different social actors and stakeholders.

The main problem of the Mayo river basin is the inadequate occupation and use of the territory resulting from the current economical activities of the population, inadequate policies and decision-making, and a scarce cultural integration in the present development that combine to make the area highly vulnerable. These problems translate into increased cleared forests, water scarcity and loss of biodiversity. A lack of compliance with rules and regulations further exacerbate socio-cultural conflicts. Such negative interaction with the environment currently presents adverse effects which resound on most of the inhabitants of the basin. Historically, this interaction has caused damage in the Mayo river basin (floods, land slides, winds, forest fires).

Human development in the Mayo river basin goes through adequate land occupation and rational use of its resources to enhance profitable options to link activities upstream (and create added value) and downstream (to develop links with local input suppliers) and thus create and distribute wealth among the local economic actors and stakeholders. Maintaining and improving the basin's environmental wealth, and reducing its vulnerability to natural hazards posed by climate variability are essential to create profitable options for most of the people.

People's attitudes and cultural traits, as determined by their opportunities and gender relations, are a field that needs to be analyzed to promote human development. In this frame, the issue of "climate change" is very important for the basin, and will orient adaptation strategies at local and river basins sectors level and will give the definition of the options for the regional development, social equity, and generate the sustainability of democracy in the short and long term.

The sustainability of the proposal is reinforced by an inter institutional technical team, led by Alto Mayo Especial Project (PEAM) of the regional government of San Martin that launched environmental and economic land planning processes since 2002; at regional and local level. These products are technical instruments for development planning territorial arrangements, design policy guidelines, foster cooperation among institutions and involve different actors in basin-wide negotiation and areas prioritized as vulnerable. Processes to facilitate the negotiation of water and land rights, and reduce threats and vulnerability to assist in accomplishing sustainable development and a gender focus will be adopted.

Integrated vulnerability and adaptation assessment in the Santa River basin

A direct relation with the behavior of natural phenomena has been determined as well as its incidence on processes such as glacier melt, increase of the external geodynamic, recurrence of droughts, and El Nino phenomenon.

The occurrence of climate change and the disturbance of the hydrological cycle pose a severe constraint to the sustainable use of the natural resources, such as soil, natural vegetation, and wildlife among others.

An evaluation of the 4 glaciers in the White Mountain Range over 17 to 35 years shows that the glaciers areas have shrank by about 18 %, which represents a loss of 188 MMC of water reserve, directly affecting the Santa River and basin population.

Glaciers and lagoons in the White Mountain Range also require land slide control measures. Major avalanches have hit the Santa basin, such as those caused by the Calcacocha and Cojup lagoons in Huaraz in 1941, and the one caused by the earthquake of 1970, when a large block of ice from the Huascaran

snowcapped mountain hit Yungay and Ranrahirca killing 20,000 people, and the Huallanca.-Chimbote railway,

Recurring floods in the Santa valley damage the infrastructure and agricultural lands. The vulnerability of the irrigation channels Chavimochic and Chinecas (major irrigation projects with a current investment over US$ 1 billion) are also a cause for concern and adverse events may have a direct impact on or for about 150,000 hectares of agro products exports.

The risks of erosion reduce irrigation capacity in the pressurized systems; as well as the operation and maintenance of the early warnings that have to be introduced to manage the hydraulic and hydromechanics structures of Chavimochic system. It also hampers hazard prevention due to the occurrence of extreme events such as the El Nino oscillation.

The basin is highly affected by soil erosion, 387,191 hectares are affected by a severe erosion, the river takes 27,7 million tons of-sediment per year with a concentration of solids of 5,15 Kg / m3 (5 times the international limits of OMS). These sediments affect the irrigation system, generation of electricity and production of drinking water.

There is little knowledge of the climate change impact in the basin and not enough efforts to solve the needs of resources through the use of the capacities at knowledge, organization, and institution and actors participation level.

The development process of the region is being affected by the increasing competition to use the natural resources, considering the water requirement for irrigation, energy and population use and the hydraulic characteristics set up in the implementation of the special irrigation projects, Chavimochic and Chinecas. There are other uses such as agriculture and mining which constrain the conditions for ecosystems with a high biological and scenery value.

Integrated vulnerability and adaptation assessments in prioritized sectors: Agriculture, energy, transportation and water.

The project has considered vulnerability and adaptation assessments for four sectors, namely water, agriculture, energy and transport.

According to a CAF assessment of the damages caused by El Nino 1997-1998, most losses occurred in the transport sector (717 million dollars, equivalent to 21% of all damage); in agriculture (612 million dollars, or 17% of the total) and in the electricity sector (166 million, or 5% of all damage). Losses derived from the lack of energy are not included.

Four productive sectors have been selected where climate causes the greatest damage with serious consequences to the national economy as they provide the foundation for production and social and economic development of the country.

The assessments will consider the cost of the damages and losses caused by climate change in Peru and scenarios of possible disasters. These evaluations and the proposals derived from them will become inputs for policy decision-making, participation, budget and investment allocations, and the design of an adaptation strategy to climate change.

.

Various types of physical damage are linked to excess rainfall and movements of high volumes of water and mass generated by hydro erosion. The abundance of water in El Nino 1997-1998 and the deficit of water in the southern region of the country during El Nino 1982-1983 caused significant damages and losses to the national economy (- 4.5% GDP).

Sectoral evaluation revolves around water issues. Climate change affects the resource itself and its availability for agriculture and human consumption, hydro energy production, and transport infrastructure.

The evaluations will be done with the active participation of the actors and stakeholders from the four sectors, officials who work in formulating policies, technical experts, and project planners from the different institutions, who will assume responsibilities within their field of competence and functions. They will be engaged by the results of the evaluations and the proposals derived from them, thus making their application possible.

A main benefit will be learning and experience gained through the evaluation studies. It will also constitute an awareness process for the offices and policy planners.

II. ASSIGNED BUDGET FROM GEF

US $ 400, 000

III. DESCRIPTION OF OUTPUT AND ACTIVITIES

Theses assessments will be done considering the main sectoral and river basins assets (services, goods, natural resources, main livelihoods) and how they are affected by current climate variability (short term) and expected impacts due to climate change (long term). This will be the basis for the identification and formulation of adaptation options. Institutional frameworks assessments will be also carried out in order to identify planning and policy making processes that could be used to mainstream the incorporation of identified adaptation options at the river basin and sectoral levels

When developing these assessments, the knowledge and experience gained during the V&A assessments under the PROCLIM Program will be also applied. Socio economic scenarios will be developed along with the climate scenarios and will be closely linked to national and regional development priorities. Key conditions as population size, water and food demand, urban growth, industrial and commercial growth will be modeled as part of the evaluation of vulnerability and adaptation.[13]

The methods that will be used for V&A assessment are based on the previous experience developed by PROCLIM, and those considered in the UNDP´s Adaptation Policy Framework, mainly hazard-based approach and vulnerability –based approach will be used. The methods for losses estimation will give as results quantitative and qualitative, direct and indirect looses based on what is called chain of impacts (CEPAL) which assess estimated losses of goods and services due to natural hazards. For Future vulnerability socio economic scenarios, considering trends of main economic and social indicators such as population growth, GDP, demography, among others will be developed using as inputs climate change scenarios coming from the previous output. These socioeconomic scenarios will be done in conjunction with those that will be used for outcome 3 regarding the mitigation strategies proposal.

[13] The development of scenarios is one of the tasks to be performed under outcome 3 (Mitigation Strategy Proposal), output 3.1. These tasks will be performed under the same terms of reference to ensure that requirements from both outcomes (adaptation and mitigation) are covered and that no overlapping occurs.

To generate integrated V&A assessments in two river basins, Santa and Mayo, and in four prioritized sectors, Agriculture, Energy, Transportation and Water, the project will carry out the following activities:

a) Involvement of stakeholders at different levels (sectors, national planning institutions, river basin authorities) and responsibilities (technical people, decision makers, civil society) to participate in validating the vulnerability assessments and identifying adaptation options. This will be done through regular meetings, presentations and training sessions, as well through electronic means updating of the progress made in the project and needs of information.

   The following Sub activities will be performed:

   A.1- Identify the relevant stakeholders regarding the scope and objectives of the V&A assessments.
   A.2- Decide the level of engagement desired and which are the specific stakeholders for each activity.

b) Evaluation of vulnerability and damage costs caused by current climate variability and climate hazards in the selected river basin and sectors activities and assets; the main Sub Activities considered are:

   b.1-A conceptualization and methodological discussion workshop. This will take place at the beginning of the implementation process and will provide the analytical framework for the whole V&A assessments at the sector and river basin studies. The concept focus and the methodological aspects consider feedback and horizontal cooperation.

   b.2-Identify and analyze the climate hazards taking into account their frequency, intensity, duration, location in the territory and characteristics. Develop of Thematic maps.

   b.3-Determine water supply and demand for sectors and river basins.

   b.4-Evaluate the vulnerability of main river basin and sectoral assets.

   b.5-Identify the most critical areas and infrastructure in the territory, description of the ways they are affected, and economic assessment of losses and impacts.

   B.6-Current adaptation measures at the national and regional level

c) Evaluation of vulnerability and damage costs caused to river basin and sector activities and assets due to climate change; the climate change scenarios generated in output 1.1 will be use for this stage of the V&A assessments , the main tasks are:

   c.1-Generation of socio economic scenarios that will include population size and density, land under forest cover and arable land, dependence on food imports, urban growth among others[14].

[14] This set of information will be defined with the stakeholders based in the sector and river basin needs and in coordination with output 3.1 Assessments of options to mitigate GHG emissions energy, industry, transport and LULUCF.

c.2-Identify and analyze the climate hazards taking into account their frequency, intensity, duration, location in the territory and characteristics. Develop of Thematic maps based on climate change scenarios.

c.3-Evaluate the water supply in the future for the river basins and sectors.

c.4-Evaluate the vulnerability of the sectors and river basins assets due to climate change.

C.5-Identification of the most critical areas and infrastructure in the territory, description of the ways they could be affected, and economical assessment of losses and damages.

d) Assessment of institutional frameworks and capacity needs to mainstream adaptation strategies and measures in prioritized sectors and river basins planning and policy making process. This will include the following Sub Activities:

d.1-Analyze sector institutions dealing with climate hazards and activities, including entities supplying information on climate hazards.

d.2-Analyze institutional progress in determining risk criteria for sector and river basin investment projects. This includes the assessment of plans to reduce vulnerability of sector and river basin activities, existence of methodologies for risk analysis in public and private investment projects, existence and application of technical standards and introduction or new technologies to prevent risks.

d.3-Analyze institutional weaknesses and difficulties to incorporate risk criteria in investment projects. The information includes:

- Difficulty in getting information on climate hazards, early warning systems, etc.
- Difficulty to measure the impacts (methodologies and indicators).
- Limits derived from the institution and current rules to include risk analysis and Risk management related to climate hazards.

e) Evaluation and prioritization of adaptation measures, to mainstream vulnerability reduction and adaptation options into sector and regional development planning and budgetary assignment process. This includes the following Sub activities:

E.1-Report detailing measures to reduce vulnerability and increase resilience to climate change.

E.2-Workshop to discuss measures to reduce vulnerability and adaptation to climate change.

E.3-Workshop to integrate the proposals.

E.4-Drafting of a document taking account of the proposals of the institutional, experts' and stakeholders' proposals for sectoral and river basins activities.

e.5-A sectoral and at two river basin workshops to present the final adaptation proposals and evaluate the overall experience.

IV. EXPECTED RESULTS

OUTPUT 1.2 RESULTS

- Integrated V&A assessments for 2 prioritized river basins (Santa and Mayo) and 4 prioritized sectors (agriculture, energy, transportation and water) have been developed in a participative way, and presented to high level decision makers of the respective sectors and river basins

  Activity results:

  a) Stakeholders have participated actively during the sectors and river basins V&A assessments
  b) The evaluation of current vulnerability and damage costs of sectors and river basins has been developed
  c) Vulnerability to future climate change (2015 and 2050) on 4 sectors and 2 river basins determined, taking into account climate change and socio-economic scenarios including assessment of economic loss.
  d) The institutional framework to incorporate vulnerability and adaptation issues in sectoral and river basins development management and planning strategies has been assessed.
  e) Adaptation measures and policies for the sectors and river basins has been proposed, considering the institutional framework and an implementation plan

V. PARTICIPATING INSTITUTIONS

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Environmental Council	National Environmental Council	CONAM is UNFCCC and CBD focal point and Head of the NCCC. Has institutional capacities in inventories and mitigation, vulnerability and adaptation and experience in developing national communication and programs addressing climate change issues.
National Institute of Natural Resources – INRENA	Environmental Management, Natural Resources Evaluation and Information Office - OGATEIRN	INRENA is the national authority in the assessment and management of the national natural resources, focal point for the Convention of Drought and Desertification. INRENA is the public authority in charge of develop and promote all the necessary actions and promote: the sustainable management of natural resources, biodiversity conservation and the sustainable management of the rural ecosystems through a watershed approach land planning and establishing joint ventures and strategic agreements with the different involves social and economic stakeholders. This specific Office is in charge of giving technical advice and opinions about investment projects that could produce negative impact over the natural resources. Conducts the Information Systems, cartography, informatics and statistical information related to natural resources in the country. Coordinates studies related to the sustainable use of natural resources and conservation.
National Service for meteorology and hydrology -SENAMHI	General directorate of Meteorology	Science and technology that conducts meteorological, hydrological, agro meteorological and environmental in the country. Participates in the global atmospheric vigilance and develops specialized services to contribute to the sustainable development, security and national wealth.
Ancash Regional Government	Regional Directorate of Natural Resources and environmental Management	Public institution that guides the development process in Ancash region and has the capacity to articulate participative work among the local organizations and promote incorporation of sustainable development guidelines into higher level decision makers.
San Martin Regional Government	Special Alto Mayo Project -PEAM	Conducts the development process of San Martin Region. Counts with funding of PDRS-GTZ for developing their actions.

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
Energy and Mining Ministry-MINEM	General directorate of electricity	Propose the electricity sector policy. Elaborates and evaluate the reference electricity plan, electricity development plan, and the Energy development plan. Promote investments and sustainable development in the electricity technology upgrade process. Formulate and propose technical and legal framework related to electricity.
Ministry of Transport and Communications – MTC	General directorate of Trains and roads and its office of Terrestrial emergencies.	In charge of giving the legal framework of the infrastructure development of the transport sector. Formulate, proposes and executes policy, strategy and development plans of the transport sector.
Ministry of Transport and Communications – MTC	Provias National	MTC has a wide-ranging impact on the economic and social development of Peru through its two key sub sector: transport and communications. Of these, transport is particularly important to the decentralization process. The modernization and decentralization of the transport sub sector in MTC has divided the management of highway infrastructure into three agencies: Provias National for the national highway network; Provias Departmental for the departmental or secondary highway network.
Ministry of Transport and Communications – MTC	Directorate for socio environmental evaluation – DESA	DESA is in charge of the evaluation and approval of socio environmental studies of the transport sector and follow up the fulfillment of the management plans.
Ministry of Agriculture –MINAG	General office of Agricultural Planning - OGPA	In charge of the formulation and evaluation of national policy related to natural resources and agriculture sector. Evaluates the influence of macroeconomic policies on the agriculture sector.
Ministry of Agriculture –MINAG	General directorate of Agricultural Information - DGIA	In charge of the compilation of agricultural information, elaboration on data base related to agricultural activities in the country. Diffusion activities and annual publications of the sector development.
Ministry of Agriculture –MINAG	Sub sector project of irrigation -PSI	Aims to increase the water management efficiency for agriculture, develops diffusion documents about water for agriculture and strengthen capacities among users.
Ministry of Agriculture –MINAG	National Council for South American Camelids (CONACS)	Promotes, norms, and supervises the development of activities related to south American camelids management and pastures associated, coordinating with several relevant institutions of the public and private sector.
National Institute of Natural Resources – INRENA	Hydrological resources directorate	Develops hydrological resources inventory considering superficial and underground water resources. Supervises, promotes and evaluates the researches and projects related to water usage Supervise and gathers information about water resources and hydrological public infrastructure.
National Office for Sanitation Services – SUNASS	National Office for Sanitation Services – SUNASS	SUNASS is the regulatory body for this sector. Responsible for controlling the quality of the service provided the tariff system and regulation, as well as intersectoral coordination, establishment of norms for the execution of investment plans and supervision of those.
The Investment Supervisor Organism in the Energy Sector – OSINERG	The Investment Supervisor Organism in the Energy Sector -OSINERG	Public organism in charge to supervise and to control the fulfillment of the legal and technical dispositions of the activities that develop to the companies in the electricity sub sector and hydrocarbons, as well as the fulfillment of the legal and technical norms referred to the conservation and protection of the environment.
Water and Sanitation Services Company of Lima -SEDAPAL	Environmental Management team	SEDAPAL is a public enterprise with private rights. Works under the wing the Ministry of House, Construction and Cleaning. Executes the sectors public policy in the operation, maintenance, control and development of the basic water and sewage.
The Agricultural Research and Extension Service –INIEA	The Agricultural Research and Extension Service – INIEA	Responsible for researching, promotion and technology transference in the jungle (east), Andes (highlands) and coastal areas. Promote the usage of new technology to agricultural and agro industrial processes in the country

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
Private investment promotion agency-PROINVERSION	Private investment promotion agency-PROINVERSION	PROINVERSION aims at promoting investment flows included non-State investments managed by private agents, in order to boost Peru's competitiveness and sustained development with the aim at improving people's welfare. Likewise, it is engaged in becoming an efficient strategic ally for doing business in Peru.
Institute for promotion of water management – IPROGA	Institute for promotion of mater management - IPROGA	Promotes and propose public policy and actions for the best water in a participative way. Facilitates management instruments for a more rational use of the natural resources, contributing to articulate and to harness the diverse experiences and institutional and professional capacities of the country.
Committee of Economic Operations of the National Interconnected System (COES-SINAC)	Committee of Economic operations of the National Interconnected System (COES-SINAC)	Institutions that has the energy producers industries. It's a technical institution that is composed by the transmission systems and generation centrals that are part of the National interconnected Ensuring the quality and security of the electric energy and the best usage of the energy resources.

VI. IMPLEMENTATION STRATEGY

- Get technical assistance by reports, seminars, workshops in each activity stage of the V&A assessment, in a general basis and sectoral and river basins, and in specific cross issues (i.e. agriculture, water)
- Get stakeholders involvement in the earlier stages of SNC project implementation and in the whole process.
- Get inter-institutional and multi-disciplinary participation for the vulnerability and adaptation evaluation in the sectors and river basin.
- Use CONAM experience in climate and risk management studies and its links with regional institutions.
- Systematize the relevant and available information in the Mantaro and Piura river basins for its use in the evaluation of vulnerability to climate change.
- Apply evaluation methods to vulnerability and adaptation to the climate change taking into account IPCC and UNDP APF suggestions.
- Implement mechanisms which enhance personal training to get the social groups involved to perceive gender.
- Incorporate the results of the evaluation of the vulnerability to climate change and propose adaptation measures for the participation of the main actors in the decision-making and policy formulation.

About specific aspects in the river basins, the following steps are considered:

Information about the basin

There will be coordination with the different regional sectors (regional government, Regional Directions, local government, NGOs, special projects, SENAMHI, university, users' organizations, technical administration of irrigation district, power utilities, service companies, grassroots organizations, and others) to reach the expected results, plan the compilation of information from the basin, identify gaps in information and documents, validate information on the soil use, geology, deforestation, erosion, sedimentation, infrastructure (communication means, schools, hydraulics, towns); socio-economic aspects, incomes and expenses, education, production costs, markets etc; biological aspects; environmental situation, and others. Within the strategies, the design and implementation of an

information system is vital to generate and adopt proposals, strategies and policies for sustainable basin management.

This activity will be performed through information compilation techniques, field visits, and involving professional specialists in vulnerability, adaptation, climate change and observation of the different social groups' attitudes. The instruments for the social diagnostic will consider the gender variables to obtain information. The information from the basins will be compiled in a first phase and presented to the technical team; in a second phase, it will be analyzed and approved at a regional workshop; and the information and adaptation evaluation will be processed for regional development purposes.

Local climatology

To compile the historic data of the different meteorological variables occurred in the river basins, to analyze its behavior and its effects in the natural systems and human activities; there will be coordination with SENAMHI, national and regional, to realized the climate characterization of the basins promoting the participation of regional institutions.

The climate information will be presented, analyzed, evaluated at inter institutional technical equipment level, regional workshops and will be given to SENAMHI Lima to build climate scenarios for the basins with a social and gender focus.

Adaptation process

There will be coordination with regional institutions—as in the Mayo river basin with the Sustainable Rural Development Program (PDRS) in Moyobamba, GTZ and with the "Risk Management Group"— to evaluate the adaptation processes with a gender focus; and with the regional Environmental Commissions which group most of the public and private institutions in the region, the university and other representative organizations with experience in basin management. The adaptation processes will be evaluated and incorporated in the territorial management processes; adaptation options will be communicated to decision-makers in various regional institutions.

Inter-institutional coordination

There will be coordination to execute the activities among the entities and participants, to plan the development of the different activities, and to present project results at the workshops.
The alternatives and adaptation to climate change process will be presented at the decision-making level of the different institutions to promote their use as information tools, to create an awareness culture and to keep the people informed. These risk management variables and adaptation proposals will act as means to improve policy making and planning processes for regional development, and will contribute to better public and private investment strategies.

VII. PROJECT BENEFICIARIES

- DIRECT BENEFICIARIES:

  The representatives of the institutions mentioned before as well as the institutions which will be involved in the implementation process in the river basin and selected sectors. At the river basin level are at least 30 institutions already engaged for the V&A assessments.

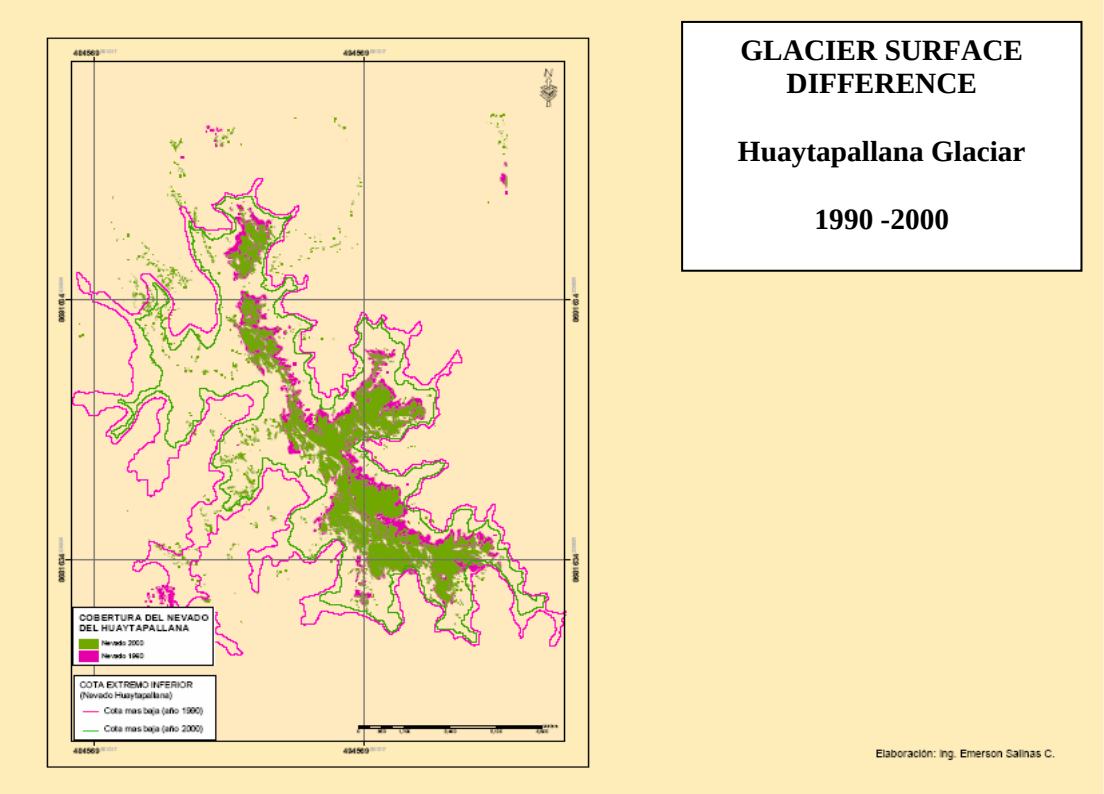
- INDIRECT BENEFICIARIES:

  The population of the selected basins and the users of information on the decisions of the evaluated sector.

Output 1.3: Determination of the relationship between Climate Change, glaciers retreat and impacts on water availability in Peru

I. JUSTIFICATION

The FNC included only a preliminary general assessment of the impacts of climate variations in four glaciers (for the years 1970 to 1998) and glacier retreat trends. A glacier surface loss of about 22% (around 500 Km^2) in Peruvian Andean tropical glaciers was estimated. Further on, PROCLIM generated climate change scenarios to estimate for the next 200 years the water availability in the Santa River Basin, fed with glacier water resources. The study results show an initial increase of water availability due to glacier melt, and that after 50 years the water availability will decrease, depending mainly on rainfall. Peru is extremely dependent on water availability of glacier sources. Just as an example and as stated previously 85% of Peru's energy comes from hydroelectric power plants, and many of them depend on water availability in glacier river basins.



In this graphic of the glacier retreat of Huaytapallana, in the Mantaro River basin, (PROCLIM, IGP, 2005), the glacier can be seen at 1990 and in 2000 (red and green colors respectively). Peru comprises 18 (were 20) glacier mountain ranges. There has not been evaluated the relation among current glacier retreat (surface), water availability and climate conditions in 17 of them and their respective river basins.

Most of glacier river basin flows to the Pacific Ocean through the coastal zone that has about 70% of national population, mainly urban, and receives less than 2% of country's water availability. The mayor irrigations projects are located in these areas, with a current investment over US$ 5 billion, are the basis of Peruvian agricultural exports. Due to Andean morphology, the main hydro electrical power plants and hydro electrical potential is placed near these areas, and there are not estimates of how these potential could be affected because water scarcity or alteration of hydrologic cycle.

Therefore the SNC is expected to update and validate the previous glacier retreat trends study up to 2050 and evaluate the impacts in water availability nation wide for the next 50 years. These results will be evaluated together with those obtained with water sectoral V&A assessment for the determination of water supply for the next 50 years.

II. ASSIGNED BUDGET FROM GEF

US$ 50,000

III. DESCRIPTION OF OUTPUT AND ACTIVITIES.

In order to determine future water supply we need to understand glacier dynamics and how they are affected by climate change. This study will set the ground to model hydrological cycle in the Andes and the results promise to be highly replicable along the Andean Region.

The following activities will be performed:

a) Analysis of current glacier hydrology, including an update of previous glacier inventories, glacier variations, record of glacier melt hazards and disasters;

   a.1- This includes the following tasks:

   - Recompilation and automation of hydrologic, pluviometer, snow and meteorological data
   - Processing, analysis and data consistency for glacier areas nation wide.
   - Physiographic parameters for glacier areas, GIS implementation
   - Limit the glacier areas through satellite images interpretation in a series of observations.
   - Systematize the records of local events in the year 2005 to determine Peru's national glacier surface area.
   - Determination of timely and spatial interrelation of glacier behavior and hydro meteorological variables.
   - Geomorphologic status of glacier river
   - Identification of vulnerable areas due to climate extreme events
   - Flow verification campaigns
   - Hydrologic and hydraulic measurement tests

b) Estimation of the availability of water resources due to glacier melt. This will consider previous results from modeling on the Santa River Basin (links with V&A assessment in the river basin), including climate change scenarios for water availability; prioritized glacier river basins, rain fall analysis and hydrological river basins analysis. This activity will involve the following Sub activities:

b.1- Evaluation of the local hydro climate conditions of the glacier basins, such as the extreme temperature values, daily thermal fluctuation and variation of the hydrologic records in rivers of glacier hydrographic system.

b.2- Climate change impact on glacier retreat for 50 years; Projection of the impact of climate change on glacier cover, glacier melt volume, and modification of the hydrologic regime by climate change scenarios evaluated for the next 50 years.

c) Evaluation of adaptation strategies in the management of hydro resources in the basins with glacier component under climate change conditions. This activity will be performed in conjunction with the water sector V&A assessment of output 1.2.

IV. EXPECTED RESULTS

OUTPUT 1.3 RESULTS

- A national study on the relationship between climate change, glacier retreat and its impact on water availability has been developed.

Activity results:

a) Current glacier retreat and hydrology behavior related to hydro meteorological parameters is develop (considering 2005 status, previous study was made in 1997)
b) Water resources availability in main glacier feed river basins for the 2050 is estimated.
c) Evaluation of adaptation measures in the management of water resources in river basins with glacier component under climate change conditions.

V. PARTICIPATING INSTITUTIONS.

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Environmental Council	National Environmental Council	CONAM is UNFCCC and CBD focal point and Head of the NCCC. Has institutional capacities in inventories and mitigation, vulnerability and adaptation and experience in developing national communication and programs addressing climate change issues.
National Service for meteorology and hydrology -SENAMHI	General Directorates of Meteorology and Hydrology	Peru's weather, hydrological, agro-meteorological and environmental science and technology agency, it participates in the global atmospheric watch and renders specialized services for Peru's sustainable development, security and progress.
Ancash Regional Government	Regional Directorate of Natural Resources and environmental Management	Public institution that guides the development process in Ancash region and has the capacity to articulate participative work among the local organizations and promote incorporation of sustainable development guidelines into higher level decision makers.

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
Andean Institute of Glaciology and Environment (INAGGA)	Andean Institute of Glaciology and Environment (INAGGA)	An NGO conducting research in glacier retreat and water.

VI. IMPLEMENTATION STRATEGY

- Update studies and previous information, as well as coordination with specialized entities, such as France's Development Research Institute – IRD.

- Use information generated by PROCLIM, and the available evaluation of the water resource in the Santa river basin taking into account climate scenarios (SENAMHI, IRD, 2004).

- Coordinate with outputs 1.1, 1.2 (especially V&A assessment in water sector and Santa River Basin).

- Enroll specialists in hydrology, climatology, glaciology, as in INAGGA case (Non-governmental glaciology and geo-environment organization), SENAMHI (General Hydrology Directorate).

- Involve other entities and specialists.

VII. PROJECT BENEFICIARIES

DIRECT BENEFICIARIES:

The entities involved directly in implementing the activities.

INDIRECT BENEFICIARIES

Population of the glacier basins, users of information and decision- makers related to the management of Peru's water resources.

Output 1.4: Proposal for the incorporation of Climate variability and Climate change variables into macroeconomic models, public budget allocation process and public investment system

I. JUSTIFICATION

Peru is highly vulnerable to climate change. The impact of El Niño weather oscillation shows to what extent climate variability undermines the nation's ability to accomplish sustainable development if not enough priority is given to investing in prevention to reduce vulnerability. Figures from the Andean Development Corporation (CAF) show that for the year 1998 El Niño caused losses equivalent to US$ 3.5 billion, or 4.5% of Peru's GDP.

Rising temperature is leading to more intense rainfall coupled with endangered glaciers ecosystem. New lagoons are increasing the likelihood of overflows, floods and landslides (known as "huaycos" in Peru) hitting the coast, high jungle and intermediate elevations of the inter-Andean valleys of Peru and their populations. If we add to this the vulnerability caused by seismic risk, we realize the consequences for Peru are both serious and significant.

All this is even more important because some industries are particularly sensitive to climate change (e.g. fisheries, hydroelectricity and agriculture) and Peru has only limited human, institutional and financial capacity to anticipate and respond to the direct and indirect effect of the above-described phenomenon. In addition, environmental decline is affecting people's revenues, health, nutrition and abilities, directly increasing their vulnerability. Poor Peruvians are hardest hit.

An institutional issue worth highlighting for this proposal is the absence of an environmental management approach at the Ministry of Economy and Finance. Since the National Planning Institute was dismantled in 1992, development planning has focused on market-driven economic growth, promotion of private investment and preserving the quality of government spending. Nonetheless, many risks and negative impacts may result from this approach unless it is balanced by appropriate environmental and social equity policies.

Peru lacks an instance to analyze the strategic allocation of resources across sectors, regions or levels of government. Furthermore, there is a lack of consideration for climate risk and losses due to climate impact; therefore, climate change is not seen as a menace to sustainable development. Including climate change issues in economic planning must take place at different levels. Presently, the main planning functions are dispersed amongst various agencies. Investment budgets are prepared by the Vice-Ministry for Finance; project quality control and multi-annual investment programs are in the hands Vice-Ministry for Economy, both under the Ministry of Economy and Finance. Finally, the Presidency of the Ministerial Cabinet's Office (PCM for its Spanish acronym) coordinates Executive Branch policies.

Neither the National System for Public Investment (SNIP for its Spanish acronym) nor the Directorate for Multi-annual Government Expenditure Planning (DGPMSP) have a stake setting policy priorities, however they participate in the process of allocating resources and are major stakeholders to consider for this output. In addition as the policy priority function is reserved to the Presidency of the Ministerial Cabinet's Office, Ministries, Regions (state) presidents and Majors have been identified as potential beneficiaries of this output.

Recently Peru passed a law to create the Strategic Planning Center, an agency charged with the global reviewing of top priorities and preparing general policy frameworks. However, this agency may not be able to set priorities across sectors. Instead, it has been designed to propose very long term objectives rather than organize government investments.

SNIP has been designed so that sector and regional Programming and Investment Bureaus (OPIs) play a fundamental leadership role. Weak organizations seriously impair the whole system. Every effort directed at underscoring the importance of interventions to reduce the risks posed by climate change must therefore involve sector and regional OPIs as a priority.

Tackling these issues absolutely requires drawing lines of action for studies that will allow to: i) estimate the direct and indirect losses because of natural disasters related to climate hazards and that will be exacerbated due to climate change; ii) identify policies and measures to reduce the economic impact of natural disasters related to climate change; iii) determining the costs and benefits of measures associated to reduce natural disasters compared to the consequences of climate change, as a way to set investment priorities for overall development planning.

These three lines of action should provide the foundation to build an economic modeling process that will take account of climate change and climate-related risk for preparing the budget and determining investment priorities.

Such a study should allow the Ministry of Economy and Finance, the Central Reserve Bank of Peru and the Cabinet's Chief Office to provide general guidelines for priority allocation of government resources focusing on measures to adapt to climate change.

MEF and other government sectors

Institutionalizing its procedures for investment oversight has given DGPMSP greater strength in recent years. Although the system is generally based toward a case-by-case review approach and lacks a comprehensive sector- or region-wide view, this system has allowed to significantly reducing the number of government investment projects that respond to political considerations and has given birth to a "project assessment culture".

Improved coordination schemes within MEF have been another major accomplishment. DGPMSP has now managed to prevent DNPP from allocating resources to projects that have not been previously scrutinized by SNIP. Likewise, coordination mechanisms with General Directorate of Public Credit-DGCP have improved significantly so that, for instance, disbursements for projects requiring foreign debt are now managed jointly.

Insufficient sector-based resource allocation for pre investments is a critical issue. In 2000, there was estimated a pre investment deficit between US$30 and US$40 million. Any investment promotion strategy aimed at reducing the risks posed by climate change will require significantly larger funding for pre investment and ex post assessment activities. Given the present low funding for pre investment activities, it seems important to include the impacts of climate change in "conventional" project interventions so that warnings of natural disasters that can offset projects' benefits may be reviewed adopting a cost-benefit analysis standpoint.

"Conventional" projects are those that do not include principally natural disaster risk management nor prevention objectives, but nevertheless require adequate analysis from a project-risk standpoint.

Regional governments

DGPMSP—SNIP's governing agency—evaluated performance at 23 out of 25 Regional Offices of Planning and Investments (OPIs), the agencies charged with providing leadership to regional planning cycles. It should be highlighted that before SNIP was introduced, pre investment evaluations were practically non-existent. So, a major step forward has been given in moving from 0% of properly

assessed projects to 38% of projects now undergoing pre investment assessments. This move could help to include climate variability and climate change impact assessments in regional investment projects.

Additionally, on a regional basis, low implementation ability is related to logistic weakness, lack of pre investment funding, and personnel issues including high turnover and not enough qualified professionals. All these issues must be addressed to create the capacity to promote investment and interventions relating to the objective of reducing climate change risks in regional development investment projects.

Municipal governments

Most municipal governments have very scarce resources and face serious trouble to finance pre investment design and oversight activities. Despite significantly larger local government budgets (up 44%), resources have not been funneled to address institutional investment issues.

Planning efforts in regional and municipal governments should consider climate issues in the investment planning and budget allocation process.

A subject of debate is whether project cycles need to be more or less strict at the municipal level. Because the cycle is quite flexible and municipal projects are considered "small projects", practically none require a study above the project profile level. Consequently, the main issue resides not in the requirement to comply with investment regulations but rather in the little support the system's governing agency provides to municipal governments. It may therefore be important that instead of introducing more flexible regulations, a way should be found to upgrade the skills of investment experts in municipal governments and thus enhance institutional capabilities as a whole. Systematically addressing the importance of adapting to climate change will require an awareness raising effort. Paradoxical as it may seem, this is true even among those municipal governments that face higher risks.

All these activities are included in the National Strategy of Climate Change -NSCC framework, which embraces the following priorities. i) promoting research about climate change related risks; and ii) building capacities for adaptation, including positive and negative (socio-economic and environmental) aspects.

NSCC also prioritizes promotional policies, measures and projects aimed at building adaptation capacities and reducing vulnerability. PROCLIM has achieved local level V&A goals and has developed regional capacities to evaluate adaptation while emphasizing local and regional level resilience using relevant information. As it achieved its goals, PROCLIM found a lack of a direct match between environmental issues and development. These must therefore be incorporated to regional and national development plans in the short and medium term.

Output rationale

The V&A assessments from previous outputs will enable us to gain a good understanding of Peru's vulnerability to climate change and adaptation options for different sectors and river basins. A critical success factor to the future implementation of adaptation options is the coherent allocation of public and private resources. The coherence in this process will be achieved if current and future investments in the country make an early identification of climate hazards and allocate resources (as part of the investment) to manage the related risks.

In the framework of the SNC we aim to incorporate the climate factor into the processes that influence public budget and investment allocation of Peru: the Multi Annual Sectoral Strategic Plans- PESEM and the National System for Public Investment (SNIP). The main actors in these processes are the Ministry of

Economy and Finance, Central Reserve Bank -BCR and the Strategic Planning Center – CEPLAN annexed to the Presidency of the Ministerial Cabinet. The early involvement of these actors is one of the cornerstones of this output. This will favor a future implementation of the "corrected" budget allocation processes and will be supported by detailed information on the benefits of incorporating the climate factor (e.g. losses, damages and impacts of climate-related hazards) into the development planning process.

This output will develop a strategy to link V&A issues within four main groups of instruments or systems: the Multi Annual Macroeconomic Framework (MMF) including National Strategic Plan and PESEMS, policy guidance documents prepared by the recently created Strategic Planning Center – CEPLAN, the National Public Investment System-SNIP, and the public budget allocation process. On this basis, a proposal that identifies ways and means to mainstream climate change into the development planning, budgetary process and national System for public Investment (SNIP) of Peru will be developed.

II. ASSIGNED BUDGET FROM GEF

US $ 100,000

III. DESCRIPTION OF OUTPUT AND ACTIVITIES

Proposal for the incorporation of climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system. The following Activities will be performed:

a) Estimation of the potential losses caused by climate change events in prioritized sectors (strong links and coordination with sectoral V&A assessments of output 1.2 will be established).

b) Evaluation of ways to incorporate the impact of climate change in the MMF, the National Strategic Plan and PESEMs.

c) Awareness raising through workshops for key government staff (MEF, BCR and PCM's CEPLAN).

d) Long - and medium-term economic estimates for the MMF, including a consideration of potential climate change related shocks.

e) Develop of methodologies and procedures for including climate change in budget making cycles and multi-annual programming for the public sector and in the National System for Public Investment-SNIP involving the following Sub Activities:

e.1- Identification of a Public Investment Project database including risk management and natural disaster prevention criteria for priority sectors, i.e. education, health, transportation, agriculture and fisheries.
e.2-Analysis of current expenditure and investment budgets for risk management and natural disaster prevention in priority sectors.
e.3-A review of ways to address natural disaster risks (risk analysis) included in the methodology handbooks used by government sectors for purposes of project identification, design and evaluation.
e.4-Risk analysis training seminar for project designers and sector and regional OPI staff

IV. EXPECTED RESULTS

OUTPUT 1.4 RESULTS

- A proposal for the incorporation of climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system has been endorsed by the Ministry of Economy and Finance.

- A cost benefit study to demonstrate the advantages of incorporating climate variability and climate change variables into macroeconomic models, public budget allocation process and public investment system has been developed.

  Activity results:

  - Past impacts on employment, economic activity and government and household revenues identified.

  - A study to identify ways to address climate change impacts in planning documents concluded.

  - Four training and sensitization workshops executed, including initially seminars for MEF, PCM (CEPLAN), BCR and a general seminar later.

  - Main macroeconomic estimation variables revised.

  - Climate change adaptation and vulnerability reduction principles proposed for inclusion in the government's budget cycle and investment scheduling process;

    - Project portfolio identified.
    - Budget execution for natural disaster prevention quantified as a percent of total current expenditure and % of investment expenses.
    - Comparative qualitative evaluation of five priority sectors for treating impacts of natural disasters and proposals for modifying the corresponding manuals ready.
    - 50 OPI, regional and sector and 50 project designers trained.

V. PARTICIPATING INSTITUTIONS

Name of institution/stakeholder	**Specific department**	**Reasons for their inclusion in the project**
Ministry of Economy and Finance - MEF	National Public Budget Directorate - MEF General Public Sector Multi-annual Programming Directorate - MEF	Charged with planning, directing and overseeing fiscal, funding, debt, budget, and treasury issues. They plan, direct and oversee the State's financial and entrepreneurial activities, and provide overall harmony to economic activity. They also plan, direct and oversee tariff policy, and are charged with responsibly managing the State's financial resources.
Central Reserve Bank of Peru - BCRP	Economic Studies Department - BCRP	Charged with regulating currency and credit in the financial system, and managing Peru's foreign currency reserves in their trust.
Cabinet Chief's Office (PCM)	Strategic Planning Center – Senior team	PCM's mission is to provide coordination across sectors and organizations within the Executive Branch and prioritizes its decisions as a function of overall government's general policies.

VI. IMPLEMENTATION STRATEGY

The strategy will evolve at two levels. The first strategy level will be linked to supranational policy decision making, namely involving MEF, BCR and the Presidency of Ministerial Cabinet through CEPLAN so changes in the guideline documents directed at top political instances will include general orientation for priority-setting in the allocation of current expenditures and investment resources to prevent natural disasters and climate change adaptation.

A second strategy level involves sector, regional planning officials, and a sample of two provincial mayors to create the tools and build the skills needed to facilitate the process within the sectors.

The execution strategies taken into account for accomplishing the foreseen outcomes are listed below.

- Involving a range of institutions and disciplines in executing the planned activities.
- Adopting a methodology to assess the vulnerability and adaptation to climate change, with due consideration for IPCC recommendations.
- Implementing mechanisms for staff training and thereby promote the subprojects' feasibility and raise awareness about the issue among institutions and their officials and experts.
- Including the outcomes from involving leading decision and policy makers.

VII. PROJECT BENEFICIARIES

DIRECT BENEFICIARIES:

Key staff at MEF, the Central Reserve Bank, PCM (CEPLAN). Key staff in regional, sectoral OPIs and provincial governments.

INDIRECT BENEFICIARIES:

Companies and households likely to be hurt by foreseeable climate shocks that may be properly addressed in future as a result of project-induced changes in the decision making cycle.

Output 1.5: Process to Develop the Adaptation Strategy

I. JUSTIFICATION

The FNC developed a preliminary and general assessment of the impacts of El Nino weather anomaly in different sectors and the impacts of climate variations in four glaciers (for the years 1970 to 1998) was also developed. However, no climate change scenarios were taken into account for these assessments. Additionally, this first assessment did not enable Peru to propose any adaptation measures. The SNC is aimed then, to perform bottom-up vulnerability and adaptation (V&A) assessments taking into account the climate variability and climate change scenarios for prioritized vulnerable areas and sectors. An assessment of the glacier retreat will be also carried out in order to determine how much water will be lost in the main river basins in Peru for different climate change scenarios, and to evaluate the cost of these losses and its impacts in different sectors (population, energy, agriculture and fisheries, among others).

In addition to these assessments, a thorough evaluation of the impacts (in different variables such as GDP, HDI, etc.) and costs of past disasters caused by climate hazard events in the country, and scenarios of possible future climate hazard impacts that would provoke disaster declarations where IPCC climate change scenarios are considered will be performed.

This information will provide the basis to develop solid criteria for policy makers to incorporate vulnerability implications and adaptation options as part of the decision making and a national prioritization processes (in terms of budget allocation and prioritization of investments) in order to fulfill regional and sector demands for action on this issue. In this sense, we envision to develop as part of the adaptation instruments to be included in the strategy, the following:

- An economic model that takes into account the benefits of incorporating climate variability and climate change scenarios into the current economic models for the allocation of national budget resources based on climate vulnerability indicators that will allow valuation of negative impacts and possible economic losses due to increasing climate risks on economic activities and strategic resources, and foresee benefits and economic opportunities arising from climate change.
- Guidance for public and private investments, with the aim to consider climate vulnerability scenarios in the assessment and implementation phase of investment projects.

The ultimate goal of these assessments and tools is to develop a comprehensive Adaptation Strategy for the prioritized sectors and regions with broad stakeholder participation and closely linked to national development priorities. A technical team has already carried out a preliminary identification of the vulnerable sectors and regions to be covered under the assessments. However, the prioritization criteria to select the most vulnerable areas for V&A assessments is still being developed in order to screen such priorities through stakeholder consultations. The Adaptation Policy Framework developed by UNDP will be adopted to prepare the Adaptation Strategy.

The Adaptation Strategy will seek to make local communities and sectors more resilient to the impacts of climate variability and climate change. Thus the participation of organized communities will be a key element in the development of the Adaptation Strategy. Although resource intensive, this approach will ensure that local priorities and needs are effectively linked with the need to address climate related hazards and climate change vulnerability.

One of the overriding problems challenging present development policy and practice in Peru in order to more successfully allocate societal resources in time and space, is the lack of consideration to any demonstrable degree of climate change, climate hazards, climate hazard risk, and climate hazard risk management in the formulation and implementation of development plans, programs and projects.

The obstacles that constitute the challenge are several and persistent:

- Societal goals and objectives in general, and development plans in particular, have not focused on vulnerability reduction, particularly vulnerability reduction of the poorest populations and the most vulnerable infrastructure, to natural hazard events.
- By and large, the owners and operators of vulnerable infrastructure, whether identified with sectors or other planning units such as river basins, have not been held accountable for risk management nor for the losses due to natural hazard events that often provoke a declaration of disaster by the national government.
- Sector planning processes have often used scientific information to inform engineering solutions built around maximization of output or benefit from investment. Planning processes do not take into account the possible consequences of abnormalities, if not permanent changes in: the location, availability and quality of particular natural resources such as water (in place, time, quality and quantity)
- River basin planning including approaches built on an integrated development planning model, have also not considered natural hazard vulnerability and risk management as a priority component even while river basin projects often focus on securing the provision of water for development needs.

The desirable situation is one where climate change, climate variability, climate hazards and climate risk management inform the planning processes of both specific sector and river basin institutions in the public and private realms, including evaluation and investment in Latin American countries.

The results of activities will aim at:

- Participants from the public and private sector acquiring basic information and skills in incorporating climate hazard risk management into sector planning.
- Institutional participants from river basin management institutions (or their surrogates) l acquiring basic information and skills in incorporating climate hazard risk management in their planning processes.

This will be done through multidisciplinary, multi-institutional teams related to the selected sectors and river basins who will participate in a shared process through which they will learn about the generation and interpretation of the information they provide, the knowledge base upon which decisions are made in their institutions, their respective needs for information, and how specifically information about climate change, climate variability, climate hazards and climate risk management can be used at all levels to inform development decisions. The number and types of disciplines and institutions that form the public and private sector participation will be carefully selected in relation to other components of the project as related to their roles in sectors and river basin activities from both the public and private sector at all levels.

The direct beneficiaries of the activities will be multiple disciplines and institutions that will acquire knowledge and skills related to evaluating and using climate change information in development decision making. The indirect beneficiaries will be the communities and actors who will participate in better informed decision making processes through public participation, and through the results of those decision making processes.

II. ASSIGNED BUDGET FROM GEF

US $ 80,000

III. DESCRIPTION OF OUTPUT AND ACTIVITIES

The main outcome is to have an adaptation strategy considering main outputs from sector, river basin, fragile ecosystems and climate observation systems and climate change scenarios, and to prioritize ways and means to increase resilience, mainstreaming it in development planning

Activities associated with the development of an Adaptation Strategy Proposal include

a) Synthesize previous information in V&A assessments: activities carried out under this component of the SNC seek to ensure the use of outputs and results from previous V&A assessments and synthesize the current state of what is known about vulnerability and adaptive capacity. This will involve results from PROCLIM and existing information in prioritized sectors and river basins.

b) Support the process of V&A in prioritized river basins and sectors: technical support and training will be provided to actors and representatives of sectors (including Economy and Finance) and river basin throughout the whole process. Participants from the public and private sector will acquire basic information and skills to develop V&A assessments and adaptation proposals (enhancing activities and results considered in output 1.2). Capabilities to be developed will focus on providing methods and approaches to incorporate climate hazard risk management into sector and river basins planning. This will be done by an initial general training workshop, seminars for specific thematic and training workshops for each sector and river basins. This will allow standardized procedures, methodologies and compatible results, and specific sectoral and river basin adaptation proposals.

c) Work through existing sector planning processes at varying public administration levels, prepare and present specific models for vulnerability assessment; orient users to information needs and appropriate application; and support pilot application and evaluation. This will include the tasks:
   - Evaluation of the present vulnerability of the key components
   - Evaluation of future vulnerability based on climate and socioeconomic scenarios, including land use planning

d) In the context of existing river basin institutional structures (or in their absence, pertinent sector players at varying public administration levels), and sectors, prepare and present specific models for vulnerability assessment; orient users to information needs and appropriate application; and support application and evaluation of models.
   - Evaluation of the present vulnerability of the key components.
   - Evaluation of future vulnerability based on climate and socioeconomic scenarios, including land use planning Evaluation of the present climate change adaptation process

e) Integration, prioritization and selection of adaptation options identified in river basins and sector assessments: The activity considers the integration of sectoral, multisectoral and cross sectoral measures and adaptation policies considering the results of output 1.2 V&A assessments in sectors and river basins and output 1.4 Proposal for macroeconomics, budget allocation and public investment. For this purpose qualitative and quantitative methods and criteria for the selection and prioritization of adaptation options will be used, such as cost-benefit analysis and expert judgment among others.

f) Formulation of an Adaptation Strategy in prioritized sectors and river basins: as a result of the whole process considered for the outcome 1, an Adaptation will be drafted. This strategy will integrate sectoral adaptation strategies and territorially based strategies, instruments and policies to mainstream climate variability and climate change in development planning and investments, include an action plan and the institutional framework for its implementation. The proposal will be dissemination and validated by sectoral and river basin stakeholders.

IV. EXPECTED RESULTS

OUTPUT 1.5 RESULTS

- At least 40 stakeholders have contributed to the process of developing the Adaptation Strategy

Activities results:

a) Sectors and river basins have necessary information is available to assess the application of the framework for adaptation; information gaps and needs has been identified, specific indicators have been set for the V&A assessment.
b) Varying disciplines, actors and representatives of sectors and river basin institutions systematically include climate hazard risk management in development plans and programs.
c) Participants from the public and private sector acquire basic information and skills for incorporating climate hazard risk management into sectoral planning.
d) Institutional participants from river basin and sectors management institutions will acquire basic information and skills for incorporating climate hazard risk management into sector planning.
e) A comprehensive Adaptation Strategy that considers the process of incorporating vulnerability reduction to climate change impacts for specific steps of the river basin and sector planning processes

V. PARTICIPATING INSTITUTIONS

Additionally to the list below we consider involving local authorities, professionals, specialists and related institutions in each river basin, that are going to share the information, local experience and knowledge regarding climate issues and contribute in the evaluation of adaptation measures. In the same way, there will be involved other sector specialists in the execution process of the SNC.

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Environmental Council	National Environmental Council	CONAM is UNFCCC and CBD focal point and Head of the NCCC. Has institutional capacities in inventories and mitigation, vulnerability and adaptation and experience in developing national communication and programs addressing climate change issues.
Energy and Mining Ministry-MINEM	General Directorate of Electricity	Proposes Electricity sector policy. Prepares and evaluates the Referential Electricity Plan, Electricity Development Plan, and the Energy Development Plan. Promotes investments and sustainable development to upgrade electricity technology. Designs technical and regulatory framework proposals for the electricity industry.

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
Ministry of Transport and Communications - MTC	General Directorate of Socio-Environmental Issues	MTC is the National Authority of the Transport sector. It promotes and provides safe and sustainable adequate maritime, air and land infrastructure. It also promotes the sustainable development of and access to communication services.This specific directorate is in charge of the environmental management of the transport sector and is capable of developing GHG emissions inventories. It participated in PROCLIM in the development of the GHG emission inventory for the Transport sector based on year 2000 and has given inputs for this project.
Ministry of Transport and Communications - MTC	General Directorate of Trains and Roads; Office of Land Emergencies.	In charge of giving the legal framework for infrastructure development in the Transport sector. It formulates, proposes and executes policy, strategy and development plans for the Transport sector.
Ministry of Transport and Communications - MTC	Provias National	MTC has a wide-ranging impact on the economic and social development of Peru through its two key sub sectors: transport and communications. Of these, transport is particularly important to the decentralization process. The modernization and decentralization of the transport sub sector in MTC has divided the management of highway infrastructure into Provias Nacional charged with the national highway network; Provias Departmental charged with the departmental or secondary highway network.
Ministry of Transport and Communications - MTC	Directorate for Socio Environmental Evaluation -DESA	DESA is in charge of the evaluation and approval of socio environmental studies in the Transport sector and following up on compliance with management plans.
Ministry of Agriculture -MINAG	National Program of Watershed Management and Soil Conservation - PRONAMACHS	PRONAMACHS is a public institution charged with proposing and coordinating with various public and private institutions the formulation and implementation of strategic policy related to natural resource management.
Ministry of Agriculture -MINAG	General office of Agricultural Planning -OGPA	In charge of the formulation and evaluation of national policy related to natural resources and agriculture sector, it evaluates the influence of macroeconomic policies on the Agriculture sector.
Ministry of Agriculture -MINAG	General Directorate of Agricultural Information -DGIA	In charge of the compilation of agricultural information, elaboration of data bases related to agricultural activities in Peru. It organizes diffusion activities and annual publications for sector development.
Ministry of Agriculture -MINAG	Sub sector project of irrigation -PSI	In charge of promoting more efficient water management for agriculture, developing diffusion documents about water for agriculture and strengthening capacities among users.
Ancash Regional Government[15]	Regional Directorate of Natural Resources and environmental Management	Public institution that guides the development process in Ancash region and has the capacity to articulate participative work among the local organizations and promote incorporation of sustainable development guidelines into higher level decision makers.
La Libertad Regional Government [16]	Regional Directorate of Natural Resources and environmental Management	Public institution that guides the development process in La Libertad region and has the capacity to articulate participative work among the local organizations and promote incorporation of sustainable development guidelines into higher level decision makers.
San Martin Regional Government [17]	Special Alto Mayo Project -PEAM	Conducts the development process of San Martin Region. Counts with funding of PDRS-GTZ for developing their actions.
Ministry of Agriculture -MINAG	National Council for South American Camelids (CONACS)	Promotes, norms, and supervises the development of activities related to south American camelids management and pastures associated, coordinating with several relevant institutions of the public and private sector.

[15] With this Regional Governments at least 15 regional institutions have already participated in the project scope and are expected to participate in the project implementation

[16] With this Regional Governments at least 10 regional institutions have already participated in the project scope and are expected to participate in the project implementation

[17] With this Regional Governments at least 10 regional institutions have already participated in the project scope and are expected to participate in the project implementation

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Institute of Natural Resources - INRENA	Hydrological Resources Directorate	Develops hydrological resources inventory for surface and ground water. Supervises, promotes and evaluates research and projects related to water use. Supervises and gathers information about water resources and hydrological public infrastructure.
Ministry of Economy and Finance -MEF	Directorate of the Public Budget	Designs, proposes, executes and evaluates Peru's economic and financial policy. Promotes national economic growth.
Central Bank of Peru - BCRP	Economic Studies Directorate	BCRP is in charge of regulating the currency and credits in the national financial system, and managing foreign currency reserves placed in its care.
Presidency of Ministerial Cabinet - PCM	Senior Team of the Strategic Planning Center	PCM coordinates Executive Branch intersectorial and interinstitutional activities and prioritizes them in line with government policy.
National Service for meteorology and hydrology -SENAMHI	General Directorates of Meteorology and Hydrology	Peru's weather, hydrological, agro-meteorological and environmental science and technology agency, it participates in the global atmospheric watch and renders specialized services for Peru's sustainable development, security and progress.
National Office for Services of Sanitation - SUNASS	National Superintendent for Water and Sanitation Utilities -SUNASS	SUNASS is the water and sanitation regulator and is responsible for service quality, tariff and coordination, and regulation and supervision of investment plans.
The Investment Supervisor Organism in the Energy Sector - OSINERG	Investment Supervisor Organism for Energy Sector - OSINERG	Electricity and hydrocarbons sub sectors legal and technical regulator, it also acts as watchdog environmental conservation and protection agency for these industries.
Water and Sanitation Services Company of Lima -SEDAPAL	Environmental Management Team	A state-owned private company under the Ministry of Housing, Construction and Sanitation, SEDAPAL is Lima's water utility and executes the government's policy regarding the operation, maintenance, control and development of basic water and sanitation in Lima.
The Agricultural Research and Extension Service -INIEA	Agricultural Research and Extension Service -INIEA	Responsible for researching, promotion and technology transfer in the jungle (east), Andes (highlands) and coastal areas. It encourages using new technologies in agricultural and agro industrial processes in Peru.
Andean Institute of Glaciology and Environment (INAGGA)	Andean Institute of Glaciology and Environment (INAGGA)	An NGO conducting research in glacier retreat and water.
Institute for promotion of mater management - IPROGA	Institute for Better Water Management - IPROGA	Promotes and proposes participatory public policy and initiatives for better water use; facilitates management tools for more rational use of natural resources, contributes to articulate and tap various institutional and professional experiences and capacities available in Peru.
Ministry of Economy and Finance - MEF	National Public Budget Directorate - MEF General Public Sector Multi-annual Programming Directorate - MEF	Charged with planning, directing and overseeing fiscal, funding, debt, budget, and treasury issues. They plan, direct and oversee the State's financial and entrepreneurial activities, and provide overall harmony to economic activity. They also plan, direct and oversee tariff policy, and are charged with responsibly managing the State's financial resources.
Central Reserve Bank of Peru - BCRP	Economic Studies Department - BCRP	Charged with regulating currency and credit in the financial system, and managing Peru's foreign currency reserves in their trust.
Cabinet Chief's Office (PCM)	Strategic Planning Center – Senior team	PCM's mission is to provide coordination across sectors and organizations within the Executive Branch and prioritizes its decisions as a function of overall government's general policies.

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
Committee of Economic Operations of the National Interconnected System (COES-SINAC)	Committee of Economic Operations of the National Interconnected System (COES-SINAC)	A technical organization gathering the electricity utilities, transmission systems and generation plants in the National Interconnected System. It ensures the quality and continuity of electricity supplies and encourages optimum use of energy resources.

VII. IMPLEMENTATION STRATEGY

To carry out the pilot implementation of the adaptation strategy, a process that includes consultations, workshops, case studies, evaluations and dissemination of information will be undertaken.

- Consultations will be held with the science and engineering group involved, together with the representatives of the sectors and river basin group, and the local community group to define the decision making processes involved and the information that drives those processes
- Workshops will be held to train individuals in the assessment models
- Case studies will be prepared with direct local participation built around the selected sectors and river basins
- Evaluations of the input and the decisions related to the three groups above will be carried out by the three groups with facilitators
- The three groups will define and organize for use within their spheres of action the dissemination of the lessons learned from the activity

VIII. PROJECT BENEFICIARIES

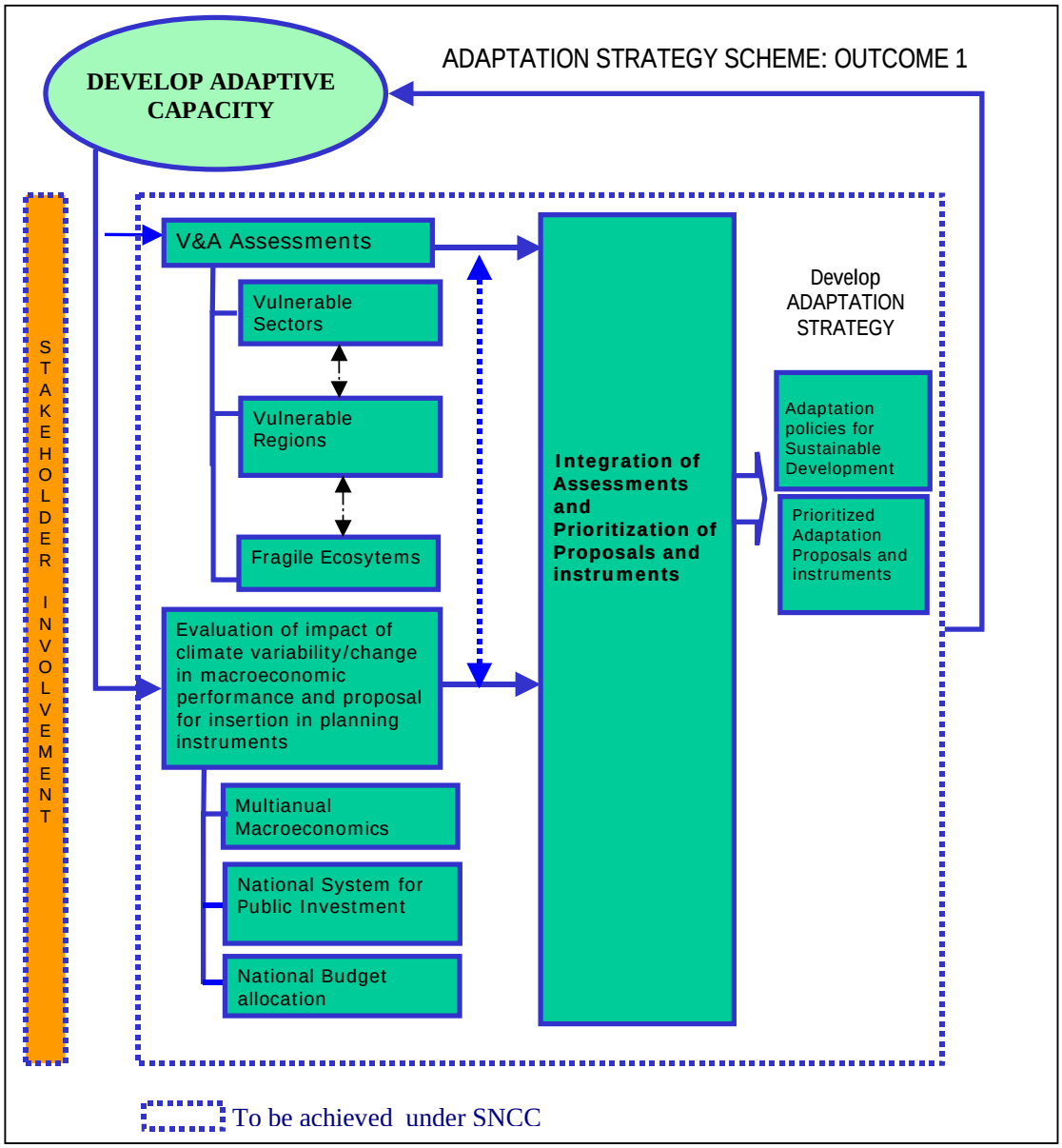
DIRECT BENEFICIARIES

The direct beneficiaries are the co executors and participants of the Outcome 1 and its outputs, already listed in VI.

INDIRECT BENEFICIARIES

In the regions of the river basins and the sectors participants will be drawn from diverse institutions related with the themes of production, natural resource management, particularly water management, civil society, governance, infrastructure, and administration and finance.

The final beneficiaries will be the river basin's population and those involved in the sector activities prioritized.


ADAPTATION STRATEGY SCHEME: OUTCOME 1
DEVELOP ADAPTIVE CAPACITY
STAKEHOLDER INVOLVEMENT
V&A Assessments
Vulnerable Sectors
Vulnerable Regions
Fragile Ecosytems
Evaluation of impact of climate variability/change in macroeconomic performance and proposal for insertion in planning instruments
Multianual Macroeconomics
National System for Public Investment
National Budget allocation
Integration of Assessments and Prioritization of Proposals and instruments
Develop ADAPTATION STRATEGY
Adaptation policies for Sustainable Development
Prioritized Adaptation Proposals and instruments
To be achieved under SNCC

OUTCOME 2: DEVELOPMENT OF A NATIONAL GHG INVENTORY MANAGEMENT SYSTEM

I. JUSTIFICATION

Within the framework of the FNC, Peru developed and reported its first GHG inventory taking 1994 as its base year. This inventory found constraints of diverse nature such as limited information availability across all sectors, not detailed fuel consumption, and scarce information from the LULUCF sector among others. The 1994 inventory lacked of completeness, QA/QC procedures, verification documents archiving and data systematization. This prevented its detailed reviewing and its comparison with further inventories. The fact that this inventory was developed by a group of external consultants leaving no capabilities behind jeopardized the institutional ownership of the inventory process. Conscious of this and other limitations and envisioning that all future actions on climate change should be coherent among them, the National Commission on Climate Change devised a National Strategy on Climate Change. This strategy depicts the need to develop enabling frameworks to bring sustainability to the Peruvian Climate Change activities. Reporting a sound and reliable GHG inventory is one of the activities that need to be based on an enabling framework.

Within the framework of the PROCLIM program a second inventory was developed taking 2000 as the base year. For this endeavor PROCLIM devised an inter-institutional task force to develop the 2000 National GHG Inventory. This team was composed of government officials and specialists (many of whom are now full time staff in the government sector) in the following institutions: Production Ministry, Energy and Mining Ministry, Transport and Telecommunications Ministry, the National Institute for Natural Resources, the Environmental Health Directorate and the National Environmental Council. Inventory preparation started a capacity building process across 20 different Peruvian institutions including the ministries above mentioned. The 2000 National GHG Inventory was developed following COP decision 17/CP.8, the Revised IPCC Guidelines for National GHG Inventories and the IPCC Good Practice Guidance. This second inventory made progress identifying and collecting activity level information for the energy sector but had limited success collecting and organizing information for the industry and transport sectors. Furthermore, progress on the LULUCF sector was very limited and a number of constraints remained unsolved.

Besides developing an inventory of national and sectoral scope, PROCLIM also developed emissions inventories for 13 prioritized cities of Peru. The work included crosschecking information with ministries and government agencies along Peru, which allowed the partial filling of information gaps on activity data within the GHG National Inventory. This effort also provided important inputs to the improvement of the National Energy Balance, a basic source of information for GHG inventory in the energy sector. However, progress on the inventory process has not been homogeneously institutionalized across key stakeholders. The lack of a cross sectoral protocol guiding activity level information management represents a major constraint to the implementation of QA/QC procedures within the inventory process and place difficulties to the comparison and completeness of emissions estimates from the energy, industry, transport and LULUCF sectors.

The uneven readiness of the government sectors to implement an inventory management system is reflected by the fact that while the energy, transport and industry sides still require to fill some legal and technological gaps before developing inventories in a truly systemic way, the non energy side (mostly LULUCF) has the following constraints to perform inventories in a systemic way: outdated land use and deforestation maps, heterogeneous spatial resolutions, different land use classification categories and not comparable interpretation methodologies, weak networking among institutions, among others.

Since non energy emissions account for nearly 60% of national emissions, the reliability and robustness of the whole National GHG Inventory greatly depend on the LULUCF sector. Furthermore, the progress on the inventory side conditions the country capability to monitor the effectiveness of a sound mitigation policy for the 75% of the Peruvian territory.

The information needed to develop sound GHG inventories is not a public domain commodity in Peru. In this context, many stakeholders are potential sources and/or clients of inventory related information. The inventory management system aims to gather them into a win-win relationship and hence profit from their sustained participation. Having said that, and taking into account the ongoing implementation of the National Environmental System, it comes naturally to move forward to a system that guarantees the periodic development of emissions inventories.

Taking into account these considerations and in line with paragraphs 6, 13 and 21 of the UNFCCC Guidelines for the preparation of National Communications from non-Annex I parties, Peru will report its 2000 GHG National Inventory and will focus on the development of a national inventory system to ensure the sustainability of the inventory process within the framework of its SNC. It will address institutional arrangements, data base management and methodological issues, among others, and will be based on a preliminary design and the results of the 1994 and 2000 emissions inventories. These activities herein proposed will allow enhancing the reliability and robustness of the 2000 GHG national Inventory by incorporating QA/QC procedures.

II. ASSIGNED BUDGET FROM GEF

OUTCOME 2.1	US$ 29,000
OUTCOME 2.2	71,000

III. DESCRIPTION OF OUTPUT AND ACTIVITIES

Output 2.1: Perform an analysis on information, legal, capacity and technological constraints and needs of the inventory process considering the FNC and PROCLIM experiences.

The results of this output will serve as a reality check and aim to feed the design of the inventory management system. Activities associated with this output will consider the learning points acquired during the FNC and PROCLIM. The following activities will be performed:

a) Analysis of the capacity needs for the inventory process at the individual (e.g. training), institutional (e.g. resources and jurisdiction) and systemic (e.g. procedures) levels.

b) Analysis of the technological constraints of the inventory process. This activity will undertake specific assessment of the technological baseline of potential inventory actors and the desired technological level for a sound inventory system. Particular attention will be given to the LULUCF sector where intensive computing and GIS use is foreseen during the inventory process.

c) Analysis of the legal issues related to the inventory process. Emphasis will be placed on identifying legal constraints and their corresponding solutions of the potential inventory actors. Issues to be addressed are: accessibility of information and its interinstitutional flow, confidentiality, institutional competences, the national statistical system, private companies information accessibility, etc. This will ease the drafting of feasible public and private resources allocation strategies for an inventory process, as well as institutional duties and inter-institutional arrangements for activity level information flow.

d) Integrated diagnosis of constraints to the inventory process.

Output 2.2: Participative design of an inventory management system.

Taking into account the diagnosis on constraints to the inventory process, an inventory management system proposal will be developed jointly with key stakeholders. This points to increase its implementation feasibility. In addition, long term strategies and measures to improve inventories will be developed to sustain and add cross sectoral coherence to the inventory process.

Activities associated with this output are:

a) Stakeholder involvement for sustainable inventory process. The activities carried out under this component of the SNC seek to ensure that the inventory process can become permanent. The strengthening of relations with national institutions will create a more proactive network and new relations within the government, and with other stakeholders, particularly for "win-win" joint activities such as utilizing inventory data for other national activities. These will comprehend: Awareness-raising activities on GHG inventory focused on promoting the importance of an institutionalized inventory process beyond the national GHG inventories to policymakers; presentations on the progress of the SNC project, beginning with a presentation of the integrated diagnosis on constraints and needs of the inventory process; an early definition of the roles of institutional stakeholders, that will be formally established for the short term through commitment documents and inter institutional agreements; . a national information exchange network to promote the active participation of stakeholders, training activities and participative development of activities b and c stated below.

b) Development of systemic tools, procedures and technical resources. This will include activities such us developing procedures for documenting methodologies, emissions factors and their applications, activity data and assumptions; data management and collection; strategies for data generation and improvement; systems for data archiving and record keeping; mechanisms for synchronization and cross-feeding between emission inventories, national energy balances and relevant sector surveys; guidance for technical peer reviews and procedures for QA/QC. The QA/QC and a peer review procedures developed for every individual sector will used against the 2000 GHG inventory, to both 'test' the applicability of these procedures and identify any pitfalls of the 2000 inventory. This process will also help the inventory team make any necessary changes or correction to the 2000 inventory for the Second National Communication.

c) Development of inter institutional arrangements for the national inventory management system. Based on the diagnosis developed in output 2.1, the definition of key stakeholders for the inventory, and the systemic tools and procedures developed, the institutional arrangements needed for developing a national management inventory system will be designed. This activity will outline the necessary legal (i.e. mandatory roles for participating in the inventory, free access to data and inter institutional information flow), technological and resource allocation measures to implement the

d) inventory management system and ensure its sustainability.

e) Development of the proposal of the National GHG Inventory Management System: With the inputs of the previous activities a proposal will be drafted, validated by key stakeholders and presented to high level decision makers.

IV. EXPECTED RESULTS

OUTCOME 2 RESULTS

- The National GHG Management Inventory System proposal has been validated by 4 ministries and 4 other governmental institutions.
- At least thirty professionals from the prioritized areas and sectors are capable of developing GHG inventories.
- At least ten institutions (including ministries, governmental, research institutions and NGOs) have participated in the development of the National GHG Inventory Management System proposal
- The 2000 National GHG Inventory has been validated.

OUTPUT 2.1 RESULT

- A Diagnosis that includes legal issues, institutional and individual capacity and technological constraints and needs to develop a sustainable National GHG Inventory Management System, has been developed and presented to stakeholders.

OUTPUT 2.2 RESULTS

- A National GHG Inventory Management System Proposal has been designed with the participation of at least 13 institutions and presented to high level decision makers.

V. PARTICIPATING INSTITUTIONS

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Environmental Council	National Environmental Council	CONAM is UNFCCC and CBD focal point and Head of the NCCC. Has Institutional Capacities in Inventories and Mitigation, Vulnerability and Adaptation and experience in developing National Communication and programs addressing Climate change issues.
National Institute of Natural Resources – INRENA	Environmental Management, Natural Resources Evaluation and Information Office -OGATEIRN	INRENA is the national authority in the assessment and management of the national natural resources. Focal point for the Convention of Drought and Desertification. INRENA is the public authority in charge of develop and promote all the necessary actions and promote: the sustainable management of natural resources, biodiversity conservation and the sustainable management of the rural ecosystems through a watershed approach land planning and establishing joint ventures and strategic agreements with the different involves social and economic stakeholders. This specific Office is in charge of giving technical advice and opinions about investment projects that could produce negative impact over the natural resources. Conducts the Information Systems, cartography, informatics and statistical information related to natural resources in the country. Coordinates studies related to the sustainable use of natural resources and conservation.
Energy and Mining Ministry-MINEM	General directorate of Mining Environmental issues	National Authority of the Mining and Energy Sector. This specific directorate is in charge of the environmental management and is capable to develop GHG emissions inventories. Participated in the PROCLIM program developing the GHG emissions inventory of the Mining sector based on year 2000 and in this project proposal giving

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
		inputs for its formulation.
Energy and Mining Ministry-MINEM	General directorate of Energy environmental issues	National Authority of the Mining and Energy Sector. This specific directorate is in charge of the environmental management of the energy sub sector. Participated indirectly in the PROCLIM program providing information needed for the development of the GHG inventory bases on the year 2000 and in this project proposal giving inputs for its formulation.
Energy and Mining Ministry-MINEM	General directorate of Planning and Budget	National Authority of the Mining and Energy Sector. Annually develops the National Energy Balance, which is a fundamental tool to determine the National Energy Policy. This specific directorate participated in PROCLIM providing information for the Top-down GHG Inventory based in year 2000.
Production Ministry – PRODUCE	National directorate of Environment Fisheries Sector-DINAMA	PRODUCE is the National Authority in Production Economic Sector. This specific directorate is in charge of the environmental management of the Fisheries Sub Sector Is in total capacity of developing GHG emissions inventories. Participated in PROCLIM developing the GHG emissions inventory o the fisheries sector based on year 2000 and in this project proposal giving inputs for its formulation.
Production Ministry – PRODUCE	National directorate of Environment Industrial Sector- DIMA	PRODUCE is the National Authority in Production Economic Sector. This specific directorate is in charge of the environmental management of the Industry Sector. Is in capacity of developing GHG emissions inventories. Participated in PROCLIM developing the GHG emissions inventory of the industry sector based on year 2000 and in this project proposal giving inputs for its formulation.
Ministry of Transport and Communications – MTC	General directorate of Socio environmental issues	MTC is the National Authority of the Transports Sector. Promotes and provides adequate marine, aerial and terrestrial infrastructure and invigilates they are save and sustained. It also promotes the sustainable development of the communication services and their access. This specific directorate is in charge of the environmental management of the transport Is in total capacity of developing GHG emissions inventories. Participated in PROCLIM in the development of the GHG emission inventory of the transport sector based on the year 2000 and in this project proposal giving inputs for its formulation.
La Molina Agrarian University -UNALM	Faculty of Forest Science -FCF	Forest Faculty integrated by Professors, graduates, researchers and students advocated to the development of studies and investigation, as well as, the socialization and diffusion of Forest Issues.
La Molina Agrarian University -UNALM	Conservation Data Base Center – CDC	CDC is a Management Information Unit related to biological and ecological diversity in Peru. Gathers information and important data related to Natural Protected Areas in the country and use it to analyze their status and propose management measures. Additionally, maintains a data base permanently actualized through analysis and information processing, generating studies that are available for anyone that is interested.
Ucayali National University -UNU	Faculty of Forest Science	Forest Faculty located in the Peruvian Amazon devoted to the study, research and diffusion of forest topics.
United Nations Organization -UNO	United Nations Office on Drugs and Crimes -ONUDD	ONUDD in Peru supports the Peruvian state to deal with the problems brought out by the illegal drugs. Their action is

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
		framed in the millennium development goals and human rights. Supports the state to deal with problems affecting governance, social stability and threatens the basic conditions needed to achieve Peruvian development goals. In its performance includes all programs and activities related to environmental issues, conservation of natural resources and protection of native communities
World Wildlife Fund PERU- WWF Peru	Forest program	WWF-Peru is working in the creation and management of Natural Protected Areas that represent the forest in the country. Implementation of natural restoration in high value habitats. An important part of WWF work is to increase the knowledge of the problem caused by illegal timber extraction among government, businessmen, users and consumers. Helping to have a more transport law enforcement in the country.
Foundation for Peruvian Nature Conservation-PRONATURALEZA	Foundation for Peruvian Nature Conservation-PRONATURALEZA	ProNaturaleza aims to conserve Peruvian natural patrimony, especially biodiversity. Promotes and executes actions related to conservation, natural resources management, and raising awareness.

VI. IMPLEMENTATION STRATEGY

An early stakeholder involvement will be assured through the creation of an inter institutional workgroup by decision of the National Commission on Climate Change. The members of this group will be officially appointed by their respective institutions. The first meeting will serve to define the operative roles within the group. CONAM will facilitate and bring technical support to the workgroup. One of the first tasks of the group will be to detail the outcome agenda and synchronize the efforts of all members for each output. The group meetings will have a periodical nature and in addition to them, special workshops and seminars will be held. The members of the workgroup will be trained on inventories management systems putting special emphasis on their respective sectors. This will strengthen participating institutions and will make sustainable the process. This group will serve as a platform to conduct validation of the output results and its further presentation to high level decision makers to ease a future implementation of the National Inventory Management System. This will ensure the sustainability of the inventory process.

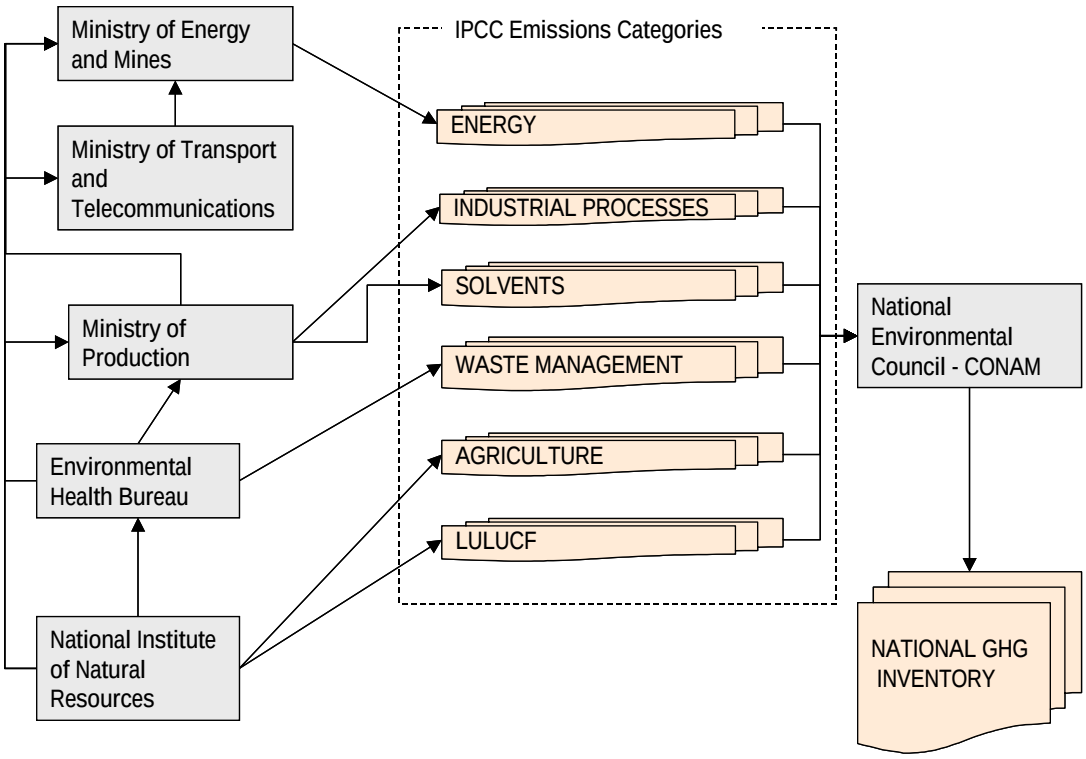
The specific activities of the outputs will address institutional arrangements, data base management and methodological issues, among others, and will be based on a preliminary design and the results of the national GHG inventory developed during a previous enabling activity and on the 2000 inventory developed by PROCLIM. A detailed analysis and treatment of future methodological improvements and current barriers for comparing data through the years will be performed as an initial basis to design the system as well as a comparative analysis of the levels and gaps of information demand and supply for the GHG Inventory. This will include the identification of institutions generating, using and potentially interested on information relevant to the inventory purposes. The synergies between their available technical capabilities and those required to develop LULUCF GHG Inventories will be assessed.

Part of the work will be focused on ensuring the accuracy of the LULUCF emissions estimates and times series consistency. The LULUCF GHG Monitoring System will be promoted and developed with the participation of different actors and institutions involved in the LULUCF sector in the Country. This system is aimed to ensure keeping standard resolutions and land use classifications that will not only be limited to guiding the preparation of the GHG inventory and the related National Communication section, but will enable different institutions to have direct

access and share information regarding Land Use in the country, identify GHG emissions for specific geographic areas and consider climate change when developing different projects and policies.

The GHGs Monitoring System is foreseen to be a part of a greater National System that will be promoted and developed with the participation of different actors and institutions involved in the LULUCF sector in the Country. This system is aimed to ensure keeping standard resolutions and land use classifications that will not only be limited to guiding the preparation of the GHG inventory and the related National Communication section, but will enable different institutions to have direct access and share information regarding Land Use in the country, identify GHG emissions for specific geographic areas and consider climate change when developing different projects and policies.

The following diagram shows the focal points for each GHG emissions category as handled by the PROCLIM Program, which will be a basic input for the definition of potential roles and responsibilities within the workgroup and the system.



VII. PROJECT BENEFICIARIES

DIRECT BENEFICIARIES

Below are listed the entities directly executing and / or participating within the outcome and that will be benefited by learning by doing capacity building process on GHG inventories and its systematization:

- National Environmental Council (CONAM)
- Energy and Mining Ministry (MINEM)
- Production Ministry (PRODUCE)
- Ministry of Transport and Communications (MTC)

- Ministry of Health (MINSA)
- Ministry of Agriculture (MINAG)
- National Institute of Natural Resources (INRENA)
- Environmental Health Directorate (DIGESA)
- Nacional Geographic Institute (IGN)
- Research Institute of the Peruvian Amazon (IIAP)
- La Molina Agrarian University (UNALM)
- Ucayali National University (UNU)
- Peruvian Amazon National University (UNAP)
- Peruvian Central National University (UNCP)
- National Commission of Development and Live without Drugs (DEVIDA)
- Forest Promotion and Development Fund (FONDEBOSQUE)
- United Nations Office on Drugs and Crimes (ONUDD)
- World Wildlife Fund PERU (WWF Peru)
- Conservation Internacional Peru (CI)
- Foundation for Peruvian Nature Conservation (PRONATURALEZA)
- Investigation for Development Institute (ININDETEC)

INDIRECT BENEFICIARIES

The indirect beneficiaries will be those potentially benefiting from the generated information and built capabilities within the National GHG Inventory system:

- Private investment promotion agency (PROINVERSIÓN)
- National Fund for the Environment (FONAM)
- Energy and Mining Ministry (MINEM)
- Chamber of Commerce and Production
- Nacional Industry Society (SNI)
- National Forestry Chamber (CNF)
- Regional Governments
- Local Governments
- Center for the Conservation, Research and Management of Natural Areas (CIMA)
- Parks Watch Peru
- Peruvian Protected Natural Areas Fund (PROFONANPE)
- Land Titling Special Project (PETT)
- National Program for the Management of Hydrologic Basins and Conservation of Soils (PRONAMACHS)
- National Agrarian Research Institute (INIA)
- National Service for Meteorology and Hydrology (SENAMHI)

OUTCOME 3: STRATEGY PROPOSAL TO MITIGATE GHG EMISSIONS IN THE ENERGY, INDUSTRY, TRANSPORT AND LULUCF SECTORS.

I. JUSTIFICATION

Peru has various challenges to face at the same time in the energy (transport, industry and energy) and non energy side (LULUCF); its ability to address them effectively cannot be separated from climate change issues.

Regarding the energy side, Peru requires significant expansion of its energy supply in the most optimal and climate friendly way, to increase access of Peruvian households to modern energy sources if the current extreme income and energy imbalances throughout Peruvian population are to be redressed. Furthermore, in the current context of natural gas availability, Peru is focusing most of its efforts on the introduction of natural gas within the energy and industrial sectors. This is being done without taking into account its climate change implications and its impact on the Country's sustainable development priorities. For instance, the promotion of natural gas may be inhibiting the promotion of zero emission options such as hydraulic and other renewable energies in geographical areas where natural gas will not be available. This menaces not only the homogenous development of Peru but it works as an incentive to centralize the industrial development of Peru along its gas pipelines preventing long term energy schemes encompassing sound GHG mitigation and zero emission diversification measures.

Regarding the Non energy side, Peru finds the biggest share of its emissions coming from the LULUCF activities. In that sense, it is of remarkable importance to demonstrate policy makers that GHG mitigation options of the LULUCF sector will bring benefits not only to the global environment, but will give inputs for the better Land Use planning and to the sustainable development process of Peru. The Land Use change process has a direct influence on the GHG emissions and removals by sinks and hence on the net national GHG emissions of Peru. According to the FNC the emissions from LULUCF were 37 196.80 CO2 Gg, that represents 55% of the net CO2 Emissions in the Country. The main geographical areas subject to land use changes have been identified and measured in the framework of PROCLIM, but information regarding the causes or drivers of these changes has not been analyzed. This information gap, that applies to the energy side as well, prevents the development of a mitigation strategy proposal for the LULUCF sector. The implementation of this proposal would be of remarkable importance not only because they could mitigate emissions but also for their impact over the country's biodiversity.

The FNC limited its mitigation assessment to an outline of the main options to mitigate GHG emissions but no quantification of their feasibility and costs benefits were provided. The outlined options were not analyzed nor their implementation modeled in the context of national priorities. Further efforts on the subject include a very first projection performed within the framework of a previous enabling activity. This projection was based on a macroeconomic model and gave us some insight on the future carbon intensity of the Peruvian economy for two scenarios: business as usual and a limited introduction of natural gas into the energy matrix of Peru. However, the lack of detail per sector and economic activity limited its usage to guide future mitigation policies and measures. In addition, the business as usual scenario used for that projection is now outdated and the energy options for Peru now go beyond natural gas. Within the framework of PROCLIM, the mitigation work was mainly addressed to the development of a National CDM Portfolio and no national or sectoral mitigation assessment was performed.

In light of these facts and considering that Peru needs to define its sustainable development path, the SNC will help Peru to develop a mitigation strategy proposal closely linked with its political agenda in four prioritized sectors: energy (due to recent development as a result of the

introduction of natural gas and urgent energy diversification), industry (identified as the main consumer of natural gas), transport (identified as having the fastest growing share of GHG emissions) and LULUCF (due to an ever increasing deforestation process). This process comprehends a mitigation assessment and the development of a mitigation strategy proposal for the prioritized sectors. An early stakeholder involvement in all activities of this outcome will give a participative nature to the proposal, which will give cross sectoral ownership to the proposal and will favor the subsequent implementation of the mitigation strategy.

On its road to sustainable development and given the scarcity of resources, CONAM is trying to manage Climate Change and Air Quality issues jointly. The proposed Strategy to mitigate GHG emissions will take this into account and will consider the assessment of synergies and trade offs between GHG emissions and Air Pollutants mitigation. This will ensure an effective and deep assessment of mitigation options and will allow the optimization of resources to address these problems.

The mitigation strategy proposal herein referred will need to be deployed through the on going national environmental system, one which, while having already deployed a solid and effective trans sector network, is still in the process of developing capacity to engage other public sectors institutions in long term policy planning and follow up capacity across sectors. In such a context, the development of a mitigation strategy proposal might require assessing not only mitigation potential, but also feasibility related issues such as available capacities and frameworks. Furthermore, the prioritization of Climate Change in the political agenda of Peru will be possible only if we are able to demonstrate the ancillary benefits of putting in place mitigation policies. The definition of the following outputs and activities took into account the need for sound projections and likely scenarios for the Peruvian future as a basis to construct cross sectoral coherent mitigation options and their integration into a mitigation strategy proposal.

II. ASSIGNED BUDGET FROM GEF

OUTPUT 3.1	US$193,500
OUTPUT 3.2	157,000
OUTPUT 3.3	25,000

III. DESCRIPTION OF OUTPUTS AND ACTIVITIES

Output 3.1: Assessment of options to mitigate GHG emissions in the Energy, Industry, Transport and LULUCF sectors.

Activities associated with this output are:

a) Stakeholder involvement. This activity points to engage all possible stakeholders on the outcome process will support and ensure the participative nature of activities b, c and d of this output. A workgroup will be formed through a decision of the National Commission on Climate Change. Four ministries and other governmental institutions and stakeholders will designate representatives for this workgroup. This workgroup will perform the following sub activities:

   a.1-Workshop to define stakeholder roles and agenda within this outcome.

   a.2-Periodical follow up meetings and workshops.

   a.3-Training on mitigation assessment for government and private companies representatives. This training will focus on developing capabilities on mitigation assessment for the Energy, Industry, transport and LULUCF sectors. The beneficiaries

of the training will participate actively on the development of mitigation assessments and strategy proposal for the prioritized sectors.

a.4-Presentation of the strategy proposal to high level decision makers

b) Analysis on the main drivers and root causes for Peru's historical and current emissions regime. Within this activity a diagnosis will be performed for the variables influencing LULUCF, Energy, Industry and Transport emissions.

Since the nature of emissions on the energy and non energy side have their own complexities, this analysis will differentiate the critical factors affecting emissions for the LULUCF, Energy, Industry and Transport sectors. Having said that, this activity will undertake specific analysis on the socio cultural factors influencing the dynamics of LULUCF GHG emissions in the Amazonian rainforest. In the transport sector the main socio cultural factors and practices that affect emissions (e.g. driving practices, cultural barriers to fuel change, etc) will be analyzed. In the energy and industry sectors, the main socio cultural factors affecting both business decisions and emissions regimes will be analyzed (e.g. a lack of efficiency culture, socio cultural barriers to the operation of Energy Service Companies-ESCOs, etc.).

Furthermore, an assessment of the main economic factors that influence GHG emissions will be performed. This will include an assessment of the energy costs, emissions regimes, electricity tariffs policies and how they affect final energy usage and emissions. In addition, large scale equipment replacement options and Peru's cogeneration potential will be outlined and an analysis assessing the overall economic benefits associated to efficiency gains in the steel, cement, ceramic, and glass industries will be performed. On the LULUCF sector, case studies in prioritized geographical areas will be performed. This will include a cost-benefit and tax regime analysis of the main economic activities (e.g. logging, agriculture, etc.)

The influence of policies, plans and programs on GHG emissions will be assessed for the LULUCF, energy, industry and transport sectors. Furthermore, a detailed analysis of the institutional and legal framework ruling the LULUCF sector and its impact on GHG emissions will be performed. In addition, two types of case studies in prioritized geographical areas with a river basin approach trying to involve different ecosystems will be performed. The first type will focus on the assessments of the impact of the construction, rehabilitation and extension of the terrestrial transportation ways in the LULUCF GHG emissions. The second type will focus on the influence of the establishment of Natural protected areas in LULUCF GHG emissions.

The SNC project will develop a diagnosis of the current status of the energy, transport, industry and LULUCF sectors, to support the identification, prioritization of Mitigation Options. All the activities will be developed by relevant stakeholders and include conducting workshops for validation and dissemination of the information.

While the analysis will cover four sectors, special emphasis will be given to the LULUCF sector. This includes an analysis of the main drivers and root causes for historical and current land use change processes, to support a Mitigation Strategy Proposal for the LULUCF Sector. Since the Amazonian rainforest holds most of the country's biodiversity and covers nearly three quarters of Peruvian land, this area will be the focus of the LULUCF Mitigation Strategy proposal. This geographical scope will add value to the information produced by biodiversity projects financed by GEF in the Amazon region. This output will develop case studies in the prioritized areas with a watershed approach involving different ecosystems to understand the Land Use Change process in a detailed way, identifying bottom up mitigation options. The development will engage multiple stakeholders that play a role in Land Use and Forestry sectors. This will provide the social,

legal and economic information to devise a mitigation strategy proposal for the LULUCF sector.

These activities include the following specific sub activities:

b.1-Evaluate the socio cultural aspects that influence the Peru's historical and current emissions regime.

In the Energy, Transport and Industry Sectors: A cross sectoral analysis of the socio cultural aspects that affect emissions in the Energy, Transport and Industry Sectors will be performed. The following tasks will be performed:

- Identification of socially differentiated groups and how their practices affect emissions in the Transport sector.
- Study of the socio cultural barriers to change and innovation for fuel change and energy efficiency programs for the energy and industry sectors. This includes the identification and analysis of current actors involving energy efficiency and demand and that could influence the expansion of the energy demand.

In the LULUCF Sector: The project seeks to understand the influence of the socio-cultural aspects and human groups that participate in the Land Use Change process. The influence of groups of colonists that migrate into rainforest areas in search of better opportunities for their development and the indigenous groups that live in Amazonian Rainforest is important since they are the trendsetters for land use change (forest into pasture land or subsistence crops). In addition, there are other actors whose economic activities influence the land use change directly, such as forest concessionaries, and small scale miners. The following tasks will be performed:

- Compilation and analysis of previous studies done regarding socio cultural aspects that influence land Use Change.
- Identify, describe, social groups that participate in the Land Use in the Amazonian Region and analyze their roles and influence in Land Use Change processes.

b.2-Evaluate the Economic aspects that influence the GHG emissions.

In the Energy, transport and Industry Sector: This includes the recollection of basic information on energy efficiency and demand management to feed the modeling activities. Such a recollection should help prepare a general assessment, including the following:

- An assessment of the energy costs, emissions regimes, electricity tariffs policies and how they affect final energy usage and emissions.
- An analysis assessing the overall economic benefits associated to:
    - Industry wide efficiency gains in the steel, cement, ceramic, and glass sectors
    - Large scale equipment replacement options,
    - Cogeneration potential

In the LULUCF Sector: Through this activity we aim to obtain an analysis of the current tax regimes and economic factors that influence the LUC process. In addition, case studies will be performed in prioritized areas.

The following tasks will be performed:

- Compilation and analysis of previous studies done on the subject.

- Undertake an analysis of tax related issues that influence the Change in Land Use in the Peruvian Amazon.
- Prioritization and selection of intensive land use change areas to be studied. This will be done based on the results of the 2000 Map developed by PROCLIM.
- Selection of economic activities that take place in the Amazon region and evaluate their influence in Land Use Change in the area previously prioritized.
- Case studies in the prioritized areas including a cost-benefit analysis of the selected economic activities.
- Integration of the results of the studies performed into one document where an analysis of the influence of economic aspects on Land Use Change is shown.

b.3-Evaluate the influence of the Institutional and Legal Framework, as well as the influence of National policies, plans and programs in GHG emissions.

In the Energy, transport and Industry Sector: The Institutional and Legal Framework influence the development of the energy, transport and industrial activities in the country. Having information regarding National Plans and policies and their influences in the development of the sectors previously mentioned, the election of the promotion of certain energy source or planning of technological improvements within the transport sector influence directly in the GHG emissions coming from these sectors. The following tasks will be performed:

- Evaluation of the current Legal framework and its influence in the development of different energy options expansion. This includes the new renewable energy expansion. Focus will be given on identifying the current legal and regulatory framework for renewable energies in Peru including, at least information on:

    - The interconnection and transmission agreement structure, its main characteristics, constraints and potentials.
    - The tariff structure, regulatory dispositions for dispatch and possible differences between intermittent and non-intermittent energy sources.
    - Incentives, quotas, standards or any other system, which might help to promote or could hinder large scale new renewable energy sources in Peru.
    - Analyze information of the existing portfolio for renewable energy sources.

- Evaluation of the current Legal framework and its influence in the development of different energy options expansion. This includes the new renewable energy expansion. This will include an evaluation of:

    - The legal and regulatory framework and of other current incentives for energy efficiency (including market mechanisms, ESCOs, mandatory national wide energy efficiency regulation, efficiency standards), and
    - The major existing international models for energy efficiency commissions and/or any other public or public/private sector partnerships or organizations to advance energy efficiency.
    - The lessons to be learned from the role CENERGIA has played in the Peruvian energy efficiency market, its past achievements, current challenges, and elements for its potential strengthening.
    - The current status of existing energy efficiency institutions and organizations in the country.

In the LULUCF Sector: The Institutional and Legal Framework plays an important role in the Land Use Change processes. Understanding how this process has been

influenced by the changes in the national legal system in the years between 1990 and 2005 is important since it will allow us to understand which laws have influenced Land Use into one or other direction and what is the reason behind the consequent effect in GHG emissions. Through this project we aim to understand the legal gap in relation to Land management and ownership. It is considered of paramount importance to understand and analyze the forest sector and its policy framework in order to identify mitigation options. Land Use is influenced by national plans, programs and national policies, we aim to understand this influence in the period 1990-2000, and also analyze contradictory policies that exacerbate the Land Use Change process. Case studies in prioritized watersheds will be developed. This will allow us to understand the influence of the legal and institutional framework on the emissions of the LULUCF sector. The following tasks will be performed:

- Gather information about the legal and institutional conditions of the period 1990-2005 which influence the process.
- Measure and analyze the influence of the Legal Framework of the period 1990-2005 in the Land Use change process.
- Identify and analyze the legal gap related to Land Use management, adjudication and titling of areas in the Amazon.
- Conduct a comparative study between the effects of the previous forest law, the current one and their applications in the Land Use change process in the Peruvian Amazon.
- Conduct workshops for validation and socialization of the information.
- Gather information about state policies, national plans and programs that influence the process of deforestation in the Peruvian Amazon in the 1990-2005 periods.
- Measure and analyze the influence on Land Use of the identified state policies and national programs.
- Identify and Analyze contradictory policies that influence the Land Use change process and identify possible solutions.
- Analyze programs that favor titling and/or land concessions

b.4- Evaluate the impact of the construction, rehabilitation and extension of the terrestrial transportation ways in the GHG emissions. This activity will be developed only in the LULUCF sector, including case studies in prioritized areas, and will involve the participation of stakeholders from the transport sector. The following tasks will be performed:

- Gathering of existing information about the impact of the construction and/or rehabilitation of roads in Land Use change in the Amazon.
- Conduct an evaluation study of the impact of the construction and/or rehabilitation of at least 2 roads on the Land Use change process in the Amazon.
- Analyze the impact of the construction of roads for logging activities on the Land Use Change process.
- Gather information about the influence of the construction of the inter-oceanic highway on the Land Use change process.
- Analyze the impact of the construction and extension of the inter-oceanic highway on the Land Use Change in the Peruvian Amazon
- Integrate the information, evaluations and analysis conducted

b.5 Develop case studies regarding the influence of the establishment of Natural protected areas in the Land Use Change process in the Peruvian Amazon and its influence in the GHG emissions. The following tasks will be performed:

- Gather and analyze relevant available information
- Conduct case studies in prioritized Natural Protected Areas to understand and analyze the Land Use Change process, its drivers and main causes.
- Elaborate proposals to help Natural Protected Area Management.

c) Participative development of national scenarios to 2015 and 2050. These scenarios will be developed using prospective techniques such as Delphi, APC, HP, ROT and others and will take possible sectoral and country policy lines as one of the inputs. Three emissions projections (i.e. business as usual, optimistic and pessimistic) will be performed for each scenario. Technical resources to be used comprehend bottom up models such as LEAP for energy alternatives modeling, COPATH to estimate carbon flows related to forest use and top down models of the like of but not limited to ENPEP and MARKAL. The country background on the subject is limited to the experience of the Energy and Mines Ministry using LEAP to perform short term (1-4 years) fuel consumption projections to update national energy balances. In this framework training workshops will be conducted on the subject to enable institutions to perform their own scenario development and projections

Within the framework of the SNC and in line with paragraph 39 of the UNFCCC Guidelines for the preparation of National Communications from non-Annex I parties, GHG baselines and projections will be performed for a prioritized set of policy making scenarios.

The following sub activities will be developed:

C.1-Modeling long term supply and demand scenarios This activity should include an analysis of the long term mitigation potential in the Peruvian Energy, Industry and LULUCF Sectors. In particular, this would involve an analysis of the different scenarios for gas entry, energy diversification, increased efficiency, Land Use change processes and regulations. It will include the development of the Land Use Change process scenarios in the Peruvian Amazon using as inputs future plans and development projects as well as the result of the preceding output, as well as an assessment, employing preferably a bottom up simulation model, but which could also use top-down simulation modeling, of the potential pathway for expansion of the power and energy sector expansion. Any results obtained through the study will be compared with the existing long term modeling. This will be done both through energy – economy – environment modeling exercises and through field studies.

C.2-Development of short, medium and long term Policy Making Scenarios for Peru. This activity aims to outline a set of policy options for sectoral and cross sectoral issues. This will be used as an input to construct feasible realities in the future of Peru taking into account global, national and regional possibilities. A simultaneous identification of previous work on the construction of scenarios and policy trends will be done for selected sectors as well as some cross sector issues. Through simple decision trees of a discrete set of policy options, the different policy making scenarios will be assembled. The next step will be to go from each policy making scenario and set of conditions into an unfiltered set of future scenarios.

C.3-Outline possible development options and prioritize future scenarios: Until the nineties most prioritization process in private and public settings used the discounted cash flow approach as well as SWOT, marginal cost and cost effectiveness analysis. However recent advances in the field of strategic and scenario planning have set the ground to apply novel analytical tools of the like of Real Options Theory (ROT). Thanks to this

technique it is possible to foresee the impact of long term decisions on diverse issues. In this way, the application of ROT tools will bring logic and clear criteria to the prioritization process and will shed some light on the feasibility of each scenario. It is worth mentioning that this technique will allow the identification and assessment of trade offs among scenarios, including the estimation of mitigation costs

C.4-Emissions projections will be performed for each scenario, this will include business as usual, optimistic and pessimistic projections.

C.5-Assessment of GHG emissions regimes for prioritized scenarios will be done through the application of bottom up and top down models to each possible reality. The technical resources to be used will be bottom up models such as LEAP for energy alternatives modeling, COPATH to estimate carbon flows related to forest use and top-down models (of the like of but not limited to ENPEP and MARKAL)

d) Feasibility analysis of mitigation options.

This will take into account the main drivers, root and causes of historical and current emissions, and results of the projections. Each option will comprehend sectoral as well as country policy lines. These options will be fed by specific policy assumptions giving origin to each scenario. For instance, in the transport sector these options could comprehend a political decision toward inhibiting private transport and taxing fuels. Under this assumption the projection will determine the degree of GHG emissions reduction and hence will help us to determine the effectiveness of the particular option. Using a similar methodology each option will be analyzed determining its effectiveness. Indicators for the referred effectiveness go from US$ invested/CO2 reduced to US$ invested/ US$ in energy savings passing by qualitative indicators such as degree of preservation of carbon sinks. Among the co benefits we may quote reduction in air pollution and healthy impact, competitiveness increase, technological improvements, positive environmental and social impacts, among others. These result will feed a final cost effectiveness, cost benefit and feasibility analysis (technical, social, environmental, economical and financial) for each mitigation option.

This will comprehend the assessment of long term potential options for GHG emission mitigation in the Energy and Industrial sectors of Peru for short, medium and long term policies scenarios. This will be encompassed by the development of a proposal for a cross sector program taking into account the identified GHG mitigation options and institutional policy capacity where possible. The following Sub activities will be performed:

d.1- Identify mitigation options taking into account long, medium and short term sustainable development needs and current and future Country's competitiveness for the Energy, Transport, Industrial and LULUCF sectors of Peru. These will include a participative evaluation of the GHG emission and competitive impacts of current options, including gas introduction and increased energy efficiency, as well as an assessment of other possibilities to diversify the energy mix, reduce fuel and price risks, and enhance market delivery capacity for a lower carbon economy;

d.2- Where mitigation options exist will be outlined, as well as specific instruments for advancing policy options to deploy other lower carbon technologies and services. Throughout, the potential to develop linked and complementary options would be given priority, including the development of new coordination and planning mechanisms, either from existing instances where coordination or planning is currently done, or by setting the ground for new ones.

Output 3.2: Process to develop a mitigation strategy proposal for the Energy, Industry, Transport and LULUCF sectors.

a) Prioritization, consultation and validation process with government officials of the energy, industry, transport and LULUCF sectors and other stakeholders. This activity seeks to ensure that the information generated in output 3.1 is understood by those stakeholders that would be in charge of implementing the mitigation strategy and make them themselves prioritize the options to be included in the mitigation strategy. This will include the dissemination of technical papers and organizing workshops to analyze and prioritize the options. Based on the engagement achieved in activity "a" of output 3.1, stakeholders will actively participate on the processes leading to a participatory and agreed mitigation strategy proposal for the sectors referred above.

   The following sub activities will be performed:

   A.1-Design and select valuation criteria for the options

   a.2-Prioritization of mitigations options

   a.3-Formulate and prioritize programs containing measures to mitigate climate change

   a.4-This will be done within the framework of the Country Sustainable Development Objectives and their specific implications for the energy, transport, industrial and LULUCF sectors in Peru. Furthermore, this will take into account the identified mitigation options and institutional policy capacity in the different sectors. Including energy under-consumption, as well as the recent introduction of natural gas, potential for increased efficiency, and energy diversification.

   a.5-Each of the sectors will have workshops to discuss a preliminary version of the proposal, with a subsequent internal workshop to consolidate and coordinate results and follow up activities.

b) Development of the Mitigation Strategy proposal and circulation for comments to governmental institutions and key stakeholders. It includes:

   B.1- The publication of a printed version and on the web.

   B.2- Presentation of the Proposal to high level decision makers.

   b.3-Drafting of the mitigation strategy proposal

OUTPUT 3.3: Steps to be taken to mainstream the mitigation strategy proposal into national and sectoral policies.

This output will encompasses activities leading to the mainstreaming of the mitigation strategy proposal into policies at the national and sectoral levels.

The output activities will be:

a) Dissemination, among high level decision makers, of policy papers on mitigation and sustainable development for the Energy, Industry, Transport and LULUCF sectors.
b) Joint workshop with the Center for Strategic Planning (CEPLAN) to outline a mainstreaming plan.
c) Joint workshops with CEPLAN and the Energy and Mines Ministry, Economy and Finance Ministry, Agriculture Ministry, National Institute of Natural Resources, Production Ministry and Telecommunications and Transport Ministry to disseminate and obtain sectoral support to the mitigation strategy proposal.

IV. EXPECTED RESULTS

OUTCOME 3 RESULTS

- The mitigation strategy proposal has been validated by at least four ministries, four governmental institutions and seven stakeholders and presented to high level decision makers.
- At least thirty professionals from the prioritized sectors are capable of performing mitigation assessments and develop sectoral mitigation strategies.
- At least twenty institutions (governmental, research institutions and NGOs) have participated in the development of the mitigation strategy proposal.

OUTPUT 3.1 RESULTS

- An assessment of options to mitigate GHG emissions has developed in a participative way, including a diagnosis of the root causes and main drivers of emissions from the prioritized sectors, national scenarios to 2015 and 2050 and the corresponding emissions projections.

OUTPUT 3.2 RESULT

- At least 16 institutions have contributed in the development of the Mitigation Strategy proposal for the Energy, Industry, Transport and LULUCF sectors.

OUTPUT 3.3 RESULT

High level decision makers of at least 4 institutions are familiar with the Mitigation strategy Proposal and its co benefits.

V. PARTICIPATING INSTITUTIONS

Energy, Transport and Industry Sector:

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Environmental Council	National Environmental Council	CONAM is UNFCCC and CBD focal point and Head of the NCCC. Has Institutional Capacities in Inventories and Mitigation, Vulnerability and Adaptation and experience in developing National Communication and programs addressing Climate change issues.
Energy and Mining Ministry-MINEM	General directorate of Planning and Budget	National Authority of the Mining and Energy Sector. Annually develops the National Energy Balance, which is a fundamental tool to determine the National Energy Policy. This specific directorate participated in PROCLIM providing information for the Top-down GHG Inventory based in year 2000.
Production Ministry - PRODUCE	National directorate of Industry-DNI	PRODUCE is the National Authority in Production Economic Sector. This specific directorate participated in PROCLIM supporting and giving inputs for the development of the GHG inventory of the industrial sector based in the year 2000.
Ministry of Transport and Communications –MTC	General Directorate of Terrestrial Circulation.	MTC is the National Authority of the Transports Sector. Promotes and provides adequate marine, aero and terrestrial infrastructure and invigilates they are save and sustained. It also promotes the sustainable development of the communication services and their access. This specific directorate is in charge of the transport sector management. Participated in PROCLIM providing inputs for the GHG

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
		emissions inventory of the Transport sector based on the year 2000.
The Investment Supervisor Organism in the Energy Sector –OSINERG	The Investment Supervisor Organism in the Energy Sector -OSINERG	Public organism in charge to supervise and to control the fulfillment of the legal and technical dispositions of the activities that develop to the companies in the electricity sub sector and hydrocarbons, as well as the fulfillment of the legal and technical norms referred to the conservation and protection of the environment.
La Molina Agrarian National University	Faculty of Forest Engineering and Conservation Data Center	Public university with a strong background on forestry, alternative energies and biomass research and information.
Ministry of Health	Environmental Health Directorate - DIGESA	Specialized office in charge of defining and executing environmental health policies and programs.

Land Use Change and Forestry Sector:

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Institute of Natural Resources - INRENA	Environmental Management, Natural Resources Evaluation and Information Office - OGATEIRN	INRENA is the national authority in the assessment and management of the national natural resources. Focal point for the Convention of Drought and Desertification. INRENA is the public authority in charge of develop and promote all the necessary actions and promote: the sustainable management of natural resources, biodiversity conservation and the sustainable management of the rural ecosystems through a watershed approach land planning and establishing joint ventures and strategic agreements with the different involves social and economic stakeholders. This specific Office is in charge of giving technical advice and opinions about investment projects that could produce negative impact over the natural resources. Coordinates studies related to the sustainable use of natural resources and conservation.
National Institute of Natural Resources – INRENA	Forest and Wildlife Intendancy	IFFS is in charge of policy proposals and laws regarding the sustainable use of forest and wildlife resources, in a constant socialization process within the different actors of the sector.
National Commission of Development and Live without Drugs -DEVIDA	Division of Environmental Management	DEVIDA designs and consults policy related to drugs consumption. Promotes and coordinates programs and projects to limit the drug production and cropping in the country. Since the Amazon Region is a critical area for Drugs cultivation its involvement in the project will be highly important.

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Service for meteorology and hydrology -SENAMHI	General directorate of Meteorology	Science and technology that conducts meteorological, hydrological, agro meteorological and environmental in the country. Participates in the global atmospheric vigilance and develops specialized services to contribute to the sustainable development, security and national wealth.
La Molina Agrarian University -UNALM	Faculty of Forest Science -FCF	Forest Faculty integrated by Professors, graduates, researchers and students advocated to the development of studies and investigation, as well as, the socialization and diffusion of Forest Issues.
La Molina Agrarian University -UNALM	Conservation Data Base Center –CDC	CDC is a Management Information Unit related to biological and ecological diversity in Peru. Gathers information and important data related to Natural Protected Areas in the country and use it to analyze their status and propose management measures. Additionally, maintains a data base permanently actualized through analysis and information processing, generating studies that are available for anyone that is interested.
Ucayali National University -UNU	Faculty of Forest Science	Forest Faculty located in the Peruvian Amazon devoted to the study, research and diffusion of forest topics.
Research Institute of the Peruvian Amazon-IIAP	FOCAL FOREST -	IIAP is a public autonomous organism its work scope covers all the Peruvian Amazon. Is in charge of developing investigation for conservation and the sustainable use of the natural resources in the Amazon region. This specific project aim to strengthen local capacity for the development of sustainable Forest Management in the Region.
Peruvian Central National University- UNCP	Research and air management group (GEAIRE)	Research group working on topics related to effect of deforestation and vegetation burning processes on the Climate in the forest Amazon.
Investigation for Development Institute - ININDETEC	Investigation for Development Institute - ININDETEC	Develop research in areas related to CO_2 emissions and captures in different ecosystems.
Forest Promotion and Development Fund-FONDEBOSQUE	Forest Promotion and Development Fund-FONDEBOSQUE	FONDEBOSQUE works all the activities related to the Forest Sector. Aims to increase the environmental and economic valuation of the forest resources, and develop forest sector competitiveness in the country through the valorization of goods and services from the forest. Promotes public and private Forest investments, including financial mechanisms. Strengthening capacities among the forest users and beneficiaries.

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
Conservation International Peru -CI	Conservation International Peru -CI	CI aims to conserve the Earth's living natural heritage and global biodiversity. In Peru CI aims to strengthen management capacities within national protected areas and promotes the participation of the civil society in the conservation field. Contributing in the understanding and diffusion of Peruvians biodiversity and trying to contribute in the inclusion of ecological criteria in the development policies. CI creates joint ventures with different social and institutional actors to develop their activities based on technical and scientific criteria.
United Nations Organization -UNO	United Nations Office on Drugs and Crimes -ONUDD	ONUDD in Peru supports the Peruvian state to deal with the problems brought out by the illegal drugs. Their action is framed in the millennium development goals and human rights. Supports the state to deal with problems affecting governance, social stability and threatens the basic conditions needed to achieve Peruvian development goals. In its performance includes all programs and activities related to environmental issues, conservation of natural resources and protection of native communities
World Wildlife Fund PERU- WWF Peru	CEDEFOR- Program	Manage and achieve Forest certification of one million hectares for the year 2006. Diminish deforestation by promoting a sustainable use of forest resources.
Forest Society and development -BSD	Forest Society and development -BSD	This is a National NGO that works specifically in the Peruvian forest sector. President of the Dialogue and coordination table of the Peruvian forest sector is an important actor in Forest sector of the country.
Peruvian Society of Environmental Law- SPDA	Peruvian Society of Environmental Law- SPDA	SPDA analyze legal framework in Peru regarding the forest and environmental framework. Identifies and make proposals for sustainable development laws and policy.
National Forestry Chamber	National Forestry Chamber	This association actively participates in the different dialogue spaces related to Forest issues in the country. Participated in the elaboration of the current forest law and the National forestry Strategy. Its members are involved in the policy making process in the forest sector. Develop specific projects related to forest management and research.
Foundation for Peruvian Nature Conservation- PRONATURALEZA	Foundation for Peruvian Nature Conservation- PRONATURALEZA	Pro Naturaleza aims to conserve Peruvian natural patrimony, especially biodiversity. Promotes and executes actions related to conservation, natural resources management, and raising awareness.

VI. IMPLEMENTATION STRATEGY

An early stakeholder involvement will be assured through the creation of an inter institutional workgroup by a decision of the National Commission on Climate Change. The members of this group will be officially appointed by their respective institutions. The first meeting will serve to define the operative roles within the group. CONAM will facilitate and bring technical support to the workgroup. One of the first tasks of the group will be to detail the outcome agenda and synchronize the efforts of all members for each output. The group meetings will have a periodical nature and in addition to them, special workshops and seminars will be held. The members of the workgroup will be trained on mitigation assessments putting special emphasis on their respective sectors. This will strengthen participating institutions and will make sustainable the process. This group will serve as a platform to conduct validation of the output results and its further presentation to high level decision makers to ease a future implementation of the mitigation strategy proposal.

The country must simultaneously increase population access to modern energy sources, decouple energy from economic growth, and maintain or increase its energy mix diversification to advance lower carbon energies if it is to both insure a sustainable development and advance a lower carbon development path.

This outcome (3.1) will seek to enhance mitigation potential through a sound set of assessed options.

Evaluation of energy options should include the following principles:

- Impacts on energy and industrial process mitigation
- Externalities and co benefits with local pollution and its control
- Intersector activity potential employing existing organizations and which can be of use to mitigation measures.
- Contribute to energy diversification, energy efficiency, and sustainable demand management.

Areas complying with these requirements could include:

1. Gas, as its introduction will offer a direct linkage with the various industries with high energy consumption needs. An evaluation of options, together with an institutional follow up mechanism could allow gauging the effect of potential measures for its introduction and fuel displacement in the industry, residential and eventually transportation:

2. Energy efficiency, as this might provide an incentive for further and more precise action within specific industries, as well as a medium to better engage with the infrastructure, economy, and industry sectors, Additionally, an agenda and a further alignment with the existing institutions already operating within the energy efficiency arena;

3. Renewable energy and new sources, as these not only contribute to energy diversification and reduce fuel risk, but also to balance and promote a homogeneous sustainable development along the Country.

Evaluation of LULUCF mitigation options should consider the following:

- Economic activities that will be promoted in certain areas with recent policies and programs establishment.
- Diversity of Peruvian territory
- Sectoral planning coming from the transport and industry sector.

- Land Use potential and actual and tendency usage.
- Current ecologic economic zoning planning processes
- Identification of Sink Potential

VII. PROJECT BENEFICIARIES

DIRECT BENEFICIARIES

The direct beneficiaries will be the UNFCCC focal point in Peru: the National Environmental Council (CONAM) and participant entities such as the Ministry of Energy and Mines, the Ministry of Transportation and Communications, Ministry of Agriculture, the Production Ministry and the National Resource Institute. Through learning by doing, their technical capacities on mitigation assessment will be strengthened and institutionalized. Since the skills acquired through this outcome can be easily applied to other issues, the benefits will be ancillary to the sustainable development of Peru. For instance, this outcome will strengthen capabilities to envisage future action on air pollution reduction, increase in technological efficiency and effectiveness, improvements in the security and availability of power supply, etc. all of them encompassed by capabilities to perform mitigation cost calculation.

Other direct beneficiaries are the institutions directly involved in the development of the project, participating in the activities and workshops. In the Land Use Change and Forestry sector include:

- National Institute of Natural Resources (INRENA)
- Ministry of Transport and Communications (MTC)
- Research Institute of the Peruvian Amazon (IIAP)
- National Agrarian Research Institute (INIA)
- Ministry of Agriculture (MINAG)
- La Molina Agrarian University (UNALM)
- Conservation Data Center (CDC- UNALM)
- Peruvian Amazon National University (UNAP)
- Peruvian Central National University (UNCP)
- National Commission for Development and Life without Drugs (DEVIDA)
- Forest Promotion and Development Fund (FONDEBOSQUE)
- United Nations Organization against Drugs and Crime (ONUDD)
- National Environmental Council (CONAM)
- World Wildlife Fund PERU
- Conservation International Peru (CI)
- Foundation for Peruvian Nature Conservation (PRONATURALEZA)
- Investigation for Development Institute (ININDETEC)
- National Forestry Chamber (CNF)
- Peruvian Society of Environmental Law (SPDA)

INDIRECT BENEFICIARES

Since CONAM has cross sector coordinating capabilities and is currently championing the implementation of the National Environmental System, the conditions will be given to promote the development of long term planning capacities within the governmental sector of Peru. We envision that ministries, other government agencies and private institutions will benefit from this outcome.

Two different types of indirect beneficiaries might be identified:

Concentrated Government policy entities in the economy, industry, infrastructure and transport domains which have responsibility at sectors with high energy consumption, as they would have access to a larger number of options than otherwise might be possible

At a political level the decision makers will have information about the impact of the laws, policies and national programs on the processes of Land Use Change processes, which will allow them to have bigger and better tools to guide their future decisions. Amongst them are:

- Ucayali Regional Government
- San Martín Regional Government
- Amazonas Regional Government
- Loreto Regional Government
- Madre de Dios Regional Government
- Investment Promotion Bureau (PREINVERSIÓN)

Some other institutions will benefit from the Project by collaborating with the stakeholders and participating in specific workshops according to their areas of jurisdiction and interests. Among them we have identified:

- National Program for the Management of Hydrologic Basins and Conservation of Soils (PRONAMACHS)
- Ucayali National University UNU
- Tingo Maria National University
- Common Wealth Institute (IBC)
- Peruvian Protected Natural Areas Fund (PROFONANPE)
- Peruvian Rainforest Development Interethnic Association (AIDESEP)
- Urubamba River Machiguenga Council (COMARU)
- grouped communities (SECONAMA)
- Forest Concessionaries Associations
- Small Scale Miners of Madre de Dios (FEMAT)
- Center for Economic Research of Universidad del Pacifico

Finally, the project would also benefit local population, as it is likely that any proposals to mitigate GHG emissions might also have important co-benefits and synergies with local pollution. Additionally, it might also facilitate the appearance of energy efficiency and environmental services markets in the energy sector, as the included environmental recommendations expand.

OUTCOME 4: DESCRIPTION OF STEPS TAKEN TO INTEGRATE CLIMATE CHANGE AND DEVELOPMENT

I. ASSIGNED BUDGET FROM GEF:

OUTPUT 4.1	US$40,000
OUTPUT 4.2	60,000

II. DESCRIPTION OF OUTPUTS AND ACTIVITIES

Output 4.1 Develop dissemination and capacity building activities for relevant stakeholders and decision makers to evaluate, prioritize and support generated mitigation and adaptation strategy proposals.

This Outcome will be focused on building the conditions and tools needed so that decision makers and stakeholders can participate actively in the information generation processes for the Second National Communication. It will be required a bridging component that facilitate the activities of the project components in charge of generating adaptation and mitigation proposals.

JUSTIFICATION

During these past years of Peruvian politics it has been noticed a tendency of new governments that not continue their predecessors' work. This situation usually alters previously developed political processes. Nevertheless, a crucial factor for political process continuity has been the degree of involvement and participation of the relevant sectors in the design and definition of their policies, given that their representation generates strong bonds with the benefited communities and relationships that favor their implementation. This, instead of generating truncated processes, aids the merging of the new government's actions to the collectively defined lines of action.

By the way, actual reduction or alteration of resources and productivity of basic activities (e.g. water, agriculture, livestock farming, or forestry) is generating conflicts between the principal affected sectors at water basin levels. Climate Change management capacities and base information are highly expected in these sectors and scenarios to manage and negotiate ways of solution, which can be converted into fair and conscious policies to deal with actual and future climate problems.

Given that the definition of guidelines and projects to build strategies of adaptation and mitigation in the sectors must count with contributions from all levels of government and its sectors in relation to their respective circumstances and needs, it is necessary to create conditions and capabilities so that such definitions are carried out in a participative manner, in order to end up with a vision that covers the different realities' aspects; and to identify the critical points for policy definition, thus ensuring the effective participation of the actors given priority in the SNC process.

Indeed, it is necessary to identify all relevant stakeholders and decision makers in the directly and indirectly affected sectors in the respective water basins, and develop with them activities focused on dissemination and raising awareness so that they may understand the sector, local and national problems caused by the impact of climate change, as well as the importance of promoting actions and commitments oriented to the generation of information needed for the SNC.

In addition, it is a priority to identify the specific needs for developing relevant management capabilities to deal with Climate Change management and to generate SNC information. This will allow the articulation of the objectives of the components in charge of developing the adaptation and mitigation guidelines, and will be the starting point for specific actions taken by each of the components.

It is also necessary to build capabilities that allow the actors involved to have the tools needed to cooperate in the participative process itself. Developing a participative process leading to make identified stakeholders work together and help on generating SNC information will make leaders consider all sectorial positions and reality conditions, and will result in effectively encouraging all needed commitments to confront the problem and finally achieve its recognition as a priority in regional, local and sector management.

This participative process for the generation of adaptation and mitigation proposals will specially run through web applications, in order to help distant people to discuss, analyze, reach and share conclusions about the policies to be promoted. The inputs generated in this process will be systematized and converted into materials for the formal development of the adaptation and mitigation proposals. These will be validated in a participative manner to later become into the required strategies, plans and policies.

This will be possible through a constant flow of collective information which will help in the generation, discussion and validation of guidelines, plans or policies needed to integrate climate change into regional development; and contribute to the generation of information required for the SNC.

Supports for this flow of information will be an accurate distribution of data and documents during the different phases of the participative process for the collective definition of guidelines for strategies of adaptation and mitigation.

It requires the implementation of a web page that supports the forums and spaces for discussion required for the participative process of generation of proposals for adaptation and mitigation. Also, this web page will have the capability to publish documents and reports of interest and mechanisms to collect the observations of relevant actors, facilitating their later systematization, and will allow counters and base information to be used as verifying means.

Having opportune and accurate electronic and physical –where necessary- publishing of documents and reports with information is a crucial factor to facilitate participative processes, as well as the management of forums and electronic tools employed in the processes of information exchange among the actors.

Publications will need generation and distribution of information related to the project's scope, in order to keep the different actors of the process up to date. Also, they will be a tool for validating the proposals generated collectively, by presenting the results of the systematizing of the phases of the process.

The activities that will be developed under this output are:

a) Raising awareness activities for stakeholders and policy makers, capacity building activities, stakeholder consultation process and systematization of inputs, integration process of opinion flows into useful information for the SNC.
b) Implementation of an interactive web based support platform.
c) Printed and electronic publication and distribution of relevant information;

Output 4.2: Evaluation and development of indicators to assess the impact of the National Communication process in national policy, sectoral planning and in the development agenda, such as poverty reduction policies and the Millennium Development Goals.

JUSTIFICATION

As an enabling activity, the SNC could create the adequate environment, contribute to capacity building and strengthening at systemic, institutional and human level, identify potential options that could address sustainable development challenges and incorporate methodological approach and tools to identify, design and implement public policies. Of course, the implementation of policies and strategies itself is far beyond the scope of a National Communication.

The SNC gives an opportunity to identify and define criteria and measurable indicators to assess the impact of the national communication at different levels. This includes, specially, the impacts on technical capacity, institutional strengthening, policy-making, public awareness, community participation, and research activities. As a second objective, included in this chapter, the SNC should propose indicators to assess the relation between the National Communication process, development policies and the MDGs, specially regarding to recommendations coming from, mitigation and adaptation proposals. Such indicators will be tested, where possible, during the implementation of the national communication project.

The importance of this process has been recently envisioned during the PROCLIM program. An important effort is yet to be done in order to consolidate the initial steps taken to integrate climate change and development. The SNC will identify a number of measurable indicators to assess the impact of the national communication at different levels. Given the wide range of impacts that can be measured, the project will identify quantitative and qualitative indicators. An interdisciplinary group will be responsible for designing the impact indicators and, eventually, for training the relevant institutions on how such indicators could be adopted to facilitate impact assessments. Impact indicators could also provide insights on how climate change related concerns could be best used to influence decision-making at the policy level and on the correction measures required to ensure the sustainability of the national communication process.

The National Agreement, as an official document, constitutes the framework of basic lines to define the vision, key polices and objectives and related strategic lines to implement the priorities for sustainable development. As such, any sector or general policies should be in line and in coherence with the aim and priorities of the National Agreement. This statement is also applicable to the Climate Change policies. Just the decision to include outcome 4.2 has the intention to measures how SNC will make a positive contribution to sustainable development and poverty reduction. GHG emissions are related with both of the selected policies (10 and 19). Poverty is pushing up sinks reduction through a process of deforestation of the Amazonian area and the use of less efficient energy equipments. Economic growth needs to follows a sustainable path if the wish is not to be the cause of growing GHG emissions. Both elements are clearly remark in the CONAM Climate Change Strategy[18].

In addition, MDGs represent an international compromise assumed by the Government of Peru; several of the issues addressed by the Second National Communication of Peru are close related with the Millennium development goals.

Although energy is not one of the seven MDGs in spite of this being advocated by the United Nations (ref), it is directly or indirectly linked to all the different MDGs because modern energy service provision is crucial to the overall social and economic development of any nation or

[18] CONAM – Estrategia Nacional de Cambio climatico – December 2002 – Page 13.

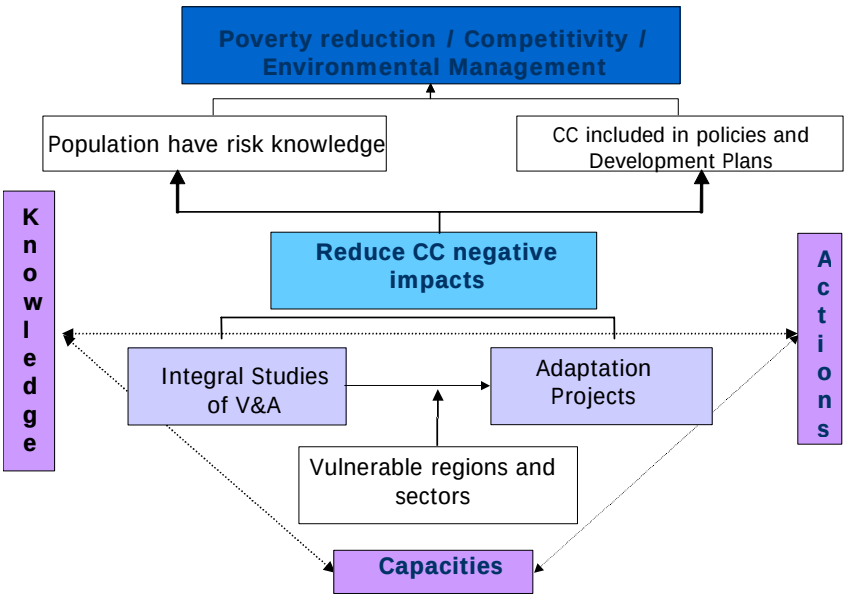
region in the world. The identification of mitigation options and potential adaptation strategies, contribute MDGs priorities.

As mentioned, several policies of the National Agreement are related to CC. In particular poverty reduction (Policy 10) and Sustainable Development and environmental Management (Policy 19) are special under consideration in the Environmental Programs and Climate Change.

In summary, the key objective and results of this component should be a set of measurable, feasible and applicable indicators on how the SCN contributes to sustainable development, poverty reduction and MDGs.

In the first case, the climate change mains lines strategies19 are mostly based in actions related to V&A, as clearly shows the next diagram.

Climate Change Strategy in V&A



Although vulnerability and adaptation appears as key strategic priorities, CC mitigation activities are also integrated to poverty reduction. The approach to mitigation options and treatment is summarized in following chart.

A key contribution of SCN should be the opportunity to identify feasible strategies and options to include CC and sustainable development in decision making process. While governments must build the initial frameworks for sustainable development, the private productive sector and the civil society includes key players in bringing about the economic, social and political viability of these plans.

The main output is the identification and design of quantitative or qualitative indicators between the outcomes expected for the three key mains objectives of the project (V&A assessment, mitigation and development of an inventory system) and the most relevant policies included in the National Agreement (poverty reduction and sustainable development) and the MDGs.

[19] CONAM. Estrategia Nacional de Cambio Climático -2002 - Page 16

Depending on the output and the relation to be included and measure, the indicators could belong to different categories or types. As know, the indicators are specific measures of the progress reached to accomplish objectives and targets, and could be:

Impact ones: to measure the changes to be obtain as a result of the project. Specially related to General Objectives.

Effect ones: to measure the changes during the process (also knows as process indicators) and those related to specific objectives.
Product ones: indicate if the targets proposed at the level of actions were reached.

Indicators could be quantitative (applicable to important, measurable and quantifiable targets), qualitative (descriptive and narrative, more vector oriented and, in some cases complementing the quantitative ones).

As the indicator is a "translation" of the objectives in their concrete meaning in term of, for example, quantity, quality, localization and time, the components could be qualifying (what, when, where, who); verifying (to be measure in field); targets (how much, degree of change in comparison with the starting point).

The type and category of the indicators will be one of the outputs of the activity itself. In principle they could be considered as effect and products indicators, which, in general, will follow a qualitative pattern and closed to qualifying indicators.

In addition to potential end expected effects on both framework objectives (National Agreement priorities and MDGs), ancillary benefit would come as a result of SNC activities. As mentioned, the expectation of positive impacts coming from the different components will depend on the indirect effects of an enabling activity.

Output 4.2 rationale

This output seeks the development of clear relationships between the indicators of the process, results and effects of the SNC (e.g. V&A assessments, mitigation strategy proposal, inventory management system, etc.) and indicators already defined for the implementation of the most relevant policies of the National Agreement (poverty reduction and sustainable development) National Agreement. In addition to the indicators defined in the Log Frame of the SNC (to monitor the SNC process), this output will devise indicators to monitor the results and effects of the SNC on the development path of Peru. These indicators can be used to monitor how Peruvian policies, measures and programs lead the country to the achievement of the MDGs.

A key contribution of the SNC should be the opportunity to generate information, and identify feasible strategies to include Climate Change as part of a sustainable development path. While governments must build the initial frameworks for sustainable development, the private productive sector and civil society include key players in bringing about the economic, social and political viability of these plans.

This output will design quantitative and / or qualitative indicators between the results expected for the three key main objectives of the project and the MDGs.

These indicators will be aimed to measure the achievements and impacts on different moments of the process of mainstreaming Climate Change into the sustainable development process:

1. During the process of developing the Second National Communication, through the evaluation of indicators detailed in the logical framework. These indicators are aimed to measure the impact, within the scope of the Second National Communication activities,

on technical capacity, institutional strengthening, policy-making, public awareness, community participation, and research activities. As an example of indicators outlined in the Logical framework are: level of awareness of climate change issues, authors of the SNC, number of people and institutions trained, number of people and institutions that participate in the development of the SNC, options or strategies endorsed by ministries and regional /(river basin) governments, technical reports generated and disseminated, among others.

2. After the implementation of measures identified within the SNC, mainly in the adaptation strategy, GHG inventory system and mitigation strategy: These indicators will be aimed to assess the level of implementation of the measures identified during the Second National Communication and its impacts on technical capacity, institutional strengthening, policy-making, public awareness, community participation, and research activities. It will focus specially on assessing how the measures identified have been incorporated in the national, regional and sectoral policies in the country. Some examples of the indicators that could be used are: number and level of additional political and institutional endorsement to the SNC proposals; amount of public budget allocated to climate change measures (e.g. inventory management system); number of mitigation and adaptation options implemented per sector; number of SNC stakeholders that participate in the implementation of SNC proposals and results; amount of public budget and investment allocated following the incorporation of the climate factor into the Multi Annual and SNIP processes; number of quotations of the SNC within scientific, technical and policy making publications; number of requests received to provide a copy of the SNC; number of visitors to the SNC website; policies at the national, sectoral and regional (river basins) levels that incorporate climate change considerations (i.e. shift in national and regional investments because of adaptation requirements); level of awareness of climate change issues; new technical and scientific research developed; among others.

3. After the implementation of the polices and measures that incorporate climate change (results of having mainstreamed climate change into national, regional and sectoral policies). These indicators will be aimed to measure the impact in the sustainable development and poverty processes (key strategies and indicators of the MDGs and the National Agreement) of the implementation of policies and measures that incorporate climate change considerations. Some examples of the indicators that could be used are: Reduction in estimated air pollution emissions or concentrations per unit of GHG; fuel savings associated to efficiency improvement inspired by the SNC; reduction in medical expenses due to reduction in air pollutant concentrations; reduction in expenses in rehabilitation projects related to climate hazards; percentage of reduction in losses after a extreme weather event; decrease in deforestation areas and level of income per capita around these areas, etc.

Ancillary and indirect co-benefits of SNC

General Objective	Potential Results	Category	Indicator	Verifying Means
Assessment of the impact of the National Communication in the Development Agenda and the MDGs. Indirect impacts	Technical capacity improvement	Target and qualifying indicator	Increasing in the number of professionals and experts dedicated to CC Issues and related activities	Comparative situation after and before
	Institutional strengthening	Target and qualifying indicator	Enforcement of institution just working in climate change issues. Incorporation of new institutions to climate change is Institutional	Comparative situation after and before
	Policy-making	Qualifying indicator	Incorporation of CC issues in sector and general policies	New policies design and implemented including CC considerations effectively
	Public awareness	Product	Number of awareness campaigns implemented	Comparative situation after and before
	Community participation	Product	Civil Society NGOs participation	Number of institutions involved in activities direct or indirect related to CC issues
	Research activities	Process and Product	Increase in the number of technical research. Level of implementation of research agenda	Report comparing situation before and after the SNC.

Several examples of mutual relation and contribution could be found in the SNC, in particular the studies on vulnerability and Adaptation in Santa river basin and Mayo river basin with the

approach of human development and with the promotion of stakeholder participation would have a positive effect in poverty reduction. The methodology implemented as framework for the Stakeholder involvement plan with several workshop and specific roles assigned to them is for sure a contribution to public awareness and community participation.

The studies to evaluate the penetration of RETs in poor rural areas as part of mitigation studies will be a contribution to access to energy and poverty reduction at the same time that a sustainable option.

The activities that will be developed under this output are:

1. Identification of key policies and indicators established in National Agreement to reduce poverty and improve sustainable development
2. Identification of relevant dimensions for Peru between CC and MDGs
3. Prioritization of these policies and indicators as the result of an assessment of their relation to CC issues and SNC objectives;
4. Identification of key components and outcomes of the adaptation strategy, GHG inventory system and mitigation strategy;
5. Development of criteria to establish a verifiable relation between key outcomes of SNC and key policies or strategies identified by the National Agreement;
6. Definition of a set of feasible indicators in accordance with expected applicability, availability of information, Replicability in other regions, areas or sectors and scope and relevance of the added value generated by the indicator.
7. Development of a repot to measure the achievements of the SNC during its implementation.
8. Development, with the participation of relevant stakeholders, of a methodology that includes the criteria and indicators identified, to make a follow up of these indicators after finishing the SNC.

III. EXPECTED RESULTS

OUTCOME RESULT

- A report synthesizing actions taken to integrate climate change and development and level of participation of the SNC to ensure the sustainability of the process, presented to national development institutions.

OUTPUT 4.1 RESULTS

- At least fifty people and forty institutions of each prioritized river basin and sectors have received and provided information related to climate change, and participated in the process of implementation of the SNC project.

- Relevant stakeholders and policy makers have increased their level of awareness of climate change issues.

OUTPUT 4.2 RESULTS

- A methodology, including a set of indicators to measure the impacts of the national communication process and assess the relationship between climate change communication activities and selected sustainable development objective.

- An evaluation of the results achieved during the implementation of the SNC.IV

IV PARTICIPATING INSTITUTIONS

Name of institutions / stakeholders	Specific Department	Kind of Participation	Reasons for their inclusion in the Project
PUBLIC INSTITUTIONS			
National Environmental Council	National Environmental Council	Project Coordinator Institution	CONAM is UNFCCC and CBD focal point and Head of the NCCC. Has Institutional Capacities in Inventories and Mitigation, Vulnerability and Adaptation and experience in developing National Communication and programs addressing Climate change issues.
National Institute of Natural Resources – INRENA	Environmental Management, Natural Resources Evaluation and Information Office - OGATEIRN	Co executor	INRENA is the national authority in the assessment and management of the national natural resources. Focal point for the Convention of Drought and Desertification. INRENA is the public authority in charge of develop and promote all the necessary actions and promote: the sustainable management of natural resources, biodiversity conservation and the sustainable management of the rural ecosystems through a watershed approach land planning and establishing joint ventures and strategic agreements with the different involves social and economic stakeholders.
National Council for Science and technology – CONCYTEC	National Council for Science and technology - CONCYTEC	Co executor	CONCYTEC is the institution In charge of the Scientific research topics, has already implemented incentives for research, develops the research National Plan and has the capacity to keep a systematic register of studies generated through the Agenda.
National Service for meteorology and hydrology - SENAMHI	General directorate of Meteorology	Co executor	Science and technology that conducts meteorological, hydrological, agro meteorological and environmental in the country. Participates in the global atmospheric vigilance and develops specialized services to contribute to the sustainable development, security and national wealth.
National Service for meteorology and hydrology - SENAMHI	General directorate of Hydrology	Co executor	
Ancash Regional Government	Regional Directorate of Natural Resources and environmental Management	Co executor	Public institution that guides the development process in Ancash region and has the capacity to articulate participative work among the local organizations and promote incorporation of sustainable development guidelines into higher level decision makers.
San Martin Regional Government	Special Alto Mayo Project -PEAM	Co executor	Conducts the development process of San Martín Region. Counts with funding of PDRS-GTZ for developing their actions.
INTERNATIONAL ORGANIZATIONS BASED IN PERU			

Name of institutions / stakeholders	Specific Department	Kind of Participation	Reasons for their inclusion in the Project
Organization of American States-OEA	Office for sustainable development and environment -(OSDE)	Co executor	OAS- brings together the countries of the Western Hemisphere to strengthen cooperation and advance common interests. It is the region's premier forum for multilateral dialogue and concerted action. The Office for Sustainable Development and Environment (OSDE) supports the formulation of policies and design and execution of technical cooperation projects, to help translate the goals of sustainable development and environmental protection into concrete action. A key objective of this work involves integrating environmental policies with economic, rural development, poverty alleviation and economic integration policies.

CONAM will be directly co-executing these activities. It will be formed by an interdisciplinary group, comprised mainly by the institutions that form the National Climate Change Commission and the National Agreement Forum. For the purpose of developing better indicators and methodologies, and starting a process or mechanism to measure them, the activities will incorporate some consultation with other SNC's co-executors and participants and the members of the National Accord Working Group.
National Commission on Climate Change, that is comprised by: Ministry of Economy and Finance, Ministry of External Affairs, Presidency of the Ministerial Cabinet, Ministry of Energy and Mines, Ministry of Transportation, and Ministry of Agriculture, Natural Resources Institute, Science and Technology Council, representatives of NGOs an Universities, among others.

VI. IMPLEMENTATION STRATEGY

For Output 4.1:

1. The implementation of the activities of this Outcome will support and complement the activities of the sectors and objectives prioritized by the components in charge of developing guidelines for the strategies of adaptation and mitigation.
2. Identifying decision makers and stakeholders relevant to the project and with them develop activities focused on dissemination and capacity building, generating sensibility, knowledge and commitment oriented to their participation in the project's actions.
3. Identification and strengthening of capabilities necessary for the generation of guidelines for strategies of mitigation and adaptation, in which we also will provide preliminary techniques and tools for optimal participation in the participative process.
4. Implementation of a participative process of support for the definition of proposals for mitigation and adaptation, through workshops and web pages, generating a platform that makes information exchange and the processes of validation possible. Obtain as a result the guidelines for strategies of adaptation and mitigation for the project's prioritized regions.

For Output 4.2:

1. The strategy and methodology to approach the analysis will be based in the identification of relation articulation and mutual effect among National Agreement, MDGs and the SNC.

2. Tables show below give an indication of the type of approach to be developed and the information to be cross among the different dimensions or areas.

3. In both cases, the example is related to the National Agreement prioritized goals. A similar table should be elaborated for the MDGs.

Policy 10: Poverty reduction: Mutual relations matrix

National Agreement		SNC Contribution
Key Policies	Indicators	
Promotion of production, entrepreneurs local development and employment	Level of activity Cooperation among small producers to improve their competitiveness Diversification and improving of productivity in rural activities. Increasing participation of less developed areas in national commerce.	Identification of strategies for technology transfer oriented to LULUCF. Identification of activities adapted to CC. Access to information and data base to help local authorities in the implementation of policies. Identification of mitigation options in LULUCF in consonance with National Forestry Policy. Specially referred to deforestation process and poverty.
Strengthening of local management capacities to promote access to information, training, technology transfer and a greater access to credit	Increasing investment in Capacity Building Access of small entrepreneur to technical assistance including technology information and market information. Access to soft financing.	Increasing awareness on CC Vulnerability. Improving knowledge and access to information in relation to technology options. Participation mechanism put into place
Promotion of infrastructure and productive projects	Development of road infrastructure. Increasing surface under artificial irrigation. Implementing a rural conventional electrification plan. Improving access to power through RETs: PV and Wind. Access to drinkable water in rural and urban area.	Identification of energy mitigation projects based on RETs. Facilitation of access to power based on clean technologies for productive uses and residential consumption.
Increasing resource allocation to health and education to increase program effectiveness	No detailed reference	Access to energy of local centers on Health and Education
Promote the civil society participation in the identification of problems and solutions proposals	Development plan agreed among Government and Civil Society at national and local level. Generation of participative budget. New investments project and programs. Co-partnership ambit at Municipal level. Population with National Identification Card, especially in poor areas.	Participation mechanism put into place Implementation of a participative planning as part of the methods to identify projects. Promotion of management tools of local plans through Adaptation and Mitigation programs. Local management capacity developing and strengthening to identify production activities adapted to vulnerable areas or regions.
Development of a local system of identification, attention and employment promotion	Percentage of district with an unemployment data base, attention and promotion of employment. Percentage of women and young people with employment above the sub-employment line.	Identification of Adaptation and Mitigation projects or activities that maximize local employment.
Institutional development, transparence and effectiveness of government administration	Percentage of programs of poverty reduction offering public and transparent information. Identification of poverty problems. Impact assessment process. Food assistance programs.	Participation mechanism put into place In line with CC Strategy (CONAM), it is assumed that activities implemented through SNC will include a certain level of active civil society participation. Base studies to develop solid criteria to incorporate V&A options as part as decision making processes.
Human rights guarantee to poverty groups	Access to free popular juridical assistance. Human Developments knowledge at provincial and local level.	Civil society participation
Promotion of a culture of risk prevention and control and vulnerability in front of extreme events	Performance of National System of Civil Protection. Percentage of public programs including risk control and protection. Risk control and disaster prevention included in education curricula.	Consideration of IPCC CC scenarios in the treatment of hazards and risk at national, regional and local level. Base studies to develop solid criteria to incorporate V&A options as part as decision making processes.

Policy 19: Sustainable Development and Environmental Management

National Agreement		SNC Contribution
Key Policies	Indicators	
Environmental management institutional strengthening, through coordinated activities among government and the civil society	National and regional strategic plans. Improving in National Environmental Policy and Environmental Management System. Decentralization of environmental responsibilities.	Building upon on the nearly 70 institutions working in CC issues. Impacts and effects of the development of the National GHG Inventory System. Cross-sector articulation through different components.
Promote the civil society participation and awareness.	Number of mechanism of civil society participation. Sectors and regions incorporated to the National Environmental Information System.	In line with CC Strategy (CONAM), it is assumed that activities implemented through SNC will include a certain level of active civil society participation.
Promotion of territorial planning, basin management, forestry management and coastal zones and recovering vulnerable areas.	Amount in environmental investment. Number of ecosystems and natural areas protected with plans under integral management. Reduction of deforestation.	Improvement through assessment of potential projects in key areas like energy supply, industrial energy consumption and forestry.
Promotion of environmental management tools prioritizing prevention and clean production.	Level of development of the program on clean air, water quality and waste management. Degree of implementation of the clean production programs.	Mitigation options V&A programs
Incorporation in National Account of the value of natural and environmental resources.	Development of Environmental Accounting System.	GHG Inventory System as an input to estimate sinks value and contribution to welfare.
Promotion of environmental investment and technology transfer for production sector activities, forestry, biotechnology, bio-commerce and tourism.	Investment amount in clean process in industrial sector. Number of firms with integrated system of environmental quality. Number of project of bio-technology, bio-commerce and eco-tourism.	Mitigation options. Introduction of Natural Gas.
Promotion and assessment of an efficient use, preservation and conservation of soil, water and air.	Number of programs of residual water implemented. Soil surface recover. Better use of water.	Increasing in area of land under cultivation Increase in crop variety and changes in cropping patterns as a result of adaptation proposals Increase in agricultural skills Mitigation options: Introductions o NG and Renewable.
Promotion of environmental education and research.	Number of teachers and professor trained in environmental knowledge. Number of universities giving degree in environmental sciences. Number of research projects in environment sciences.	A broad awareness program could include the formal system education with activities developed at school level or the identification of potential issues to be included in the education curricula. Promotion of the Climate Change Research Agenda
Implementation of a system of environmental evaluation impact.	Number of environmental impact assessment implemented. Number of investment project incorporating civil society participation.	The different mitigation studies will produce valuable input to develop methodologies of EAE. The information generated in the V&A assessments l will produce valuable input to develop methodologies of EAE.
Development of a national strategy for international trading and environment	Participation in international trading negotiation. Number of multilateral and bilateral agreement articulating trading and environment. Number of project in bio-commerce and eco-tourism.	Better information generated Institutional Strengthening in international negotiation

VII PROJECT BENEFICIARIES

DIRECT BENEFICIARIES

The direct beneficiary will be the UNFCCC focal point in Peru: the National Environmental Council (CONAM). It will be strengthened at systemic, institutional and human level in the identification of potential options that could address sustainable development challenges and incorporate methodological approach and tools to identify, design and implement public policies that both, give an adequate answer to CC Issues and contribute to Sustainability. The skills acquired through this outcome could be applied to other issues; the benefits will be ancillary to the sustainable development of Peru.

National Environmental Council
National Institute of Natural Resources -INRENA
National Council for Science and technology -CONCYTEC
National Service for meteorology and hydrology -SENAMHI
Energy and Mining Ministry-MINEM
Ancash Regional Government
San Martin Regional Government
Organization of American States-OEA
Production Ministry –PRODUCE
Ministry of Transport and Communications -MTC
Ministry of Health -MINSA
Ministry of Agriculture –MINAG
Ministry of Economy and Finance –MEF
National Commission for Development and Life without Drugs -DEVIDA
National Office for Services of Sanitation -SUNASS

INDIRECT BENEFICIARIES

Since CONAM has cross sector coordinating capabilities and is currently championing the implementation of the National Environmental System, the conditions will be given to promote the development of sustainable development capacities within the governmental sector of Peru. We envision that ministries, other government agencies and private institutions will benefit from this outcome, especially those comprising the National Climate Change Commission and the National Agreement Forum. The participation of other institutions as technical assistance or in other roles in the framework of the project will also be beneficiaries of the project.

Presidents of regional and local governments of the prioritized areas, regional managers, grass roots leaders, and water users board leaders, technical organizations.

OUTCOME 5: PRIORITIZED ANALISYS OF CONTRAINTS, GAPS AND NEEDS OF A NATIONAL OBSERVATION SYSTEM AND CLIMATE CHANGE RESEARCH

I. JUSTIFICATION

Peru is a country that is continually impacted by extreme hydro meteorological conditions, generating risks of climatic origin that affect national and regional development plans.

These significant current challenges include the vital necessity to count with reliable and up to date information. This is why it is imperative to modernize the observation, telecommunications, data management, access and data exchange and personnel training systems; as well as the supply of adequate data resources to insure the short, medium and long term implementation of the media involved in the National and Regional Observation Network.

In this way, the proposal is based on the first two strategic lines of the National Strategy for Climate Change (approved by Supreme Decree Nº 086 – 2003 – PCM). The National Strategy has as base the reduction of Peru's vulnerability to climate change, increasing our capacity of adaptation.

We transcribe the development of the first two strategic lines, its relevant objectives and goals on which this project is based.

The National Strategy on Climate Change states that the first two lines are priorities for implementation:

Line 1: Promote and develop scientific, technologic, social and economic research on vulnerability, adaptation and mitigation concerning climate change.

Strategic objective 1.1: Improves the capability of observation, to understand the adverse effects on the climatic system and the prediction capacity.

Goal 1.1.1: Strengthened terrestrial hydrometeorology observation system, improving the resolution of existing climatic models.

Goal 1.1.2: Strengthening of the ocean-atmosphere observation system to improve the resolution of existing climatic models.

Also there are research needs in this region of global interest since some of the supposed global carbon cycles are being revised and therefore there could be important changes in the General Circulation Models (GCM) that are preparing the scenarios for future climates. For example, the Amazon plays an extremely important role in the global climate system, so its appropriate modeling and simulation are of capital importance. For this reason, improving the density and quality of data for this region are fundamental to this end. The "savannization" of this region is evidence that it is not being represented adequately by the global models (Oliveira et al., 2004). Satellite monitoring of this region has improved in the last few years but the techniques of remote sensing used in the processing of the images require on site information in order to refine their conclusions.

Vigilance of hydro resources and the preservation of the Amazonian environment is also a global concern. The Amazon basin, with approximately 6 100 000 Km2, is the biggest hydrologic basin on the planet, and represents nearly 20% of the world's fresh water. This basin of continental dimensions is located in the intertropical zone, receiving average annual precipitations of 2460 mm. The Amazon River at Iquitos (Peru) presents an average flow of approximately 35,000 m3/s during the month of May. This enormous accessibility to fresh

water resources must be preserved not only for the peoples of the Americas but for humanity in general. The origins of this river in the heights of the Andes Mountain Range in Peru require therefore permanent monitoring.

The steep Andean mountain range in Peru, with heights that go from 500 meters to beyond 6 Km, allows the generation of an immense mega diversity, practically all of the climates in the world (Peru has 28 of the 35 climates identified around the world) and the marked differentiation of its almost deserted western slope and its Amazon rainforest generating eastern slope.

The absence of a National System for Climate Observation results in that much of the information that comes from existing observation networks is not used for the prevention and mitigation of natural disasters, nor for studies and research on variability and climate change. The state's observation networks currently have deficiencies in terms of density, distribution, communications and observer qualifications, leaving large extensions of national territory without information as well as others where excessive coverage exists.

It is also particularly important that the media involved in the Observation Network produce observations of high quality conforming to the norms of the Global Climate Observing System (GCOS) and hand in this data in a timely and efficient manner to the designated processing centers and data archives.

Also, there are needs to identify and evaluate the national and regional deficiencies in monitoring climate, and to propose specific actions to solve the risks and critical points; which is the benefit that Peru will receive and which will also reach the international community, for measures will be proposed to improve the density, quality and free access to the information generated in Peru, which are necessary to feed the General Circulation Models and time, climate and climate change statistics. This benefit will also reach the population in general by improving access to climatic information. This will produce a multiplying development effect when the information is used in the projects of public and private investment as well as in thesis studies and research.

Improving climate observation in Peru implies improving considerably the programs of climate observation, networks and management of climatic data exchange at regional and national levels. This must be done while noting vital areas where a better development is needed in order to fulfill the established requirements by the GCOS, and betterment of the information available for planning and management of the country's development based on up to date and detailed scientific knowledge and information.

At the end of the project we hope to have made, through a participative process, a clear diagnosis of the needs and deficiencies of the systematic observation of climate in Peru, as well as proposing the integration of all of the climate information generated in the National System for Climate Observation that takes advantage of the capabilities in personnel, infrastructure and experience of SENAHMI and other institutions. This will help fulfill in a better way the mandate assigned by the Peruvian State, for it will count with a much wider network of data gathering, as well as the entities that operate this network, for the ruling entity will establish the technical norms of the system according to what is established by the OMM.

Also we hope to have a detailed proposal of the needs for research and information accessibility on climate change. In this vein, a first draft has been elaborated on the "Agenda for scientific research on climate change and air quality" which will constitute the starting point to reach this objective. Said document will be distributed, validated, constantly updated and will seek to incorporate mechanisms of promotion of research.

The final diagnosis will serve to support the request from the Peruvian State and international financing for the resources needed to gradually overcome the deficiencies due to the high cost of the equipment and their maintenance as well as improving the flow of information generated towards the users through a free access based on the availability of resources for the proper maintenance and operation of the observation networks.

II. ASSIGNED BUDGET FROM GEF

OUTCOME 5.1	US$75,000
OUTCOME 5.2	21,500

III. DESCRIPTION OF OUTPUTS AND ACTIVITIES

Output 5.1 Identification and prioritization of constraints, gaps and needs (technical, methodological, institutional and financial) of the climate information system and climate change research

Activities within this outcome include:

a) The current state of the climate observation network, identifying gaps and needs for National Climate Observation System-NCOS. This activity will be carrying out with the following Sub Activities:

A.1-Coordination and Meetings with National Weather Service managing staff. It is necessary to make the most of the comparative advantage of SENAMHI since it has 13 Regional Offices at the national level. Nevertheless, actions will only be effective if the personnel of the Regional Offices are trained regarding the legal norms and the legal strategies to follow in order to facilitate information gathering. Also, we propose the training of a professional and a technician in meteorological centers successful in the Management of Observation Networks and Management of Maintenance with the purpose of acting as guides in the process.

This activity will involve the implementation of the following tasks:

- Planning meeting in Lima. There will be a meeting in the Central Office of SENAHMI in Lima. The Regional Directors will participate and its objective will be to give the directives of the process and instructions regarding the support and the legal strategy to follow with the aim of obtaining the maximum of participation from State and Private Institutions that have meteorological information. The General Office for Technical Operations (OGOT) will be in charge of conducting the activity with the participation of the implementing unit of CONAM. OGOT will prepare the necessary forms to be filled out with the Meta data.

- Actions of the Regional Offices and information gathering from the networks.
- The Regional Directors, upon returning to their offices, will follow the necessary steps, such as visits, phone calls, letters, etc., to obtain the participation and registration of the Public and Private Institutions that operate monitoring networks. At the end of the process they will return the results to the OGOT for their consolidation.

- Organizing, evaluation and report. This is the process undertaken by the personnel of OGOT to systematize the gathered information.

- Training of a SENAHMI professional on Management of Observation Networks. It is necessary to train a professional at a successful weather service on current techniques

and methods employed in the efficient and successful management of observation networks. During the first three months of the project, the co-implementing unit will follow the necessary procedures with the OMM to obtain an invitation to train for two months. The project will only finance transportation, taxes and daily expenses.

- Training of a SENAHMI technician on Management of Network Maintenance. It is necessary to train a technician at a successful meteorological service on current techniques and methods employed in the efficient and successful maintenance of networks. During the first three months of the project, the co-implementing unit will follow the necessary procedures with the OMM to obtain an invitation to train for two months. The project will only finance transportation, taxes and daily expenses.

- Generate information required for the inventories of the observation network and for the NCOS (it includes institutional, normative, financial and technological aspects).

- SENAHMI will activate the National Registry of Institutions of the National System for Climate Observation through a participative process that involves all of the national actors interested in the climate information. Also an integrated inventory of the stations of the National System will be carried out by a Technical Consultant.

  This activity will be carried out through the implementation of the following Tasks:

  - Institution Registry and Meta data to NCOS. This consists on the activation of a National Registry of Stations fulfilling the requirements indicated under the Law of creation of SENAHMI and its norms.

  - Integration participative workshop. Public and Private Institutions that operate meteorological information networks will be invited to participate in the project considering the advantages they will obtain and the norms of the OMM. This also involves the establishment of agreements of communication and reporting of information.

  - Formulation of Inventory by category, technology, purposes and geographic location. A Technical Consultant in meteorology and GIS will be hired with the purpose of preparing the Systematized and Organized Inventory of the NCOS. The consultant will follow the technical directives of the Director of OGOT, who will prepare 30 days before the beginning of the task the Reference Terms so that the Inventory reflects clearly the current situation of the National Network for Climate Observation, including instrumentation, technology, registries, age, changes, special situations such as temporary closings, condition of generated information archives (digitized, bands, etc.).

b) Dissemination of the preliminary climate research agenda document, validation, and update and follow up of the preliminary climate research agenda document and explore mechanisms to promote it. The activity aims to have a detailed proposal of the needs for research and information accessibility on climate change. In this vein, with PROCLIM a first draft has been elaborated on the “Agenda for scientific research on climate change and air quality” which will constitute the starting point to reach this output. The associated Sub activities are:

B.1-Dissemination of the preliminary climate change research agenda document and validation. Within the framework of the PROCLIM program, an agenda for scientific research on climate change and air quality has been elaborated in its preliminary version. Said document must be distributed to strategic actors and validated by them.

b.2- Follow up and update of the document. A consultant will be hired, who using the platform provided by CONCYTEC will be in charge of conducting the tracking and updating of the agenda.

b.3-Explore mechanisms to promote research. The mentioned consultant will also explore mechanisms to encourage research (grants, financing, training, etc.), those currently available as well as those that could be implemented.

b.4- Users follow up to identify and acquire generated studies. Also, the consultant will identify and systematize the information that is generated by the implementation of the agenda.

c) Disseminate the results, achievements and benefits of a NCOS and the research needs on Climate Change

Finally, the results of the activities performed and the findings made during the process of analysis must be distributed to the scientific community and presented to high level decision makers.

Output 5.2 Proposal of a multi - phase national climate system focusing in the previously identified constraints, gaps and needs.

Based on the previous output, a proposal of a National Climate Observation System will be developed. It will engage the main public and private climate observation networks (land, sea and upper air) and will be focused on ensuring the accessibility and availability of climate data for climate research priorities. The activities that will be performed within this output are as follows:

a) Identification of deficit and possibilities of a possible/optimum Hydro meteorological Observation Network. It is necessary to formulate and develop, in coordination with SENAMHI, a detailed appraisal of the National Observation Network, about the technical criteria, requirements, capabilities/possibilities and participatory reach of the institutions involved in order to facilitate the elaboration of a Strengthening Plan for the National Climate Observation System NCOS for the short, medium and long terms.

This activity involves the following Sub Activities:

a.1-Organizing a Technical Criteria Establishment Workshop. SENAMHI will conduct two workshops with the participation of professional staff from the main offices and guests from the different sectors with the aim of unifying technical criteria that will be used to prepare the optimal/possible Observation Network.

A.2-Elaboration of the document about the optimal/possible Observation Network and the Document for Structural Diagnosis of the Climatic System. The optimal/possible Observation Network is that observation network that meets all of the technical requirements of the OMM and satisfies fully the needs for information of the country with different ends and framed within criteria such as early alert, numerical prognostication of weather, climate and hydrologic, studies of variability and climate change, research agenda on climate, etc.

The document must evaluate the current geographic distribution and fill in the information gaps proposing new data gathering stations. Also, what is proposed must be

feasible in the short, medium and long term The network must be designed to use a geographic information system (GIS).

The document must also use available information to conduct a structural diagnosis of the National Climate System, for which it will deal with the following aspects:

- legal: in other words the current norms that sustains SNOC's current situation, the sources of its problems, possible solutions and the needs for access to climate information,
- institutional: consists in the description of competencies of state and private institutions, their functions regarding observation of the Essential Climate Variables (ECV), and the interrelation amongst them,
- financial: that is, an evaluation of the resources allocated by the state to the operation of the networks, payment of observers, telecommunications, processing of data and modeling in addition to a cost-benefit analysis of this investment and recommendations to optimize this relationship, and
- technological: an evaluation of the validity of the techniques and methods used and recommendations regarding technological tendencies in climate observation.

A.3-Determining the requirements of the optimal/possible Network VS Inventory. This involves conducting a comparative study that determines the requirements for implementation of the Network identifying vacuums, coverage, coverage density, station deficit, type and quality of the same according to the current norms and the needs found in the diagnostic.

Also it must take into account the current technologies and the projection of the network in telecommunications areas, considering the needs for information in real time, the introduction of measurements of snow, meteorites and essential climatic variables (ECV) defined by the Global Climate Observation System (GCOS).

b) Evaluation of the implementation and operation costs of the NCOS.
SENAMHI, through the OGOT, will contact providers in order to elaborate a budget with their projections based on their requirements for materials and supplies, technical orders and maintenance registries/software.
This activity will be carried out through the implementation of the following Sub Activities:

B.1-Quotation for the requirements and projections. Consists of inquiring from the different providers of stations, equipment, accessories, instrumentation and supplies about costs as well as inquiring about the technical notes for maintenance in order to schedule and budget supplies and spare parts.

B.2-Registry/control of failures and network maintenance. Consists in the preparation of software for the management and maintenance of the NCOS, and the loading of the available information in the SENAMHI records and those belonging to Public and Private Institutions. The final result will be a data base server.

B.3-General Study about costs and projections for the National Network for Hydrometeorology Observation. Consists in the consolidation of information about the requirements of the network with the aim to gradually reach the optimal/possible network.

c) Quantification of the requirements and process for implementing the Possible/Optimum NCOS.

SENAMHI will establish with the participation of institutions in different sectors of the country the prioritization of the requirements in calendar form and with criteria for operational viability and realistic expense.
This activity will be carried out through the implementation of the following task:

C.1-Technical workshop on operational criteria and priorities for the programming of requirements. A workshop will be run at SENAMHI with the participation of its professional staff from different field offices, sector guests and scientific institutions. The aim is to create priorities for the identified needs that allow scheduling in a feasible, rational and expense-realistic manner. Also, there will be a discussion about the free availability of data to the community, with the support of the State with enough resources for the maintenance and operation of the Network, which is justified by the immediate benefit to the country's economy.

IV. EXPECTED RESULTS

OUTCOME 5 RESULTS

A report of constraints gaps and related financial, technical and capacity needs has been developed.

OUTPUT 5.1 RESULTS

A diagnosis of the National Climate Observation Network and of research needs related to climate variability and climate change has been developed and presented to high level decision makers.

Activity results

a) Diagnosis on the NCOS network has been determined based in the information on observation networks that has been collected, ordered and evaluated.
b) The main research needs on climate variability and climate change have been identified
c) The results has been presented to high level decision makers in order to have support for the proposal expected to be achieved in output 5.2 below

OUTPUT 5.2 RESULTS

A proposal of the National Climate Observation System - NCOS has been presented to high level decision makers.

Activity Results

a) NCOS´s limitations and needs have been determined and prioritized.
b) Implementation and operation costs have been determined.
c) A short, medium and long term proposal for the NCOS has been developed taking into consideration technical aspects, density, and telecommunications, legal and financial aspects; along with a proposal for free availability to climate data.

V. PARTICIPATING INSTITUTIONS

Name of institutions / stakeholders	Specific Department	Reasons for their inclusion in the Project
National Environmental Council	National Environmental Council	CONAM is UNFCCC and CBD focal point and Head of the NCCC. It has Institutional Capacities in Inventories and Mitigation, Vulnerability and Adaptation and experience in developing National Communication and programs addressing Climate change issues.
National Council for Science and technology - CONCYTEC	National Council for Science and technology – CONCYTEC	CONCYTEC is the institution in charge of the Scientific research topics, has already implemented incentives for research, develops the Science and Technology National Plan and has the capacity to keep a systematic register of studies generated through the Agenda.
National Service for meteorology and hydrology - SENAMHI	General Directorate of Meteorology	Scientific and technology national institution that conducts meteorological, hydrological, agro meteorological and environmental in the country. Participates in the global atmospheric vigilance and develops specialized services to contribute to the sustainable development, security and national wealth.

VI. IMPLEMENTATION STRATEGY

The main strategy refers to an integral vision of the subject of systematic climate observation, in accord with the guidelines of the National Strategy for climate change. For this, it is considered important for the implementation of the project, the building on top of existing processes. In this way we can focus on improving the understanding of the existing observation networks and the capabilities to operate them and generate the data required to be integrated into national and international systems to improve the resolution of the General Circulation Models. (GCM).

Also we include the promotion of participation by Peruvian professionals in the coordination and training processes in order to optimize the concepts and processes of a national system of climate observation.

A strategy of importance is considering the current condition of freely available information that is currently being generated and what is the access to and use of it by the different users: researchers, public and private entities, universities and others.

To this process we add a strategic mechanism for the implementation of a scientific research agenda on climate change and air quality, which will seek to identify and cover the needs for investigation.

Finally, these conditions ought to allow us to count with an integrated proposal for the establishment of a National System for Climate Observation within the framework of the National System for Public Investing, which allows for its later financing and implementation, as well as an implemented mechanism for the promotion of research that facilitates the process of generation and systematization of climate information.

VII. PROJECT BENEFICIARIES

DIRECT BENEFICIARIES

The direct beneficiaries are the project participants, mainly the SENAMHI, as the entity governing the National Service of Meteorology and Hydrology, and the CONCYTEC, as the entity in charge of issues of research in science and technology at the national level, as well as public and private entities that have climate observation networks and which will be integrated into a national observation system with free access to information.

INDIRECT BENEFICIARIES

These are the users of climate and hydrologic information for the country. Among these are the world climate observation systems, universities, and researchers. The information being available in a more continuous way and of better quality and more integrated (ocean, air and upper atmosphere systems) will help to make more informed decisions and with less uncertainty. This is why the final beneficiary is considered to be the country's population that depends upon these decisions in the sectors normally related to climatic aspects such as agriculture, energy, health, fishing or those populations constantly affected by climatic hazards. We also include among the indirect beneficiaries the scientific community and the university community, in charge of research and the generation of information, whose work will be facilitated and guided towards the carrying out of research more useful to decision making.

Part XII: Detailed Budget and Workplan

Project Outcome / Atlas Activity	Responsible Party	Source of Funds	PLANNED BUDGET & WORKPLAN					
			ERP / Atlas Budget Code	ERP / Atlas Budget Description	Year 1	Year 2	Year 3	Total Amount
1	CONAM	GEF	71200	International Consultants	19,436	19,309	0	38,745
			71300	National Consultants	172,746	181,563	73,075	427,384
			71400	Individual Service Contracts	3,260	6,779	0	10,039
			71600	Duty Travel	33,527	31,521	8,248	73,296
			72100	Contractual Services Companies	12,507	24,443	0	36,950
			72200	Equipment & Furniture	7,500	0	0	7,500
			72400	Audio-visual and Communications Equipment	10,940	0	0	10,940
			72500	Supply	13,825	8,500	3,625	25,950
			72800	Technology Information Equipment	60,100	500	0	60,600
			74200	Production Cost of Publications and Audio Visual	3,500	8,000	7,096	18,596
TOTAL OUTCOME 1 COST					**337,341**	**280,615**	**92,044**	**710,000**
2	CONAM	GEF	71300	National Consultants	32,600	5,000	0	37,600
			71400	Individual Service Contracts	18,000	4,000	0	22,000
			71600	Duty Travel	9,314	8,186	0	17,500
			72100	Contractual Services Companies	2,800	1,600	0	4,400
			72500	Supply	2,800	800	0	3,600
			72800	Technology Information Equipment	6,650	0	0	6,650
			74500	Miscellaneous Operating Expenses	714	536	0	1,250
			74200	Production Cost of Publications and Audio Visual	5,000	2,000	0	7,000
TOTAL OUTCOME 2 COST					**77,878**	**22,121**	**0**	**100,000**
3	CONAM	GEF	71300	National Consultants	44,600	67,200	33,600	145,400
			71400	Individual Service Contracts	48,000	68,000	22,000	138,000
			71600	Duty Travel	18,140	18,140	9,070	45,350
			72100	Contractual Services Companies	1,950	1,950	1,950	5,850
			72500	Supply	4,800	4,800	2,400	12,000
			72800	Technology Information Equipment	20,950	0	0	20,950
			74200	Production Cost of Publications and Audio Visual	0	2,250	4,950	7,200
			74500	Miscellaneous Operating Expenses	300	300	150	750
TOTAL OUTCOME 3 COST					**138,740**	**162,640**	**74,120**	**375,500**

Project Outcome / Atlas Activity	Responsible Party	Source of Funds	PLANNED BUDGET & WORKPLAN					
			ERP / Atlas Budget Code	ERP / Atlas Budget Description	Year 1	Year 2	Year 3	Total Amount
4	CONAM	GEF	71300	National Consultants	27,000	27,000	10,000	64,000
			71400	Individual Service Contracts	6,990	90	60	7,140
			71600	Duty Travel	8,040	6,600	0	14,640
			72100	Contractual Services Companies	6,810	3,150	0	9,960
			72500	Supply	420	300	0	720
			72800	Technology Information Equipment	870	870	0	1,740
			74200	Production Cost of Publications and Audio Visual	900	700	200	1,800
				TOTAL OUTCOME 4 COST	**51,030**	**38,710**	**10.260**	**100,000**
5	CONAM	GEF	71200	International Consultants	0	3,000	0	3,000
			71300	National Consultants	13,300	10,000	6,200	29,500
			71400	Individual Service Contracts	9,900	9,600	4,800	24,300
			71600	Duty Travel	19,865	1,400	1,000	22,265
			72100	Contractual Services Companies	1,800	2,300	500	4,600
			72400	Audio-visual and Communications Equipment	1,900	0	0	1,900
			72500	Supply	1,683	2,073	400	4,155
			72800	Technology Information Equipment	780	6,000	0	6,780
				TOTAL OUTCOME 5 COST	**49,228**	**34,373**	**12,900**	**96,500**
6	CONAM	GEF	72100	Contractual Services Companies	0	0	25,000	25,000
			74500	Miscellaneous Operating Expenses	0	0	2,000	2,000
			74200	Production Cost of Publications and Audio Visual	0	0	23,000	23,000
				TOTAL OUTCOME 6 COST	**0**	**0**	**50,000**	**50,000**
Technical Assistance	CONAM	GEF	71200	International Consultants	0	4,000	6,000	10,000
			71300	National Consultants	8,000	8,000	4,000	20,000
			71600	Duty Travel	2,500	2,500	1,000	6,000
			72100	Contractual Services Companies	2,500	2,500	1,000	6,000
			72500	Supply	2,000	2,000	1,000	5,000
			74500	Miscellaneous Operating Expenses	1,000	1,000	1,000	3,000
				TOTAL TECHNICAL ASSISTANCE COST	**16,000**	**20,000**	**14,000**	**50,000**
Project Management	CONAM	GEF	71300	National Consultants	69,800	69,800	34,900	174,500
			72800	Technology Information Equipment	10,000	0	0	10,000
			74500	Miscellaneous Operating Expenses	4,000	4,000	3,000	11,000
			71600	Duty Travel	4,200	4,200	3,600	12,000

Project Outcome / Atlas Activity	Responsible Party	Source of Funds	PLANNED BUDGET & WORKPLAN					
			ERP / Atlas Budget Code	ERP / Atlas Budget Description	Year 1	Year 2	Year 3	Total Amount
			72500	Supply	4,200	4,200	2,100	10,500
TOTAL PROJECT MANAGEMENT COST					**92,200**	**82,200**	**43,600**	**218,000**
M&E	CONAM	GEF	71300	National Consultants	5,500	12,000	16,500	34,000
			71600	Duty Travel	6,075	3,645	3,780	13,500
			71200	International Consultants	10,000	20,000	20,000	50,000
			74100	Professional Services	1,000	1,000	500	2,500
TOTAL PROJECT M&E COST					**22,575**	**36,645**	**40,780**	**100,000**
TOTAL by Source of Fund/Donor					**784,992**	**677,304**	**337,704**	**1,800,000**

SIGNATURE PAGE

Country: _____

UNDAF Outcome(s)/Indicator(s):
_____
(Link to UNDAF outcome. If no UNDAF, leave blank)

Expected Outcome(s)/Indicator (s):
_____
(CP outcomes linked t the SRF/MYFF goal and service line)
_____

Expected Output(s)/Indicator(s):
_____
(CP outcomes linked to the SRF/MYFF goal and service line)
_____

Implementing partner: _____
(designated institution/Executing agency)

Other Partners: _____

_____

Programme Period: _____
Programme Component:_____
Project Title:_____
Project ID: _____
Project Duration: _____
Management Arrangement: _____

Total budget: _____
Allocated resources: _____
- Government _____
- Regular _____
- Other:
  - Donor _____
  - Donor _____
  - Donor _____
- In kind contributions _____

Agreed by (Government): _____
Agreed by (Implementing partner/Executing agency):_____
Agreed by (UNDP):_____