United Nations Development Programme

Country: **Timor Leste**

PROJECT DOCUMENT

Project Title: Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk

UNDAF Outcome(s):

Outcome 1: By 2013, stronger democratic institutions and mechanisms for social cohesion are consolidated;
Outcome 2: By 2013, vulnerable groups experience a significant improvement in sustainable livelihoods, poverty reduction and disaster risk management within an overarching crisis prevention and recovery context;

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Strengthened capacities of developing countries to mainstream climate change adaptation policies into development plans
UNDP Strategic Plan Secondary Outcome: National, regional and local levels of governance expand their capacities to manage the equitable delivery of public services and support conflict resolution.

Expected CP Outcome(s):

CP Outcome 1.1: State organs and institutions are more efficient, transparent, accountable, equitable and gender-responsive in planning and delivery of services;
CP Outcome 2.1: Vulnerable groups, particularly IDPs, disaster-prone communities, women and youth, benefit from opportunities for sustainable livelihoods;
CP Outcome 2.2: Local communities and national and District authorities practice more effective environmental, natural resource and disaster risk management;

Expected CPAP Output(s)

Those that will result from the project and extracted from the CPAP)

Executing Entity/Implementing Partner: Government of Timor Leste, Ministry of State Administration

Implementing Entity/Responsible Partners: United Nations Development Programme, in collaboration with the United Nations Capital Development Fund

Programme Period:	48 months
Atlas Award ID:	00075260
Project ID:	00087262
PIMS #	_4817_____
Start date:	01-04-2013
End Date	31-12-2017
Management Arrangements	DIM_____
PAC Meeting Date	_____

Total resources required	$ 56,865,399
Total allocated resources:	$ 56,865,399
LDCF (GEF)	$ 4,600.000
Co-financing:	
Government in kind (MCIE)	$ 1,600,000
Government parallel (PDD1+BESIK)	$ 48,429,799
UNDP cash	$ 300,000
UNDP in kind (LGSP)	$ 1,935,600
Total Co-financing	$ 52,265,399

Agreed by (Government): H.E. Mr. Jorge da Conceição Teme, Minister of State Administration RDTL 25/9/2013.
Date/Month/Year

Agreed by (UNDP): Mr. Knut Otsby, Resident Representative of UNDP Timor-Leste 25/9/2013
Date/Month/Year

Brief Project Description

Timor Leste is a least developed country with a growing population that remains largely dependent upon subsistence agriculture; it has one of the lowest HDI scores/ratings among ASEAN countries. The main climate change related threats are the increasing incidence of dry periods, together with a higher variability with less frequent but more intense rainfall. Despite projected increases in average annual rainfall, the projected further increase in rainfall variability, with most added rainfall falling in the present wet season, will progressively stress ecosystem functions in water provisioning and flood protection. Increasing occurrence of bush fires and the migration of invasive species, as also likely consequences of increasing mean temperatures, will further increase soil erosion and the incidence of landslides and flash-flood events.

Small scale infrastructure is particularly vulnerable to extreme rainfall events, causing erosion, landslides and flash floods as a result of the physical context and non-climate resilient designs, poor construction, and limited investment in operation and maintenance. Communities frequently become isolated when roads and bridges are damaged by localized extreme events and in the water sector many rural communities are dependent on unprotected wells or springs, as well as other surface water features such as rivers, lakes and streams.

The three focus districts selected, Baucau, Liquiça and Ermera represent the diversity of key climate variability risks and vulnerabilities, which the project aims to address. They combine relatively high population densities with relatively poor areas, vulnerable flood-prone coastal conditions and landfall-prone vulnerable mountainous terrain and areas with a projected increased drought period with areas of high groundwater vulnerability. The vast majority of the population in the selected districts depends on unprotected gravity-fed water sources which it uses for both domestic use and important subsistence and in some cases cash crop production (paddy rice and market vegetables).

Climate induced threats are further affected by the slowly decreasing protective and water storage functions of ecosystems, caused by drivers such as over-exploitation of forest and coastal areas resulting in rapid deforestation. The combination of climate variability-related pressures and other drivers means that village water supply systems dry out more often, and that baseline physical infrastructure, which is not protected from irregular and intense water flows, is degrading more rapidly.

Underlying causes contributing to this situation include basic geological and geographical factors (soil type, bedrock type, topography and land use practices), poor application of infrastructure construction standards and maintenance practices, and a social and institutional context that increases the vulnerability of the poor and women to climate risks. The desired situation that the project seeks to bring about is that the genuine needs of communities vulnerable to climate variability and change are fully reflected in local planning and budget processes so that the development prospects of these communities are secured in face of increasing climate risks. Barriers to achieving this situation include weaknesses in climate risk analysis, knowledge management and planning at sub-national level, financial constraints in resourcing the additional costs of building greater redundancy into rural infrastructure, a silo approach to local planning whereby ecosystem functions and services are not taken into account, and the limited incentives that exist to encourage local officials and decision makers to address climate related risks.

LDCF funds will be used by the Government of Timor Leste to address these barriers through 3 components. Component 1 will support the capture and dissemination of evidence on local climate risks and vulnerabilities for national policy influencing, the development of an overarching climate change policy framework and the establishment of a multi-stakeholder knowledge exchange platform. Component 2 will support the development of climate variability risk and vulnerability assessment tools and the integration of climate risks in local planning, budgeting, infrastructure design, construction and maintenance. This will be accompanied by substantial capacity development measures to strengthen the capacity of Local Administrations and service providers on climate resilient local planning/budgeting processes and infrastructure engineering and implementation. Component 3 will provide incentives for implementation of climate resilient local plans via investment grants for climate resilient small scale infrastructure and ecosystem services, which will directly benefit over 100,000 people. Environmental sustainability and project integration will be achieved through measures to protect ecosystem functions in the immediate vicinity of physical infrastructure covering 50,000 hectares, and by providing bio-engineering within infrastructure designs to improve climate resilience, thereby ensuring greater technical and financial viability and social impact overall.

LIST OF ACRONYMS & ABBREVIATIONS

AA	Administrative Agent
ADB	Asia Development Bank
AF	Asia Foundation
AusAID	Australia Government's overseas aid programme
BOSS	Business Opportunities and Support Services
CEDAW	Convention on the Elimination of All Forms of Discrimination
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
DDC	District Development Commission
DfID	Department for International Development (United Kingdom)
DIM	Direct Implementation Modality
EU	European Union
GEF	Global Environment Facility
GoTL	Government of Timor Leste
IGFT	Inter-Governmental Fiscal Transfers
ILO	International Labour Organisation
INAP	National Institute for Public Administration
IPCC	Intergovernmental Panel on Climate Change
IWDA	International Women's Development Agency
JP	Joint Programme
LA	Local Administration
LDCF	Least Developed Country Fund
LDP	Local Development Programme (UNCDF/UNDP)
LGSP	Local Governance Support Programme (UNCDF/UNDP)
LoA	Letter of Agreement
MCIE	Ministry of Commerce, Industry and Environment (former MED)
MAF	Ministry of Agriculture and Fisheries
MED	Ministry of Economy and Development (now MCIE)
MoF	Ministry of Finance
MoI	Ministry of Infrastructure (now MPW)
MPW	Ministry of Public Works (former MoI)
MSA	Ministry of State Administration
NDAF	National Directorate for Administration and Finance (MSA)
NDLA	National Directorate for Local Administration (MSA)
NDDL	National Directorate for Local Development (MSA)
NDIEACC	National Directorate for International Environmental Affairs and Climate Change (MCIE)
NDPACE	National Directorate for Monitoring, Planning and External Relations (MSA)
NDWRM	National Directorate for Water Resource Management (MPW)
NIM	National Implementation Modality
O&M	Operation and Maintenance (of infrastructure)
PCCSP	Pacific Climate Change Science Program
PDD	Local Development Funds for implementation of local plan activities
PDID	Local Development Planning Process
PFMCBP	Public Financial Management Capacity Building Programme
PNDS	Community-Driven Development Programme (AusAID)
R4D	Roads for Development project (AusAID / ILO)
SDDC	Sub-district Development Commission
SDP	Strategic Development Plan

SoS	Secretary of State
SoSE	Secretary of State for Environment
SSRI	Strengthening the Resilience of **S**mall **S**cale **R**ural **I**nfrastructure and Local Government Systems to Climatic Variability and Risk (LDCF Project)
UNCDF	UN Capital Development Fund
UNDP	UN Development Programme
UNFCC	United Nations Framework Convention on Climate Change
UNMIT	UN Integrated Mission in Timor-Leste
WATL	WaterAid Timor Leste
WB	World Bank

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1 SITUATION ANALYSIS

1.1 The Climate Change-induced Problem

1.1.1 Introduction to Timor Leste

Timor Leste, officially the Democratic Republic of Timor-Leste, is a sovereign small island state in Southeast Asia. It comprises the eastern half of the island of Timor, the nearby islands of Atauro and Jaco, and Oecusse, an exclave on the north western side of the island, within Indonesian West Timor (see map in figure 1). The country is about 15,410 km² (5,400 sq mi) in size. The population of East Timor is approximately 1.1 million. It has grown considerably recently, because of a high birth rate and because of the return of refugees. The population is especially concentrated in the area around the capital, Dili. Timor Leste lies between latitudes 8° and 10°S, and longitudes 124° and 128°E; it is part of Maritime Southeast Asia, and is the largest and easternmost of the Lesser Sunda Islands. To the north of the mountainous island are the Ombai Strait, Wetar Strait and the greater Banda Sea, to the south the Timor Sea separates the island from Australia, while to the west lies the Indonesian Province of East Nusa Tenggara. The highest mountain of East Timor is Tatamailau (also known as Mount Ramelau) at 2,963 meters (9,721 ft).

Figure 1, Map of Timor Leste with administrative boundaries and District names

The climate in Timor Leste is tropical and generally hot and humid, characterized by distinct rainy and dry seasons. The capital, largest city and main port is Dili, and the second-largest city is the

eastern town of Baucau. The easternmost area of Timor-Leste consists of the Paitchau Range and Iralalaro area. This area includes the first conservation area in Timor-Leste, the Nino Konis Santana National Park. It contains the last remaining tropical dry forested area within the country. It hosts a number of unique plant and animal species and is sparsely populated. The northern coast is characterized by a number of coral reef systems that have been determined to be at risk.

Timor Leste was colonized by Portugal in the 16th century, and was known as Portuguese Timor until Portugal's decolonization of the country. In late 1975, Timor Leste declared its independence, but later that year was invaded and occupied by Indonesia and was declared Indonesia's 27th province the following year. In 1999, following the United Nations-sponsored act of self-determination, Indonesia relinquished control of the territory and Timor Leste became the first new sovereign state of the 21st century on May 20, 2002. Despite its growing oil and gas revenues, the country's economy remains volatile, characterized by high unemployment, marked rural to urban inequality and widespread poverty. It also continues to suffer the aftereffects of a decades-long independence struggle against Indonesia, which damaged infrastructure and displaced thousands of civilians.

Timor Leste is a least developed country with a growing population that remains largely dependent upon subsistence agriculture. According to the Human Development Report 2011 of Timor Leste, entitled "Sustainability and Equity: A Better Future for All", it is placed 147th out 187 on the Human Development Index (HDI), with a score of 0.495 the lowest among ASEAN countries, with about 40% living in income poverty (NHDR, 2011)[2]. This is essentially the same as in 2010, when a score of 0.491 produced the same rank. Many rural communities live in remote and inaccessible areas often with only partial access to services. In these areas local infrastructure is often of poor quality (more than 50% of rural roads are currently rated as being in 'bad condition' – SDP, 2011), limited in extent and rapidly degrading due to mountainous terrain, flooding and landslides. Communities frequently become isolated when roads and bridges get washed away or blocked by these localized extreme events. In the water sector many rural communities, including almost all in the most remote areas, are dependent on unprotected wells or springs, as well as other surface water features such as rivers, lakes and streams. Poorly maintained or non-existent drainage is a further problem in these communities which are subject to flood events with the potential to destroy or damage public infrastructure, housing, crops and economic assets.

Since independence from Indonesia a decade ago the country has made significant progress in establishing a functioning government and public service, as well as a political system with the ability to reflect the wider needs of society within a democratic framework and system of values. The country has a multi-party political system, a growing NGO sector, a free and independent press and a government that recognizes that is legitimacy is based on openness, accountability and transparency. Timor Leste has recently launched a transparency in government initiative, recognizing the risks that have encumbered other natural resource rich developing nations. The country has also been rapidly moving towards increased administrative and fiscal decentralization with its 13 Districts and 65 Sub-districts. The international community continues to provide substantial support to the country recognizing that sustained engagement as this early stage in national development and nation building provides the best opportunity for ensuring long term and sustainable peace, security and prosperity. The recent Presidential and Parliamentary elections (2012) have been peaceful and fair and the new Government has to a large extend promised continuity of development policies, including further decentralization and a focus on rural poverty reduction.

[2] The data presented in this report is subject to discussion, although this does not affect the general development progress and trends. See e.g. www.laohamutuk.org/econ/HDI10/11NHDREn.htm

1.1.2 Climate of Timor Leste

Temperature

Timor-Leste has a tropical climate[3] in which the temperature varies little throughout the year, i.e. an average of around 27°C in coastal areas and around 25°C in the highlands. However, the diurnal (daily) variation can be larger than the monthly variation throughout the year. At Godo and Sumbawa Besar, Sumbawa, for example, the difference between maximum temperature (around 2-3 pm) and minimum temperature (just before sunrise) ranges from 7°C o to 9°C during the wet months of December to March, and up to 13°C towards the end of the dry season. Temperature decreases with altitude; for example, in Maubisse (located at 1400 m above sea level) the annual mean temperature is 19.8°C while in Liquiça (located at 25 m above sea level) it is around 27.4°C. The estimated cooling with height is around 5.5°C per 1000 meters (Keefer 2000; Yance 2004).

Rainfall

Timor-Leste's rainfall is dominated by the Asian monsoon. It has a wet season and a dry season with transition periods in between. The average wet season starts around December-January and lasts for a few months, depending on the region (Tanaka 1994; Kirono 2004). The northern part of the country, influenced by the Northern Mono-modal Rainfall Pattern, has 4-6 wet months from December to April or June. The southern part of the country experiences the Southern Bi-modal Rainfall Pattern which provides 7-9 wet months with two peaks, one from December and the other from May. The annual rainfall ranges from 1000mm on the northern coast, to 1500-2000mm in the central highlands and over 2500mm in the higher altitude areas which are mainly located in the west. There are some exceptions to the rule of 'higher-altitude-higher-rainfall' as pointed out by Fox (2003) who gave the examples of Liquiça and Viqueque at low altitudes (25 m and 46 m respectively) but with relatively high annual rainfall (1349mm and 1610mm respectively). The year-to-year variability in total rainfall can be large. For example, in the Soe area of West Timor, the average annual rainfall is 1357 mm and ranging from 785 to 2462 mm (Monk et al. 1997). In addition, rainfall is not equally distributed even in wet months and intensity varies considerably (Keefer, 2000). Another important aspect of rainfall patterns is the fact that much rain comes in torrential downpours (Sandlund et al. 2001). Keefer (2000) report that rainfall intensity is usually greatest during the North West Monsoon (December-March) period, particularly those in northern locations, while in the southern sites many of the high daily rain totals were recorded in the May-August period. In the available long-term data set, the two highest daily rainfall amounts were 604mm at Oe-Silo (Oecussi) in December and 509mm at Soba (Laga) in February. Moreover, daily totals of up to 800mm or 50% of the annual rainfall may occur unrecorded in mountainous areas of Timor (Crippen International 1980, quoted in Monk et al. 1997).

Relative humidity and evaporation

The country has high humidity throughout the year. On the north coast, the mean monthly relative humidity ranges from 69 to 78% (Yance 2004). On the south coast, it varies from 73 to 80%, while in the highlands it varies from 75 to 78%. Potential evaporation is one of the key factors of the hydrological cycle. It provides an indication of maximum possible evaporation under saturated surface conditions. The potential evaporation for Timor-Leste has been summarised by SCIRO:

- In the lowlands, the monthly evaporation ranges from 60 to 230 mm while in the highlands it is 100 to 190 mm per month;
- The average daily potential evaporation was in the range of 5.2 to 6.5 mm in the lowlands and 2.6 to 4.9 mm in the midlands.

Potential evaporation exceeds rainfall between May and October for Laga and Baucau, and between July and November in Viqueque and Ossu (Figure 2).

[3] Climate change in Timor-Leste – a brief overview on future climate projections, SCIRO, Dewi Kirono, Prepared for the Department of Climate Change and Energy Efficiency (DCCEE), September 2010

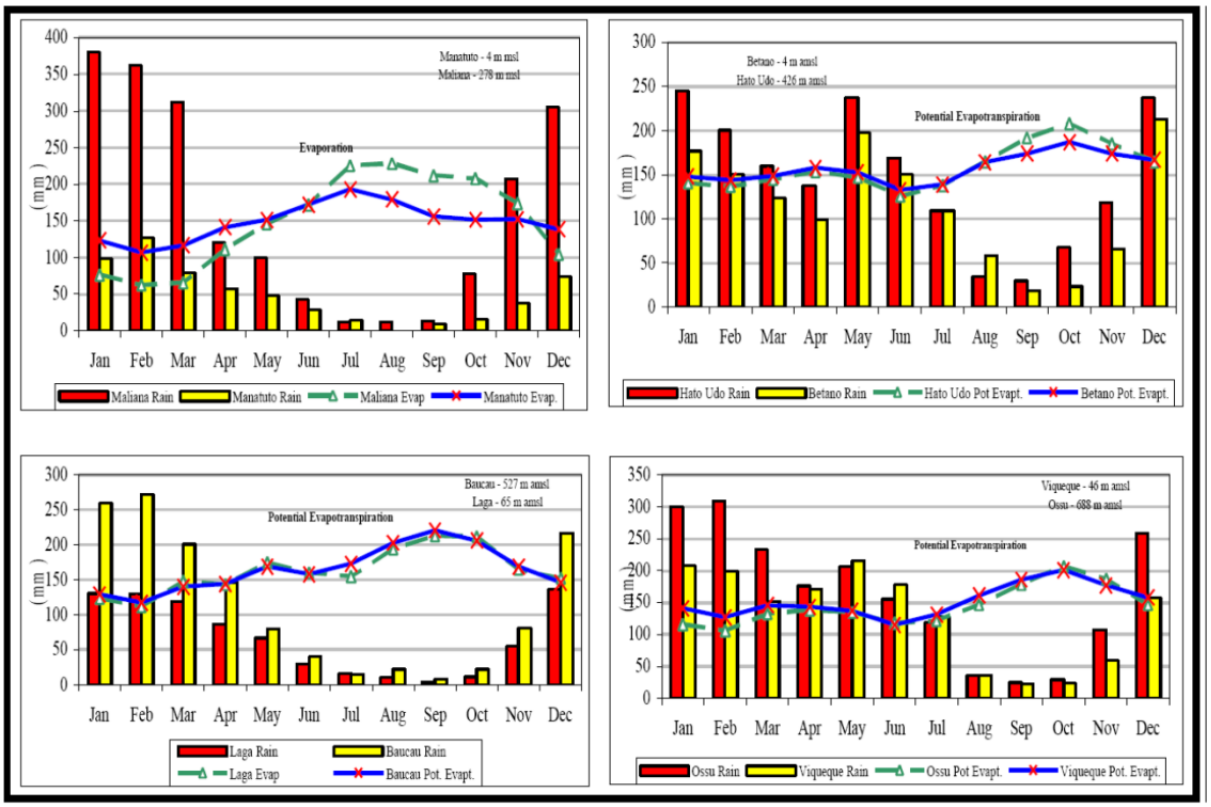


Figure 2, Mean monthly potential evaporation (green and blue dotted lines) and rainfall (red and yellow bars)at selected sites in East Timor; top-left Manatutu (yellow and green) and Maliane (red and blue), top-right Hato Udo (red and green) and Betano (yellow and blue), bottom-left Laga (red and blue) and Baucau (yellow and green), bottom-right Ossu (red and blue) and Viqueque (yellow and green); (Yance 2004).

According to its rainfall and temperature character, the country can be defined as having three zones (Sandlund et al. 2001):

- The northern coast (mean temperature > 24°C, annual rainfall < 1500 mm, dry season of five months);
- The mountain zone (temperatures < 24°C, rainfall > 1500 mm, dry season of four months); and
- The southern coast (temperatures > 24°C, heavier rainfall, dry season of three months).

Extreme weather events - Tropical cyclones

Formation of tropical cyclones generally occurs within a band between 5° and 25° from the equator. Cyclones bring exceptionally high rains and winds. In the past, they occasionally develop in the Banda, Arafura, Timor and Sawu seas, especially during April and May and move in a south-westerly direction, with a mean occurrence over the Timor-Leste region of around 0.2 per year.). Past cyclones caused substantive human and animal casualties, many boats and buildings were destroyed, and disrupted shipping and oil and gas production facilities.

Climate processes

El Niño Southern Oscillation (ENSO) has an important influence on the inter-annual rainfall variability over the maritime continent, and for Timor-Leste a strong association between the southern oscillation index (SOI) and dry season rainfall, and between the SOI and wet season onset has been reported. In the 1997-98 and 1982-83 El Niño events, the annual rainfall in Dili was found to be the lowest and second lowest, respectively, in 48 years of records (1950 to 1999). In El Niño years, places such as Ainaro and Lautem experience annual rainfall that is up to 50% less

than average, while others such as Bacau and Oecussi receive greater rainfall than average (Barnett et al. 2007). The wet season is delayed by 2 to 3 months in El Niño years, and rainfall can be higher than the annual average in the following year. The former has implications for crop planting and food security, while the latter has implications for flooding. The El Niño events generally lead to prolonged drought. Evidence from the Department of Agriculture suggests that Timor-Leste experiences agricultural and hydrological drought once every four years (Dolcemascolo 2003). During these droughts, rainfall is diminished but still begins at the end of November. In an El Niño year, rainfall is not only diminished but the onset of rains is delayed as well. ENSO also has an influence on sea level and wave height over the area of Lombok and Sumbawa (Anonym 2010), which are neighbouring islands of Timor-Leste. It was reported that in El Niño year, the sea level is 20 cm below normal while in a La Niña event it is 10 to 20 cm above normal. In La Niña years, the wave height increases by 1 to 2.5 m over the north coast and by up to 3 m on the south coast, relative to the maximum normal wave height of 1.5 m. The increase in sea level and wave height, along with high rainfall intensity in La Niña events increases the risk of coastal erosion and inundation. Furthermore tropical cyclone activity is reported lower during El Niño events, and higher during La Niña events (Kuleshov et al. 2009).

1.1.3 Climate Change Scenarios and Climate Variability

The following UNDP definitions are used, in line with the United Nations Framework on Climate Change (UNFCC):

> **Climate change:** A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.
>
> **Climate variability:** Variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all spatial and temporal scales beyond that of individual weather events, possibly due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability).

There are a number of models which give various projections for climate change in Timor Leste. The Timor Leste NAPA 2010 document[4], utilizes IPCC (2007)[5] and CSIRO (2010)[6] information. The IPCC projections for Timor Leste are a composite of regional Global Climate Model (GCM) cells related to the regional position of Timor Leste, rather than specifically for Timor Leste itself. They project an increase in temperature of approximately 2°C, and an increase of rainfall of approximately 6% by 2050.

Further work has been done within the Ministry of Agriculture[7]. This work also used Commonwealth Scientific and Industrial Research Organisation (CSIRO) data, as well as data from other international GCMs. This work used an elimination and consensus method of these GCMs to

[4] National Adaptation Programme Of Action (NAPA) On Climate Change. December 2010. http://www.adaptationlearning.net/sites/default/files/Timor-Leste%20NAPA%20-%20December%202010.pdf

[5] IPCC. 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, 94 pp. http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml

[6] CSIRO. 2010, Climate change in Timor-Leste – a brief overview on future climate projections http://www.cdu.edu.au/itl/documents/East-Timor-review-for%20submission%20to%20DCCEE.pdf

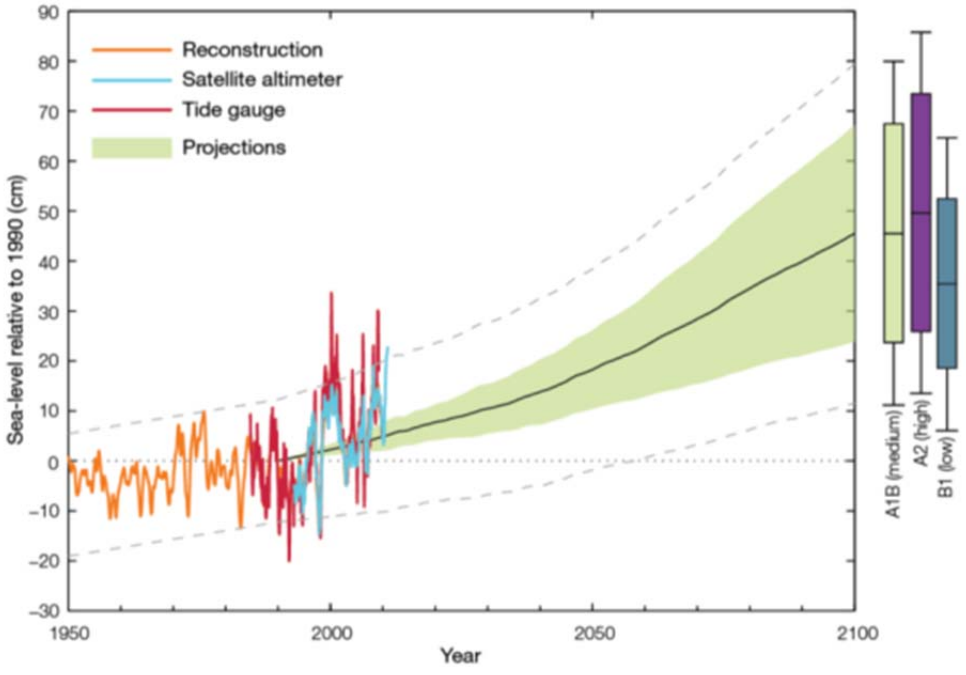
[7] Seeds of Life, 2010. Projected Changes to Rainfall and Temperature in Timor-Leste due to Climate Change and it's Impact on Agriculture. http://seedsoflifetimor.org/wp-content/uploads/2011/11/CC_SoL-8-page-FINAL.pdf

define the most likely outcome of climate change for Timor Leste by 2050. The results were a 1.5°C increase in temperature and a 10% increase in rainfall. These outcomes were strengthened by the simultaneous but independent research carried out by the Pacific Climate Change Science Program (PCCSP)[8] which projected an increase in annual rainfall of >5%, and an increase in temperature of between 0.7°C and 3.2°C, (+1.5°C in 2055) depending on emission scenarios (*emission scenarios* describe the different possibilities of quantities of CO^2 that will be released or sequestered depending on global socio-economic development trajectories).

From these different projections, which essentially all use baseline data from the same evolving sources, the over-riding consensus is that the certainty of mean **temperature increase** is high, most likely approximately 1.5°C higher by 2050 than baseline 2000 temperatures. The most severe impact of higher temperatures in Timor Leste is likely to be felt in low lying areas, which creates added stress through hotter and longer heat waves resulting in extended droughts and dry periods. The number of days without rain may increase as El Nino episodes become more frequent, and the drying factor of the higher temperatures will compound climate change impacts.

A global consequence of the existing and projected temperature increase of the planet is **sea level rising**, which will also affect Timor Leste. Mean sea level is projected to continue to rise (PCCSP 2010) over the course of the 21st century. Projections from all climate change models simulate a rise of between approximately 5–15 cm by 2030, and 20–60 cm indicated by 2090. Since sea level rise is a physically consistent response to increasing ocean and atmospheric temperatures, due to thermal expansion and the melting of glaciers and ice caps, there is very high confidence in this direction of change. The observed and projected relative sea level change near Timor Leste is presented below in Figure 3 (PCCSP 2010, pg 54).

Sea level rise will especially affect coastal areas where natural ecosystems, like mangroves, will be under pressure because of increase wave activity and erosion. Furthermore coastal areas will suffer from an increased infiltration of salt water into the fresh ground water aquifers, which are likely to affect water resources for consumption and agriculture, especially since most coastal areas depend on pumped ground water sources.

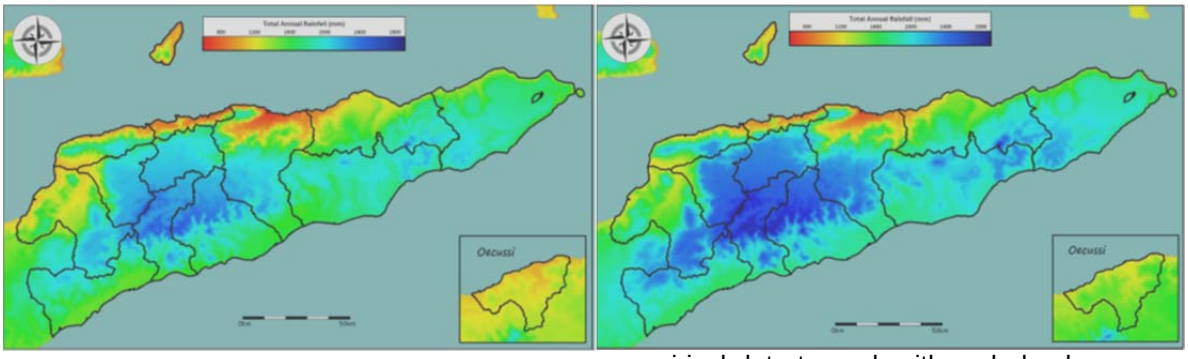


[8] PCCSP 2010. Country Reports, Ch3. East Timor.
http://www.cawcr.gov.au/projects/PCCSP/Nov/Vol2_Ch3_Easttimor.pdf

Figure 3, Observed and projected relative sea level change near Timor Leste (PCCSP 2010)

The current rainfall distribution in Timor Leste is presented in Figure 4 Left, which highlights the areas of on-average low and high rainfall with respectively red and blue colors. The north coast of Manatuto, Dili, Baucau, Mantuto and most of Oecussi are prone to drier average annual rainfall than other areas of Timor Leste with a precipitation range of between 600 and 1200 mm per year. The central highlands on the other hand are significantly wetter (between approximately 2000-2800mm of rain per year) especially between Maubisse in Ainaro and Atsabe in Ermera, down to Ainaro as well as southern Aileu and Northern Manufahi.

Projected **rainfall** changes are less certain, but the consensus is for a slight increase in rainfall of between 5% and 10% to 2050. This does not however take into account the extremely important element of **climate variability**, both inter- and intra-annually. “Overall AK-2010 analysis suggests that rainfall events are expected to become less frequent but more intense.” (Kirono 2002; Laso and Boer, 2006) (p22). Intra-annual (monthly) rainfall distribution is thus projected to change, with almost all of the increase in rainfall occurring during the current wettest months, i.e. December to February. Whether and how the intra-annual variability will change is still unclear. This variability in distribution is very difficult to model, mainly because there is a severe lack of available historical



empirical data to work with and also because it is highly dependent on difficult to model large scale meteorological process such as the El Niño/La Niña-Southern Oscillation.

Figure 4, Left: current annual rainfall; Right: Projected annual rainfall for 2050; (CSIRO data- Seeds of Life 2012)

Comparison of the existing rainfall distribution (Figure 4 left) with the climate change projections for 2050 (Figure 4 right) shows a similar pattern of rainfall distribution, though the projected increase in average rainfall reduces the size of the area under very dry conditions while exaggerating the rain intensity and humidity in areas already receiving high rainfall. Areas likely to be vulnerable to high rainfall associated threats will include most of Aileu, Ermera, Ainaro, South Bobonaro and north Manufahi. In contrast a large part of central Manatuto. Oecussi is likely to become less prone to low annual rainfall. The reduction in ‘area under very dry conditions’ however only describes the ‘total annual rainfall’ and does not imply a reduction in area under water scarcity during the dry season.

Apart from the different climate change and variability projection as described above, historical data and trends are also important to acknowledge. Existing climate variability trends become apparent when factoring in distribution of annual rainfall next to general average increase. Especially in the more northerly areas of Timor Leste with a more dominant mono-modal rainfall pattern, projected higher average annual rainfall which seems to ameliorate some of the drought potential in the drier areas, may not actually fall at a useful period for agriculture or aquifer recharge.

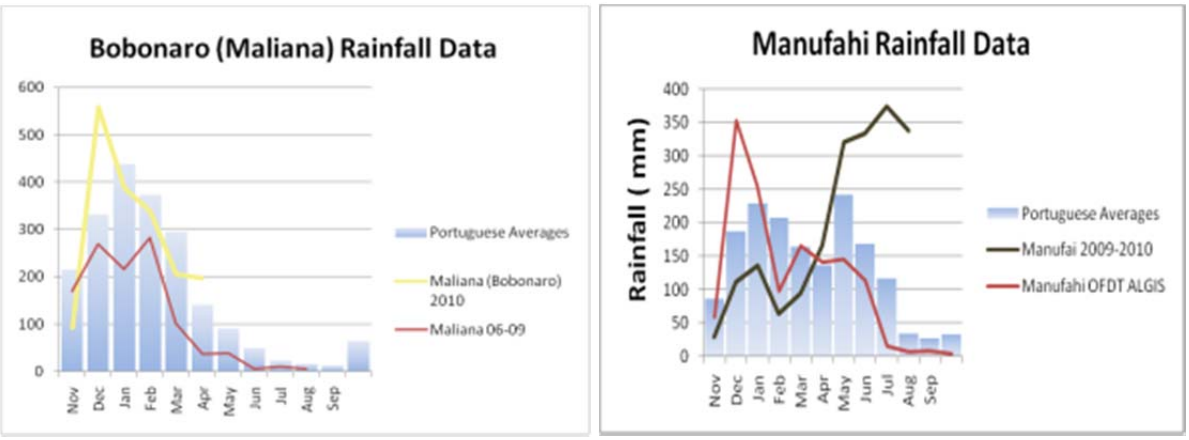


Figure 5; Left, average rainfall distribution in central northern Maliana area of Timor Leste, with a mono-modal distribution pattern; Right, average rainfall distribution in Southern Manafu, with a bi-modal distribution pattern

Figures 5 show the type of variability in rainfall that can be expected in a La Niña year. The yellow and black lines, compared with the blue bars show how rainfall can vary between the long term monthly averages and individual years' monthly records. It can clearly be seen that Manufahi between May and August had many times its usual rainfall quantity during the La Niña of 2010. El Niño episodes on the other hand have the opposite effect where wet season quantities are normally far below average and the dry season may last longer.

The availability of localized data on climate variability and especially variability in precipitation patterns is important. Figure 6 below indicates that most of the increase in rainfall in Maliana and Viqueque Towns is during January and February, the two currently already wettest months, and a small change in May for the bi-modal Viqueque.

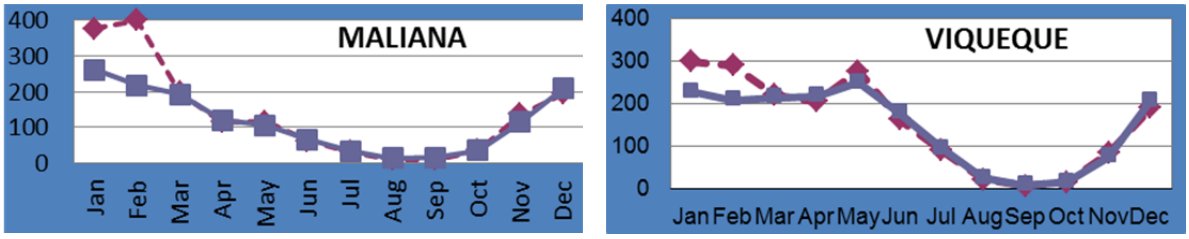


Figure 6, Current and 2050 (dashed line) rainfall projections for Maliana in Bobonaro District and Viqueque town in Viqueque District (Seeds of Life 2010)

IPCC global models also indicate that in South-East Asia **extreme weather events** associated with El-Niño have been both increasing in frequency and intensity in the past 20 years (IPCC, 2007). This has had an impact on Timor-Leste climate patterns with estimated increased incidences of extreme weather events (Kirono 2002; Laso and Boer, 2006). (p19). Another consequence of increased climate variability is the occurrence of more extreme temperature events and prolonged periods of drought, affecting water resources and putting increased stress on ecosystems as well as humans.

1.1.4 Climate Change and Variability Impacts and Vulnerabilities

How the above described projections of climatic change will impact on Timor Leste's natural environment, agricultural systems and infrastructure and subsequently its population and

livelihoods depends greatly on the geological and geographical characteristics of the locations in question (Barnett et al. 2007[9]; Molyneux et al 2012[10]). Spatial variability in these factors is high throughout the island, meaning different types and degrees of vulnerability will need to be identified, quantified and then addressed at the local level. Government strategies and development plans that strive to reduce poverty and increase and strengthen livelihood opportunities must therefore understand the pressures of a changing climate and highlight the importance of improved service delivery, intervention design, construction and maintenance of both the physical infrastructure itself as well as the governance mechanisms that support it. This indicates an important role for Local Administrations and requires close coordination and collaboration between central level Agencies and Local Administrations. It also requires improved collaboration, especially at the local level, between public sector, private sector, civil society and indeed community organizations and individual households.

To better understand the impacts and –vulnerabilities of the presented Climate Change or Climate Variability scenarios on rural livelihoods in Timor Leste, a brief analysis is provided of risks and vulnerabilities in relation to the livelihoods concept. Thereafter Climate Change and Variability impacts and vulnerabilities are assessed and presented from the perspectives of key development sectors.

Livelihoods Perspective

As most of Timor Leste's population remains dependent on subsistence farming, the concept of "livelihoods" is applied first, upon which Climate Change or Climate Variability impacts and -vulnerabilities are then assessed. Livelihoods[11], according to the UK's Department for International Development (DfiD 2001) who pioneered the concept of livelihood-based approaches in the 1990's and developed the Sustainable Livelihood Framework (Figure 7), consists of five key assets: human capital (H) (e.g. skills, knowledge, health etc.), physical capital (P) (e.g. infrastructure in the form of houses, roads, communication etc.), natural capital (N) (e.g. land, water, forests, biodiversity etc.), social capital (S) (e.g. networks, group-membership, informal relationships) and financial capital (F) (e.g. cash, liquid assets and bank-deposits). A sustainable livelihood by this definition is one that can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local-level, in short and long terms.

Looking at livelihoods in Timor Leste through a climate change lens, the 'vulnerability context' box on the left in Figure 7 is of primary importance. Shocks, trends and seasonality are all influenced by climate variability, and any increase in variability caused by climate change will have direct knock-on effects on to its predominantly agricultural livelihoods (likely negative effects[12]), and specifically on the natural (N) and physical (P) capital assets. Any change in N and P will rapidly (particularly in developing, highly agricultural dependent, societies like Timor Leste) influence subsistence livelihoods and/or financial capital (F), which in turn can have serious implications for human capital (H). Where decreased human and financial capital occurs, the pressure on natural and physical capital to provide services such as food production and water supply tends to increase, which in turn often results in overexploitation and degradation of resources. [13]

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[9] Barnett, J., S. Dessai, and R.N. Jones. 2007. Vulnerability to climate variability and change in East Timor. *Ambio* 36: 372-378.

[10] Molyneux, N., G. Rangel da Cruz, R.L. Williams, R. Andersen and N. C. Turner. 2012. Climate Change and Population Growth in Timor Leste: Implications for Food Security. *Ambio*

[11] DfID, 2001, *Sustainable Livelihoods Guidance Sheets*, Section 7, "Sustainable Livelihoods in Practice", DfID.

[12] Molyneux, N., G. Rangel da Cruz, R.L. Williams, R. Andersen and N. C. Turner. 2012. Climate Change and Population Growth in Timor Leste: Implications for Food Security. *Ambio*

[13] Our Common Future, Report of the World Commission on Environment and Development, World Commission on Environment and Development, 1987. Published as Annex to General Assembly document

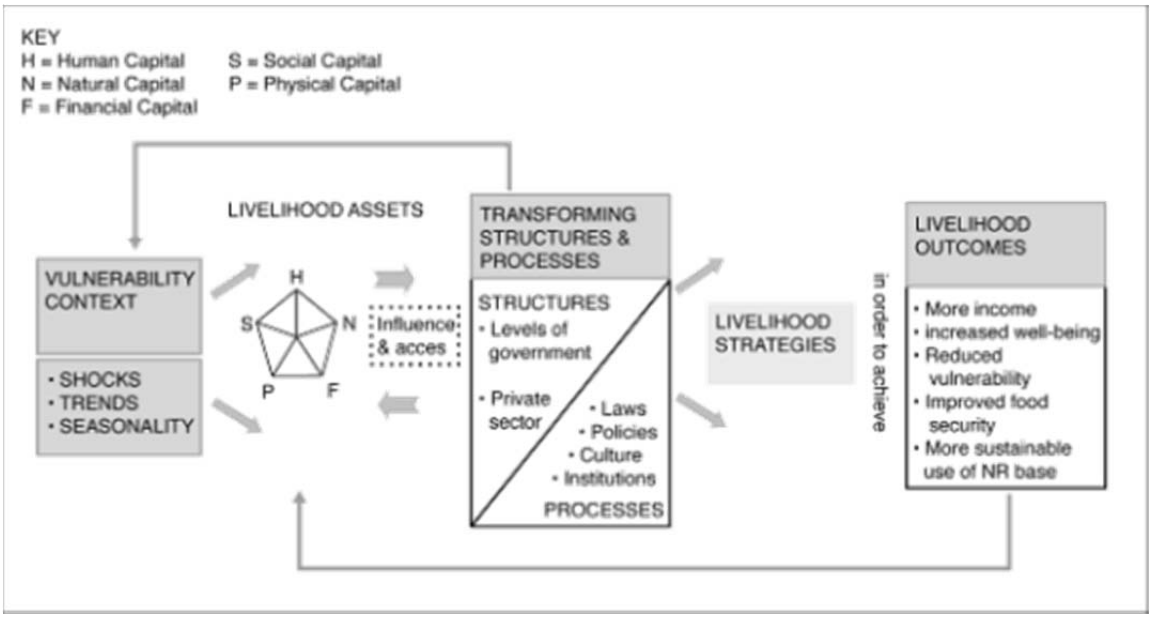

Figure 7, Sustainable livelihoods framework (DfID)

This means that the shocks, trends and seasonal pressures imposed on to Timorese communities' natural and physical capital assets can seriously impede on the sustainable development of the country and can seriously undermine the positive actions that the government is taking to improve livelihoods and reduce poverty. As discussed these pressures are likely to get worse as the effects of climate change manifest themselves in changes in weather patterns, in particular temperature increases and changes in the distribution and intensity of rainfall events.

Impacts on Surface Water

As presented in the previous section, there is a projected increase in annual average rainfall in Timor Leste. The additional rain, however, will mostly fall during the existing wet season of December to February when it is often not required to improve crop yields (though more evenly distributed rainfall within these months would likely reduce the incidences of yield declines due to dry spells during pollination of some crop species[11]). Similarly for aquifer recharge, the higher intensity of rainfall events generally leads to extra surface run-off rather than infiltration once the soil is saturated, limiting the benefits of the extra amount of projected precipitation. It is thus likely that the increases in rainfall projected between December and February and in May (for bi-modal locations) by the models will only serve to exacerbate problems associated with erosion, landslides and floods.

Projected increases in rainfall variability can lead to decreases in precipitation for extended periods, causing water availability and access problems, which undermine current water distribution infrastructure and communities' abilities and rights to access water for household and agricultural requirements. Springs are the main water source for the rural eastern part of the country and the second main source in the rural central and western areas. According to the SDP 2010, just 57% of people in Timor-Leste have access to an improved drinking source (either piped water, protected well or hand pump, tanker or bottled water) and just 25% to improved sanitation facilities. The source of drinking water is important because potentially fatal diarrheal diseases, such as typhoid, cholera, and dysentery, are common in Timor-Leste, especially the prevalence of waterborne diseases among young children. According to the SDP 2010, there are about 1,200 schools across the country, 600 of which (mostly rural schools) do not have a safe, piped water supply. Sanitation at schools with no water supply is a serious health risk that threatens the

A/42/427, Development and International Co-operation: Environment August 2, 1987. Retrieved, 2007.11.14

development of children. Many schools have toilet blocks, but have no water for flushing or washing and other hygienic behavior. Attendance at schools is seriously affected by this lack of toilet facilities, which also creates gender inequity since the increased requirement of fetching water often leads to children, especially girls, being kept at home to support this household activity. Sustained school enrolment is thus negatively affected by decreasing access to water sources and deteriorating water quality. Overall Timor Leste is still underachieving in terms of MDG 7 on coverage of drinking water and sanitation and increased climate variability and change is likely to further impede achieving MDG targets.

NAPA 2010 therefore prioritized water as one of two sectors most likely to be severely affected by climate change. “Climate change could result in an increased amount of rain received throughout the year… Rainfall may come in the form of fewer but more intense events. El Nino events which result in delayed rain and less rain may become more severe. This has far-reaching implications relating to drought, floods, access to water and water quality ....” (NAPA page 26).

Impacts on Ground Water

Groundwater availability in Timor Leste is likely to be severely impacted by climate change: “climate change and seasonal climate variations are likely to cause rapid impacts to Timor-Leste groundwater resources, such as seawater intrusion and lowering of water levels. Current variations in natural springs and groundwater levels show that, in many areas, groundwater availability relies on regular recharge from the rainfall of each wet season. The rapid groundwater response to seasonal climate variations shows the impacts of climate change are likely to affect groundwater over a short time period (i.e. over a period of months) in many areas of Timor-Leste.” (ADB: 2004).”

More recent work of the National Directorate for Water Resource Management, with support from BESIK, shows that there is oversupply of ground water in certain localities, while in other areas (the yellow and orange areas in Figure 9) the picture is less clear and more variable. The National Directorate recently produced an Aquifer – Hydrogeology map for Timor Leste (Figure 8), indicating which areas have good access to groundwater and which areas are not associated with easily available aquifers. Overlaying this map with projected rainfall variability data produces Figure 9 providing an indication of areas that are likely vulnerable to ground water depletion. The areas marked in yellow and orange indicate where communities will most likely have difficulty accessing ground water and finding springs with continual discharge.

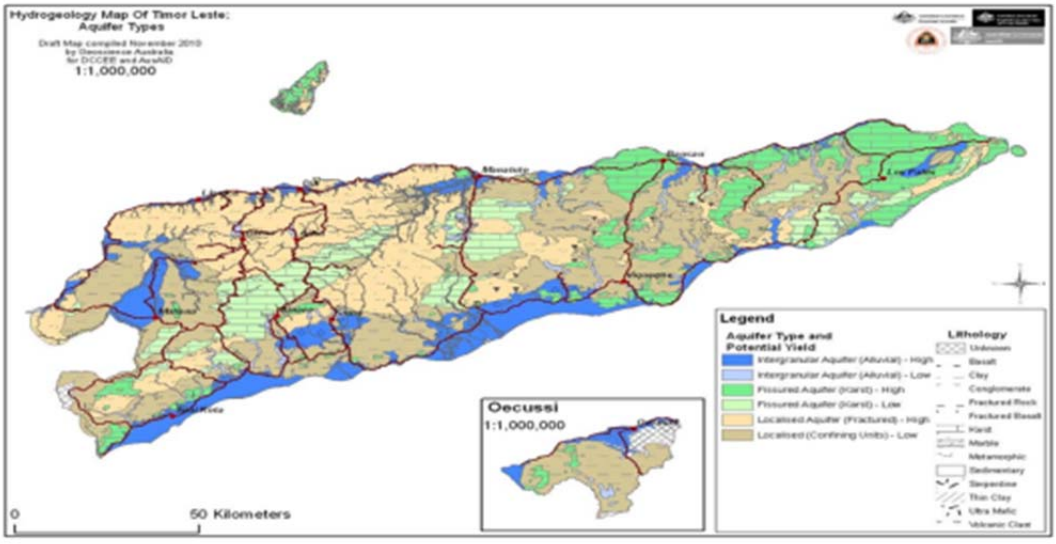

Figure 8, Hydrogeological map showing rock type and associated aquifer potential

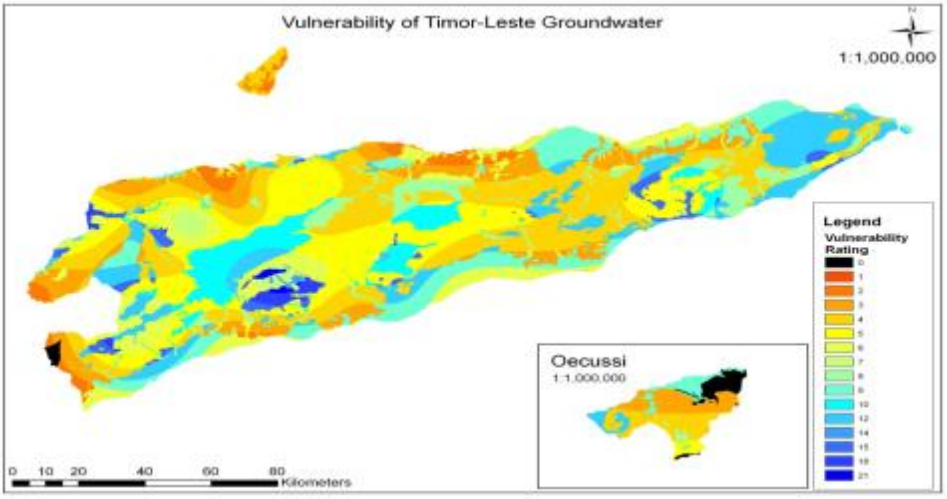

Figure 9, Groundwater vulnerability rating due to climate variability impact on existing groundwater sources, including springs (NDWR / BESIK 2010).

The diversity and complexity of circumstances highlights the need for a good localized ground water monitoring system in Timor Leste.

Impacts of Extreme Weather Events

Climate Change will also increase the intensity of extreme weather events, potentially causing localized landslides and floods, as well as the long term effect of erosion. The areas prone to heavy rains and subsequent flooding are presented in Figure 10 below. The Figure shows that risk of flooding mostly occurs in streams and along the coast line.

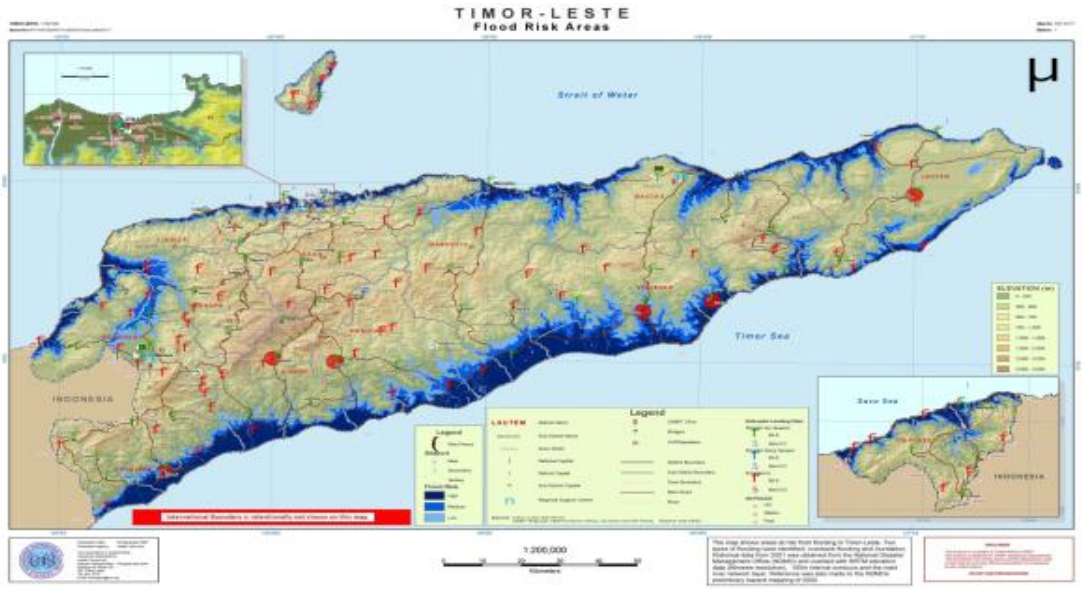

Figure 10, Map of high risk flooding areas in Timor Leste. (UNMIT)

Physical vulnerability varies across the island, mainly due to topographic differences and differences in elevation. Areas most vulnerable to landslides due to increased intensity of extreme weather events are presented in Figure 11 below. Although occurrences of landslides are likely to increase in the whole country, high risk areas are mainly identified in the more mountainous inlands of Timor Leste.

Figure 11, Landslide hazard map

Impacts on Agriculture

Subsistence agriculture activities in Timor Leste are often performed on marginal land, generally considered unsuitable for agriculture. As mentioned, there is already a perceived earlier start and later end to the rainy season at higher elevations and in the south. Overall annual rainfall averages also generally increases with elevation, while temperature increases in especially low lying (coastal) areas create added stress through hotter and longer heat waves resulting in extended droughts[14] and dry periods. The number of days without rain may increase as El Nino episodes become more frequent, and the drying factor of the higher temperatures will compound the desiccation effect on crops.

Geological differences have a large influence on whether access to water is guaranteed year round, or whether water sources dry up rapidly or gradually at the onset of the dry-season. From an agricultural perspective elevation, geology and pedology also play a large role in determining whether farmers have a high risk of wet season crop failure and any opportunity of dry season cultivation. The vast majority of **agriculture activities** are rain-fed subsistence crop production based.[15,16,17] Some **irrigated rice crops** are found on the flatter coastal plains, the major rice producing districts being Baucau, Bobonaro, Manatuto on the north coast and Viqueque on the south coast. These Districts account for about 77% of total production. While there is not enough water to feed existing or proposed irrigation schemes, Timor-Leste receives enough rainfall annually to grow crops in all lowland areas if it can be stored through the dry season. New sources of water must therefore be found to supply those schemes and according to the SDP 2010 abundant annual fresh water currently flows to the sea with very few systems in place to capture and store this water. The feasibility of dams and reservoirs is not yet assessed, although the Government is planning to conduct a study. However, the geological conditions in Timor Leste with permeable unstable soils will make it technically challenging in most instances.

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[14] "…drought is a 'prolonged absence or marked deficiency of precipitation', a 'deficiency that results in water shortage for some activity or for some group', or a 'period of abnormally dry weather sufficiently prolonged for the lack of precipitation to cause a serious hydrological imbalance'. Drought has been defined in a number of ways. Agricultural drought relates to moisture deficits in the topmost 1 metre or so of soil (the root zone) that affect crops, meteorological drought is mainly a prolonged deficit of precipitation, and hydrologic drought is related to below-normal stream flow, lake and groundwater levels. A mega-drought is a long drawn out and pervasive drought, lasting much longer than normal, usually a decade or more." Bates, B.C., Z.W. Kundzewicz, S. Wu and J.P. Palutikof, Eds., 2008: Climate Change and Water. Technical Paper of the Intergovernmental Panel on Climate Change, IPCC Secretariat, Geneva, pg 171.

[15] Da Costa, H. 2003. The evolution of agricultural policies in East Timor. Agriculture: New Directions for a New Nation - East Timor (Timor-Leste), Edited by Helder da Costa, Colin Piggin, Cesar J da Cruz and James J Fox, ACIAR Proceedings 113

[16] Tilman de sa Benevides, F. 2003. Cropping systems in East Timor. Agriculture: New Directions for a New Nation — East Timor (Timor-Leste), Edited by Helder da Costa, Colin Piggin, Cesar J da Cruz and James J Fox, ACIAR Proceedings 113

[17] Oxfam, 2008. Oxfam Australia Timor-Leste Food Security Baseline Survey Report, http://www.oxfam.org.nz/resources/Timor-Leste%20Food-Security-Baseline-Survey.pdf

Since local rice production could not meet demand in the past, the government has intervened in the market to avoid food shortages by importing rice in large amounts from Thailand, Vietnam and Indonesia and selling it at subsidized prices. A negative effect of this food security policy on the goal of Timor Leste to be self-sufficient in rice production by 2020 is, however, that smaller scale rice cultivation has become uneconomical for farmers, which likely has implications for small scale irrigation investments and sustainability. The exact economics of small scale irrigation in Timor Leste is yet unknown and further studies will be required to assess the impact of food security policies on its sustainability.

Cash crops are grown to be traded or sold by farmers. Coffee, candlenut and coconut are popular cash crops in Timor-Leste. Coffee accounts for around 80% of our non-oil exports with annual exports of 12,500 tons. It is estimated that over 50,000 families are coffee producers and are dependent upon income from the crop. The main production areas are Aileu, Ainaro, Bobonaro, Ermera, Liquiça and Manufahi, with Ermera accounting for half of the total coffee crop. Many of the issues discussed above are also relevant to the cash crops sector where yields are also very low, farming practices are far from optimal and farmers need access to expert advice and assistance. Land ownership is also an issue: for example, larger tracts of land are involved in coffee plantations and disputes can hinder investment decisions. High-value agricultural products suitable for the domestic market include vegetables and fruit, such as rambutan, peaches and plums. Most of these products are currently imported, e.g. the volume of fruit and vegetables imported in 2007 had a total value of US$4.5 million (SDP 2010). To increase local production, the Government wants to encourage the supply of high-value fruit to urban markets on a small scale through backyard production of a few trees per household to provide additional income. There is also support for developing large scale vegetable production close to urban centers with supply agreements to large buyers, such as markets, hotels and restaurants. This would involve clustering producers around shared infrastructure, such as water pumps and pack houses, to achieve a critical mass of production to facilitate supply contracts (SDP 2010).

According to the 2010 Census of Population and Housing, about 80% of households in Timor-Leste rear **livestock**. Numbers are however low and traditional husbandry is generally of low quality and with little inputs. Animals are generally let loose in the open on communal land with little food subsidies provided, as there is little cultivation of grass or other fodder. Water and livestock connections are weakly documented, but since most farmers have only a few animals grazing on communal lands this usually makes them mobile enough to travel to various water sources and therefore limiting the dependence on any one spring. Drying up of springs in the dry season is anticipated to become a greater problem with climate change, though.

Also NAPA stakeholders consistently identified a wide range of concerns for the agro-forestry, agriculture and livestock sectors as a result of climate change. “Water is a critical resource. Water supply, and in particular lack of water in the dry season, is the most important existing environmental constraint on agricultural production”, leading to “...Increased frequency of water shortages for agriculture as well as rising demand through increased evapotranspiration, as well as rising water needs for livestock, reduced livestock productivity; reduced fertility and reproduction leading to decreased income, and to increased price of products.” (NAPA page 25 and 26). During the PPG field visits (Annex 4) communities also identified rainfall and water availability as the two principal environmental constraints on agricultural production. Communities face dwindling access to water during the dry season when the largely natural springs that they rely on reduce considerably in flow or cease altogether. There is thus a clear recognition by communities of the importance of reliable water resources and for the potential increased stress that climate change poses for these water sources, and related livelihoods activities.

Local differences in Timor Leste manifest as different drought, land slide and erosion vulnerabilities throughout the country, with high spatial variability existing across the country[18]. Vulnerability of **agriculture** to climate change has thus many facets, and the LDCF project design ensures that this diversity in terms of climate change impacts and vulnerabilities is captured in the selection of focus districts.

Impacts on Forestry

For especially the poor in rural areas, forests are a key source of food, fuel, fodder, medicine and building materials (SDP 2010). Timor-Leste is facing soil degradation, a decrease in groundwater, threats to wildlife and decreases in food sources. The sustainable management of Timor-Leste's forest resources is not just essential for the families who rely on forest products for firewood or income generation, it is important for all farmers as deforestation causes erosion and damages water catchments. Access to good soil and healthy waterways is vital for successful agricultural production. The projected climate variability, with prolonged periods of drought and more intense rainfall events, will add further stress on already vulnerable ecosystems. Subsequent lessening vegetation, higher surface run-off, increased erosion and slope instability will increase the risk of damage to forest and farm land as well as infrastructures. There is therefore a need to provide greater incentives for sustainably management of natural resources and protection of ecosystems. Community-based nurseries for the propagation of high-value timber trees, such as sandalwood, red cedar, teak, mahogany and rosewood, have proved successful. Based on such examples farmers then plant and tend to the trees on their individual plots, which provides a good entry point for more ecosystem based services to infrastructure sustainability.

Impacts aggravated by Social Exclusion

Many families in Timor-Leste still find it a daily struggle just to survive and almost every second person in Timor-Leste still lives below the poverty line (SDP 2010). A significant number of Timor-Leste's poor are women, widowed by the conflict and have become heads of households and sole providers for their families. The country also has a large young population with about 20% between the age of 15 and 24 years and with many not having a basic education, most experience high rates of unemployment. If they do work, they are mostly are engaged in unskilled jobs or precarious employment. Poverty and unemployment are constant factors of instability, fueling unrest in 2006, and have been a flashpoint for the 2012 elections. The SDP 2010 (pg 48) states that within the context of social exclusion and increased vulnerability: "…a crop failure or difficult weather, likely to be aggravated by climate variability, can lead to near starvation for many families, who are left with no choice but to rely upon assistance from the community and the State." The Government in Timor Leste has therefore made assisting the poor and vulnerable in society a national priority.

1.1.5 Focus on small scale infrastructure

Small scale rural infrastructure is particularly vulnerable to extreme weather events and increasing climate variability. At present designs are not yet adapted to more extreme intensity of rainfall which increases the risk of flash/debris floods, landslides and subsequent damages. Increased precipitation in relation to infrastructure vulnerabilities are most likely to manifest as excessive water loading, potentially triggering landslides, magnifying erosion and causing flooding events (NAPA, 2010). This risk is especially relevant for water supply schemes, irrigation systems and small bridges.

[18] Seeds of Life, 2010. Projected Changes to Rainfall and Temperature in Timor Leste due to Climate Change and it's impacts on Agriculture. Ministry of Agriculture and Fisheries, Comoro Nicolao Lobato, Dili, Timor Leste, 8 page.

Picture left: Ridge village in Aileu District, access to water sources is difficult and in periods of drought, water scarcity already exists. Additional sources are tapped with new piped water systems, but capacities remain low. Water reservoirs are of insufficient capacity to bridge dry periods and older reservoirs with limited functionality. Water supply system is in poor state and partly abundant, with parallel supply pipes to houses.

As mentioned above, just over 57% of people in Timor-Leste have access to an improved drinking source (either piped water, protected well or hand pump, tanker or bottled water). Only 25% of people in Timor Leste have access to improved sanitation facilities such a pit latrine with slab, ventilated improved pit latrine or a pour/flush septic tank or pit. Major supply and sanitation projects have been carried out over the past years, but sustaining these projects is often a problem, with many communities having difficulties in operating and maintaining them.

During the field visit to Aileu district in a particularly vulnerable area on a ridge with very limited access to water, communities elaborated on the increasingly prolonged periods of drought while the village was still expanding. Several water sources were already tapped and an increased number of small water storage tanks were constructed as part of the drinking water supply scheme (see picture page 19 above), some of which were no longer functional due to lack of maintenance, but all these technical measure were insufficient to resolve water shortages during the dry season. Furthermore several government institutions, including a primary school, were all suffering from a lack of water. While these institutions are relatively large water consumers, none of them had any water harvesting or adequate water storage facilities. In general terms water storage facilities of 'water supply schemes' were of all of relatively small size (see also picture on page 21 for a 'home-made' water supply system) and only suitable to bridge a dry period for drinking water of about 1-2 weeks. In addition most households had small reservoirs (like large containers) which would last for about 2-3 days. Most community members explained that after reservoirs are empty they would fetch water from further away non-protected sources, often downhill streams, with a substantial time investment (see picture page 21). Reservoirs for agricultural purposes were absent, since the required size to bridge the dry periods would be too large and this was deemed unfeasible. The technical and economic feasibility of larger community water reservoirs is an area which has not yet been explored adequately and is a potential area of investigation of the LDCF project.

Infrastructure provision was thus noted to be mainly ad hoc and not based on water resource mapping (including non-gravity sources) and water demand projections. Water availability and demand projections are critical for designing water supply systems and indeed for determining the maximum feasible expansion of such villages. Such high ridge communities with severe seasonal water shortages cases are common in Ermera and Baucau districts as well and developing sustainable solutions for these conditions will be part of the LDCF project intervention.

Most irrigation schemes are in a state of disrepair and can be considered run-of-river, semi-irrigated and in some places effectively rain-fed[19, 13]. According to the SDP 2010, many hectares of previously irrigated land are unusable, are not used or are underused because of lack of maintenance and poor management. This, despite the fact that in the period 2007 to 2009, 31 (mainly large scale) irrigation schemes were rehabilitated. This general picture on the state of irrigation schemes was confirmed during the filed visits, where irrigation channels were seen in disrepair and the official mechanism for having them repaired is slow and ineffective. It was observed that farmers choose to dig alternative irrigation and drainage canals and to implement sustainable land management practices, most notably terracing, reforestation, implementation of tara-bandu (traditional conservation), agro-forestry and inter-cropping allowed communities to arrest soil erosion. In Vemase sub-district, Baucau, it was noted (during a field visit) that the main earth irrigation channel to the village was washed away several years before during heavy rainfall and that the whole alignment was damaged due to a landslide. Repair of the channel was in fact beyond the capacity of the community although they did make regular fixes to try to access water, but these fixes often proved short lived. A promised rehabilitation of the damaged irrigation channel was planned but never implemented, although the community was requested to sign for completion of the work by local administration officials. This shows that downward accountability of local administrations in terms of activity planning and implementation remains weak and that communities have too few means to address non-performance.

Picture right: Acumau Village, Remexio Aileu District, Old woman collects water from an unprotected open well.

Another issue in this specific locality, which is at the foothills on the coast line, very similar to Liquiça District, is the seasonal unavailability of spring and fresh groundwater. Most springs in the vicinity dry up and salt infiltration along the coast line causes ground water salinity to rise during the dry season, thus making water non-potable. Communities are thus forced to travel long distances to fetch water from other sources in neighboring communities, to great time and financial cost. Also cattle have to be relocated to maintain access to water. An additional burden the community faces is that with extreme rainfall events much of the village is under a foot of water for prolonged periods of time, because the coastal road through the village, which is at most times an economic lifeline, acts as an embankment in the absence of adequate drainage structures towards the sea. This often causes health and other problems. With climate change and subsequent sea level rising, salt water infiltration and coastal flooding is likely to increase, which further emphasis the urgency for adaptation and resilience measures.

There is thus in drinking water supply, in agriculture, as well as for other public and private infrastructure assets (see pictures page 22) an increased risk for asset losses of already weak small scale rural infrastructure due to localized extreme events and a requirement for improved maintenance to safeguard existing and new infrastructure. Furthermore the impact of climate change on water sources also has design implications in terms of water availability projections, which need to be linked to longer-term water demand projections.

[19] FAO, 2003. Special Report FAO/WFP Crop and Food Supply Assessment Mission to Timor-Leste. June 2003

Picture left: Self-made bamboo type plumbing for water supply system within the village of Vatuvou, Liquiça District; low efficiency and pollution risks.

This weakness in small-scale infrastructure development is also reflected in the state of the rural road network, with over 90% being in poor condition. The main report on roads and climate change in Timor Leste[20] also raises issues of landslides, flooding, sea level rise and increased wave action. Concerning especially small drainage structures and slope stability in rural roads, the field visits also identified these as priority areas for climate resilience. The design of box culverts and small bridges is often inadequate in terms of erosion protection and dealing with larger water flows. Although the concrete structures themselves are usually in a reasonable condition extensive erosion patterns above and especially below the structure are visible, which will over time undermine the structures and cause them to fail completely. Erosion above the structures is often visible in the stream bed and banks and also small landslides are visible in the local catchment area. Whether the size of structures is adequate considering increased rainfall events, could not be verified, but seems uncertain.

Pictures above: Vato-Vou Maubara, Liquiça District; remains of a house washed away by a sudden flashflood in 2011. Increased intensity rainfall will increasingly cause risk to communities, also in areas where before no such problems were noted.

A further aspect of climate change to be considered in terms of sustainability of small scale infrastructure and their catchment areas is low rainfall quantities or extended periods of drought in the dry season, since these potentially reduce vegetation cover and can thus result in natural slope stabilization mechanisms failing. At present the use of ecosystems for increasing the climate resilience of infrastructure, or bio-engineering, is not systematically applied. In most instances district staff interviewed were also were unaware of the potential of such additional measures, nor are they integrated in present infrastructure designs. Only under the (rural) road network improvement projects are integrated adaptation methods consisting of both civil-engineering and bio-engineering solutions (requiring relatively small additional investments), promoted as

[20] Ministry of Infrastructure. 2010. Timor-Leste Final Report Preparing the Road Network Development Project – TA 7100 Volume III, Climate Change Assessment, ADB.

economically sound investment, reducing maintenance and monsoon-associated restoration costs into the future.

1.1.6 Summary climate induced problem

The existing climate in Timor Leste is already characterized by high rainfall variability, a tendency which the available climate science suggests will be amplified by future climate change. The major climate change related threats are higher temperatures and changing intensity and periodicity of rainfall patterns. Increasing incidence of dry periods and drought is one major likely consequence, together with reduced incidence but increased intensity of extreme rainfall events causing floods and landslides. Increased climatic variability and change will progressively stress ecosystem functions in water provisioning and flood protection. Increasing bush fires and the migration of invasive species are also likely consequences of increasing mean temperatures further increasing soil erosion and the incidence of landslides and flash-flood events.

As a result of this physical context and due to a combination of poor design and application of infrastructure standards and the limited investment in operation and maintenance, a substantial number of small scale infrastructure works in rural areas are failing over time, as also noted during the field visits. Invariably the rebuilding of lost assets tends to occur in the same exposed locations and to the same non climate-resilient designs. The field visits carried out during the PPG confirmed that the institutional and financial capacity of Local Administrations and communities to adapt to the situation is weak. This includes the ability of district planning officials, engineers and decision makers to identify areas that are critically vulnerable to climate hazards, to draw the links between ecosystems management and infrastructure development, and to identify, appraise, prioritize, design and 'budget in' greater resilience measures. For example vegetation and slope stabilization can be introduced in the catchment areas of small scale infrastructure, and additional erosion protection with a combination of civil works and vegetation (bio-engineering) on slopes and in stream beds. Local Administrations also confirmed a weak ability to understand and address gender and climate change related development and equity issues.

The climate induced problem that the project seeks to address is that Local Administrations, particularly in drought prone areas and areas vulnerable to extreme rainfall events, are finding it increasingly difficult to supply and maintain critical small scale rural infrastructure for rural communities, leading to measurable reductions in household income as well as increased food insecurity and health issues. The above described climate variability risks and vulnerabilities will be captured in all their diversity in the selection of the focus districts and respective sub-districts, to allow the LDCF project to find sustainable climate resilient solutions for small scale infrastructure development. The selection process and characteristics of the selected focus districts is presented below.

1.2 Focus District Selection – Diversity in impacts and vulnerabilities

The selection process of the districts which are most suited to be focus districts under the LDCF project is explained in detail in Annex 2. Below the key selection criteria related to climate variability impacts and vulnerabilities are highlighted as well as the reasoning for final district selection for which also other criteria have been considered.

Key in the district selection is that the wide diversity of climate variability impacts anticipated in Timor Leste in relation to the large variety of subsequent vulnerabilities is captured, so as to allow the LDCF project to research and address these as part of the project's objective to improve the

climate resilience of small scale infrastructure. Broadly speaking this means that the following climate variability and conditions need to be captured in the focus districts:

- Coastal areas with groundwater dependency, vulnerability to salt water intrusion and flooding risks, vulnerable to sea level rise projections;
- Mountainous conditions with slope vulnerability, areas with projections of increased intensity of rainfall events, areas with landslide and flash flood vulnerability;
- Conditions of periodic water scarcity and drought, dependency on diminishing (seasonal) spring water, high ridge communities, areas with projections of increased periods of drought;

These climate variability conditions and risks have been weighed with the vulnerability of livelihoods in Districts to climate variability, especially related to access to drinking water (e.g. existing water sources, protected or not) and agricultural practices (e.g. crop water demand, seasonality, level of dependence on self-sufficient farming). But also conditions such as ease of access and vulnerability to environmental degradation, which were identified as important criteria for the selection of the geographical focus areas.

The weighing of the above criteria and interactions of conditions has been done with the Multi Criteria Analysis Matrix (MCAM), which allows for ranking the relative importance of each District for each pressure/vulnerability/threat or opportunity. The scores are based on geological, climate and topographical maps and data sourced from various studies, risk assessments and socio-economic studies including the 2010 National Census. Annex 2 shows three MCAM scorings on different aspects of climate variability, impacts and vulnerabilities. Also the diversity of climate variability impacts in Districts can be derived from the table. From these analyses it can be deducted that the following Districts are potentially suitable for the LDCF project**: Baucau, Ermera, Aileu, Liquiça, Manatuto and Ainaro.**
Other selection criteria, next to diversity in climate variability impacts, used for the focus District selection are:

- Poverty and vulnerability indices;
- Population density in relation to project beneficiaries;
- Balance between eastern and western Districts (relative to Dili)
- Presence of other (baseline) projects, on which the LDCF project can build or with whom the project can collaborate and thus create leverage;
- Relative accessibility, including clustering of Districts, to keep implementation support cost low;
- Future start-up Municipalities in the decentralization process;

Baucau in the east has vulnerable coastal conditions, has a projected increased drought period with high groundwater vulnerability while the vast majority of the population depends on unprotected water sources (Figure 12). It also has mountainous conditions in the south with a high vulnerability to landslides combined with projected increased rainfall intensity. These conditions are furthermore combined with a high population density and a future municipality focus under the decentralisation process of MSA.

Liquiça in the west is relatively poor, has vulnerable coastal conditions, and has a projected increased drought period with high groundwater vulnerability while the vast majority of the population depends on pumped water sources (Figure 12). Liquiça is also selected as the first District by LGSP for instigating the District Strategy Development Plan (including climate change) and is also selected by CARE International as a pilot District to develop and conduct climate vulnerability assessments (MAKA'AS project).

For these reasons both Liquiça and Baucau are therefore selected as focus Districts under the LDCF project. The total number of focus Districts and Sub-districts to be selected will require

balancing climate risk diversity, beneficiary numbers, transaction costs for implementation support and sufficient 3-year investment budgets to provide an implementation incentive to participating Sub-districts. It was therefore decided to limit the number of Districts to 3 and the number of Sub-districts to about 10. This would amount to an investment budget per Sub-district of about USD 60,000 per year for three years (excluding activity design and implementation support costs from project consultants).

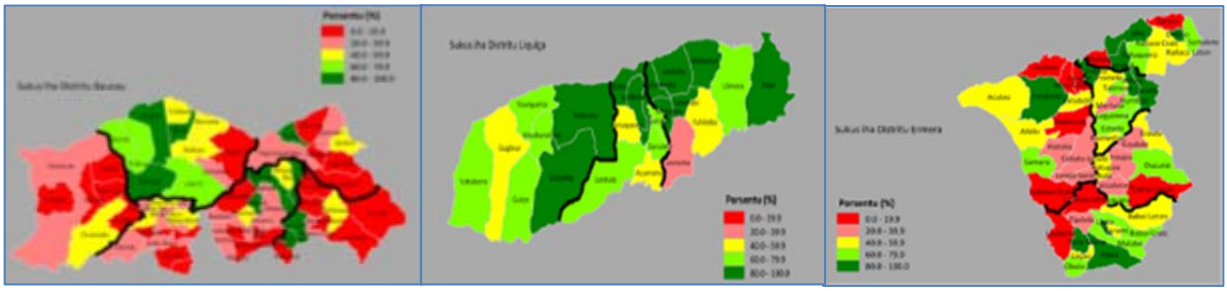

Figure 12, District maps with Sucos and percentage of household with access to protected water source or springs, from low (red) to high (green).
Left Baucau, middle Liquiça, right Ermera.

The third District to be selected would require being adjacent to either Liquiça or Baucau to fulfil the clustering requirement. As per Annex 2 the third District selected is **Ermera**, because of its mountainous vulnerable terrain, its projected drought vulnerability while most of the population depends on unprotected springs as water source (Figure 13) and since it is an important coffee growing area. Furthermore it has the highest population density after Dili, with high ridge settlements in the south and low living conditions especially in the south east. Ermera has also been the focus of the multi-UN agency COMPASIS project (small scale infrastructure) on which the LDCF project will build. Furthermore the World Bank's Climate Resilient Road project is in Eastern Ermera.

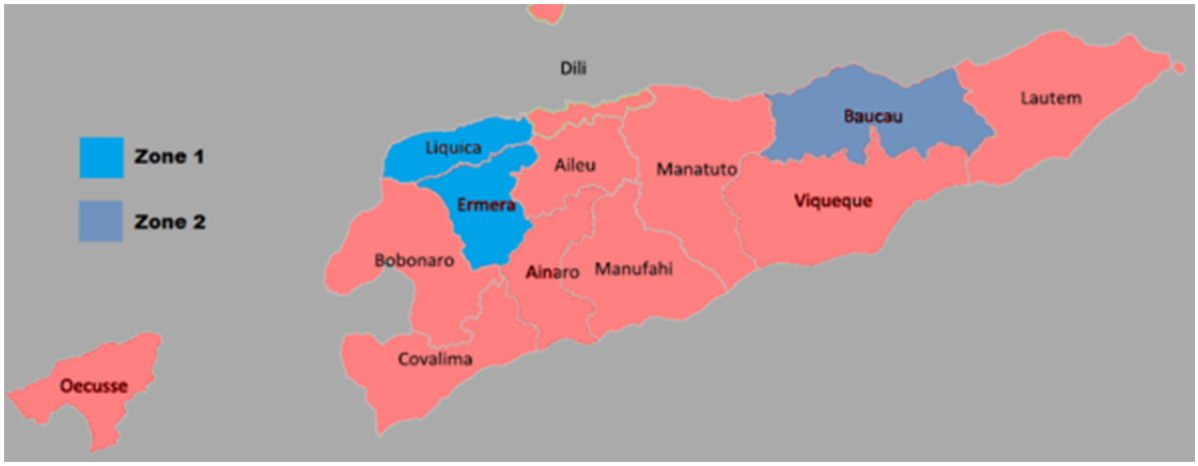

Figure 13, Selected focus Districts of the LDCF project: Liquiça, Ermera and Baucau.

Figure 13 above shows the two clusters of focus Districts selected under the LDCF project. The selection process of Sub-districts has been based on deselecting in each District the 'capital' Sub-district which is usually less rural and more advanced than the more isolated Sub-districts. Figure 14 below shows the respective Sub-districts. The total number of Sub-districts is 11 and the total population figure, which is reflecting the number direct beneficiaries of the LDCF project is 188,158 people.

Sub-district	Population	Selected	Sub-district	Population	Selected	Sub-district	Population	Selected
Liquica	**63,329**		**Ermera**	**114,635**		**Baucau**	**111,484**	
Bazartete	23,171	Yes	Atsabe	17,306	Yes	Baguia	9,434	Yes
Liquica	21,498	No	Ermera	33,262	No	Baucau	46,530	No
Maubara	18,660	Yes	Hatolia	32,720	Yes	Laga	14,126	Yes
Selected	**41,831**		Letefoho	20,896	Yes	Quelicai	16,763	Yes
			Railaco	10,451	Yes	Vemase	8,969	Yes
			Selected	**81,373**		Venilale	15,662	Yes
						Selected	**64,954**	
Total Direct Beneficiaries			**188,158**					

Figure 14, Selected Sub Districts and population figures

1.3 Root Causes of Vulnerabilities to Climate Risks

The underlying causes of the problem are multiple and encompass both climate and non-climate related factors. The analysis below provides the ground for the identification of those aspects of the problem complex that the new project will be able to influence. The analytical framework used for this approach is the "UNDP toolkit for designing climate change adaptation initiatives (2010)". The principle drivers of the climate induced problem include soil geography, existing land use practices, the poverty and gender context, local administrative practices and broader rural development policy.

Geography and physical conditions

As already touched upon above the most critical underlying cause of high vulnerability to climate variability of especially rural livelihoods, with their high dependence on rain fed self-sufficient agriculture, is geographical and physical. Inland mountainous terrain is relatively unstable, soils are relatively erosion prone and mountain ecosystems are inherently vulnerable. These relatively unstable geological conditions, with steep catchments (particularly on the north side of the country), lead to very rapid, sometimes dramatic, run-off events. The construction and maintenance of an adequate rural infrastructure network in this environment is expensive and technically challenging. Some low-lying coastal areas are also vulnerable to the projected sea-level rises.

Land use, natural resources and poverty

Institutional fragmentation and political interests has led to limited collaboration between ministries and for the most part isolated sector policies within agriculture, forestry, water management, and infrastructure development. There is at present no incentive for developing an integrated rural development policy. Rural development remains therefore relatively fragmented, which contributes to a low understanding on interdependencies between different ecosystems, landscapes and catchments and on the interaction of different sector policies. Alongside the absence of a more integrated rural development framework, there are also no exchange opportunities for local planners to discuss upstream-downstream policy issues. While at District level, (Sub-)District Development Commissions exist, this is not the case with regards to platforms across administrative boundaries. Within this overall context additional risk issues (such as climate related risks), are hard to integrate in a meaningful way. Policy makers are often reluctant to take on 'additional' concerns given existing challenges that are perceived to be more immediate. At the national level there is also relatively weak sector leadership and inter-sector coordination on climate change and especially localized impacts and vulnerabilities.

Amongst others the National Biodiversity Strategy and Action Plan (2011) NBSAP highlights the degradation of Timor Leste's biodiversity because of threads arising from current fragmented development and land use planning. There is a marked overexploitation of natural resources, such as forests disappearing due to collection of firewood: "Forest cover has decreased by almost 30 percent over the last 20 years and the mangrove area which is an important part of the coastal and marine ecosystem has been reduced by 80 percent… Most of the biodiversity loss is due to human overexploitation and unsustainable land management practices and the natural environment is gradually transformed into a predominantly rural agricultural landscape of low productivity and degraded rangelands." (NBSAP page xix). Local and national development planning processes and design of small-scale infrastructure do also not yet consider bio-diversity conditions and climate variability risks. This leads to largely unsustainable land management practices, such as the overexploitation of forests for fire wood and a low effectiveness and sustainability of small infrastructures, especially since poorer households tend to largely depend on the natural resource base. This situation is further aggravated by the relatively high population growth due to high birth rate (which with an average fertility rate of 7.8 (UNDP CPD 2008) is one of the highest in the world) and the return of refugees after the end of the conflict. Climate induced risks serve to further highlight the marginalization of the rural poor, and in reverse the high dependency of the marginalized on natural resources for their livelihoods leads to a further diminishing natural resource base.

An underlying driver here is one related to broader governance issues, including the weak voice and visibility of rural community concerns within district planning processes.

Local development and climate change information

At the national level climate risk information is scattered across different ministries and sectors and there is no clear repository or focal point for this information. For example hydro-meteorological data is compiled by three different ministries for separate purposes. Vulnerability mapping is carried out from different starting points including flood risk, food security risk, groundwater availability, or exposure to natural events, with no capacity to analyze the relative importance of these differing risks as they relate to different localities. Climate change adaptation as a mainstreaming task across all those sectors suffers from this situation. Designing stand-alone adaptation options in one sector might lead to maladaptation or to missed adaptation opportunities in another sector. Furthermore there is a tendency to overplay the influence of climate change which is frequently used as a convenient 'catch all' diagnosis for what is in fact a more complex interplay of inter-related factors.

Political and administrative systems

Despite the Government's strong commitments in making public administration more effective and transparent as underpinned by its Strategic Development Plan (2011-2030), existing planning, budgeting and execution systems are still not sufficiently developed, nor flexible enough to deal with the emergence of new issues, such as climate variability and extreme weather related risks. Almost all development activities suffer from persistent organizational weaknesses within the bureaucracy, together with political barriers which restrict inter-ministerial coordination and information sharing. To address climate change related development challenges, the Government has developed the "National Adaptation Programme of Action to Climate Change" NAPA 2010), yet climate change policy, planning and implementation is still in its infancy in Timor Leste. The important role of Local Administrations in dealing with and adapting to localized climate change impacts, -risks and –vulnerabilities, within the diversity of local circumstances and conditions has now been broadly acknowledged but still need to be translated into decentralization policy and especially policy implementation and capacity development. This holds especially true for Districts and communities, since the on-going capacity development efforts in line with the national climate change agenda, currently predominantly address central level institutions. This follows a general

pattern of top down capacity development, planning, budgeting and execution processes, which places vulnerable local communities at risk in the face of a changing climate because they are unable to access the type of support that they need to secure their assets and livelihoods.

For both historical and cultural reasons local communities and local authorities tend to interact in an overtly hierarchical manner, with insufficient effort being made to help communities to analyze needs and express these needs in a comprehensive way, while local authorities have a tendency to short circuit the consultative process in the interests of meeting national planning deadlines and requirements. Programs that promote participatory bottom-up mechanisms, such as the UNDP/UNCDF supported Local Governance Support Project (LGSP), have been in place for several years, with financial resources transferred directly to districts to implement prioritized small-scale community projects. However, such initiatives have yet to become more participatory and to address climate hazards, and specifically the different levels of vulnerability that may exist to such hazards due to gender or social status. At the local level, planning tends therefore to be fairly project based with limited analysis of cause and effect driving the process of prioritization. Much greater emphasis needs to be placed on improving the governance of local decision making including strengthening the participation of vulnerable communities in this process.

An Institutional and Context Analysis (ICA) conducted as part of the preparation of this document indicated that basic democratic structures exist at the Suco and Sub-district levels (see Annex 11 for more details). However, the administrative capacity at these levels of government is overall weak. Technical expertise exist primarily at the district level, but this level is not an appropriate scale for small-scale rural infrastructure planning, because a mismatch between project designs and community needs and expectations can be expected. Therefore, capacity building to improve governance and planning processes in the Sucos and Sub-districts will be important for the project to strengthen the resilience of local government systems to climatic variability and risk within existing democratic structures.

Infrastructure development

Within the context of the relatively recent independence of Timor Leste in 2002 and thus the (re)establishment of most state institutions, combined with substantial damage to small scale infrastructure cause by conflict and prolonged periods of neglect, development of rural infrastructure in Timor Leste is still lagging behind. While the Indonesian occupation of the 1980s and 1990s did bring a measure of development, including a massive expansion of the infrastructure network, this was primarily driven by internal security concerns rather than economic development and poverty reduction. It generally stopped short of community level infrastructure. For example investment in rural water supply was almost non-existing during this period with communities depending wholly on locally available springs and watercourses. In the period since independence until the present day a considerable investment has been made in improving small scale rural infrastructure but this effort is still insufficient in terms of achieving universal coverage and in many cases the investments are not sufficiently robust to withstand the combination of challenging geography and increased prevalence of localized flooding and landslides, as well as climate change. Furthermore once built, rural communities are provided with limited back up and support in maintaining the asset, although this is an area where there is increasing recognition that new approaches and incentives are necessary.

Gender

An entrenched culture of patriarchy is a worrying cause of widespread discrimination against women, and their continued exclusion from political, economic and social life (UN WOMEN factsheet). Despite the high rate of female representation in parliament, and a relatively high representation level in Suco councils (due to quotas), only 2% of council chiefs are women. Women face challenges entering the labor market where non-agricultural employment is 36% of

the total employed. Gender-based violence, especially domestic violence, is widespread in Timor Leste. Nearly 40% of Timorese women over the age of 15 have experienced physical violence, while 34% of women who have been married report having been abused by their husbands. Domestic violence is broadly considered a private, family matter, or “a normal occurrence” to some women. Services for survivors are scant or non-existent. During the conflict, rape and sexual violence were used repeatedly as a weapon of war, and though some trauma-counseling projects were initiated in the post-conflict period, women still lack sufficient access to these services. The situation of women is precarious in isolated villages as in the western border Districts where they are vulnerable due to geographical isolation, history of violence and sexual abuse, incest and lack of economic opportunities. Women in border districts are at high risk of sex-trafficking.

The Institutional Context Analysis (Annex 11) raised considerable concerns about the participation of women in local governance. While the formal representation of women on suco councils and sub-district administration councils is ensured by a quota system, in practice many women are not in a position to participate in council meetings and other decision making processes, because of their domestic responsibilities, which they carry out within a highly gendered division of labor. On the one hand, Local Administration systems need to be improved to reflect the needs of women and men in local climate change adaptation. On the other hand, the project should consider alternative participatory planning processes for its infrastructure projects in the short run, so that the needs of women, who are disproportionately affected by water infrastructure, is reflected in the designs of infrastructure projects. During the field visits further gender issues were noted, which are reflected in Annex1.

1.4 Long term solutions and barriers to achieving the solution

1.4.1 Long term solutions

The key to adaptation in most instances is competent, capable, accountable local administrations that understand how to incorporate adaptation measures into most aspects of their work and departments (after Satterthwaite, D. 2007). This requires improved knowledge of climate risks together with the ability to analyze the nature of that risk and to develop solutions, from both a from technical and managerial perspective. Consequently, the Government’s long standing commitment to decentralized public administration, as enshrined in Article 5 of the Constitution, provides an important entry point for building resilience to climate risks, which includes ensuring that the poorest and most vulnerable communities are not left out of the process. For example, local communities and local planners need to have a shared understanding of how drought is already affecting livelihoods and assets, as well as capacity to project forward how such risk may evolve over time. Vulnerability assessment and local risk mapping approaches need to be combined with standard annual development and investment planning processes.

Through the NAPA consultations local officials and community leaders have already identified a wide range of risks covering water supply, roads, bridges, energy and communications networks, together with broader agriculture and food security related concerns. This kind of information, if it can be systematically and regularly integrated into local planning and decision making, can dramatically strengthen rural resilience to climate change. Furthermore local knowledge needs to be effectively brought to bear on the planning process. Local communities are often best informed about risks that affect them on a day to day basis. They need improved channels to communicate their needs and concerns effectively through informed and iterative discussions which can contribute visibly to the local planning process. Currently, this first-hand information from local communities is not sufficiently taken into account. As an example, communities in Vemasse,

Baucau are well aware of seasonal water scarcity, but the adaptive capacities to respond to the problem and the technical solutions are in many cases unknown or unachievable without external support. Instead of building additional water storage capacities to offset longer or more intense dry periods, communities continue to supply themselves with surface water from further away streams, which puts heavy workloads on women. This indicates the need for improved dialogue between local administration and climate vulnerable communities, supplemented by both technical and financial support, leading to agreed measures and options for climate resilient rural infrastructure (as well as related investment). Improved knowledge management and learning mechanisms can help to ensure that good practices are well documented and disseminated to achieve wider impacts, but equally can provide a channel to introduce new ideas and practices from the outside.

The existing design standards of small scale infrastructure need to be more climate resilient. Adequate assessments needs to take place, in a specific location, for water resource availability projections (including projections of climate variability and –change) and for water demand (including new demand and population growth). Only once these (future) water supply and demand projections are known the feasibility and choice of technology and infrastructure can be made, after which the technical design can commence. Furthermore the anticipated increase in frequency and severity of extreme weather events necessitates infrastructure designs to become more resilient to e.g. increased flood levels and landslides. These factors therefore also need to be factored into the standard designs of all small scale infrastructures. In the absence of an adequate climate resilient design process it will increasingly happen that small scale infrastructure constructed is/becomes dysfunctional due to a changing context (i.e. water availability) and extreme weather events (see 1.1.4 and Annex 1)

In addition, an understanding of critical ecosystem services and functions in sustaining this small-scale infrastructure needs to be integrated into local planning and budgeting. While an awareness of the provisioning services of ecosystems exists amongst local stakeholders, these services are not sufficiently valued, particularly as a means of coping with climate change. Forests and vegetation in upper catchment areas protect small scale infrastructure from failure as a consequence from flash floods and landslides and, as a result, contribute towards sustainable service delivery and thus create more resilient livelihoods. On a micro-level such stabilizing vegetation or 'bio-engineering', can be a valuable addition to physical structural works; they also require a relatively low investment and are thus cost effective. The complementary nature of physical infrastructure and ecosystem-based adaptation solutions is an essential principle that needs to become a much more common and intuitive element in local development and investment plans.

Climate resilient infrastructure design standards jointly developed by central sector agencies and Local Administrations are not sufficient. Tender procedures need to be competitive and competence based and quality monitoring of construction needs to be drastically improved (see Annex 3). Technical and engineering design training can help local contractors to develop cost effective ways to improve siting, design and use of materials in the context of increasing climate risks. Also operation and maintenance systems and procedure, including for emergency repair, need to be strengthened to address changing maintenance requirements due to climate change. Community contributions and capacities need to be adequately considered in these procedures as well as the need to allocate sufficient recurrent budgets for maintenance of small scale infrastructure. Over time it is anticipated that improved standards and quality of infrastructure will lead to lower maintenance requirements and thus overtime to lower routine maintenance and repair costs. Experience in Bhutan[21], for example, with improved climate resilience of road development shows that good quality climate resilient infrastructure, with higher investment

[21] Multi-stakeholder sector development and complex change facilitation; the case of Environmental Friendly Roads in Bhutan. Hendrik Visser, Ingrid Richter, 2009.

budgets, has an economic rate of return between 6-10 years due to lower (structural) failure and yearly maintenance costs, compared to non-resilient infrastructure. The absence of such studies in Timor Leste is one area the project will address.

The local planning and budgeting process in Timor Leste is explained in some detail in Annex 3. By improving the participation in and quality of local planning and budget processes, involving all levels of Local Administration as well as traditional leaders and community representatives, the priorities that communities themselves see as important for their lives and livelihoods can be better reflected. Lessons learned on the implementation of effective adaptation actions need to be codified, shared and replicated more widely within Timor Leste through multiple channels including the country's expanding governance reform programs.

1.4.2 Barriers to Achieving Long-term Solutions

There are a number of individual, informational, financial, regulatory, technological and institutional barriers that prevent the desired situation from emerging.

Climate risk knowledge and information

Effective planning for climate resilient development at local level requires access to climate risk information which is site specific. This information is not yet available in a form that can be readily used, but rather compiled in a range of non-specific national level documents and analyses. Local officials and other local stakeholders are not sufficiently familiar with basic scenario-based planning approaches as a means of dealing with uncertainty. Scenario-based planning requires a set of disaggregated climate related baseline data, such as the geography, hydrology and vegetation of sub-catchments, which is not available. Simplified tools to gather proxy data to fill in these data gaps, such as simplified V&A tools, are under development by some international NGOs (CARE International and Oxfam) but still not systemized and applied by local administrations. In addition, on-going local adaptation efforts are not recognized as such and therefore the experience and knowledge gained from these initiatives cannot be effectively channeled to inform future adaptation strategies. What already works well should be further analyzed and developed and used as entry points for local planning. The linkages between climate change induced trends, such as the tendency towards more prolonged periods of drought and more intense rainfall events, and the consequences on baseline infrastructure and livelihoods, are not made. Also the effects of increasing climatic variability and change on ecosystems and their functions in sustaining local livelihoods have yet to be assessed. Information on the social dimensions to climate vulnerability has yet to be collected and analyzed, and methods for the identification and appraisal of appropriate engineering options including data on surface and ground water availability have yet to be applied. Moreover, the tools necessary in carrying out all of these analyses need to be adapted and translated in order to be applied in the Timor Leste context.

Institutional capacity for climate resilient policy development

Climate risk information and possible approaches for climate resilient development also needs to be integrated into sector policies at the national level. As mentioned above such data is now often fragmented and more often only available within donor projects and not necessarily within government agencies and departments. Furthermore there is limited sharing of knowledge and experiences amongst government agencies, civil society (NGOs) and education institutes (e.g. University), which further limits the effective and efficient generation, capture and application of climate change information and knowledge. This very low institutional capacity for 'knowledge management' hampers evidence based policy- and strategy development for addressing climate change more structurally in Timor Leste.

At the national level there is relatively weak sector leadership and inter-sector coordination on climate change and especially localized impacts and vulnerabilities. The previous National Directorate for International Environment Affairs has been mandated by the new Government to take the lead role on addressing climate change and has been renamed to National Directorate for International Environment Affairs and Climate Change (NDIEACC). This Directorate has in the past mainly worked on international climate change related agreements and global covenants. The NDIEACC is now made responsible to develop such a coordinated knowledge management and exchange platform on climate change related issues and has yet to work out a strategy on how to address and mainstream climate change concerns and opportunities into sector ministries and policies. Also, dealing with the national and local impacts of climate change (and environment) was in principle the responsibility of the National Directorate of Environment (NDE) and the exact mandates of the two Directorates therefore need to be further clarified.

The NDIEACC and NDE were both within the Ministry of Economy and Development (MED), which is now the Ministry of Industry, Commerce and Environment (MICE). At present discussions are on-going to which extent this ministry would be the right 'home' for the environment mandate. Some see a more independent agency with an overarching (regulatory) mandate as a possible solution, also for coordinating and addressing environment and climate change issues in all relevant ministries. Independent from the outcome of this discussion it is clear that ministerial level coordination and consultation on dealing with climate change needs to be strengthened and that also for this purpose the capacity of the NDIEACC needs to be substantially strengthened.

This is especially relevant when it concerns collaboration with the recently established National Directorate for Water Resource Management (NDWRM) within the Ministry of Public Works (MPW). The NDWRM has a limited but developing capacity (especially through support from AusAID), although climate change and cross-sector collaboration are at present yet to become focus areas. One important institutional dynamic to consider in this regard is the relative high technical focus of the MPW on larger infrastructural works (i.e. road network, large scale irrigation) and the relative low priority for local level small scale infrastructure.

The proposed LDCF project will address the critical barriers mentioned above ('Climate knowledge and information' and 'Institutional capacity for climate resilient policy development') in an integrated way through Outputs 1.1, 1.2, 1.3 and Output 2.2. Under Output 2.2 detailed sector policy and planning information will be provided through the Climate Vulnerability Assessments, which will inform sector policy development and adaptation activity design. In a similar way Output 2.3 will deliver information on especially climate resilient infrastructure development. The Climate risk and vulnerability information (from within the LCDF project as well as from other sources) thus captured by the project will be compiled and will be made available for developing an overall policy framework on Climate Change for Timor Leste and for sector policy influencing by NDIEACC with other relevant sectors under Output 1.1. Also under Output 1.1, studies will be produced on the economic feasibility of higher investment levels for climate resilient infrastructure and additional ecosystem based approaches (bio-engineering) to ensure future increased investment budgets for these improved infrastructure works. Sharing and exchange of climate knowledge amongst sectors, public-private entities and national-local institutions and policy-influencing is supported through Output 1.2, which is to establish a national dialogue and information exchange platform, to be led by NDIEACC. In order for NDIEACC to take up its new responsibilities, as above, a capacity development programme will be developed and implemented under Output 1.3. Identified capacity requirements and CD activities will also feed into local level capacity development efforts provided under Outputs 2.4 and 2.5.

Capacities in climate resilient local planning

In Timor Leste there is a limited capacity at the Local Administration level especially for water resource planning and infrastructure development. The decentralization and devolution of authority in local development planning and budgeting is limited and there is significant centralized decision-making on local development through national line agencies. Local administrations and elected bodies are therefore generally still weak in their capacity and highly dependent on central agency support also for development plan implementation. Also participation of households and communities in local development processes is still weak. The foreseen devolution of powers to Local Administrations has been repeatedly postponed. With the new national Government now in place it is anticipated that the decentralization process will gain momentum and that the first local administrations will become formal 'Municipalities' (District Local Government entity) by 2014/15.

Still some progress has been made in recent years with the support of the UNCDF/UNDP LGSP programme, among others, in more participatory and transparent forms of local planning. The LGSP also supported the development of the national local planning process, which is now used nation-wide. However the capacity of local administrations to fully address additional risk factors within the local planning process, such as increasing climate variability, has not yet been built-in as a set of core tools, procedures and skills. At present there is also little awareness and understanding on the possible localized impacts of climate change and –variability and resulting livelihoods vulnerabilities, although the recognition is there that small scale infrastructure needs to be of improved quality and that better maintenance would be required to ensure the viability and long term sustainability of the investments being made. Risk information is not systematically collected and fed back into the annual planning process. The different levels of vulnerability to climate risks from one geographical location to another or from one social group to the next, including the gender dimension, are not yet analyzed, even at a very basic level. The role of natural systems in sustaining built infrastructure is understood at a very conceptual level but the ability to turn principles into practical solutions that can be designed, budgeted and implemented has yet to be developed. Furthermore local planners have yet to engage with their constituents (local people) in joint analysis of risks being faced on the ground, as well as how the nature of those risks may be changing with time. It is clear that the existing and the future decentralized local planning process will require substantial capacity development support, amongst others for addressing climate variability concerns.

The proposed LDCF project will address critical barriers on local planning and the capacity of local administrations through Outputs 2.1, 2.2 and 2.4, respectively. Output 2.1 involves the development of climate vulnerability assessment guidelines and tools which will be integrated and up-scaled nationally within the participatory district and sub-district level planning process. Output 2.2 will support the actual integration of the vulnerability assessment guidelines and climate resilient measures into annual planning processes in selected districts, also in support to justifying the need for additional resources for adaptation solutions. Within the climate vulnerability assessments adequate attention will be given to social implications of climate change impacts and gender related issues. Output 2.4 concerns capacity development of local administrations and elected bodies on integrating climate risk information, including extreme weather event calamities, into local planning, budgeting and budget execution.

Climate resilience of small scale infrastructure

Climate risks have only recently been integrated into project designs for larger scale road network development projects in Timor Leste funded through e.g. World Bank, AusAID and ADB. As the infrastructure baseline analysis makes clear, at present climate risks are yet to be integrated into design standards of small scale infrastructure.

Pictures above: Examples of combination drinking water reservoirs and tap stands for bridging short periods with absence of water (LGSP), which are at present not widely used and tested.

A further constraint is that the responsibility for design standards of different types of small scale infrastructure falls under the mandate of different central government agencies are that coordination amongst these agencies is generally weak. Existing standards are also not always rigorously applied for small-scale infrastructure due to capacity constraints of local administrations and communities and due to budgetary limitations. Stakeholder consultations at district and village level revealed that existing as a consequence of inadequate non-climate resilient designs, construction quality and maintenance a substantial number of such infrastructure works are no longer functional over time. Furthermore, the existing standards do not take into account potential multiple services that can be provided by a single infrastructure category. For example, integrated thinking on water harvesting and storage, using public buildings or multipurpose water ponds for household consumption, sanitation, fish raising and agriculture has been explored or applied in only a very limited way (see pictures below).

In addition, there are no best practice examples on integrating ecosystem management with small-scale infrastructure development to show to sub-national decision makers, planners and local contractors. Formerly implemented ecosystem management approaches are only partly suitable to demonstrate, for example, the linkages to the protection of infrastructures or the water supply functions of ecosystems for small-scale water schemes. The importance and advantages of integrated solutions can only be understood, when best practices in the new policy field are shared on a inter district and national level.

Finally, national as well as local level contractors and engineers work to stand-alone non climate resilient standards and norms. In most cases they do not have the tools and necessary experience to ‘design-in’ additional allowance margins, for example, high volumes of additional run-off, more frequent and severe localized flooding and storm events, or to increase storage capacities to ensure access to water during an extended dry season. Moreover local companies are reluctant to offer more expensive solutions to clients that only pay-off in the long-term, due to reasons of competitiveness.

Pictures above: Vato-Vou Maubara, Liquiça District; water supply intake with pond/reservoir (left), Village gardens, making use of the water reservoir (middle and right). Reservoirs with a combination of drinking water and kitchen gardening have good potential to improve livelihoods and bridge short dry periods.

The proposed LDCF project will address these critical infrastructure related barriers primarily through Output 2.3 which will involve development of climate resilient construction standards and guidelines for several small scale infrastructure sectors, together with orientation and training for local contractors and engineers under Output 2.5. To allow for climate resilient designs to be developed and tested in practice and adapted based on experience, under Output 3.1 an investment budget is provided for the construction of climate resilient small scale infrastructure in selected districts. Information gathered and best practices developed will be adequately compiled (Output 1.1) and will be fed into the national dialogue and information sharing platform supported under Output 1.2. The aim here is to ensure that climate resilient design standards and construction and maintenance approaches are ultimately accepted nation-wide as the standard by respective sector ministries.

Understanding of the benefits for ecosystem based adaptation measures

There is a significant knowledge gap in Timor Leste with regards to combined ecosystem-based management and infrastructure development and maintenance solutions. Some understanding of the issue is beginning to evolve as a result of initiatives in the Roads sector, like the World Bank, ADB and AusAID projects on road network improvement. Most ecosystem based adaptation projects at present are related to bio-diversity conservation and rehabilitation like e.g. mangrove rehabilitation in coastal areas of Timor Leste to improve coastal resilience. At present, the way in which ecosystems protect small-scale rural infrastructure, both directly and on a wider landscape scale, remains therefore largely under-valued and as a consequence ecosystem services are not factored into local development planning processes. Related to this is a typically low level of awareness among planners and investors of the interdependencies inherent in sound environmental management and adaptation. For example it may make more sense at lower elevations within in a given catchment to invest in reinforcing small scale infrastructure with robust, permanent fixtures (in combination with bio-engineering) that are better able to withstand the expected increase in surface run-off, erosion and flash floods. By contrast in the upper elevations of the same catchment, it may make more sense to invest in ecosystem-based adaptation options, consisting of e.g. reforestation and other land use changes, to improve the retention capacity of soils, reduce runoff, and reduce erosion, thereby limiting the occurrence of e.g. landslides and the severity of flash floods downstream. Yet both upstream and downstream levels of adaptation must be implemented together in order to reduce the overall vulnerability of critical infrastructure to acceptable levels.

One reason for improving the limited awareness of government officials on ecosystem-based adaptation may be that it requires cross-sector thinking and joint action to create the linkages

between agro-forestry (ecosystems) related adaptation measures and infrastructure development. As such this absence of coordination and collaboration among sectors is a concern for the whole climate change issue and the most effective level to address this at the Local Administration level where sectors do communicate and collaborate more closely than at the central level. At the community level traditional understanding of environmental issues in relation to livelihoods strategies and local development activities usually takes into account only the adjacent natural environment and day to day tasks, rather than broader landscape concerns.

The proposed LDCF project will address this critical barrier primarily through Outputs 2.2, 2.3, 2.4 and 2.5. Output 2.2, the climate vulnerability assessments, will generate a better understanding of ecosystem based impacts of climate change and the role of ecosystems in adaptation at community and Local Administration level. Output 2.3 includes ecosystem based approaches in the development of climate resilient construction standards and guidelines for several small scale infrastructure sectors, together with related orientation and training for local contractors and engineers under Output 2.5. To allow specific ecosystem based adaptation activities to be developed and tested in practice, under Output 3.2 an investment budget is provided for such ecosystem based adaptation measures in selected districts. Information gathered and best practices developed will be adequately compiled (Output 1.1) and will also be fed into the national dialogue and information sharing platform supported under Output 1.2. The aim here is to ensure that ecosystem based adaptation measures in support to climate resilient infrastructure design standards and construction and maintenance approaches are ultimately accepted nation-wide as part of the standards and specifications by respective sector ministries.

Limited financial resources for climate resilience and adaptation

Timor Leste has a relative wealth through its oil and gas income, although the absence of diversification of economic income is a potential future risk. Despite this there is limited investment priority for climate change adaptation related activities, especially at the local level. This is especially problematic since climate change adaptation costs are relatively high because of the mountainous, difficult terrain combined with a large proportion of rural-based population and relatively low population densities. At the local level the requisite discretionary funds for covering the additional costs of designing and including climate resilience features into small scale infrastructure, or to apply ecosystem based approaches to offset climate related risks are thus not available or as a minimum nor prioritized during the planning and budgeting process.

Most of the public resources are provided via earmarked sectoral budgetary allocations made at national level based on central (non climate-resilient) design standards. Local administrations have limited capacity and scope to influence central design standards and to request for higher level investment budgets for climate resilient infrastructure. As mentioned also ecosystem based adaptation measures are not prioritized in the local planning process because of the noted lack of awareness on their value and limited budget envelopes. In addition there is a high focus on new development activities whereas recurrent budgets for improvement, maintenance and repair of especially infrastructure works are undervalued. The latter is especially critical since e.g. with the increase of extreme weather events, the sustainability of infrastructure works will increasingly depend on adequate operation and maintenance procedures and budgets.

The proposed LDCF project will address these critical barriers primarily through Outputs 3.1 and 3.2, which provide additional budgets to selected districts for design and construction of climate resilient small scale infrastructures and ecosystem based measures. Next to these adaptation related investment budgets of which respective communities will directly benefit, under Outputs 2.2 and 2.3 in combination with Outputs 1.1, 1.2, and 1.3 evidence based policy influencing will also be conducted to advocate for higher investment infrastructure budgets and for additional adaptation

budgets in general. As mentioned before, this also includes advocacy for adequate maintenance budgets.

1.5 Stakeholder Baseline Analysis

While the climate induced problem and its underlying causes can be addressed by a comprehensive set of project actions, there are a number of wider change processes also implied, such as changes in sector policies and patterns of land use, which can only be addressed though collaborative approaches with other government and donor funded programmes. This emphasizes the need for harmonized policy action between the new project and existing baseline initiatives. The project addresses this need through identifying synergies with the UNDP/UNCDF supported LGSP programme as well as other initiatives relating to Integrated Water Resources Management, Rural Water Supply, Sanitation and Hygiene, land use planning and ecosystem management.

During the PPG phase extensive stakeholder consultations with national and sub-national government agencies, development partners, INGOs and NGOs, research bodies as well as representatives of the target groups and local organizations have taken place. The aim was to ensure a maximum fit of the project with government priorities, to capture the local views and sometimes differing needs in that regard and to align and harmonize the project with the efforts of all concerned development partners. The consultations between March and November 2012 were conducted by the PPG team comprising of an international project development consultant as team leader, one national expert on climate change, one national expert on infrastructure development and one national ecosystems specialist (see Annex 4 for details)

The methodologies used for stakeholder analysis are also explained in detail in Annex 4. The main events during the PPG were:

- A national inception workshop of the PPG phase in Dili on 25 May, 2012;
- Bilateral consultations with main stakeholders from national government agencies, sub-national government agencies, target group representative, local organisations, development partners, INGOs and NGOs as well as research institutes;
- Fieldtrips to: Baucau Distirct – Vemasse village, Vemasse sub-district; Liquica District - Vato-Vou village, Maubara sub-district; and Aileu District - Acumau Village, Remexio sub-district;
- An Institutional and Context Analysis (Annex 11);
- A final national consultation workshop on 26 November 2012.

Prior to commencement of stakeholder discussions, a review was undertaken of existing policies, projects and legal frameworks with relevance to the proposed project as outlined in the approved PIF. This involved information gathering on similar CCA initiatives in other countries, as well as baseline data collection on relevant issues of the project (e.g. on climate change, quality of infrastructures and ecosystems, CCA related subjects, participatory planning tools, etc.).

Outcome: Important parts of the baseline data, needed for project document development and a better idea how to structure bilateral discussions to fill in remaining information gaps.

National inception workshop 26 May 2012

The national inception workshop aimed at presenting the project idea in the framework of the LDCF and GEF mechanism and to draw linkages to other related initiatives. Important project concepts, such as climate change/variability impacts, climate resilient infrastructure, ecosystem based adaptation measures, the linkages between ecosystem management and infrastructure

development in a changing climate, local governance planning processes and additional cost reasoning approaches were explained and discussed. Furthermore an overview of the PPG phase methodology and time line were presented and discussed (see Annex 4).

Outcome: Discussions on management arrangements were initiated, NDIE (now NDIEACC) was agreed as lead agency of the PPG phase and a roadmap for the PPG phase was agreed. Overall support of the whole PPG process by MED (now MCIE) and MSATM (now MSA) and other concerned line agencies as well as support from development partners was also consented.

Bilateral consultations during the PPG phase

Bilateral consultations with all stakeholders aimed at identifying synergies, exchanging data and information and in the case of some donors at negotiating and concluding co-financing arrangements and amounts. A list of the major stakeholders, which the PPG team met and the respective issue of consultation is provided. A detailed table on stakeholder involvement during PPG phase is also provided in Annex 4.

Field Visits

The information gained by stakeholders at national and sub-national levels was cross-checked through field visits to get a sense for the climate induced problems on the ground and to confirm or adapt the project priorities. This was done through site observations of small scale infrastructures and ecosystems, guided by local officials and target groups, which provided important background information. See Annex 1 for detailed findings and pictures.

Outcome:

Important baseline information on infrastructure and ecosystems status, on linkages between natural and built systems, on on-going related government and donor initiatives, on climate impacts on infrastructures, ecosystems and livelihoods and on already ongoing adaptation as well as on risk mitigation measures was gathered. Further, bilateral consultations were scheduled, support for data gathering (report and file sharing) and the fieldtrips was consented. Future stakeholder involvement arrangements were also discussed, all concerned agencies showing a high interest as acting as future stakeholders, e.g. through their membership in District-, Sub-district and Suco Development Commissions. The most important outcomes of the field visits were:

- A significant match and endorsement of the initial project idea, the ensuing project design and on the ground realities in general; water management and related ecosystem management was a challenge at all sites visited. Everywhere climate resilience was not or was very litte built in to the management of natural and infrastructure systems.
- Simple methodologies and standards to build in climate resilience in combined ecosystems-infrastructure solutions is possible in most cases using existing knowlegde or innovations to be brought in, such as multi purpose water storage and water harvesting,
- Of great importance to the future project are especially the types of adaptation intervention identified: small scale agriculture irrigation, village level water supply schemes using multiple purpose water harvesting and storage facilities, increasing water retention capacities of micro-catchments through ecosystems management, flashflood and flood protection through combined protection infrastructure and ecosystem management solutions
- The need to integrate gender considerations in a participatory project identification and design process was confirmed
- Data on major development trends, such as land use change, infrastructure development and on existing planning approaches was gathered.
- The identification of potential districts.
- The local planning guidelines of MSA, developed with support from LGSP, were highly appreciated as a governance and delivery mechanism by decision makers from village to

district levels and thus provide also the right delivery framework for plan activity investments under component 3 of the project

Institutional and Context Analysis

The ICA is novel exercise centering around an expert panel's review of the project, from a critical analysis perspective. It was designed to ensure that institutional barriers and opportunities, perhaps not made obvious through the normal consultation process were understood and built into the design. The ICA was conducted in form of an expert review panel, in which a number of participants that have an in-depth understanding of the national context of Timor Leste at various levels and in different sectors, identified key actors and institutions that will likely affect the project outcome. The panel was attended by Timor-Leste nationals as well as non-nationals and represented civil-society organizations, international non-governmental organizations, bi-lateral donors and different United Nations Organizations. After a brief introduction to the ICA methodology as well as the intended project design, the participants discussed potential factors in the institutional set-up of the project that would affect the level of support or opposition to it by different actors at all levels of government. See for details Annex 11.

Outcome

The key findings of the ICA are:

- The sub-district level, as the lowest formal local administration level and closest to the citizens, is likely an appropriate entry point for the project, however, considerable capacity building may be required;
- There is a formalized decision making process in place within the local planning process and administration that can prioritize investments for the project;
- There are specific water related institutions (at district and aldeia level), like water user groups in water supply and irrigation, that should be engaged by the project during planning design and implementation of projects;
- There may be a considerable discrepancy between nominal women's participation in decision making processes and their actual influence. It would require strengthening and institutionalizing meaningful women's participation in the project to improve community's and local administrations' resilience to the impact of climate change;
- It will be prudent to engage traditional authorities, such as Lia Na'in and Bee Na'in, as well as the church (e.g. a local priest), during the implementation of the project to ensure adequate community consultation, participation and ownership;

National workshop on the project document presentation, November 26, 2012

The workshop's aim was to present the prodoc findings to the government and development partners and to suggest the project for approval through the concerned ministries. All stakeholders were asked to provide final contributions and comments.

Outcome: The main result of the national planning workshop was that the invited decision makers approved the project approach as suggested in the Prodoc, including the management arrangements between MSA, MCIE, UNDP and UNCDF. Furthermore many government agencies, projects and (I)NGOs expressed their interest in joint development of climate resilient small scale infrastructure approaches in the three focus districts.

The main stakeholders consulted during the PPG phase are presented in the Table 1 below. More details for specific areas are provided in Annex 4.

Institution / Stakeholder Group	Cooperation during PPG Phase
Ministry of State Administration Sr. Miguel Carvalho Mr. Alessandro Righetti (UNCDF)	• Data on rural road infrastructure and associated projects, including construction standards • Participation in workshops and meetings • LGSP Project manager
National Directorate for International Environmental Affairs Sr Augusto Pinto Sr Adao Barbosa (UNFCCC focal point)	• Climate change office lead agency of PPG phase • Data and information about ongoing CC projects • Identify future needs to implement the national CC agenda, such as a CC decision support system • Participation in meetings and workshops • Organize workshops and fieldtrips • Liaise with MCIE, UNDP, UNCDF on management arrangements • International Communication on CC • Other NRM and environment issues
National Directorate for Environment Sr. Joao Carlos	• Data and information about IWRM projects, watershed management, River Basin Management Committee's mandates and roles and on according CB programs • Participation in workshops and meetings
National Directorate for Water Resource Management Mr. Lindsay Furness (BESIK) Ms. Keryn Clark (BESIK) Sr. Osorio Belo (DNGRA)	• Data on rural water and sanitation infrastructure and associated projects, including construction standards • Participation in workshops and meetings
Ministry of Agriculture and Fisheries Yoichi Yamauchi	• Irrigation
UNDP Mr. Nicholas Molyneux	• Information about climate change, NAPA and other related projects
UNCDF. ILO, Domingos Soares Rita Roque Bas Athmer (ILO) Maarten Van Driel	• Data and Information • Thematic support • Guidance in decentralisation matters • Guidance in rural infrastructure matters • Participation in workshops and meetings
AUSAID, ADB, WB, EU, Craig Sugden Jeff Prime Jenny Asman Hans Beck	• Data • Information • Potential for collaboration, cooperation and funding support • Participation in workshops and meetings
NSAs / INGOs Mirko Gamez Giulia Secondini Sara Ribera Steve herbert Rufino Simoes	• Data • Information • Thematic support • Assurance on collaboration in the field • Participation in workshops and meetings
Different national and international experts Phil Young - Agriculture Samuel bacon – Climate Change	• Data - climatic • Information • Participation in planning workshops • Technical opinions and advice on irrigation feasibility
Other institutions and private individuals -Freddie Santos (Project implementation Unit – Large Scale Roads)	• Data, information, logistical support, etc

Table1, Main stakeholders consulted during the PPG phase

2 PROJECT STRATEGY

2.1 Project Rationale and Policy Conformity

The Project Objective is ***"Critical small scale rural infrastructure is climate resilient designed and implemented through participatory approaches and strengthened local governance systems, reflecting the needs of communities vulnerable to increasing climate risks."*** The LDCF funds will enable the Ministry of State Administration (MSA) and the Ministry of Commerce, Industry and Environment (MCIE) to work towards realizing the preferred situation by: providing incentives for a) local administrative institutions to integrate climate risks into design, participatory planning and financing of small scale rural infrastructure provision, through protecting and diversifying small scale rural infrastructure against climate change induced risks (e.g.: droughts, floods, erosion and landslides), including utilizing ecosystem based approaches, and b) policy makers to integrate climate risks and -vulnerabilities in sector policies, by systematic use of climate risk information through national knowledge management and coordination mechanisms.

The overarching goal of the project is to safeguard development benefits for rural communities from future climate change induced risks. This goal is consistent with and underpinned by, a number of important policies and strategies governing Timor Leste's national development and its specific response to climate change. The Government of Timor Leste has recently published its Strategic Development Plan (2011-2030) (SDP), which sets out an agenda for action with a focus on promoting Social Capital, Infrastructure Development and Economic Development, underpinned by a further focal area on Institutional Development. The SDP charts very closely to the National Adaptation Plan of Action (2010) and the NAPA objectives are embedded within the SDP, the NAPA thereby becoming integral with the Government's vision for the future development of the country. One of the national development targets for 2020 is that "70% of National Adaptation Programmes of Action under the United Nations Framework Convention on Climate Change will have been implemented".

Timor Leste remains committed to moving towards administrative and financial decentralization, as enshrined in Article 5 of the Constitution. A national decentralization policy and roadmap has been approved and several Local Administration laws have been submitted to Parliament. Although a decision was taken by the Government in April 2010 to postpone the municipal elections until sometime after the 2012 national elections, this decision has not restricted the roll out of new administrative and financial arrangements for the transfer of resources and decision making authority to the districts. In 2010 the Government also introduced the Decentralized Development Package (DDP), whereby approximately USD 31 million was allocated through the mid-year rectified state budget to be implemented by the District Administrations. Subsequently, through new guidelines issued in 2011, the DDP was divided into two funding pools - DDP I and DDP II - with the Ministry for State Administration (MSA) given full responsibility for delivering DDP I, as well as for providing planning and implementation support to DDP II.

Timor Leste completed its NAPA process in 2010, led by the Ministry of Economy and Development. The NAPA document was presented to (and approved by) the Council of Ministers in 2011. The NAPA identifies and ranks 8 priority sectors, with food security and water resources ranked 1 and 2 respectively, as well as a 9th priority on national institutional capacity for climate change. The ranking exercise was carried out by a national level multi-disciplinary team based on the working group structure that was established to support the overall process. This proposed project is fully in line with the NAPA priorities and is specifically linked to those linked with Water

Resources, Physical Infrastructure, Forests and Biodiversity and National Institutional Capacity, as follows:

- Water Resources – *the project will help to design, build and operate climate resilient infrastructure that will protect locally water sources and provide safe supply during extreme events as well as extended drought periods*.
- Physical Infrastructure – *the project will review relevant national codes, standards and guidelines for the design and construction of rural infrastructure, as well as integrate and disseminate climate resilience measures into this guidance for wider replication.*
- Forests and Biodiversity – *the project will apply an ecosystems based approach to rural infrastructure through the planning and implementation of complementary forest and land management measures to increase of resilience of infrastructure that is at risk from flooding and landslides.*
- National Institutional Capacity – *the project will build on and strengthen the mandate of the NAPA working groups and inter-disciplinary team which includes government officials, NGOs, the private sector and development partners, to improve national coordination, engagement and knowledge sharing*.

The Ministry of Commerce, Industry and Environment has developed several important policy documents which contribute to the country's emerging policy for environment and sustainable development, including: the Sustainable Land Management Strategy and Guidelines (2010) and the National Biodiversity Strategy and Action Plan (2011) (NBSAP). The NBSAP will be implemented through three avenues: a) sector coordination and biodiversity mainstreaming through a Clearing House Mechanism, b) promoting the value and use of biodiversity and natural vegetation in sector development plans, including the infrastructure sector, and c) rehabilitation of degraded habitat, also in the watersheds of infrastructure works. The Ministry developed Timor Leste's first piece of comprehensive environmental legislation – the Basic Environmental Law, Decree-Law no 26/2012– which went into effect on July 5th 2012. Furthermore several decrees and draft regulations on protected area establishment and management, environmental impact assessments for selected development activities and pollution licensing are in place. These environmental clearances and licences are also aiming at mainstreaming environmental (and social) impact assessments in local development planning, specifically for infrastructure projects. The Ministry has also initiated recently the first National Communication to the UNFCCC. With the recent decision of the new Government to establish a National Directorate for International Environment and Climate Change, it is evident that climate change is increasingly seen as an important issue in its own right, next to the more general environmental conservation and protection. Furthermore disaster risk management programmes of Timor Leste emphasize the need for improved data collection and analysis, hazard and risk mapping, a strengthened prevention/mitigation activity planning process and the establishment of sector coordination mechanisms including, and at Local Administration level.

The National Directorate with responsibility for water resources management (Ministry of Public Works) has prepared a draft national water resources policy based on integrated water resources management principles, together with a water resources law, both of which are now undergoing public consultation. Increasing access to Timor Leste's plentiful, though localized, groundwater supply is an important element of this new direction. The Strategic Development Plan identifies the need for increased drilling of tube wells in order to access and 'prove' this supply. It also cautiously promotes investment in increased surface water storage via small-scale or larger dams. Furthermore, 75% of the country's rural population is foreseen to have access to safe and reliable water by 2015, while all government schools will be connected to clean, piped water and all sub-districts will have improved drainage and sewerage systems.

The Comoro Declaration Against Hunger and Malnutrition (2010) strongly sets out the Ministry of Agriculture and the Government's desire to eradicate hunger and malnutrition. As a first goal it has set target of reducing the number of undernourished people by half of its current figure by 2015. [22] While it does not specifically mention water and irrigation in its strategy, it does state the commitment to "promote optimal allocation and use of public and private investments for the improvement of human resources and agricultural systems, fisheries, forestry and food and sustainable rural development in areas of high and low potential" which, based on the Strategic Development Plan, would necessarily mean direct investments in improving access to and management of water resources for agriculture.

More concretely, the Strategic Programme for Promoting Agriculture Growth and Sustainable Food Security (2010) sets out the Government's strategy for achieving agricultural growth, acknowledging the difficulties associated with the transition from small-scale subsistence to a more commercial, market driven intensive system, and the importance of achieving this in a socially and environmentally sustainable manner. It acknowledges a lack of investment in rain-fed agriculture in a country where 70% of farmers do not have access to paddy areas. The "inefficiencies of large scale irrigation schemes" are also high on the list of challenges recognized. As part of the objectives of the programme the need to strengthen communities' resilience to shocks, particularly drought, floods, pests and diseases is mentioned. Some strategies for achieving this and other immediate objectives in the medium term are as follows:

- Increasing rice production in those low-land areas best suited for paddy irrigation
- Diversifying marginal paddy lands to higher value crops such as irrigated maize and vegetables
- Diversifying and intensifying rain-fed and upland cultivation and homestead horticultural and small livestock production

The same Strategy also sets out watershed management approaches for sustainable rural development and rehabilitation and strengthening of farmer-managed irrigation schemes are also included in the strategy, including:

- Developing watershed management stakeholder co-ordination mechanisms
- Develop a database of water resources and crop water requirements
- Establish/strengthen water users associations for large-scale irrigation schemes and establish water user groups for small-scale farmer managed irrigation schemes
- Rehabilitate/construct 400 rainwater and spring water harvesting works (e.g. tanks and ponds) and rehabilitate the intake structures and irrigation channels of 40 small scale farm managed irrigation schemes.

The Government is also giving high priority to infrastructure development. The Strategic Development Plan presents the rehabilitation, repair and improvement of the road network, including rural roads as a key priority area. Another vitally important element in the economic and social development of the country and the health and wellbeing of its people is access to safe drinking water and sanitation systems. Timor Leste aims to achieve the following Millennium Development Goals by 2020:

- 75% of Timor-Leste's rural population will have access to safe, reliable and sustainable water;
- 40% of rural communities will have significantly improved sanitation facilities.

To achieve these targets, the SDP 2010 sets out the following actions as proposed in the Rural Water Supply and Sanitation Program: a) Installation of approximately 400 water systems for

[22] Comoro Declaration Against Hunger And Malnutrition, United Against Hunger And Malnutrition The world Food Day 2010

25,000 rural households in the next five years, b) Construction of community owned latrines, c) Provision of technical expertise and supervision for communities, and d) Recruitment of 80 sub-district water and sanitation facilitators for Sucos. The SDP also highlights the Government's intention to make a major investment in rehabilitating and extending irrigation systems and improving water storage in rural areas. Furthermore there is an increased emphasis on asset management, next to the construction of new infrastructure.

2.2 Country Ownership: Country Eligibility and Country Leadership

Consistent with the Conference of Parties (COP-9), the Ministry of State Administration will implement the proposed LDCF project, addressing priority interventions of Timor Leste's NAPA, therefore satisfying criteria outlined in UNFCCC Decision 7/CP.7 and GEF/C.28/18. It will address urgent and immediate climate change adaptation needs and leverage additional co-financing resources from bilateral and other multilateral sources. The Government requests the LDCF to finance the additional costs of achieving sustainable development imposed on Timor Leste by the impacts of climate change. It is country-driven, cost-effective, and focused on immediate needs of vulnerable people, especially women. It will contribute to integrating climate change risk considerations into district and sub-district planning associated with the provision of critical small scale rural infrastructure through the medium of improved local governance approaches, as well as strengthening natural systems to continue to provide flood protection and water provision services in the context of a changing climate. The project is therefore highly relevant to national priorities and was developed through extensive stakeholders' consultations (see Annex 4). The project focus is therefore aligned with the scope of expected interventions as articulated in the LDCF programming paper and decision 5/CP.9. As climate impacts fall disproportionately on the poor, the project recognizes the link between adaptation and poverty reduction (GEF/C.28/18, 1(b), 29).

The UN Integrated Mission in Timor-Leste (UNMIT), which has functioned as an interim governing institution since Timor Leste obtained independence, operates under the mandate provided by the Security Council Resolution 1704. This mandate, as per the request of the Government of Timor Leste, will end on December 31st, 2012. This means that remaining functions of the UNMIT will be fully handed over to the Government, including law and order. The end of the successful UNMIT mission is a clear indication that the Government is taking full ownership of governance and development of the country. The importance of the support from UN development agencies to the Government is herewith also increased and it is foreseen that new development assistance frameworks will be developed in the coming year. These will likely continue on the basis of the successful existing ones, consolidating peace and stability in the country, while moving away from the high dependence on foreign expertise towards a higher focus on capacity development of government and non-state institutions, especially at the local level.

The LDCF project is fully harmonized with the priorities of the current UNDP Timor Leste Country Programme (CPD 2009-2013). The CPD analysis recognizes that strong progress was made in recent years in terms of economic growth (although highly dependent on oil and gas) and in poverty reduction. At the same time the benefits of economic growth are not being distributed evenly, increasing inequality on the country. Poverty remains widespread in rural areas with a large proportion of the population still living a subsistence existence, providing a focus for UNDP's programming work over the coming years. The rural population and especially disadvantaged groups are recognized to be particularly vulnerable to global climatic change and recurrent natural disasters.

More specifically the CPD contributes to the goal of consolidating peace and stability in the country through the relevant UNDAF outcomes: (a) democratization and social cohesion; and (b) poverty

reduction and sustainable livelihoods. The CPD programme is contextualized in the post-crisis scenario and focuses on development and governance as means for contributing to lasting peace, stability and security in the country. The programme uses social mobilization as a poverty reduction strategy, linking communities to microfinance services and marketing channels. The UNDP promotes and supports community-driven and managed rural infrastructure, self-help groups and community-based, sustainable natural resource management to enhance agricultural productivity and incomes. Women's groups are also engaged as agents of change. UNDP will continue to support the mainstreaming of environmental issues into poverty reduction and good governance strategies, particularly in climate change. It will strengthen support to the Government in environmental management, including the implementation of national environment and energy policies (CPD pg 4). Further United Nations supports climate change adaptation measures in the country to strengthen the synergy between sustainable development and climate change (UNDAF pg 17). Integration with DRR preparedness and response provides a further practical entry point for the use of LDCF resources.

The Government and UNDP are thus actively pursuing measures to support and strengthen effective climate change adaptation. The LDCF project will build upon the Government's and UNDP's strategies and will support integration of climate risks to strengthen sustainable development benefits, as follows:

i. Sustainable growth and MDG achievement will be achieved through promoting sustainable livelihoods through integrating climate change vulnerabilities in local development planning, more sustainable climate resilient small-scale infrastructure services and improved environmental protection;
ii. Effective governance will be supported through providing the combined climate resilient infrastructure and ecosystem adaptation options in the already existing local planning and budgeting process as supported by the existing LGSP project;
iii. The project is the first dedicated climate change adaptation initiative in Timor Leste that from the design phase directly aims at integrating ecosystem-based management approaches with small-scale infrastructure development. Lessons learnt will help to design future CCA initiatives based on best practices.

2.3 Project Design Principles and Strategic Considerations

2.3.1 Key design principles

Key to the project design is to ensure additionality in terms of climate change adaptation and to integrate the nation-wide up-scaling process of successful innovation and good practice of the project into national systems. The project is therefore designed to specifically address localized climate risk vulnerabilities and provide solutions which are locally functional and effective. These solutions need therefore to be developed and sustained at the local level, i.e. at the interplay of households, communities, civil society organizations, private sector, and Local Administration institutions.

Since the LDCF project will focus on climate risks and climate variability adaptation aspects of existing (baseline) participatory local planning, budgeting and infrastructure development approaches (and innovation) the additionality will be ensured. The innovation aspect will also create sufficient 'research and development' momentum in the LDCF project to ensure real sustainable structural solutions based on actual practice on the ground.

To ensure a maximum fit of matching local needs with standardized investment feasibility, project selection for the investment budget will be guided by an Adaptation Investment Menu, as described in detail in Annex 5. This decision tool lists the combined ecosystem based management and infrastructure development options suitable for a given development constraint. Once a project is prioritized, a site specific CRVA analysis will be carried out to catch the location specific particularities appraise for feasibility. The following graph explains how district planning and the planning approaches of the new project relate to each other.

The design of the LDCF project has been guided by, in addition to standard formal GEF and UNDP requirements (as additionality), by the following design principles:

- The project is to develop capacity of and strengthen, as much as possible, national systems and is to avoid where possible project-based (implementation) processes in parallel to national systems;
- The project is to leverage other government and donor investments and development results through identifying (in)formal opportunities for collaboration;
- The project is to support innovation in selected focus districts while at the same time ensuring nationwide up-scaling (13 districts) and institutionalizing of good practice and project outputs;
- The project seeks as key entry points improvement of local planning and budgeting processes by supporting climate change vulnerability assessments, CCA activity identification for bottom-up planning, District strategic plan development and climate resilient infrastructure design;
- Project fund flows for the investment component (Outcome 3) will be arranged via a Letter of Agreement (LoA) between UNDP and the Government Implementing Partner (MSA) based on approved yearly investment plans to be developed by participating districts. The grants will be channeled through MSA, which will after approval of budget allocations channel the funds to concerned districts for payment of approved plan implementation services. This will be done with the objective to further develop capacity for fund management at district level, in line with decentralization policies, with a specific focus on climate resilience.
- The project is to limit to the extent possible additional workload for counterparts on project steering and management by looking for synergy with other projects;

2.3.2 Local Government Support Project II – UNCDF/UNDP

Based on the design principles and up-scaling requirement discussed above, it has been researched whether or not the LDCF project can be aligned or integrated with an existing project, which could support leveraging the LDCF investments nationwide. The obvious choice for this is the existing Local Government Support Project II implemented by UNCDF and UNDP with support from several donors. Key in the assessment has been the identification of complementarity of objectives, development results and key project activities, the feasibility of an integrated steering and management arrangement and possible conflicting interests. Or in short: the added value of linking the LDCF project to the LGSP II in achieving and leveraging LDCF outcomes and vice versa.

The Government introduced a measure of decentralization of development planning and financing through funds known as “PDD” which finance small infrastructure investments of value up to US$ 500,000. In 2011 the Government enacted a Decree Law mandating an annual planning and budgeting exercise known as “PDID” which is conducted by a District Development Commission led by the District Administrator. The PDID process uses some of the procedures developed by LGSP under its Local Development Programme (LDP, 2005-2012). Based on the LGSP Outcome

and Outputs, which reflect intensive support to the Government for implementation of the PDID and PDD at Local Administration level, LGSP's good relationship and embedding with the Ministry of State Administration and the identified focus areas (and results framework) of the LDCF project the following strategic collaboration advantages have been identified:

- **Decentralization and Municipalities**; the LDCF project will collaborate closely with MSA through the LGSP II with (preparation of) the establishment and capacity development of the (new) Municipalities, some of which can be selected as LDCF focus Districts, in all aspects related to the LDCF project mandate, including climate resilient inclusive service delivery, local planning, public financial management and small scale infrastructure development;
- **Climate vulnerability**; the LDCF project will support MSA with the development and mainstreaming of a participatory community-based climate vulnerability analysis methodology in the local planning guidelines through the local planning guideline development support the LGSP II is providing to MSA;
- **Strategic District Planning**; the LDCF will closely collaborate with MSA through the LGSP II on the integration of climate change issues in the ongoing development of District Strategic Plans, an important activity where LGSP II has been requested by MSA to take the lead. The LDCF project will lead the integration of climate risk concerns in the development of these plans, in the selected LDCF project districts, in support to MSA's goal of nation-wide development of strategic plans in all districts;
- **Development Result Monitoring and Evaluation**; the LDCF project will support the MSA through the LGSP II with the integration of CC baselines and indicators in the ongoing development of the monitoring and evaluation system of the local planning process (PDID), as supported by LGSP II;
- **Climate resilient infrastructure development**; the LDCF project will lead the development of climate resilient small scale infrastructure designs and capacity development packages for (local) engineers and contractors, which MSA will apply nation-wide with support from LGSP II;
- **Innovation and up-scaling**; the LDCF project will function as a ´Research and Development' entity for MSA, where in the selected districts' new climate resilient approaches are developed and tested e.g. in relation to planning, financing and infrastructure development. These will, once proven successful, be up-scaled by MSA to all 13 districts with support from LGSP II as part of LGSP II's mandate on PDID implementation support ;
- **Policy influencing**; the LDCF project will provide additional evidence base for joint policy influencing with LGSP II on the role of Local Administration in addressing climate risks and the merit of decentralization and need for developing adaptation capacity at local levels. This would also strengthen MSA's capacity in supporting the LDCF climate resilience policy-influencing agenda in relation to other sectors and especially MCIE;

2.3.3 LDCF project Implementing Partner

The Project Identification Form (PIF) has identified the Ministry of Commerce, Industry and Environment (former MED) as the implementing entity for the LDCF project. The main reasoning for this selection was the obvious link between climate change and environment. However, since the LDCF project will mainly engage at the Local Administration level through local planning and budgeting processes and though its district based investment component, it was agreed to have instead the MSA as implementing partner. The MSA is also the implementing partner of the LGSP II. MSA also strongly recommended the avoidance of, as much as possible, new isolated projects with separate project arrangements and to integrate where ever possible new projects in existing frameworks. LGSP being a joint programme of UNCDF and UNDP and having substantial complementarity with the LDCF project was therefore proposed by MSA as the 'host' project for LDCF.

The MCIE and more specifically the National Directorate for International Environment and Climate Change (NDIEACC), has agreed to the change in project implementing partner and has also agreed to remain in the lead for the implementation of Outcome 1, which is related to climate risk knowledge management, leading an inter-sector coordination mechanism and evidence-based policy influencing.

2.3.4 Links to past and on-going initiatives

The LDCF project aims to build on experience and good practice from past initiatives and to seek collaboration where possible with ongoing and/or new initiatives for joint learning and development of climate resilient small scale infrastructure in the three focus districts. Key initiatives identified are presented below, but others may be added.

COMPASIS - Rehabilitation of Small Rural Infrastructure Projects

This infrastructure component of the overall multi-donor COMPASIS project has been operating under the overall COMPASIS mandate: "to protect extremely poor households (with a major focus on women farmers, widows, unemployed youth, returning IDPs, children, and food insecure people) in the identified districts of Ermera and Oecusse. The COMPASIS project uses approaches of community mobilization and social inclusion to both a) reduce extreme poverty and improve income generation and food security among vulnerable groups through community mobilization, agro-based microenterprises, skills training and post-training support; and b) promote social inclusion in the service delivery system through the education participation of out of school children; community awareness of maternal and child health; and capacity of service providers in planning and executing community-based water, sanitation and primary health/hygiene schemes."

Concerning infrastructure, the main projects approved by District Assemblies based on village priorities are water/irrigation structures, road and bridge rehabilitation, and the rehabilitation of schools. The LDCF project will build upon the experiences of COMPASIS, especially related to its infrastructure implementation mechanisms with project identification, design and contractor procurement, which allowed COMPASIS to target the most vulnerable sub-districts, and to ensure that each "most vulnerable" suco received at least one infrastructure (improvement) project. COMPASIS also selects projects from the suco/sub-district priority lists that have not been chosen for funding by the DDC after the selection is completed. The COMPASIS project also uses a Letter of Agreement between UNDP and the Government. This therefore provides a sound basis for the design and implementation of the LDCF project.

AusAID - Community Driven Development Programme (PNDS)

With support from the Government of Australia, the Government is designing a Suco-level Community Driven Development Programme to be known as PNDS. This programme will provide substantial funds, envisaged to be $US 50,000 per Suco per year initially, for small infrastructure projects of below USD 50,000. The PNDS is considered to fall within the scope of the PDID planning process and it is likely that a new suco level planning process will be initiated as part of the project start-up. The decision-making on the prioritization of projects and use of funds will be taken at the suco rather than the district level, which deviates from the existing planning process, but is in line with the decentralization vision of the Government. According to the existing procedures (project value below USD 50,000) the projects will be designed by the districts and implemented by the community through community contracting. The PNDS is thus complementary to the LDCF and has good potential for joint learning on integrating climate variability risks in suco planning and projects and in capacity strengthening of Local Administrations.

AusAID - Water Resources and Rural Water, Sanitation and Hygiene - BESIK

The Government and AusAID have recently started a new eight year program of support to the rural water, sanitation and hygiene sector (RWASH) in Timor-Leste. For the first four year stage, an expected expenditure of $45.860 million is foreseen. The new program builds on sound relationships, policy frameworks, and service delivery approaches demonstrated under past support of AusAID's to the RWASH sector under BESIK I (2007-12, $41m). This phase focused on both directly building infrastructure through NGOs and developing Government capacity to deliver RWASH services. Given its solid reputation, the program will retain the same name: BESIK, or Rural Water Supply and Sanitation.

BESIK (II) will support the Government's Strategic Development Plan – in particular the 2015 targets of a) 75% of Timor-Leste's rural population will have access to safe, reliable and sustainable water (from 57.1% in 2010), and b) 55% of Timor-Leste's rural population will have access to improved sanitation (from 26.3% in 2010). BESIK aims to bring about changes in behavior or performance of a range of stakeholders in the sector, including households, water user groups (GMFs), school students and staff, private sector, NGOs, and various levels of government.

Australian Red Cross - AusAID

Australian Red Cross commenced a three year program to provide clean water and improved sanitation to poor rural communities in Timor-Leste from July 2009. This has been funded through an AusAID – Australian Red Cross Partnership Agreement, and implemented by the Cruz Vermelha Timor-Leste (CVTL), the National Red Cross society of Timor-Leste and ARC's long-standing partner. (Rural Water and Sanitation in Lautem & Baucau Districts, Timor-Leste – Mid-term review 2009-2011). A key issue in more than one site appears to have been lack of participatory community process in identification and building community support. CVTL staff appear to have dealt directly with community leaders, resulting in assessments which were not necessarily owned by the community as a whole, and possibly embedding some biases. (p2, Mid-term review 2009-2011). Gender practice and outcomes remains a challenge in Timor-Leste generally, as also noted in this program. Women have not in all cases been involved in the construction of water and sanitation facilities, and did not seem to have been properly consulted about design and installation. This resulted in some cases is an inadequate number and location of tap stands, which impacts directly on women as the main collectors and carriers of water.

WaterAid

WaterAid Timor Leste (WATL) and its partners work with individuals and families in their communities and use a mixture of low-cost technologies to deliver lasting water, sanitation and hygiene solutions. WaterAid works with partners in 139 communities primarily in the Aileu and Lautem Districts, bringing water and sanitation to several villages and stopping open defecation through the Community-led Total Sanitation approach, for which they also advocate to be included in the national sanitation policy. Water Aid has an extensive global organization and network and extensive experience with innovative adaptation technologies and approaches, which would be useful to further develop in the local context of the three focus Districts. WATL developed in 2010 a partnership with the International Women's Development Agency (IWDA) to strengthen knowledge and skills to support community-driven gender equality through WASH programs. WATL and IWDA conducted participatory strengths-based research in two project communities in Liquiça District in June 2010. The research facilitated women and men to identify, from their own perspective, gender outcomes achieved through project activities and enabling factors that had supported those changes. The research was a good starting place, as it built evidence; informed design of activities based on issues identified by women and men in communities themselves; built ownership amongst staff; and provided a real-life illustration of what confusing gender concepts are about.[23]

[23] Putting a Gender Lens on WASH Practice in Liquiça, Timor-Leste, Di Kilsby, International Women's Development Agency (IWDA), with input from staff of WaterAid Australia and Timor-Leste; Case Study 13,

These experiences and lessons are a valuable basis for the LDCF project to trial mainstreaming of climate risks into gender sensitive approaches in water, sanitation and hygiene projects.

CARE and Oxfam – Community based climate change vulnerability and adaptation

Both CARE International and Oxfam are implementing programmes funded by AusAID on the development of climate variability risk and vulnerability assessments to generate data on localized impacts and possible adaptation strategies. Both organizations also have ample experience with local development, community mobilization processes and with climate variability adaptation and are therefore important possible partners for the LDCF project.

UNICEF - Community Water, Sanitation, and Hygiene

UNICEF Timor Leste is implementing a Water Sanitation and Hygiene programme at schools and in communities and is therefore similarly to other sector programmes a valuable source of experience and good practices. Since UNICEF also works with a partnership model, including families, communities, governments and like-minded organizations, it also has an extensive network from which the LDCF project can learn and with which members of the project may collaborate.

Department of Hydro-meteorology

The Department of Hydro-meteorology compiles climate data and is engaged in a regional capacity development exercise supported by the Asian Institute of Technology, with the capacity to develop seasonal weather forecasts (up to 3 months) based on national data. All of these data will need to be shared widely, linked to increased expertise in analysis and application to decision making. Also the design of the data collection system requires to be linked to demand for data from different (potential) users.

AusAID/ILO – Roads 4 Development project

The MPW has initiated with support from AusAID a programme for rehabilitation and expansion of the rural roads network at District and Sub-district level, Roads for Development (R4D). R4D is designed for 4 years and is to become the leading nation-wide program in the rural roads sub-sector in Timor-Leste, covering all the 13 Districts of the country, and aims to effectively and equitably plan, budget and implement investments in rural road construction, rehabilitation and maintenance. R4D design aims to also develop capacity at the District and Sub-district level in line with the Government's decentralization policy. Since rural roads works will be implemented with labor-based technology there is a substantial vocational skills and project management capacity component for local administration staff, contractors and communities. In addition R4D will introduce ecosystem based approaches, bio-engineering, for rural roads and related small infrastructure works. Main areas for collaboration for the LDCF project are therefore the development of ecosystem based measures, or bio-engineering, for improved climate resilience of infrastructures and technical skill and capacity development of communities and staff of local administrations and contractors.

UN WOMEN – Gender equity

UN Women is the UN organization dedicated to gender equality and the empowerment of women. UN Women set global standards for achieving gender equality, and works with governments and civil society to design laws, policies, programmes and services needed to implement these standards. It stands behind women's equal participation in all aspects of life, focusing on five priority areas: increasing women's leadership and participation; ending violence against women; engaging women in all aspects of peace and security processes; enhancing women's economic empowerment; and making gender equality central to national development planning and

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Towards Inclusive WASH Sharing evidence and experience from the field, 2010.

budgeting. UN Women also coordinates and promotes the UN system's work in advancing gender equality.

Since 2001 UN Women has been supporting the Government of Timor Leste and civil society partners address national priorities for gender equality and women's empowerment. UN WOMEN therefore has ample experience with policy influencing and a substantial network with key project stakeholders who will support the advocacy and mainstreaming of gender and climate change issues identified by the LDCF project.

2.3.5 Focus Districts: Climate Resilient projects, Bottom-up innovation and Up-scaling

The development approach of the LDCF project in the three selected focus districts Liquiça, Ermera and Baucau and their respective sub-districts, in terms of selecting infrastructure projects, introducing climate resilient measures and designs, innovation and up-scaling of good practice is explained below.

Development Approach

The project design is based on an adaptation of the four-step framework for mainstreaming climate change adaptation into development planning by Huq and Ayers (2008)[24] as presented in Figure 15. An attractive feature of their framework is that it is simple and visualizes a linear sequence of awareness and scientific capacity building, targeted information, and training of key stakeholders, which is followed-up with studies to inform policy-makers and persuade them to incorporate the lessons learned into policy and planning. These elements are very much in line with the LDCF project outcomes and outputs. A noted weakness of the framework is its contextual and institutional embedding within a local governance context and that it does not address local planning or implementation. Lack of knowledge is assumed to be the main constraint, and the research, study and testing activities are intended to provide governments with experience, but it is not clear how mainstreaming will emerge from these activities, or how training and greater knowledge will lead to appropriate projects. The framework presents four steps: 1) Awareness raising; 2) Targeted Information; 3) Research and development studies; and 4) Mainstreaming.

Figure 15, A simple step framework for Climate change adaptation (Huq and Ayers, 2008)

[24] As discussed in "Mainstreaming climate change adaptation into development planning", Louis Lebel, Lailai Li, Chayanis Krittasudthacheewa, Muanpong Juntopas, Tatirose Vijitpan, Tomoharu Uchiyama, and Dusita Krawanchid; Bangkok: Adaptation Knowledge Platform and Stockholm Environment Institute, 2012.

Within the LDCF project design these steps have been considered less linear and more cyclic, while maintaining all four elements. The LDCF project is designed for the specific context of local administrations in Timor Leste, guided by the project objective of improving climate resilience of critical small scale rural infrastructure through participatory approaches and strengthened local governance systems, reflecting the needs of vulnerable communities.

The following key output/activity areas are therefore designed as part of the LDCF project, with reference to the four steps of the above framework:

1. Awareness creation at community level is initiated through a CVRVA methodology and at local administration level also through engagement in the local planning process on mainstreaming climate risks, under Outcome 2;
2. Targeted information for the local planning process is also generated by the CVRVA and the vulnerability maps. At the same time climate resilient design information is generated through the expertise of the consulting team and partners and applied practice in the investment component. This information is used for capacity development (Outcome 2) and targeted at local practitioners as well as over time at policy makers through Outcome 1;
3. The small scale infrastructure projects implemented under Outcome 3, will inform on good climate resilience infrastructure development approaches and designs, while innovation projects and a learning while doing approaches leads to evidence for good adapted innovation practices, which can be applied (under Outcome 2 and 3) as well as mainstreamed (under Outcome 1);
4. The mainstreaming or up-scaling element is built in right from the start, through collaboration and partnerships with other programmes and with central agencies responsible for national design standards and sectoral infrastructure approaches. Furthermore LGSP is selected as a key vehicle to mainstream and up-scale successful climate resilient small scale infrastructure, and planning and budgeting process, nationwide through support to MSA with PDIP implementation;
5. At national level, the four steps occur once again, initially focusing on awareness creation and sharing targeted information (evidence from research and testing) to generate momentum towards more sharing, learning and collaboration amongst central ministries and other actors. Thereafter through Outcome 1 policy recommendations on climate resilience measures at the local level will be mainstreamed through all sectors and Capacity Development support is provided.

Below a more detailed description of the key output/activity areas of the project is provided, the project Outcomes, Outputs and Key Activities are presented in further detail, linked to the project Result and Resources framework.

Climate Variability Risk and Vulnerability Assessment (CVRVA) methodology

The project consultants will seek partnerships and procurement of contractual services for developing a climate variability risk and vulnerability assessment (CVRVA) methodology and for conducting CVRVA assessments in selected sucos which feed into the climate resilient designs of selected suco infrastructure projects, as well as into the development of climate risk and vulnerability maps of the sub-districts and overall districts.

As a basis for the CVRVA approach the present programmes of CARE International and Oxfam will be used and possible services from these (or other) organisations will be procured. In Annex 1 examples are provided of vulnerability and risk maps as produced for the central part of Liquiça district by CARE International. One map shows internal vulnerability in relation to exposure to flooding, the other the same for landslides. The vulnerability information will also feed into the broader infrastructure design approaches and the technical design solutions and ultimately standards (Figure 16).

The CVRVA methodology will be systemised and standardised to be included in the MSA local planning process, at suco, sub-district and district level, which can thereafter with support from LGSP be up-scaled nationwide as part of the PDID. In addition vulnerability information and maps produced by the LDCF project will be used for the development of the Strategic District Development Plans, supported by LGSP in amongst others Liquiça as a first district.

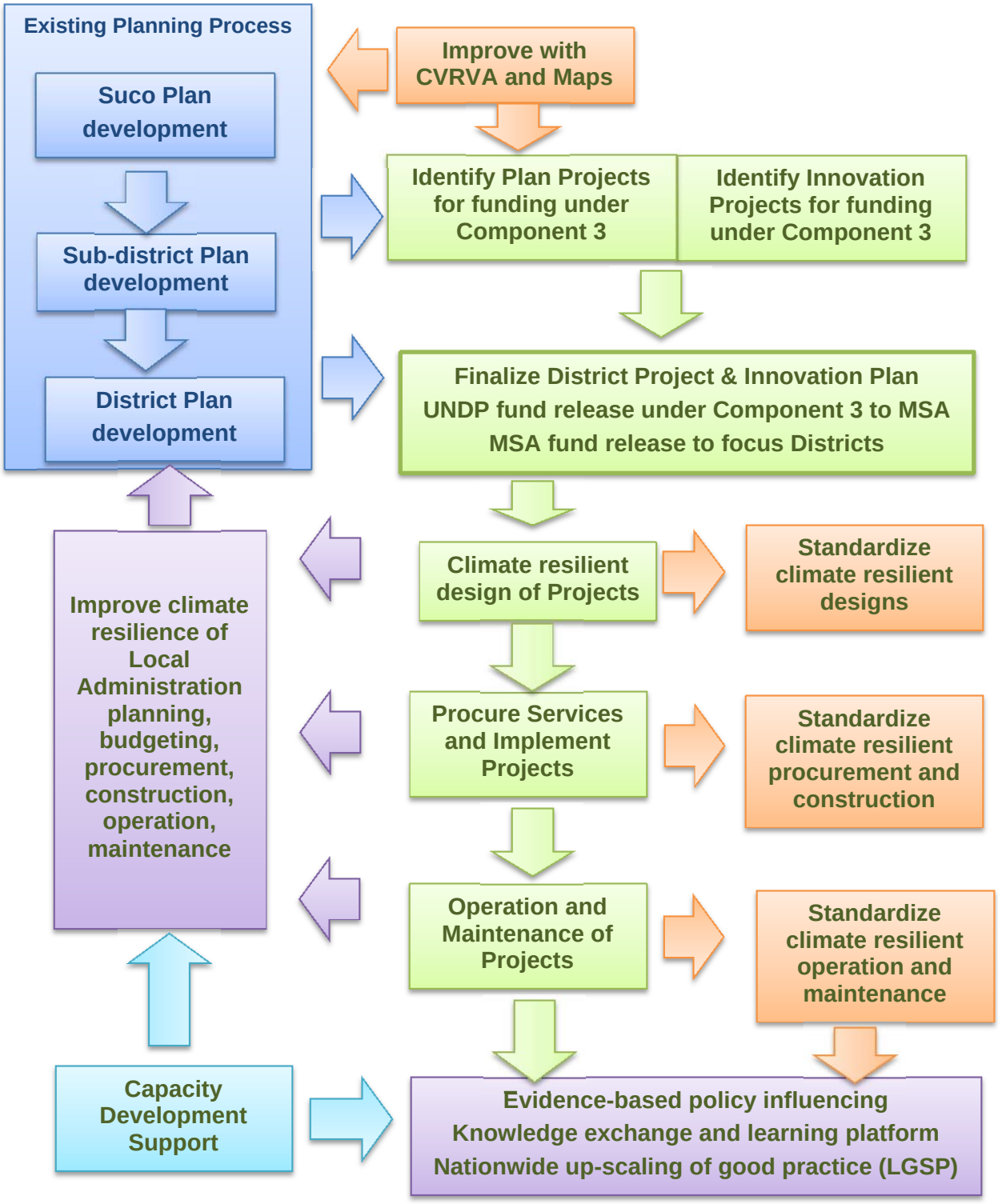


Figure 16, Flow chart of key LDCF project activity areas, building on the existing local development, planning, budgeting and implementation process

Figure 16 shows a (simplified) flow chart of key project activity areas, related local planning, budgeting, procurement, construction and operation and maintenance of small scale infrastructure. The figure also shows the systemizing of lessons learned and how these feed into national standardization, policy influencing and up-scaling. Each of these areas is further explained below in more detail.

Selection and design of small scale infrastructure projects

The identification of small scale infrastructure projects to be funded under Component 3, the investment budget, will be based on suco level projects which are part of the existing (or proposed) sub-district plans. Notwithstanding deficits in equal gender representation, the sub-district level has been confirmed by the ICA (Annex 11) identified as an appropriate entry point for project selection through the ICA, because project prioritisation is taking place through the sub-district administration council. The process was generally considered fair and aimed at providing equal benefits to all sucos in a sub-district. However, additional capacity building is likely needed to effectively utilise the benefits of democratic structures at these levels of government. In each of the focus districts non-prioritized and thus non-funded suco level projects of the sub-district plans will be identified which fit within the LDCF project's eligibility criteria as presented in Annex 5, in which also some further pictures are provided of (partly) improved climate resilient infrastructures. Non-funded small scale infrastructure projects selected for funding under the LDCF project will be assessed in terms of their vulnerability to climate variability risks and their potential for improving climate variability resilience of communities. Based on this assessment the most suitable projects will be jointly selected with the Sub-district Commissions and respective suco chiefs.

The design of project activities will be jointly conducted with the relevant central agencies and donor programmes. For example for water supply and sanitation projects the design approach and the climate resilient technical designs will be developed jointly with the BESIK team and where possible also building on e.g. WaterAid's water and sanitation technologies. The project team will also support the development of BESIK's new community mobilisation and hygiene behaviour approaches and will integrate the climate variability aspects to support increase capacities of communities to deal with climate variability. In a similar way collaboration will be sought for community approaches in small scale irrigation systems and other suitable infrastructure types.

Picture left and drawing below: Erosion protection measures based on bio-engineering; small rip raps and vegetation.

Technical designs will also include ecosystem approaches like bio-engineering for slope stabilisation or vegetation plantation in catchment areas, for which collaboration is anticipated with the MPW/ILO implemented (AusAID funded) rural roads programme. The presence of the project consultants will allow for a close support, monitoring and documentation of the joint infrastructure design development to ensure sustainable service delivery benefits for communities. Based on experiences and lessons from thus developed new design approaches and technical designs, these will be systemised and standardised for nationwide application by mandated central agencies (up-scaling).

The above modalities of infrastructure design and implementation will be funded through the investment component of the project or if feasible through joint financing with other projects. Once the suco projects have been prioritised and approved as part of the overall district plan by the District Development Commission, each District will as part of their annual plan provide an overview of proposed projects and budgets to MSA for funding under the LDCF project. The accumulated plan of the three Districts as a whole will be forwarded to UNDP/LDCF project for fund release to MSA and subsequently to respective districts and sub-districts.


Examples of the necessity to design irrigation systems more climate resilient (LGSP); Left: developing projections for river water levels and water availability; Right: increased rainwater surface run-off can cause increased levels of erosion and siltation of irrigation channels

Procurement and implementation

The Government's Decree Law (2010) mandates District Development Commissions led by the District Administrator to conduct the annual planning and budgeting exercise, known as "PDID". The local development fund for Local Administrations, called PDD, is split into two categories known as "PDD1" and "PDD2." PDD1 funds projects of value from USD 50,000 to USD 150,000 while PDD2 funds projects of value from USD 150,000 to USD 500,000. PDD 2 projects are implemented by the National Development Agency which is attached to the Prime Minister's office, while PDD1 projects are implemented by the District Administrations (effectively, the deconcentrated agencies of the Ministry of State Administration). Annex 3 provides an analysis of the procurement process within the PDID and the one used by LGSP for the Local Development Project (LDP). Procurement for PDD1 projects uses a procurement method described as "simplified procurement" which is based on scoring and ranking local contractors according to pre-qualification criteria and does not include any element of price competition. The LGSP developed and used for the LDP projects a competitive bidding process, which is considered to have clear advantages in terms of procuring adequate quality contractors and fair pricing. Furthermore Suco level projects < USD 50,000 are of a category where community contracting is mandatory, which has considering the limited capacity of communities, several drawbacks in terms of timeliness and quality.

Small scale infrastructure projects to be funded under the LDCF project are anticipated to be part of the USD 50,000 to USD 150,000 costing bracket and as such could be seen as part of the PDD1. However, it is likely that some smaller projects will also be identified, with a cost of < USD 50,000. These will still be considered as part of the Sub-district PDD1 project plans and they will be implemented by the LDCF project through the following are two options:

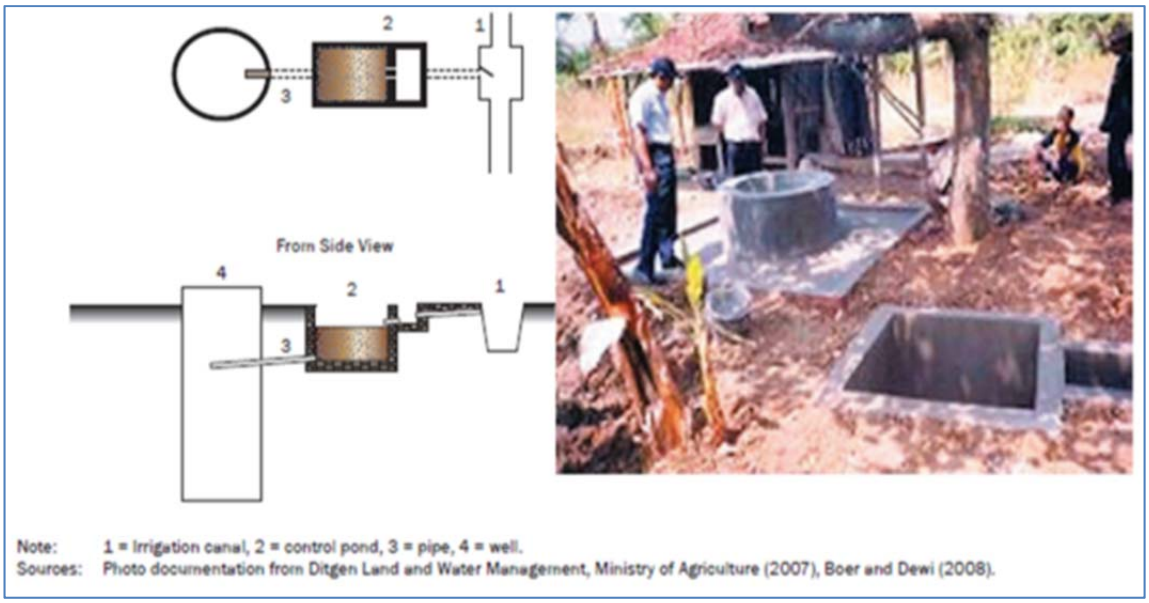
1. An attempt will be made to package multiple small projects in one larger tender contract, which exceeds the USD 50,000 contract value (but still less than USD 150,000);
2. If this is not feasible, the services for implementation of the project will be procured based on existing LGSP competitive bidding process.

The LDCF project will also conduct a study on the opportunity that Public-Private-Partnerships (PPP) modalities may provide improved (infrastructure) service delivery instead of the present more traditional outsourcing modalities like 'contracting', even though the PPP modality itself will not be used within the LDCF project. The project consultants will also support the Local Administrations for projects funded under Component 3 with construction supervision, reporting and with documenting lessons learned.

Innovation projects

In cases where making proposed suco level infrastructure works climate resilient, as described above, goes well beyond the normal practice at district level, such projects can be designed by the project consultants as innovation projects. Innovation projects are e.g. also new approaches to solving climate variability impacts and vulnerabilities which have not yet been (sufficiently) tested in Timor Leste, like water harvesting technology, infiltration wells to capture run-off water, different types of (multi-purpose) water reservoirs and innovative small scale irrigation technology.

Picture left: Example of water reservoir/ pond, made by excavation and plastic sheeting to prevent leakage. Used for irrigation purposes (ICIMOD).



Picture above: Example of infiltration wells to absorb surplus water from rainfall and irrigation (Grobogan, Java Indonesia)

Since innovation projects are to be developed based on a learning while doing modality, technical designs and specifications are likely not available upfront and these projects can therefore most

likely not be included in the annual planning and budgeting process and not be procured through the standard procurement process at the district level (as is applicable for the investment component projects described above). Instead these innovation projects will therefore be designed and implemented (procurement of services) directly by the LDCF project team. The development and design process of innovation projects will as much as possible be conducted in partnership with other agencies and projects, as described above.

Mainstreaming climate resilience of local planning, budgeting and infrastructure design

The existing local planning process of MSA has been analysed and presented for reference in Annex 3. The further strengthening of this system is the mandate of the LGSP, while the LDCF project will ensure mainstreaming of climate risks and vulnerabilities in local service delivery. The CVRVA methodology will be adapted and CVRV mapping information will be integrated in MSA's bottom-up local planning guidelines, as well as in the Strategic District Development Planning guidelines, in close collaboration with LGSP. Furthermore the project consultants will generate amongst others infrastructure design specifications, Bill of Quantities and costing/budgeting guidelines, tender documents, quality monitoring and construction supervision manuals and any other relevant tools, which will consider additional activities, work items and costs for climate resilience. This includes also preparatory investigations (water resource mapping and -demand calculations), ecosystem services and bio-engineering works, additional erosion protection and slope stabilisation measures and additional water storage facilities.

Systemising and standardizing for up-scaling through LGSP and partner programmes

All products (guidelines, manuals, documents, etc.) produced by the LDCF project in the three focus districts regarding CVRVA, mainstreaming climate risks in local planning and budgeting, climate resilient infrastructure designs, bio-engineering and other ecosystem services, costing and procurement, construction monitoring, capacity development and partnership collaboration, will be systemized and packaged by the project in close collaboration with the LGSP team, MSA and other ministries and projects. These packages will also facilitate the LGSP with further strengthening the Government' service delivery systems as part of its formal mandate to support MSA with improving PDID implementation. All relevant project packages will also be made available freely through the national dialogue and knowledge exchange platform, supported under Outcome 1.

Evidence generation and documentation for policy influencing

The LDCF consultants will in close collaboration with staff from local administrations, partners and service providers, conduct research and document experiences with climate resilient infrastructure and local administrative processes. Areas of study are e.g.:

- Climate variability impacts on small scale infrastructure and livelihoods, including gender;
- Climate resilient infrastructure design and innovative solutions to address climate variability vulnerabilities;
- How small scale infrastructure can contribute to community resilience and livelihoods adaptation strategies, including the gender perspective;
- Improved asset management for sustainable climate resilient infrastructure services;
- Community organization and operation & maintenance of community infrastructure, e.g. water supply and small scale irrigation, including the gender perspective (also in the context of increasing scarcity of natural resources and potential inter- and intra-communal conflict);
- Role and capacity requirement of local administrations/governments and non-state actors to deal with climate variability risks regarding sustainable development and sustainable infrastructure services;

- The opportunity Public-Private-Partnerships modalities may provide in improved (infrastructure) service delivery instead of the present more traditional outsourcing modalities like 'contracting', even though the PPP modality will not be used within the LDCF project itself.
- How watershed management approaches can be linked to administrative boundary based local development planning and sustainable infrastructure development.

The LDCF project can also procure research and documentation services or can collaborate with knowledge institutes for joint research. Generated (case) studies and recommendation reports will be used by MSA and MCIE for policy influencing in the areas of respectively decentralization and climate variability adaptation and resilience. All documents will also be made available through the national dialogue and knowledge exchange platform, supported under Outcome 1.

Action-Learning approach

Overall the project will apply an action-learning approach and field-testing-and-improving methodology to ensure that promising solutions are solid enough to guarantee uniformity in application, while flexible enough to accommodate local diversity. The project will thus integrate the following perspectives on local solution development for building resilience to climate change:

- Participatory and self-analysis of community/household livelihoods assets, capabilities and climate risks as part of the participatory climate risk and vulnerability assessment methodology;
- Strengthened local planning process to capture climate risk related development needs and to develop appropriate adaptation actions, local plans/budgets and capacities;
- Assessments of climate resilience requirements for infrastructure development and developing climate resilient technical infrastructure designs;
- Identification and development of climate resilient/resilience adapted technology (innovation);
- Adequate procurement and quality monitoring and reporting on service delivery (contracting);
- Adequate operation and maintenance of infrastructure, including continued learning and improvement.

2.4 Gender and vulnerable groups

2.4.1 Gender in Timor Leste

Since independence, Timor Leste has made serious efforts to improve gender equality and women's empowerment through policy reform, legislation, institutional mechanisms and public awareness campaigns[25]. Equality for women is enshrined in the Constitution, and Convention on the Elimination of All Forms of Discrimination (CEDAW) has been ratified. The status of the national women's machinery was elevated in 2008 to a State Secretariat reporting directly to the Prime Minister's Office, which strengthens its authority to develop and implement policies and programmes that address women's needs and concerns. The Government signed the Dili Komprimisu, a public declaration that acknowledges the importance of gender equality and investing in women and girls, to achieve sustainable development, address poverty and strengthen society. It also adopted a resolution to officially support the designation of Gender Focal Points in ministries and local administrations.

[25] UN WOMEN Timor Leste Factsheet, accessed 12/11/2012, http://www.unwomeneseasia.org/docs/factsheets/ 05%20TIMOR_LESTE%20factsheet.pdf

Despite past efforts adult female illiteracy rates are higher (32%), than men's (21%) and more men are in higher education (83 women for every 100 men). Fertility rates are still among the highest in the world and the country has a large young population with about 20% between the age of 15 and 24 years. While health statistics are improving, a worrying percentage of Timorese women still die in childbirth, the Maternal Mortality Rate remains one of the highest in the world, with 42% of all deaths of women aged 15 to 49 related to pregnancy. Some encouraging developments can be noted, for example, 86% of mothers now receive some degree of antenatal care, and the incidence of malnourished women has decreased by 29% in the last decade. However, traditional gender biases still affect all aspects of life in Timor-Leste. At present nearly 40% of women in Timor-Leste over the age of 15 have experienced physical violence. Of women who have been married, 34% have experienced physical violence from their husbands and many have not been able to obtain justice and redress for their grievances.

In 2010, the Law Against Domestic Violence was passed, following historic changes to the penal code making domestic violence a punishable public crime. It is hoped that this law will reduce violence and indeed change perceptions on the legitimacy of (domestic) violence. Provisions in the Electoral Law (2006) establishing quotas for women's participation have resulted in one of the highest rates of female representation in parliament in the world (29% in 2011). While female representation on Suco Councils is also relatively high (due to a quota which says that two out of five council representatives must be women) only 2% of Suco Council Chiefs are women. Despite a severe lack of capacity and resources, civil society is emerging as an important force in the country. Women's NGOs, for example, mobilized for affirmative action in the lead-up to the 2007 elections, working alongside the women's wings of 14 political parties to develop a joint action, using CEDAW as a basis and identifying issues of economy, health, education, politics, justice and security.

UNDP focuses on gender equality and women's empowerment not only as human rights, but also because they are a pathway to achieving the Millennium Development Goals and sustainable development. UNDP Timor Leste has developed a gender strategy as part of the UNDAF, with e.g. CP Outcome 1.1 formulated as: "State organs and institutions are more efficient, transparent, accountable, equitable, and gender responsive in planning and delivery of services."

2.4.2 Gender and climate change

Climate change is not happening in isolation, but is coinciding with many other trends and stresses on livelihoods. Women are vulnerable not because of natural weakness (i.e. their sex), but rather because of the socially and culturally constructed roles ascribed to them. Climate Change is likely to magnify existing patterns of gender disadvantage. Factors exacerbating this are e.g.:

- Limited access to resources (e.g. natural and financial).
- Dependence on natural resources and sexual division of labor (e.g. fetching water and fire wood).
- Lack of education and access to information (e.g. lower literacy and formal education rates making employment difficult).
- Limited mobility (e.g. migration may be no option).
- Limited roles in decision-making (while often more closely involved in natural resource use and conservation).

Concerning natural disasters also gendered vulnerability exists. Past hazards and disasters illuminate how women and men are differently affected by natural disaster and indeed more women die than men[26]. This reflects women's social exclusion: they are less able than men to run,

[26] Gender, Climate Change and Community-Based Adaptation, A guidebook for designing and implementing

often have not learned to swim, are less educated and have behavioral restrictions that limit their mobility in the face of risk. Access to water also has a clear gender dimension. Only half of rural households have access to water on the premises, those that do not have this must walk and carry water: "...one in four [households] takes less than 30 minutes, and three in ten take 30 minutes or longer to get to and return from their nearest source of drinking water." (TLDHS, page 56). With climate change the risk of existing water sources drying up increases, which likely will increase the time required for fetching drinking water for households. From a gender perspective this is relevant since "Adult females age 15 and older are most likely to collect drinking water for the household if it is not on the premises (36 percent), followed by female children and adult men (7 percent each)". (TLDHS, page 56). As noted above it is often also the women in the household who bear responsibility for the health and education of the children and for supplementing household nutrition through kitchen gardening.

In addition to gender there are also specific groups in society with higher vulnerabilities to climate change impacts, changes in livelihoods and natural disasters: children, less-abled and elderly. Care needs to be taken that specific needs of these vulnerable groups are addressed as well.

2.4.3 Gender Strategy of the LDCF project

Gender issues, especially the specific access patterns to infrastructure and ecosystem services and roles and responsibilities in the use and maintenance of village and household level infrastructure, are of special importance to the project with regards to inclusiveness and sustainability. Since Climate Variability affects communities differently according to their respective vulnerabilities and adaptive capacities, adaptation must be location and context specific. In addition to gender there are also specific groups in society with a higher vulnerability to climate change impacts, changes in livelihoods and natural disasters: children, less-abled and elderly. Care needs to be taken that specific needs of these vulnerable groups are addressed as well. The LDCF project will use the Climate Risk and Vulnerability Assessment (CVRVA) methodology to identify and support gender equality and identify projects that aim to enhance the resilience of communities and ecosystems to projected effects of Climate Variability. The LDCF projects need to recognize the need for context-specific adaptation based on local vulnerabilities, drawing on local knowledge and capacities, and involving all stakeholders. The LDCF project will support gender sensitive projects in two ways:

- o 'Mainstreaming' of community-based adaptation needs through integrating CVRVA methodology in the local planning process; and
- o 'Directly addressing discrete adaptation needs', through financing specific projects identified by the CVRVA methodology and taken up in the local plans of selected Sucos (Component 3).

The CVRVA assessment will disaggregate male and female's information from each household and will collect an inventory of family assets, data on main sources of income, and other socio-economic information in order to analyze patterns of socially differentiated access to infrastructure and other livelihood assets. Focus interviews will be conducted with all ethnic minority groups and other local organizations active in the village to identify those climate risks and vulnerabilities most affecting their lives. This will include addressing the finding of the Institutional and Context Analysis that "There may be a considerable discrepancy between nominal women's participation in decision making processes and their actual influence." The LDCF project will ensure strengthening and institutionalizing of meaningful women's participation in the project to improve community's and local administrations' resilience to the impact of climate change. Emphasis will be put on different rights, roles and responsibilities of individuals and what contributions can be made in the

gender-sensitive Community-Based Adaptation programmes and projects", UNDP, 2010, New York

construction, maintenance and management of water resources, intake and supply. The CVRVA results will help to distinguish and identify dual benefit for the various groups.

An example of this dual benefit will be the introduction of multipurpose adaptation solutions (e.g. water harvesting and storage for both agricultural and household consumption), which will help to address different needs. A specific technical guideline is planned under Outcome 2 on gender, climate change and rural infrastructure for wider dissemination and replication. Participation of women and their equal voice with men will be integral to the approaches taken to facilitate discussions on climate risks during CVRVA consultations and addressing these risks, in line with the principles underlying the participatory local planning process.

Problem identification, identifying CC causality and gender issues:

- o Is relevant gender information, especially socio-economic information, identified and collected so that it can be included in discussions about project formulation?
- o Is background data disaggregated by sex? (In many cases, disaggregation by other social identities such as age and ethnic origin is also required, given that communities are rarely homogeneous units.)
- o Are gender specialists and representatives of women's organizations within the community been consulted?
- o Are both men and women involved in problem identification (even if problem affects one sex more than the other)?

Project formulation, adaptation responses, possible barriers, results:

- o What is the current situation of men and women in the sector of your planned intervention?
- o Will the proposed project contribute to existing inequalities among men and women?
- o Does the proposed project break down or challenge existing inequalities among men and women?
- o Will the proposed project change the perceptions or stereotypes about men and women and their roles in any way?
- o What options should be considered to strengthen a gender perspective?
- o Will the proposed project contribute to women's empowerment? If not, is there place for an allied intervention that will contribute to empowerment, so as not to reinforce the disparity between men and women?

Project appraisal:

- o Have gender issues, including gender impact and anticipated outcomes, been systematically identified?
- o Have staff members informed themselves substantively of the gender dimensions of adaptation in the appropriate country?
- o How far have individuals and women's organizations with knowledge and experience of gender mainstreaming participated in project identification, formulation and appraisal?
- o Have female beneficiaries of the project, been consulted equally with men during the formulation process?
- o Has all background data been disaggregated by sex?
- o Have gender-related links with other projects and programmes been identified and incorporated into documentation?
- o Have relevant gender issues been raised at project appraisal meetings, ensuring discussion of the impact of the project on gender equality in the country?

Project Implementation:

- o Are CBA project implementation staff/team committed and capacitated to implement the gender-mainstreamed CBA project process and activities?
- o Is technical backstopping on CC and gender available?

Project Monitoring:

- o Is the monitoring and evaluation methodology of the CBA project tailored to the cultural context? For instance, does the approach invite input and feedback from women and men?
- o Are generated data, analysis and reports sex-disaggregated, if possible?
- o Are gender-related indicators established in the planning phase effectively used and assessed?
- o Does monitoring consider both women's and men's roles (even if those roles are different)?
- o Is progress toward any specific objectives related to men or women on track?
- o Have any gender issues arisen that were not identified at the CBA project design stage? If so, how can they be addressed?

Project evaluation (and for Impact assessment and lessons learned):

- o Did this project bring about adaptation and reduced vulnerability to climate change for men and/or women?
- o Did this project address both women's and men's specific needs for adaptation? What mechanisms ensured this?
- o Has appreciation of both women's and men's knowledge and expertise improved the results of the CBA project? If so, how?
- o Have men's and women's perceptions (norms, stereotypes, values) been altered during the course of the project?
- o To what extent have any objectives of promoting gender equality been met?
- o Has the project had any unexpected or unintentional gendered effects?
- o Which lessons and good practices related to mainstreaming gender in CBA projects can be scaled up and documented?

Textbox 1, Gender and climate change check list for Project Cycle analysis (UNDP)

The support from the LDCF project to 'gender and climate change´ mainstreaming within the local planning process is aiming to support:

- Meaningful participation of women in local development planning and decision-making processes;
- Gender mainstreaming uses available resources to ensure the greatest benefit for everyone – men, women, boys and girls;
- Gender mainstreaming identifies and uses opportunities for improving gender equality in projects and policies that would not have otherwise been considered gender issues;
- Gender mainstreaming can include concrete initiatives for women in strategic areas such as legislation, choice, and participation in decision-making, but can also address the hidden biases that lead to inequitable situations for men and women in all sectors of policy-making;
- Allows policy makers and practitioners not only to focus on the outcomes of gender inequality, but also to identify and to address the processes and circumstances that cause it.

The LDCF project will closely collaborate on 'gender and climate change´ mainstreaming within the local planning process with the LGSP II under its outcome "Efficient, accountable and gender-responsive delivery of services by local administrations". LGSP II has a mandate for integrating gender equity into local planning and service delivery processes, upon which the LDCF project can build in terms of mainstreaming specific gender related needs arising from climate change vulnerabilities. The gender and climate change check list with questions in the different stages of the Project Cycle, as presented in Textbox 1, will be also be guiding the LDCF project implementation.

2.5 Project Objective, Outcomes and Outputs/Activities

The project requests the LDCF to finance the additional costs of enhancing the resilience of small rural infrastructure and ecosystem services to climate risks, within the context of inclusive local planning and investments in some of the most climate change vulnerable Districts in Timor Leste: Liquiça, Ermera and Baucau. The impacts of climate change will affect small scale rural infrastructure through the increased risks associated with more frequent and severe droughts and dry periods, floods, landslides and extreme weather events, as well as more fundamental shifts in the hydrological regime undermining the ecosystem services that provide a buffer between the climate and the built infrastructure.

Project Objective: Critical small scale rural infrastructure is climate resilient designed and implemented through participatory approaches and strengthened local governance systems, reflecting the needs of communities vulnerable to increasing climate risks.

Outcome 1: Policy makers and the public in Timor Leste are aware of critical climate risks to rural (infrastructure) development and are systematically being informed on up to date evidence-based information on climate hazards through vulnerability assessment and cross government coordination mechanisms.

Co-financing: USD 12,577,384
LDCF grant requested: USD 430,000

Baseline: In common with most countries in the region, climate change in Timor Leste has historically been the responsibility of the lead ministry for environment (the Ministry of Commerce, Industry and Environment), and specifically the State Secretariat for Environment. The visibility of climate change within government was raised when Timor Leste signed and ratified of the UNFCCC (2006) and Kyoto Protocol (2008). More recently the NAPA process has helped the

Ministry to clarify and demonstrate its role as the lead ministry for climate change, together with other processes such as the Initial National Communication (INC), and development of regulations to establish a Designated National Authority for the Clean Development Mechanism (CMD). The Sector Working Groups that were established under the NAPA, each with a recognized focal point, remain in place and are in use through the ongoing INC project. The NAPA office which is located in the MCIE has been integrated with the INC project office and all files and database for both of the projects are now in one place.

With the new Government in place after the elections in 2012, climate change has been added more prominently as an area of concern. The National Directorate for International Environmental Affairs under the MCIE has been mandated to lead the Government's response to climate change and climate variability and to strengthen mitigation and adaptation strategies. The National Directorate has been renamed the National Directorate for International Environmental Affairs and Climate Change (NDIEACC). The NDIEACC is to lead the consolidation of environment, climate and vulnerability information available from other ministries (and development projects) and to become the key repository of related skills, knowledge and information. The NDIEACC is therewith to overcome the traditional sectoral fragmentation and political context which does not favor inter-ministerial coordination and sharing of reports and data. It can build upon the Inter-ministerial Commission on Environment previously established by the Ministry. The role of this Inter-Ministerial Commission in promoting a broader vision of climate risks within government needs to be strengthened, with the challenge that this body has not yet become operational.

Next to capturing existing information and knowledge on climate change and climate variability risks and vulnerabilities, there is also a need to research more localized impacts and livelihoods vulnerabilities. Most data available is at a national (generic) level and little is known about the localized impacts and vulnerabilities caused by climate variability. Considering the diversity of climate variability, geographical conditions and e.g. livelihoods strategies in the country, generating localized evidence on climate risks and vulnerabilities will be critical for NDIEACC's ability to develop and advocate for meaningful responses, including integrating climate risks in (multi-)sector policies and strategies. At present the lack of awareness and understanding of localized impacts of climate variability and indeed the effect of existing sector policies is a major barrier for national agencies and departments to act and engage with NDIEACC to address climate variability risks. Generating more systematical evidence of localized climate variability impacts and vulnerabilities and translating these into practical and feasible new policies and sector policy changes, will require substantial capacity strengthening of NDIEACC and other key actors.

The NDIEACC will furthermore require generating (localized) research, dialogue, exchange and joint learning beyond the ministerial public sector boundaries. Civil society organizations, private sector and education institutes all have relevant information and knowledge, which needs to be debated, validated and utilized for the common benefit of the country. This will necessitate the NDIEACC to go beyond the usual public sector mindset and engage in multi-stakeholder consultation and exchange processes. More over because of its limited capacity at present the NDIEACC will need to strengthen its own organization as well as developing a vision on how partnerships with (national and international) state and non-state actors can support the implementation of its mandate.

Over the past years the MCIE has allocated yearly USD 400,000 to the Secretary of State for Environment (SoSE) for performing its environment and climate change mandate and improving its functioning. The SoSE and NDIEACC have at present, however, still inadequate capacity for developing an organizational strategy on how to deal with climate change and -variability in a specific as well as integrated way, next to its environment mandate. They also lack capacity for creating and facilitating dialogue and exchange platforms and for developing concrete

partnerships. The yearly allocation of USD 400,000 will continue and is likely to increase with the establishment of the NDIEACC, and is provided by MCIE as co-financing for the four year project period, totaling to USD 1,600,000.

Sector policies development in Timor Leste, especially in the Water and Sanitation, Agriculture and Environment and Natural Resources sectors are still to fully integrate and address climate risks, especially regarding the diversity of localized climate risks and vulnerabilities. The most relevant sector policies for the LDCF project are:

- The National Directorate for Water Resources Management (Ministry of Public Works) has prepared a draft national water resources policy based on integrated water resources management principles, together with a water resources law. The Directorate is also working on a National Strategy for Rural Water Supply, Sanitation and Hygiene under the BESIK II programme, with a focus on rural communities in remote areas and on strengthening its programs for Rural Water Supply, Sanitation and Hygiene with support from BESIK II.
- The National Biodiversity Strategy and Action Plan (NBSAP) of Timor Leste for the period 2012-2015 has recently been approved, which elaborates ways to more systematically protect national biodiversity also at the local level
- The Strategic Programme for Promoting Agriculture Growth and Sustainable Food Security (2010) sets out the Government's strategy for achieving agricultural growth, including small scale irrigation development.
- It is expected that the MSA will now, after the elections, continue the implementation of the Decentralization Policy and the strengthening of service delivery capacity of local administrations, with support from LGSP.
- The Government established a Secretary of State for the Promotion of Gender Equality and has enacted several significant (changes to) legislations[27], like the Law Against Domestic Violence, changes to the Electoral Law to increase the number of women candidates for the National Parliament and a resolution to officially support the designation of Gender Working Group officer in every Ministry and District government office. The government acknowledges the continued need for a shift in perspectives and mentalities associated with women's roles and rights, and adopted formal strategies to advance gender equity; for example:
    - Gender mainstreaming is mandatory across all government laws, policies, programs, processes and budgets, at the national as well as local level;
    - Policies and frameworks to be developed to empower women socially and economically through various livelihood support measures;
    - Basic services to protect women from risks to be improved.
    - Mechanisms to provide financial support to women leading households strengthened
    - Education programs will be introduced to promote the retention of girls at higher levels, particularly at the secondary and tertiary levels.
    - More women to be employed across the civil service, also in senior positions.
    - Policies, training and leadership programs to be developed to support women in taking on decision-making roles in the public and private sectors.
    - A national zero-tolerance policy for violence in schools and homes will be introduced.

As presented, the NDIEACC has the mandate to lead and support mainstreaming of climate change and –variability risks into national (sector) policies, such as reflected above. The LDCF project will especially support NDIEACC with evidence-based policy influencing to improve climate resilience at the local level for small scale investments within the sectors Water and Sanitation, Agriculture, and Environment and Natural Resources. As per 2012, according to figures from MSA (Annex 8), the total development funds allocated to districts for small scale projects (PDD1) is USD 27,065,956 of which Water and Sanitation is allocated 11%, Agriculture 7% and Environment and

[27] As per interview with Secretary of State for the Promotion of Gender Equality.

Natural Resources 2 %. The amount for these three sectors is in total 20% or USD 5,413,191 over 2012. Over time the NDIEACC and the LDCF project will improve the climate resilience of these yearly Government investments (PDD1) through policy influencing under Outcome 1. This is anticipated to become (more) effective from the third project year onwards and for 2015 and 2016 MSA is therefore contributing two years of USD 5,413,191 parallel co-financing or in total USD 10,826,382.

UNDP will provide in addition co-financing of USD 151,002 for International Technical Assistance.

Total co-financing: MCIE USD 1,600,000 plus MSA local development funds USD 10,826,382 plus UNDP USD 151,002 = USD 12,577,384.

Additionality: With additional resources available from an LDCF grant the MCIE's role, expertise and ability to generate and provide information on climate risks and evidence-based climate resilience advice to all relevant Ministries will be significantly improved, building on recent and ongoing enabling activities such as the NAPA and INC process. The first task will be to consolidate and add to the Ministry's current stock of climate risk and vulnerability assessment information, through applied research approaches on localized climate vulnerability risks, vulnerabilities and resilience measures. The generation of evidence and the packaging of this evidence for (multi-) sector policy recommendations will be an important contribution of the LDCF project. Next to making the case on the importance of integrating climate variability risks in sector policies and strategies, NDIEACC will be supported to reinvigorate and strengthen existing dialogue and exchange platforms to capture and jointly analyze the information base which is already available but not yet accessible. A more systematic (but simple) data gathering and storage system will be put in place which will be easy to access by all stakeholders nationally. It will be explored if the database could be located in a more accessible location than the current Ministry's offices, for example at the University of Timor Leste.

There are a number of specific partnerships within government that will need to be established and maintained in order to support this output area. The LDCF project will support the NDIEACC with engagement strategies and integrating climate variability risks in strategies, policies and programs, most notably:

- The draft national water resources policy and the National Strategy for Rural Water Supply, Sanitation and Hygiene, are under development by the National Directorate for Water Resources Management (Ministry of Public Works) with support from the BESIK II programme. The Directorate would benefit from support to inform the water resource policy and action plan and the RWSS approach. The LDCF project will serve as a major resource for the strategy by providing a tested set of climate resilient adaptation options for rural water supply and related ecosystems management options. Some options are directly linked to sanitation as well, such as water harvesting on public buildings and associated water provision for sanitation purposes, such as at schools. The project will also support integration of CVRVA methodology and build resilience against droughts through combined ecosystem management and small-scale water infrastructure;
- The LCDF project will support the National Biodiversity Strategy and Action Plan (NBSAP) of Timor Leste for the period 2012-2015, by promoting the value and use of biodiversity and natural vegetation in the infrastructure sector and by its support to participatory bottom-up planning processes at the Suco level in the target Districts through providing baseline information on the integration of Climate Variability Risk and Vulnerability data, and by including e.g. bio-engineering solutions in the design of small infrastructures to ensure sustainable and sustained service delivery of these small infrastructures. Furthermore the LCDF project will also on a smaller scale support the NBSAP Priority Strategy 2 by conducting rehabilitation activities in critical small watersheds and degraded land, where these influence

the stability and technical sustainability of small infrastructure works. The LCDF project will furthermore aim to link as much as possible its' climate variability, -risk and -vulnerability data and information sharing for policy influencing (component 1) to the proposed development of the Clearing House Mechanism under the NBSAP (Priority Strategy 5);

- The LDCF project will contribute to the Strategic Programme for Promoting Agriculture Growth and Sustainable Food Security (2010), which sets out the Government's strategy for achieving agricultural growth, by demonstrating integrated solutions of ecosystem based management and small scale agriculture infrastructure and by building the best practice results into climate resilient district planning cycles and into national level policy recommendations;
- LGSP is expected to continue its support to MSA for the implementation of the PDID and Decentralization Policy and to strengthen service delivery capacity of local administrations. The LDCF project will provide active support to advocacy on the important role of Local Administrations in creating climate variability resilience risk and adaptation by providing inputs to MSA and LGSP for decentralization policy influencing at the national level. The LDCF project will also support MSA (under Outcome 2) with capacity development at the district level for improved climate resilience;
- Gender policies will be strengthened by sharing gender and climate variability related lessons from the project and by involving gender focal persons from districts and key ministries in project events and training in close collaboration with LGSP.

Under Outcome 1, the LDCF project will support NDIEACC with its policy influencing role, building specifically on evidence generated through Output 2.1 (Activity 2.1.4), Output 2.2 (Activity 2.2.6), Output 2.3 (Activity 2.3.6), Output 2.4 (Activity 2.4.4) and Output 2.5 (Activity 2.5.4), although also lessons and experiences from other Agencies, development partners and projects will be accessed.

NDIEACC has till now had a primary focus on dealing with international environmental affairs, with little attention given to at-home Climate Change issues. Consequently, the main task of the LDCF project will be to strengthen existing capacity within the NDIEACC and the national climate team that was responsible for the NAPA process in basic climate variability risks and vulnerability assessment, to include the integration of top down climate scenario information, with field analysis and bottom up PRA based local consultations. Given the size of the country, it makes sense for this capacity to be centralized at this time and gradually rolled-out to district level authorities. As a means of stimulating and supporting this outcome area a function based Capacity Development strategy and plan will be prepared on the basis of institutional and organizational capacity assessments considering the new climate risk related role and mandate of the NDIEACC, and district level staff functions and other key actors. The strategy will not only propose generic training but should be founded on more tailored capacity development support that is of direct use to the everyday climate risk related responsibilities of national and local officials, representatives and decision makers. The capacity development programs will have a specific focus on climate risks in the infrastructure and water supply sector, next to other relevant sectors as described above.

Output 1.1: C***limate variability risk and vulnerability information compiled and evidence-based policy influencing capacity developed by MCIE contributing towards a comprehensive national climate change policy framework and strategy.***
This output will build on and further strengthen the NAPA process, Timor Leste's first official climate change strategy and action plan. It will draw on both outputs 1.2 and 1.3, with the policy relevant elements being led by these other output areas and emerging during years 3 and 4 of the implementation phase. Under this output the LDCF project will support NDIEACC with data generation on local climate variability risk and vulnerabilities within the LDCF project itself as well as from other projects, departments and non-state actors. Data will be analyzed, and packaged in

publications and reports for use by all relevant stakeholders and for NDIEACC's efforts in policy development and sector policy influencing.

Indicative Activities:

Activity 1.1.1: Support NDIEACC (and selected other actors, including Districts) with research and documentation of experiences and lessons on improving climate resilience, within the LDCF project itself (supported under Outcome 2) as well as from other projects and key actors. Develop research methodology guidelines for quantitative as well as qualitative research on improvement of local level climate resilience especially regarding small scale infrastructure and local planning processes (see page 73 for a possible research topic list). Support statistical data analysis, and develop standardized publication and reporting formats.

Activity 1.1.2: Support NDIEACC with the participatory development of a comprehensive national multi-sector climate change policy framework and strategy. The development process will have the following indicative steps:

- Analyze key sector policies and development strategies of main sectors in climate resilience and vulnerability aspects, together with key Ministries and National Directorates;
- Collect and analyze evidence on impacts of climate variability and possible resilience measures from the field and other projects, prepare evidence-based policy improvement recommendations;
- Engage in discussions with and provide support to Ministries and National Directorates on mainstreaming policy recommendation in sector policies;
- Analyze overarching (beyond sectors and across sectors) climate risk related policy and strategy issues and formulate an integrated policy framework on how to address these climate change and -variability risks and vulnerability issues in (local) development in Timor Leste.

Activity 1.1.3: Support NDIEACC in developing a partnership strategy and in developing concrete partnerships with state and non-state actors for generating climate variability risk and vulnerability information and for evidence-based policy influencing. NDIEACC will require developing a network, alliances and partnerships to ensure maximum impact of its evidence-based policy influencing role. Indicative steps:

- Stakeholder scan, identify organizations with knowledge and competences which complement NDIEACC, e.g. University for research assignments and knowledge center, projects and (I)NGOs for on the ground experience and learning;
- Engage in discussions on collaboration potential and willingness, clarify objectives, roles and available resources;
- Develop a collaboration/partnership strategy, identify areas for concrete engagement and start practical joint action and collaboration;
- Monitor and evaluate progress and value addition of collaboration and joint results and adapt way of working.

Output 1.2: ***Platform for national dialogue and information sharing on climate risks established and coordinated by MCIE, based on the existing NAPA working group structure, delivering regular bulletins, information updates and policy briefs.***

This output will assess the possible objectives, costs and benefits of several options including the establishment of a primarily government driven mechanism versus a non-governmental mechanism. The range of objectives for such a mechanism will be examined and discussed including cross governmental coordination, capacity development, public outreach and awareness, or public education. Under this output the LDCF project will also support NDIEACC with

establishing the national dialogue and information sharing platform on climate risks and vulnerabilities. The platform needs to be activated and moderated to ensure stakeholders are actively using and contributing to the (further) development of the knowledge pool.

Indicative Activities:

Activity 1.2.1: Support a stakeholder analysis to identify all state and non-state actors with a (potential) interest in sharing and using climate variability risk and vulnerability information, including a data demand analysis. Develop jointly with platform members a paper on the goal, objectives, strategy and functioning of the platform as well as the assignment of key roles and responsibilities. Prepare and facilitate platform exchange meetings and support pro-actively contributions from members to stimulate relevance of the platform and to make its utility visible.

Activity 1.2.2: Support organizing of (one-off) events for a broad audience for presentation and discussion on key findings and recommendations on lessons and experiences regarding adaptation and resilience measures to address climate variability risks, to create broad awareness and support for addressing climate risks.

Activity 1.2.3: Support the development of a web-based portal for accessing all kinds of data and information on climate variability risk and vulnerabilities. Develop a strategy on how to maintain and expand the portal, including fund-raising and how to link it to other (national and international) websites and portals with relevant knowledge.

Activity 1.2.4: Support NDIEACC in formulating a strategy and proposal for developing a comprehensive database for environment and climate variability, which links all relevant sector databases and which can be managed and utilized for the benefit of all interested stakeholders. The establishment of the data base and its management are not part of the LDCF project, but are a logical and important expansion of NDIEACC capacity which will build upon the LDCF outputs. The LDCF project will support NDIEACC also in resource mobilization efforts to materialize the proposal.

Output 1.3: ***Organization strategy and capacity development plan in climate risk management developed for NDIEACC and tailored, function based training and support in climate risk management provided for NDIEACC staff and at least 50 other national and 50 district level technical staff conducted (agriculture, forests, rural development, water supply, water resources, rural infrastructure).***

This output will provide the necessary institutional, administrative, technical and managerial capacities necessary to support the development and implementation of national climate change policy established under Output 1.1.

Indicative Activities:

Activity 1.3.1: Conduct an institutional and organizational capacity assessment of functional as well as technical capacities required of NDIEACC and selected other key actors to fulfill their new role and mandate and to implement Output 1.1 and 1.2. Based on the assessment(s) develop a comprehensive CD strategy and plan.

Activity 1.3.2: Support NDIEACC with developing work processes, protocols, job descriptions and other organizational systems, to strengthen the functioning of the organization, in line with the findings and recommendations of the CD Strategy.

Activity 1.3.3: Support NDIEACC with the implementation of the CD strategy and plan, including supporting development of training curricula, identification and procurement of possible CD

service providers. Provide on-the-job CD support and specific CD activities, such as work procedures, guidelines, manuals, workshops and seminars for NDIEACC staff and selected key actors. The project consultants will also support the provision of specific climate risk management related training to national technical staff of government agencies and external actors.

Outcome 2: Local Administrations integrate climate risks into participatory planning, budgeting and standards of small scale rural infrastructure development.

Co-financing: USD 12,579,523
LDCF grant requested: USD 573,610

Baseline: In around 2006 the Government of Timor Leste signaled its intention to establish municipal authorities in each of the 13 administrative districts of Timor Leste. By 2009 preparation of the legal and regulatory framework for this reform had reached an advanced stage and the National Strategic Development Plan (2011 - 2030) also states the intention to establish by 2015 between three to five municipal chambers as part of the gradual decentralization of the exercise of government. However, in 2011 the Government decided not to proceed with the decentralization reform and instead postponed creation of Municipal Authorities until after the national elections 2012, which have recently been held. At present, Timor-Leste therefore neither has decentralized local authorities nor the type of representative bodies that are commonly created for planning, budgeting and implementation of local development. In the interim, the Government has introduced a measure of decentralization of development planning and financing (see Annex 3) the PDD funds, which finance small infrastructure investments of value up to US$ 500,000 (PDD1 projects of value from USD 50,000 to USD 150,000 and PDD2 projects of value from USD 150,000 to USD 500,000). The Decree Law (2010) mandating the annual local planning exercise known as “PDID” is conducted by a District Development Commission led by the District Administrator. The PDID is the single integrated process for programming of capital investments for local development, although it remains in essence a centralized system of budget planning and execution. In outline, the PDID 2012 is based on identification of projects from the Suco Development Plans (formulated in 2010) which are then screened by the Sub-District Development Commission (SDDC). Each SDDC submits seven projects for consideration by the DDC. The DDC screens, verifies and ranks the projects, together with additional projects submitted directly by deconcentrated sector agencies, known for the purpose of the PDID as “Territorial Delegations.”

Decision-making powers in the existing District Development Commissions (DDC) are, however, still more strongly weighted towards the deconcentrated sector agencies. The District plans are approved by a District level local assembly within a given budgetary envelope. The plans are thereafter forwarded to the MSA for financial allocation and MSA and line agencies are responsible for disbursement of funds; the DDC is not a budget-holding entity. Districts do therefore not receive grants from either the State Budget or external donors, but instead ‘only’ influence allocations of capital funds to the budget of MSA and other agencies for implementation. Neither the DDC nor any deconcentrated agency in the district is mandated to plan the allocation of recurrent expenditures in future years. Therefore inevitably the primary focus of the local planning process is on capital investments, with the availability of budget resources for operation and maintenance taken into consideration within these capital investments to the maximum possible extent.

Concerning the quality of the local planning process, especially regarding climate risks, a significant drawback is the unavailability of comprehensive area-based data. At present data available is mainly from the Census 2010, which has been summarized for each suco in an attractively produced booklet including maps showing color-coded levels of priority for various

indicators. There is general concern though about the usefulness of the Census data, because of questionable population figures. Unfortunately, there is also little data included on climate variability nor associated risks and vulnerabilities. Furthermore Local Administrations have no capacity to integrate local climate risk and vulnerabilities into local development strategies and plans. The understanding of such risks and vulnerabilities is still low and existing planning guidelines are also not yet reflecting them. There is at present also no real area-based development process although MSA/LGSP has started developing District Strategic Development Plans. These longer term strategic plans require adequate data on local conditions including climate variability risks and vulnerabilities, which are at present not available. Without an adequate understanding of climate variability projections in terms of e.g. longer term water resource availability and extreme rainfall events, planned development activities are likely not resulting in sustainable benefits for communities. This is especially relevant for small scale infrastructure, where existing design approaches and design standards are not climate resilient, as extensively described in previous chapters. Capacities for technical adaptation of infrastructure designs are near absent at the local level and weak at best at the central level. Also information for adequate costing of additional budgets for climate resilience is absent as are good cost-calculation methodologies which could be utilized for this. MSA with support from LGSP is testing an improved prioritization process by strengthening the Multi-Criteria Sector and Multi-Sector Matrix steps in the planning guidelines, by adding criteria and a weighing mechanism, which make the project prioritization process more participatory and meaningful. However, at present no climate variability criteria and indicators are part of this process and it remains therefore difficult to assess which plan activities are most climate resilient or most effective in promoting climate resilience.

MSA with support of LGSP has established financial management procedures for local level infrastructure. It operates a Monitoring Information System (MIS) to manage data on individual investments and project progress. These evaluations have the specific purpose of providing supporting analysis to help the Minister of State Administration to allocate district funding for the following fiscal year. The MIS does not generate data on investments or the additional cost for improved climate resilience, which would be important as a basis for a cost-benefit analysis of investments in improved climate resilience and for accessing global adaptation funding. The MIS provides consolidated quarterly reports as well as annual evaluations based on a set of minimum conditions (MCE). The MCE assess how Local Assemblies performed in the previous year with regard to 11 basic governance indicators, measuring transparency, accountability and the community contribution to the DDP. The LGSP/LDF programme has recently initiated a dialogue on establishing a performance based grant approach, in addition to the current basic block grant system. This introduces new possibilities to support improved District performance and the consideration of wider sustainability criteria including climate change related risks.

The LDCF project will therefore strongly build on the LGSP to achieve project results in the above highlighted areas. The LGSP has a project budget in 2012 and 2013 of respectively USD 1,206,800 and USD 728,800 or USD 1,935,600 in total, which is provided as co-financing under Outcome 2.

Since the LDCF project will have a large focus on water related small scale infrastructure and will seek active collaboration for the development climate resilient design approaches, collaboration with MPW and BESIK 2 has also been agreed upon. BESIK 2 is a new eight year program of support to the rural water, sanitation and hygiene sector (RWASH) in Timor-Leste, which builds on a first phase with a focus on water resource inventories. The program is a partnership between AusAID and Timor Leste's Government and will commence on 1 July 2012 for a first four year stage, for which expected expenditure is $45.860 million. BESIK being a national programme will work in all Districts with a budget of USD 3,527,692 per District for the period of four year, or USD 2,645,769 per year for the three focus Districts of the LDCF project. MPW has agreed to under

BESIK provide in total USD 10,583,077 as co-financing for the three focus Districts, Liquiça, Ermera and Baucau, of the LDCF project.

UNDP will provide in addition USD 60,846 co-financing for Outcome 2 for International Technical Assistance.

Total co-financing: LGSP USD 1,935,600 plus MPW/BESIK USD 10,583,077 plus UNDP USD 160,846 = USD 12,579,523.

Additionality: Additional resources are needed to ensure that the LGSP can support introducing the necessary expertise, knowledge and skills to integrate climate risks into local planning, budgeting and budget execution processes. Component 2 provides a package of measures to do this, focusing on district officials responsible for engaging with communities and developing plans, local assemblies responsible for oversight and approval of these plans and associated budgets, local contractors and private sector entities that are engaged to design and build local infrastructure, as well as MSA officials who advise the Minister and Vice Minister on annual allocations provided to districts linked to MCE results.

Local planning, budgeting and procurement

The LDCF project will ensure that a discussion of climate related risks is reflected in the sub-district and suco level dialogues that support the planning process. This will require community representatives and local officials to be sensitized to climate risk issues as they relate to local infrastructure, as well as PRA based consultations with communities themselves to help to identify specific localized effects and response measures. The LDCF project will share climate variability risk and vulnerability data and support the development and systematic integration of a CVRVA methodology at the suco planning level. The project consultants will also seek partnerships and procurement of contractual services for developing a CVRVA methodology and for conducting CVRVA assessments in selected sucos which feed into the local planning process, into climate resilient designs of selected suco infrastructure projects, as well as into the development of climate risk and vulnerability maps of the sub-districts and overall districts. The NAPA dialogues that were carried out at district and sub-district level provide a useful starting point for this work, but these would need to be deepened, focused more specifically on rural infrastructure and made more systematic, so that they become a regular feature of discussions and feedback at this level. The LDCF project will intensively collaborate and/or partner with ongoing initiatives in this respect, for example the climate risk vulnerability assessment approaches under development by CARE International and Oxfam. The LDCF project will thus support the supplementation of the Census data with simple data collection from the CVRVA, to be completed at suco level during the Situation Analysis phase of the planning process. Improvements of the suco level planning process and related capacity building will be of great importance for improving the resilience of local government systems. From a public administration perspective this level is most suited to implement small scale infrastructure projects that benefit the local community. Moreover, as identified during the ICA exercise, basic democratic structures exist at this level, but administrative capacity is generally low.

The District Strategic Development Plans are a further important vehicle for the LDCF project in the planning process to address localized climate risks for local development results in a strategic as well as a practical way at the district level. The LDCF project will therefore work closely together with MSA and LGSP to ensure climate risks are adequately addressed in all steps of the DSDP development based on experience and lessons from the LDCF project districts, especially regarding the strategic use of data from the climate vulnerability mapping and detailed assessments. The LDCF project will also support the sub-district level planning prioritization process by selecting non-funded plan projects of selected sucos, eligible under the LDCF project

investment menu (Outcome 3). These projects would then be submitted to verification and climate resilient design and costing standards. In addition other suco projects can be analyzed to see if development problems exist which have a climate change additionality cause. These projects could thus be further investigated (problem and solution analysis) and if indeed deemed eligible, could be climate resiliently designed with support from the LDCF project team. The \LDCF project-approved additional suco projects will be added to the Sub-district Plan and also submitted to the DDC for inclusion in the District Plan. Concerning the District Plan project prioritization criteria and process, the LDCF project will support the development of appropriate climate risk indicators and ways to create meaningful discussion on (the importance of) climate resilience/resilient measures and e.g. the need for equity in terms of climate change vulnerability of disadvantaged groups. The final climate resilient district action plans will reflect additional investments to reduce climate risks, including a combination of infrastructure and complementary land management measures. These District Plans will then be forwarded to the MSA where, with LDCF finance, these additional measures will be monetized, verified and reflected in an increased financial envelope for the next financial year. This work will feed directly into Outcome 3, the investment component, and will include revision of relevant national guidelines and standards for wider application.

Related to plan implementation, the LDCF project is promoting (higher) climate resilient standards for small scale infrastructure. The procurement process thus needs to ensure that a qualified contractor is selected for a fair price, which the LGSP supported simple competitive procurement process apparently achieves, but the PDD to a much lesser extent. This is also a concern for the capacity development objective of the LDCF project, where professional contractors are required with a long term sustainable business view and a willingness to invest. The LDCF project will therefore aim to generate evidence on the importance as well as cost-benefit of an adequate procurement system for climate resilient development, as well as for capacity development of the construction sector. These lessons will neatly feed into the LGSP mandate to improve local procurement systems and capacities nation-wide. The LDCF project will also undertake joint policy influencing activities with LGSP II to promote recommended improvements. Considering the risks noted with the present PDD procurement system, the LDCF project will make a price-based competitive tendering process at the District level mandatory for all its investment projects (Outcome 3), except there where UNDP will do direct recruitment, e.g. with less easy to define innovation projects.

Climate resilient (small scale infrastructure) project design

The LDCF project will apply a learning-by-doing and field-testing-and-improving methodology to ensure that promising solutions and infrastructure designs are developed solid enough to guarantee uniformity in application, while flexible enough to accommodate local diversity. The design of project activities will as much as possible be jointly conducted with the relevant central agencies and donor programs. For example for water supply and sanitation projects the design approach and the technical designs will be developed jointly with the BESIK team and climate resilience will be integrated. This will also include ecosystem approaches like bio-engineering for slope stabilization or vegetation plantation in catchment areas. The project team will also support the development of BESIK's new community mobilization and hygiene behavior approaches and will integrate the climate variability aspects to support increased capacities of communities to deal with climate variability. Land management at sub-catchment and micro catchment levels is not traditionally considered to be the mandate of agencies responsible for infrastructure provision. At district and sub-district levels it is very important that this connection is now made and integrated into local plans and infrastructure project designs. The presence of the project consultants will allow for a close support, monitoring and documentation of the joint infrastructure designs to ensure sustainable service delivery benefits for communities.

In cases where making proposed suco level infrastructure works climate resilient, as described above, goes well beyond the normal practice at district level, such projects can be designed by the project consultants as innovation projects (see 2.3). Innovation projects like water harvesting technology, infiltration wells to capture run-off water, different types of (multi-purpose) water reservoirs and innovative small scale irrigation technology, can most likely not be included in the annual planning and budgeting process and not be procured through the standard procurement process at the district level. Innovation projects will be designed and implemented (procurement of services) directly by the LDCF project team, also as much as possible in partnership with other agencies and projects. Based on experiences and lessons from thus developed new design approaches and technical designs, these will be systemized and standardized for nationwide application by mandated central agencies (up-scaling).

Capacity Development of Local Administrations and Service Providers

Local Administrations will require capacity development support for understanding and application of the CVRVA methodology and the mainstreaming of climate variability in the bottom-up local planning process, as well as in the Strategic District Development Plans. Furthermore localized climate risks and vulnerabilities need to be integrated in the design of sector development plan activities, including for small scale infrastructure works. Also the monitoring and evaluation of the implementation of development plan activities needs to be strengthened to ensure the quality of likely higher standards of climate resilient activities and to facilitate learning and further adaptation. Important district level entities for this CD support the District and Sub-District Commissions. These commissions are made up of a combination of officials and other local representatives and the LGSP programme has already been supporting their analytical and review functions for several years, to which additional skill sets can now be added. For example these commissions will need to be able to assess, based on increased amounts of available information (district level vulnerability assessments) where additional climate risks are most likely to occur and ensure that any investments in these areas build in the necessary measures (siting, design or complementary land management) to reduce these risks. They will also need to be able to review the implementation and success of these measures through the introduction of new M&E indicators. Also an annual climate risk audit will be introduced to inform this process which will identify where and how additional climate adaptation funds have been spent.

Improved capacity of communities to deal with climate variability is an important objective of the LDCF project. Climate resilient small scale infrastructure and other development plan activities go a long way to improve this capacity, but are in itself not enough. It is therefore important to strengthen community capacity for climate variability resilience also during the implementation of the CVRVAs and meetings conducted as part of the participatory planning process. In addition community mobilization approaches, as an integrated part of infrastructure development approaches like in water supply and irrigation, need to include climate resilience capacities. The design and delivery of these community approaches, often focusing on strengthening operation and maintenance capacity, therefore need to be strengthened as well for climate resilience. Possible entry points to be investigated are existing local vocational skill development programs, whose utility goes beyond the specific infrastructure work and benefits communities at large.

Specifically (but not exclusively) for climate resilient small scale infrastructure, engineering skills of sector staff need to be strengthened for integrating climate resilience in to investigative studies, design approaches, design standards, technical specifications, bio-engineering, Bills of Quantities, activity costing, tender documents, quality monitoring and construction supervision, community mobilization and operation and maintenance. Local Administrations usually outsource service delivery including the provision of infrastructure works to local contractors and NGOs. It is therefore important that the capacity of these service providers is strengthened for understanding and implementing the climate resilience measures. There has been a significant increase in the number

of contractors in the infrastructure sector in Timor Leste since the introduction of the Local Development Programme and Fund. Capacities will need to be strengthened e.g. in the areas of: understanding tender documents, climate resilience measures and contract clauses, reading technical drawings, bid preparation, work item costing, construction technology, quality assurance, project management, engineering and bio-engineering .

The CD support will comprise of capacity assessments of local administrations and key staff as well as the development of a comprehensive capacity development strategy and plan. Key areas for the CD strategy to address are reflected above under local planning, budgeting, procurement and climate resilient infrastructure design. Possible CD plan activities are strengthening of tender documents, Bills of Quantities, technical specifications and drawings, work procedures, guidelines, manuals, check lists, on-the-job training by the consulting team, workshops, and in-country training. To ensure that the CD efforts under the LDCF project are not conducted in isolation, the consulting team will actively engage with other projects and training institutions to as much as possible build on existing capacities, training courses and Capacity Development service providers. Collaboration will for example be explored with: national vocational training institutes, relevant training programs and resource persons from projects like BESIK and ILO, services of NGOs and consulting firms, Timor Leste's University, other education institutes and resource people from Government departments. The LDCF project can also procure Capacity Development services from qualified service providers.

Output 2.1: ***Development of climate variability risk and vulnerability assessment guidelines and tools which are integrated and up-scaled within the participatory district and sub-district level planning process for identifying climate variability adaptation and resilience activities for small scale infrastructure.***
This output will draw heavily from existing methodologies[28] many of which have been implemented in Timor Leste by organizations such as CARE International and Oxfam. These existing methodologies will be tailored specifically for the rural infrastructure sector and will be largely implemented at the level of a suco and sub-district.

Indicative Activities:
Activity 2.1.1: Prepare an inventory of national and international CVRVA methodologies and organizations and programs currently applying or designing CVRVA methods in Timor Leste. Analyze which (aspects of) approaches would be most suitable for small scale infrastructure development at the local level, considering the Timor Leste local planning process and local capacities and conditions. Develop a project strategy on how to develop the CRVA methodology in a participatory way under the LDCF project.

Activity 2.1.2: Develop partnerships and procure service providers for the development of a CVRVA methodology, indicators, guidelines, and manuals. The development of the CVRVA methodology will initially focus on understanding the diversity of localized climate variability risks and vulnerabilities in the focus districts, which data needs to be captured to inform local planning and local development processes and which data is required specifically for each administrative level: Suco, Sub-district, District. After reaching effectiveness of the CVRVA methodology through testing and learning in the three focus Districts, the methodology needs to be made efficient to ensure it can be integrated within the local planning process, especially at

[28] Adaptation Actions http://www.ukcip.org.uk/index.php?option=com_content&task=view&id=286 ; Business Area Climate Impacts Assessment Tool (BACLIAT) http://www.ukcip.org.uk/index.php?id=82&option=com content&task=view ; Community-based Risk Screening Tool – Adaptation & Livelihoods (CRiSTAL) http://www.cristaltool; Community-Based Disaster Risk Management Field Practitioners' Handbook http://www.adpc.net/pdr-sea/publications/12Handbk.pdf ; and Guidelines on Climate Watches www.proventionconsortium.org/toolkit.htm; UNDP A Toolkit for Designing Climate Change Adaptation Initiatives

the Suco level, given the on-the-ground capacities and the quality of the planning process implementation.
Activity 2.1.3: Develop CVRVA maps for the three focus districts, at suco/sub-district/district level (examples), linked to requirements for multi-sectoral planning and feeding into the local planning process guidelines.

Activity 2.1.4: Capture and document relevant lessons from CVRVA methodology development and application for evidence-based policy influencing at the national level (link Outcome 1).

Output 2.2: District *annual activity plans developed and under implementation in a participatory way, using climate variability risk and vulnerability assessment guidelines/tools, and which comprise climate change adaptation and resilience activities for small scale infrastructure and with ecosystem based measures, in at least 10 sub-districts in the 3 Districts of Liquiça, Ermera and Baucau.*

The LDCF project will share climate variability risk and vulnerability data from the CVRVA methodology and will ensure that a discussion on climate related risks is reflected in the sub-district and suco level dialogues that support the local planning process. The LDCF project will also work closely together with MSA and LGSP to integrate climate risks and vulnerabilities in the local planning guidelines and ensure climate risks are adequately addressed in all steps of the District Strategic Development Plan development. The LDCF project will also support the sub-district level planning prioritization processes by selecting non-funded plan projects of selected Sucos, eligible under the LDCF project investment menu (Outcome 3). These projects would then be submitted to verification and climate resilient design and costing standards. In addition other suco projects can be analyzed to see if development problems exist which have a climate change additionality cause. These projects could thus be further investigated (problem and solution analysis) and if indeed deemed eligible, could be climate reliantly designed with support from the LDCF project team. The final climate resilient District Action Plans will reflect additional investments to reduce climate risks, including a combination of infrastructure and complementary land management measures. These district plans will then be forwarded by the districts to MSA for the request for financing under LDCF project Outcome 3 in the following year. The District procurement process needs to ensure that a qualified contractor is selected at a fair price and the LDCF project will therefore provide support for the implementation of the LGSP supported simple competitive procurement process as well as with construction supervision and quality assurance.

Indicative Activities:
Activity 2.2.1: Support the development of annual sub-district and district plans in the three focus districts of Liquiça, Ermera and Baucau (for 2014, 2015 and 2016) for climate resilient infrastructure projects to be funded under Outcome 3. Provide special support to identify and plan ecosystem based measures to address noted climate variability risks.

Activity 2.2.2: Support the three focus districts the use/application of the CVRVA developed under Output 2.1 Activities 2.1.1 and 2.1.2, and the integration of climate resilience in the overall local planning process to develop climate resilience in the annual (suco), sub-district and district plans (2015, 2016 and 2017), to ensure all Government Block Grants are utilized with the benefit of increased climate resilience.

Activity 2.2.3: Support integration of the CVRVA methodology developed under the LDCF project Output 2.1 in the local planning guidelines of MSA, in order for it to be up-scaled nationwide as a standard step in all district local planning processes. Develop supportive documentation for understanding climate variability risk in the use of the guidelines nationwide

Activity 2.2.4: Integrate relevant parts and data from the CVRVA methodology and maps in the three focus Districts in the development process of the Strategic District Development Plans (SDDP), support LGSP with the development of the SDDPs for the three focus Districts and support the integration of climate variability risks and vulnerabilities in MSA's SDDP guidelines.

Activity 2.2.5: Support MSA and LGSP with strengthening gender-equity in local service delivery through analysis and recommendations on the link between gender and climate variability risks and vulnerabilities.

Activity 2.2.6: Capture and document relevant lessons for evidence-based policy influencing at the national level (link Outcome 1), including for:

- Additional costs and budget requirements for climate resilient infrastructure;
- Economic feasibility of higher initial investments for climate resilience (and improved quality) of small scale infrastructure;
- Improved procurement and capacities of engineers and contractors;
- Increased decentralization and capacity of LG to deal with localized climate risks and provide adaptation measures.

Output 2.3: ***Codes, guidelines and best practices for climate resilience measures for small scale rural infrastructure (including ecosystem based approaches and gender differentiated concerns) are developed, disseminated and advocated for integration into existing infrastructure design standards and guidelines and for nation-wide application.***

The design of small scale rural infrastructure is currently regulated by the Ministry of Public Works concerning Water, Sanitation and Hygiene as well as for (drainage structures and slope stabilization measures in) rural roads. The Ministry of Agriculture and Fisheries (MAF) is responsible for the design approaches and standards for small scale irrigation projects. This output will allow existing design documents and standards to be reviewed on the basis of the evidence provided by climate resilient investments provided under Outcome 3. The LDCF project will apply a learning-by-doing and field-testing-and-improving methodology to ensure that promising solutions and infrastructure designs are developed solid enough to guarantee uniformity in application, while flexible enough to accommodate local diversity. The design of project activities will as much as possible be jointly conducted with the relevant central agencies and donor programs. For example for water supply and sanitation projects the design approach and the technical designs will be developed jointly with the BESIK team and climate resilience will be integrated. This will also include ecosystem approaches like bio-engineering for slope stabilization or vegetation plantation in catchment areas. In cases where making proposed suco level infrastructure works climate resilient, as described above, goes well beyond the normal practice at district level, such projects can be designed by the project consultants as innovation projects (e.g. water harvesting technology, infiltration wells to capture run-off water, different types of (multi-purpose) water reservoirs and innovative small scale irrigation technology).The project will provide support for close monitoring and documentation of the joint infrastructure designs to ensure sustainable service delivery benefits for communities. The project will also create dialogue with relevant government departments charged with maintaining codes and guidance and enable the development of climate resilient technical annexes as well as specific adjustments to be made to core text. The final ratification or official approval of these proposals will be the responsibility of the Government of Timor Leste, not the LDCF project.

Indicative Activities:

Activity 2.3.1: Prepare an inventory of lead national directorates, agencies and non-state organizations involved in designing and implementing small infrastructure works, especially water related. Analyze which (aspects of) existing design, construction, operation and maintenance approaches of small scale infrastructure could be improved to strengthen climate

resilience. Develop a joint strategy on how to jointly improve climate resilience of small scale infrastructure in Timor Leste, using the opportunities presented under the LDCF project.
Activity 2.3.2: Develop and implement partnerships for on the ground climate resilient design development for small scale infrastructure (e.g. NDWR/BESIK, WaterAid and MPW/ILO). Develop multi-year programs to develop and test climate resilient designs and design approaches, including monitoring and evaluation of the tests and to document and share findings. Package climate resilient design approaches and designs, with technical specifications, drawings, Bill of Quantities, tender documents, quality assurance formats and relevant guidelines, to facilitate standardization and nationwide application. In a similar way develop research programs for innovative solutions/projects for addressing identified climate variability risks and vulnerabilities.

Activity 2.3.3: Conduct localized climate variability assessments as an integrated part of the climate resilient design approach to support more detailed analyzes and designs of projects in the three focus districts financed under LDCF project Outcome 3. Design selected projects funded under Outcome 3, with improved climate resilience. Where useful, package several (smaller) projects together for joint procurement by NGOs and/or private contractors through competitive bidding. Support district procurement, construction supervision and payments. Ensure transparency and adequate implementation of climate resilience measures.

Activity 2.3.4: Identify in the three focus districts, based on (initially simplified) CVRVA and existing sub-district plans, suitable areas where innovative solutions are required and can be tested. Support detailed analyzes and designs of innovation projects to be financed under LDCF project Outcome 3. Conduct procurement, construction supervision and payments. Ensure adequate implementation of climate resilience measures and monitoring and documentation of experiences for improvement of tested innovation projects.

Activity 2.3.5: Conduct district and national events to share experiences and to stimulate broad adoption of climate resilient design approaches and designs, including MoF in case of higher budget requirements for climate resilient small scale infrastructure.

Activity 2.3.6: Capture and document relevant lessons for evidence-based policy influencing at the national level (link Outcome 1), including for:

- Adequate investigation and Climate resilient design of infrastructure
- Adapted technologies, adaptation and resilience costing for climate resilient infrastructure
- Improved infrastructure quality and maintenance

Output 2.4: ***Capacity Development Plan developed and technical capacity enhanced for District and Sub-district level local administrations to understand and integrate climate risk information into local planning, budgeting and budget execution, in at least 10 Sub-districts in the 3 Districts of Liquiça, Ermera and Baucau.***
This output will entail a detailed review of the composition and role of local administrations and assemblies in the planning and budget process based on the experience of the LGSP, as well as the institutional, organizational and political context in which they operate. Tailored capacity development plans will be provided which may differ in emphasis according from one locality to the next. This output will draw from some elements of output 1.3 also, for example in relation to the provision of a basic introduction to climate science, climate risks and impacts and the nature of vulnerability.

Indicative Activities:
Activity 2.4.1: Conduct an institutional and organizational capacity assessment of the three focus Districts and selected key other (district) actors on functional as well as technical capacities required for addressing and integrating climate variability risk and vulnerabilities in local planning, budgeting, implementation, operation and maintenance, with a special focus on small scale infrastructure. Based on the assessment(s) develop a comprehensive CD strategy and plan.

Activity 2.4.2: Support MSA and the three focus districts with developing work processes, protocols, job descriptions, other organizational systems and training, to strengthen the functioning of the organization, in line with the findings and recommendations of the CD Strategy.

Activity 2.4.3: Support MSA and the three focus districts with the implementation of the CD strategy and plan, including supporting development of training curricula, identification and procurement of possible CD service providers. Provide on-the-job CD support and specific CD activities, like work procedures, guidelines, manuals, workshops and seminars for MSA, the three focus districts, other districts and selected key actors.

Activity 2.4.4: Capture and document relevant lessons for evidence-based policy influencing at the national level (link Outcome 1).

Output 2.5: ***Capacity Development Plan developed for District engineering and local contractor staff and at least 100 District engineering and local contractor staff trained in climate resilient design, construction and maintenance of small scale rural infrastructure.***
Specifically for climate resilient small scale infrastructure, engineering skills of sector staff needs to be strengthened for integrating climate resilience in investigative studies, design approaches, design standards, technical specifications, bio-engineering, Bills of Quantities, activity costing, tender documents, quality monitoring and construction supervision, community mobilization and operation and maintenance. Local Administrations usually outsource service delivery including the provision of infrastructure works to local contractors and NGOs. It is therefore important that also the capacity of these service providers is strengthened for understanding and implementing the climate resilience measures.

Indicative Activities:
Activity 2.5.1: Conduct an institutional and organizational capacity assessment of the three focus districts, specifically the engineering staff, contractors, NGOs, consultants and other infrastructure related (district) actors on functional as well as technical capacities required for addressing and integrating climate variability risk and vulnerabilities in small scale infrastructure design, construction, operation and maintenance. Based on the assessment(s) develop a comprehensive CD strategy and plan to strengthen technical capacities at district level.

Activity 2.5.2: Support the three focus districts, MSA and other key small scale infrastructure related Ministries with developing work processes, technical systems and training, to strengthen the functioning of the key public and non-state actors, including private sector organizations, in line with the findings and recommendations of the CD Strategy.

Activity 2.5.3: Support MSA and the three focus districts with the implementation of the CD strategy and plan, including supporting development of training curricula, identification and procurement of possible CD service providers. Provide on-the-job CD support and specific CD activities, like technical documents, guidelines, manuals, workshops and seminars for the three focus districts, other districts, MSA, other Ministries and selected key actors.

Activity 2.5.4: Capture and document relevant lessons for evidence-based policy influencing at the national level (link Outcome 1).

Outcome 3: Small scale rural infrastructure made resilient against climate change induced risks (droughts, floods, erosion and landslides) in at least the 3 Districts of Liquiça, Ermera and Baucau (Physical Investment Component).

Co-financing: USD 23,174,128
LDCF grant requested: USD 3,366,390

Baseline: Timor Leste's development prospects, including its ability to promote and sustain inclusive growth and poverty reduction, is closely associated with its infrastructure network, particularly in the more remote rural areas that have historically lagged behind on access to markets and critical services. In many cases the build quality has been insufficiently robust to last more than a few seasons in the face of challenging physical conditions, much of this local infrastructure having been put in place by multiple agencies and NGOs to different levels of quality during the post conflict phase. Since 2004 and the establishment of the government's Local Development Programme and Fund, Timor Leste has begun providing a more organized and systematic response to community level infrastructure needs, including rural roads and bridges, drainage channels, water supply and storage schemes, river protection and embankments. Total capital and recurrent expenditure through the LDF during the 2010 fiscal year was USD 2,302,115, rising to USD 3,500,000 million in 2011 and a USD 6 million from 2012 and thereafter. In addition, the government is moving towards channeling a further USD 15 million per year through the same planning and implementation mechanism, for larger scale investments of USD150,000 - 500,000 each. Through the gradual roll out and expansion of Local Development Funding, the government is helping to establish a cadre government staff, local community representatives and private contractors, with the ability to design, build and maintain basic physical infrastructure to more uniform standards across all districts. Recent evaluations indicate that much of the investment coming through the LDP is structurally sound and visibly benefitting local communities. However, the LDP does not take into account the additional risks that can be expected from increasing climatic variability, including longer dry spells and shorter and more intense rainfall events. Furthermore there is no coordinated approach that brings in complementary soil and land management measures that could help to buffer built infrastructure against additional climate risks. By introducing slope stabilization measures in the vicinity of roads or drainage channels, for example, the attritional impacts of silt loads during flood events can be reduced. By improving water storage capacity as well as aquifer recharge, water supply can be sustained for longer periods during dry spells.

The overall funding envelope of the Government to Districts for local development through PDD1 and PDD2 is USD 59,309,084 for 2012 (MSA, Annex 8) and it is anticipated to remain at this level or increase for the coming years. The Government through MSA will provide the overall local development funding envelope of the PDD1 (small scale projects) of Liquiça, Ermera and Baucau Districts as co-financing to outcome 3 of the LDCF project. The PDD1 funds for Liquiça, Ermera and Baucau in 2012 amount to USD 6,755,085 (Annex 8). The same amount of co-financing will be provided for the remaining LDCF project duration. The total amount of co-financing from MSA for four years based on the PDD1 is USD 23,100,436 (USD 27,020,340 including Project Management cost).

UNDP will provide in addition USD 73,692 co-financing for Outcome 3 for International Technical Assistance.

Total co-financing: MSA under PDD1 USD 23,100,436 and UNDP USD 73,692 = USD 23,174,128

Additionality: The LDCF grant will be used to finance the additional costs attributed to climate change in order to secure the long term viability of the Government's Local Development Programme, as well as the PDD. This will involve direct measures to strengthen the resilience of physical infrastructure, as well as complementary land management measures at sub-catchment and micro-catchment levels. Outcome 3 is driven by the planning, budget and infrastructure design process implemented under Outcome 2, with two broad forms of infrastructure investment envisaged: (i) building in 'redundancies' to ensure that existing types of rural infrastructure are more climate resilient; and (ii) introducing new approaches to infrastructure provision that will both increase resilience and diversify the range of options available to communities. For example remote rural villages in Timor Leste tend to rely on natural springs and surface water for their water and have limited storage or back-up available that can sustain supply during extended dry seasons. In such cases larger tanks or storage vessels may be appropriate, either at village level or individual household level, and in some localities it may be cost effective to invest in boreholes with community managed pumping systems. Localized flood management measures may be necessary in order to better channel excess rainy season water and reduce the damaging effects of flooding, while also capturing and storing the excess water for dry season supply. Specific weak points in the transport infrastructure (feeder roads and small bridges) which will be subject to much higher volumes of water and silt and sediment loadings, will be identified and strengthened or re-designed. In highly flood-prone locations, which may also be at risk from landslides, complementary land management measures in the immediate vicinity will almost certainly be necessary, including natural regeneration of vegetation, terracing, check dams, and gulley plugs, as further detailed in the governments sustainable land management guidelines. The vulnerability assessments to be carried out and integrated into the local planning process under Outcome 2, will provide an important means to determining how and where the proposed LDCF grant should be allocated, essentially as an increment to the existing district block grants. The complementary land management measures will have been integrated into the planning process under Outcome 2, but their implementation will be carried out through the relevant District authorities with the option of using service providers as contractors and NGOs. Knowledgeable NGOs, such as the Forestry Network, can provide both community training as well as independent monitoring and evaluation, while also contributing to compilation and dissemination of learning and best practices.

The LDCF project will thus have its own project based investment menu for eligibility of project financing (Outcome 3). The investment budget is furthermore divided in investments for:

1. Small scale physical infrastructure (e.g. water storage and supply, roads, bridges, irrigation & drainage); and
2. Complementary soil and land management measures to build resilience to climate induced risks (e.g. natural retention of surface water, slope stabilization, stream erosion protection, groundwater infiltration).

Type two activities will also be integrated in the design of type 1 activities, to strengthen climate resilience of these infrastructure works. To promote the use and generate evidence of the usefulness of type 2 activities (complementary soil and land management), 20% of the total investment budget under Outcome 3 will be allocated to type 2 activities.

The annual District and Sub-district plans developed under Outcome 2 for projects to be financed under Outcome 3 will be accumulated by MSA for all three focus districts and will be submitted to UNDP/LDCF project for fund release. The UNDP will after verification of eligibility of plan projects, release the funds to MSA on a yearly basis after which MSA will release the funds for implementation of the approved projects.

Output 3.1: ***Small scale physical infrastructure (water storage and supply, rural roads, small bridges, irrigation & drainage) designed, built and/or rehabilitated in at least 100 villages across at least 10 sub-districts in the 3 Districts of Liquiça, Ermera and Baucau (benefitting > 100,000 people), to a specification that takes into account anticipated climate risks.***
This output will draw heavily on the experience of the LGSP in supporting the implementation of small scale rural infrastructure amongst others in Liquiça, Ermera and Baucau since 2007.

Indicative Activities:
Activity 3.1.1: Verify eligibility of MSA proposed project activities from the annual plan of the three Districts, which are developed with support from LDCF project under Outcome 2. Verify if adequate budgets have been allocated for individual projects to ensure quality implementation and verify if the proposed overall plan is within the yearly LDCF project budget envelope and within the 80% allocation for this type of activities. Assess and assure that targets are (going to be) met in relation to number of Districts, sub-districts and beneficiaries.

Activity 3.1.2: Financial procedures of MSA and Districts will be assessed to ensure they are adequate for fund releases of LDCF project earmarked funds and for monitoring and reporting. In case required additional safeguards and steps will be put in place to ensure fulfilling UNDP and GEF requirements.

Activity 3.1.3: After final approval of the annual plan and budget, funds will be released to MSA. Track, monitor and report on fiscal transfers for climate resilient infrastructure. This activity will involve the deployment of PFM specialist on a quarterly basis to be deployed by MoF/MSA with support from LDCF. It will include the delivery of certified annual expenditure assessments for each District, which will facilitate standard financial report to the GEF through the annual PIR exercise.

Activity 3.1.4: Evaluate and report on the climate resilient grant's performance (small scale infrastructure) against relevant MCs standards on an annual basis. Technical reporting will also need to be carried out in order to support project delivery against project indicators and targets. These technical assessments will engage climate specific consultants delivered under Outcome 1 and 2 and will equally strengthened capacities in climate monitoring and evaluation of MCIE, MSA and MoF staff.

Output 3.2: ***Complementary soil and land management measures to build resilience to climate induced risks (natural retention of surface water, slope stabilization, groundwater infiltration) implemented at sub-catchment level in at least 10 sub-districts across the 3 Districts of Liquiça, Ermera and Baucau, covering at least 50,000 hectares.***
These measures will be implemented with community support and engagement in the vicinity of the climate resilient infrastructure to be provided under Output 3.1. The measures will be planned in parallel with the hard measures under Output 3.1 and will be closely linked through the District's planning and budget process to be supported under Output 2.2.

Indicative Activities:
Activity 3.2.1: Verify eligibility of by MSA proposed project activities from the annual plan of the three districts, which are developed with support from LDCF project under Outcome 2. Verify if adequate budgets have been allocated for individual projects to ensure quality implementation and verify if the proposed overall plan is within the yearly LDCF project budget envelope and within the 20% allocation for this type of activities. Assess and assure that targets are (going to be) met in relation to number of districts, sub-districts and hectares.

Activity 3.2.2: After final approval of the annual plan and budget, funds will be released to MSA. Budget utilization will be monitored, transparency ensured and progress reported upon by MSA, Districts and LDCF consultants as described under Output 3.1.

Activity 3.2.3: Evaluate and report on climate resilient grant performance (ecosystem services) on an annual basis. Technical reporting will also need to be carried out in order to support project delivery against project indicators and targets. These technical assessments will engage climate specific consultants delivered under Outcome 1 and 2 and will equally strengthened capacities in climate monitoring and evaluation of MCIE, MSA and MoF staff.

2.6 Key indicators, Risks and Assumptions

The project indicators rely largely UNDP's "Monitoring and Evaluation Framework for Climate Change Adaptation", and are aligned also with the LDCF Adaptation Monitoring and Assessment Tool (AMAT). The Project Results Framework in Section 3 details indicators, baseline, targets and sources of verification at the Objective and Outcome levels.

At the level of the **Project Objective**, the indicators are as follows:

Indicators:

- Number of (sector-specific) standard designs and specifications, for small infrastructure works, which have been upgraded to address and/or withstand increased climate risks
- Percentage change in number of sub-district (suco) level annual development plans, which include climate risk mitigation/resilience measures, as climate resilient activity designs (of small infrastructure works) and complementary bio-engineering and land management measures (AMAT 1.1.1.1)

At the level of the **three outcomes**, the indicators, risks and assumptions are the following:

Outcome 1: Policy makers and the public in TL are aware of critical climate risks to rural (infrastructure) development and are systematically being informed on up to date evidence-based information on climate hazards through vulnerability assessment and cross government coordination mechanisms.

Indicators:

- Number and type of stakeholders served by the multi-sector knowledge sharing and policy influencing platform of MCIE.
- Number of evidence-based climate change risk/vulnerability assessment reports and policy recommendation documents, timely disseminated through the knowledge sharing and policy influencing platform.
- Number of sectors which have endorsed MCIE's national climate change policy framework and strategy, and which have subsequently translated and/or integrated climate risks in key sector policies

Outcome 2: Local Administrations integrate climate risks into participatory planning, budgeting and standards of small scale rural infrastructure development.

Indicators:

- Climate change vulnerability guidelines and tools developed under the project are accepted by MSA as integral part of local planning and budgeting process (Yes/No)
- Percentage of Sub-districts which use climate change vulnerability assessments and CC adaptation activity identification guidelines/tools as integral part of the local development and planning and budgeting process [AMAT 1.1.1.3]
- Number of (district) engineering and contractor staff in focus Districts with a solid understanding of climate-induced risks to small scale infrastructure works and of possible adaptation and mitigation measures (design, construction, maintenance)

Outcome 3: Small scale rural infrastructure made resilient against climate change induced risks (droughts, floods, erosion and landslides) in at least three Districts. (Physical Investment Component)

Indicators:

- Number of Local Administrations (Districts and Sucos) which invest in climate resilient small rural infrastructure works, including complementary soil and land management measures as integral part of the local infrastructure development process
- Number of people benefiting from climate resilient small scale infrastructure works which are constructed in accordance with climate resilient designs in the three project focus Districts,(target 100,000) [AMAT 1.2.1.2]
- Coverage in hectares of complementary soil and land management measures in 3 Districts, target 50,000

Key assumptions that underlie the project design include:

- Central Ministries and sector projects are willing to engage in the process of developing climate resilient designs and to endorse (joint) national standards;
- Willingness within MSA and Local Administrations to make existing local development planning and budgeting processes more participatory, needs- and asset-based, climate change sensitive and accountable that baseline District development funds continue to be available in all three target provinces over the project period;
- Willingness for horizontal information sharing and learning exists between Districts, as well as between Districts and national Ministries;
- Willingness on the part of local communities to set aside time and other resources to support elements of the construction and routine maintenance of climate resilient rural infrastructure investments;
- MCIE willing to take the lead for inter-sector coordination and CC strategy/policy development;
- Baseline development funds available in focus Local Administrations over the project period;
- Local Administrations willing to improve the existing local development process and to integrate climate risks through more dialogue with communities and the use of sufficiently detailed risk/vulnerability analysis to capture localized climate risks;
- Existing capacity of focus Local Administrations, especially in engineering, sufficient to build upon for addressing additional challenge of climate risk, including improved operation and maintenance of infrastructure;
- Adequate capacity of focus Local Administrations to deal with additional work load from Project investments

Key risk factors and countermeasures

Having reviewed the opportunity for collaboration with LGSP and key entry points for synergy, the various areas identified for strategic collaboration (Paragraph 2.3) have helped to frame the specific outputs and activities detailed above. However, also a key risk of a formal linking between the LDCF project and LGSP II has been identified for which adequate measures in the project

design need to be taken up. This risk is the approved duration of LGSP II. The LGSP II project is the continuation of the successful LGSP for 2012 and 2013. The agreed project duration, which is in essence an extension of the LGSP with an adjusted project results framework, is until the end of December 2013. Although MSA has already requested a continuation of the LGSP and all parties involved are sincerely committed to continue the LGSP beyond 2013, for the LDCF project it is required to avoid the project risk of a discontinuation of the LGSP II. The project has therefore been designed so that it could continue beyond 2013 outside of the LGSP II framework as an independent project, without major adjustments. Specifically:

- GEF requires a separate project document for approval and M&E. The LDCF project document will as a whole be integrated in the LGSP II as a third output and management arrangements have been streamlined accordingly. The LDCF results framework as a whole maintains therefore its integrity and will in addition be taken up as Output 3 into the Annual Work Plan of the LGSP II[29]. Output 3 of the AWP of LGSP will be approved by the UNDP Regional Technical Advisor before submission to GEF for release of funds;
- The LDCF project is also linked to the MSA and the PDID, the District annual planning and budgeting process. This link and formalized collaboration with MSA and PDID resources will continue also in the unlikely event of the LGSP being discontinued. All project outputs will in that case be linked to MSA and PDID directly;
- The LDCF project design also has adequate TA and support staff to ensure that the project can be implemented with only its own resources. For the project to continue as an independent project only the ToRs of key staff and TA need to be adjusted, without the requirement of new recruitment. Adequate resources under the LDCF project will also ensure that the existing LGSP CTA, advisors and staff do not have additional work load due to LDCF implementation, possibly resulting in conflicts of interest;

Other risks identified, related to e.g. sector coordination and collaboration, decentralization progress, capacity constraints, social inclusion and gender, and issues of community participation, are presented in the project risk matrix included in Annex 9.

2.7 Cost-effectiveness

The following alternative project design options have been considered and evaluated upon their cost-effectiveness:

- Primary focus on investment component with limited support to integrating climate risk resilience into planning, design, budgeting, implementation and maintenance; This option would entail a more limited approach to the integration of climate risk resilience in the development of the LA planning, budgeting, procurement and implementation processes through the CVRVA methodology and (strategic) planning guidelines and capacity development support under Outcome 2. The advantage of this option is that a smaller consultant team would be required with less support budgets, which would translate into an increase in investment budget and subsequently the construction of more climate resilient small scale infrastructure projects with subsequent a higher number of direct beneficiaries. The drawback of this option is that the project would insufficiently leverage its knowledge and expertise to developing capacity in the local administrations for replication and expansion with support from LGSP. This option would therefore generate too little structural change in local administration systems for improved climate resilience within and beyond the three focus Districts and beyond the four year timeframe of the project. This would create limited long-term economic benefits of the project investment as well as unsure project sustainability.

[29] LDCF project objective = LGSP output 3; LDCF project Outcomes are three Activities under the LGSP output 3; LDCF project outputs will be reflected as sub-activities under LGSP output 3.

- Primary focus on climate resilient infrastructure design for projects funded under component 3, with limited support to collaboration for national standardization and mainstreaming of climate resilient designs in PDID of focus Districts; The advantage of this option, in line with the option above, would be a limited saving on the consulting team and supports budgets with a limited increase in investment budget and subsequently the construction of more climate resilient small scale infrastructure projects with subsequent a higher number of direct beneficiaries. The drawback of this option is that the project would insufficiently leverage its knowledge and expertise beyond the direct influence of the project area, to developing capacity in National Directorates for nationwide standardization of successful climate resilient designs. This option would therefore miss out on the indirect long-term benefits of leveraging the whole PDD budget nationwide (in 2012 nearly USD 60 million). It would also not add to the overall adaptation capacity of Timor Leste.
- Financing only hard adaptation measures without the use of complementary ecosystem based measures; This option was rejected because evidence from the region suggests that a combination of hard and soft measures leads to greater financial viability in the long term. Experience in Bhutan, for example, with improved climate resilience of road development shows that good quality climate resilient infrastructure, with higher investment budgets, has an economic rate of return between 6-10 years due to lower (structural) failure and yearly maintenance costs, compared to non-resilient infrastructure.
- Allocate more responsibility and tasks for LDCF project implementation to the Local Administrations in the three focus Districts; The advantage would be that a substantially smaller consultant team would be required, since as a minimum the planning, procurement and supervision of projects would to a large extent be the responsibility of local staff with support from central level. The project consultants would still lead the climate resilient infrastructure design process, since this type of competence is presently absent. A drawback and severe risk of this design option is that at present the capacity of the Local Administrations to implement the generally more complex LDCF project is very weak and that achievement of quality and timely implementation of project activities would be uncertain. This would not only limit the direct benefits of the project and their sustainability, but it would also risk not being able to showcase climate resilient infrastructure approaches, which would make leveraging the project investments beyond its core mandate near impossible. The LDCF project has thus been design with a consulting team and support budgets to allow for the development of high quality climate resilient designs and measures, which can be used nationwide, and which make the LDCF project more economically viable.
- Number of Districts and Sub-Districts; In Annex 2 the selection process of the number of Districts and well as the selection of specific Districts and Sub-districts has been described. A higher number of Districts would allow for more Local Administrations and beneficiaries to benefit directly from the project implementation, but would have as a disadvantage the requirement of a substantially larger consulting team and support budgets, which would reduce the overall amount for investments in climate resilient small scale infrastructure works. Furthermore the reduced investment budget would be divided over more Sub-districts therewith reducing the amount each Sub-district receives, therewith reducing the incentive for Sub-districts to participate and the scope for developing local capacities. The concentration on three Districts and eleven Sub-districts proved to be the most economical in terms of balancing the size of the investment budget with the budget for implementation support.

The final project design, as presented, was deemed the most cost-effective amongst the alternatives. The basis for the considerable cost-effectiveness of the project design is explained in further detail below.

The target Districts of Liquiça, Ermera and Baucau contain within them some of the poorest and most vulnerable communities in Timor Leste. A high proportion of the population lives in extreme

poverty largely dependent on their own subsistence output for survival. CCA options to be implemented under Outcomes 2 and 3 will produce measurable economic benefits for the beneficiary communities, largely in the form of avoided costs from losing access to irrigation and water supply infrastructure services. Loss of irrigation and water supply/storage infrastructure due to climate impacts will lead to increasing dependency on the state (or other forms of support), potentially accelerated out-migration of working-age people, an increasing nutritional deficit among the population and a corresponding increase in emergency food-aid requirements in the region. More frequent repairs or replacement of vulnerable infrastructure damaged by extreme events will also be required.

Investments in small scale rural infrastructure, particularly water related infrastructure can yield high economic returns, while also helping to build on and sustain the MDGs (particularly MDGs 1, 3, 4, 5 and 7). Physical investments in climate resilient rural infrastructure made under Component 3 will be expected to achieve high Economic Internal Rate of Return (EIRR) and in this way the project can be expected to deliver direct measureable socioeconomic benefits to at least 100 villages in 10 Sub-districts and 3 Districts. The total population of those directly benefitting from LDCF resources will be about 188,158 based on MSA data (Annex 2). In these villages climate resilience will be built into existing or new small scale rural infrastructure critical to e.g. agriculture, domestic water supply and rural access. To ensure a maximum fit of matching local needs with standardized investment feasibility, project selection will be guided by an Investment Menu as described in Annex 5.

Direct village level infrastructure investment will be supplemented by complementary physical measures to better manage small-scale ecosystems for their protective functions and at a larger scale their capacity to buffer essential infrastructure from flooding and drought. This approach will strengthen the likelihood of high EIRRs as well as wider community level economic impacts. This, together with measures targeting small-scale ecosystems, will involve physical works in strengthening and sustaining the hydrological process covering an area of at least 50,000 Ha across sub-catchments which directly affect water availability in target villages.

The climate variability resilience and adaptation measures to be implemented with LDCF resources will thus deliver significant financial and economic benefits to target communities by promoting the capacity of the Districts to support subsistence livelihoods and ultimately by maintaining the habitability of the affected areas. In all three Districts the economic consequences of an increasing nutritional deficit among the population due to climate change will be substantial, with a significant proportion of these costs being borne by individuals and families (rather than the public sector). Key factors include higher rates of nutrition-related disease, lower school enrollment, higher death rates among adults, higher infant and maternal mortality, and forced out-migration that would ensue from projected levels of climate change and related risk.

At the national level the project is expected to make a definitive contribution towards better understanding how to use national systems, like local planning and budgeting, to strengthen local capacities to respond to climate risks. By aligning climate resilient grants with ongoing local governance reform mechanisms it will provide one of the first examples of its kind, with the potential to inform and educate across the Pacific region. Through proposed investments in the design and implementation of climate resilient infrastructure MSA, MCIE and their partners will show case very practical ways in which this critical infrastructure can be strengthened and sustained over longer periods, contributing towards the definition of new climate resilient construction standards. By specifically focusing on ecosystem functions, the project also seeks to achieve clear linkages between natural systems and build infrastructure at several levels, including national policies, local budgeting and planning and local community co-management. Furthermore under Component 1 the MCIE is supported to generate broader climate risk evidence for sector

policy influencing and the development of a knowledge management and coordination mechanism on climate change impacts, vulnerabilities and adaptation options. Through these mechanisms the benefits of the project will go beyond the infrastructure sector also to other sectors, education institutions, private sector and civil society organizations, therewith over time also generating further development effectiveness and efficiency gains.
Even though selected Local Administrations will formally lead of the additional adaptation identification, planning, budgeting and service provision, they will need to be supported and facilitated adequately to ensure success. The on-the-ground development approach of the LDCF project (see also 2.3.5) requires additional competences and time investments which cannot be fully expected from existing comparatively weak Local Administrations. Therefore substantial resources and especially consulting team support has been provided to support the Local Administration level with the implementation of the LDCF project. These supportive implementation investments at the local level can only be justified if indeed the LDCF project succeeds in up-scaling good practice and in embedding adapted climate resilient approaches in national systems, so that project benefits are leveraged nationwide. The innovation aspect will also create sufficient 'research and development' momentum in the LDCF project to ensure real sustainable structural solutions based on actual practice on the ground.

To ensure a proper balance between actual adaptation investments of the LDCF project in the selected Districts and the budgets for implementation facilitation the number of Districts selected under the project has been limited to three, while at the same time ensuring that the climate risk diversity of Timor Leste is captured well within the selected Districts and the total number of direct beneficiaries of the LDCF project will be maintained (or exceeded) compared to the projection in the PIF.

In terms of overall approach, project expenditures will be focused mainly on direct community-level and local administration level impacts. Administrative and other overhead costs, including meetings and workshops, will be kept to a minimum.

2.8 Sustainability

Local Governance Support Programme

Based on the design principles, the development approach including the up-scaling requirement as discussed in Chapter 2, has been researched if the LDCF project can be aligned or integrated with an existing project, which could support leveraging the LDCF investments nationwide. The obvious choice for this is the existing Local Government Support Project II implemented by UNCDF and UNDP with support from several donors. This option has therefore been assessed in detail, as well as also the option to develop the LDCF project as a stand-alone project. Key in the assessment has been the identification of the complementarity of objectives, development results and key project activities, the feasibility of an integrated steering and management arrangement and possible conflicting interests. Or in short: the added value of linking the LDCF project to the LGSP II in achieving and leveraging LDCF outcomes and vice versa.

The Local Governance Support Programme (LGSP) phase II builds upon the achievements of three previous projects in the area of decentralization and local governance. LGSP II has the primary objective of improving capacity to deliver services at the local level through improved capabilities in planning, budgeting, and implementation of infrastructure and service delivery in addition to ensuring that increased levels of responsibilities and funding are channeled from central to District, sub-district and community levels. The strategy aims at improved focus on the rural poor, greater allocative efficiencies, better implementation arrangements, enhanced responsiveness, and increased citizens' participation in the overall local decision-making

development processes. LGSP II furthermore provides lessons and recommendations to MSA for the development of an accountable and effective local government system in Timor-Leste, including support to decentralization reform. Through achieving its primary objectives, LGSP II aims to contribute towards improving infrastructure and service delivery and reducing poverty, through the following Output-Outcome-Impact logic (Figure 17):

The **outcome of the LGSP II is "Efficient, accountable and gender-responsive delivery of services by local administrations"**.

Under **LGSP II Output 1 "Improved capacity for local service delivery (ISD) by sub-national bodies with increased citizen participation"**, LGSP II will provide an institutional and comprehensive approach to capacity development to enhance local systems. Support will be provided to develop the processes and systems (including local planning; financial management; procurement; monitoring) that underpin a local governance system which can effectively deliver services and promote local development. Furthermore there will be a focus on capacity development to strengthen overall coordination and accountability mechanisms.

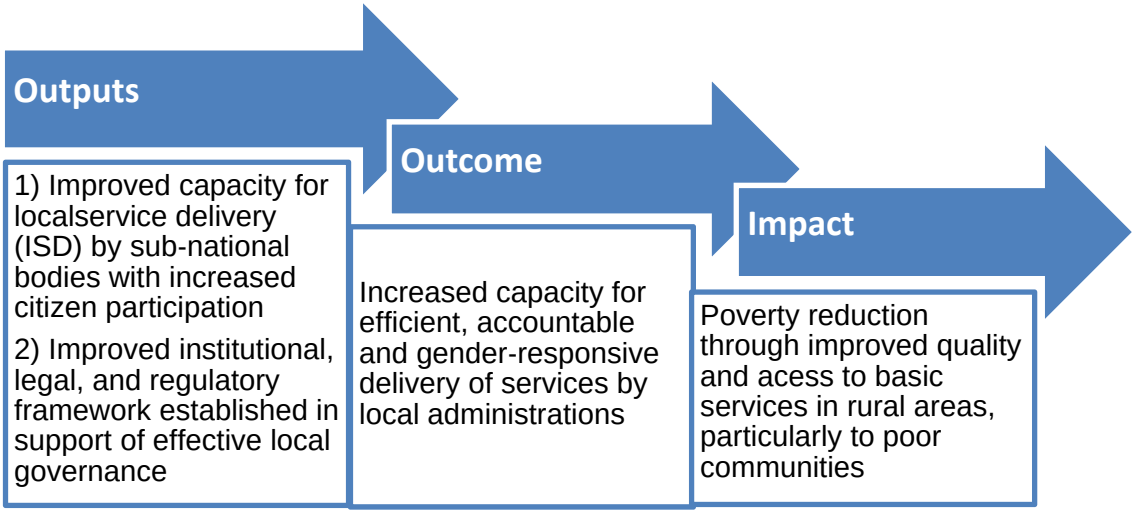


Figure 17, LGSP II Output-Outcome-Impact logic

To date community participation in local decision-making processes has been a strong feature of LGSP, with clear mechanisms of community involvement in local level planning, decision-making power in local assemblies and in oversight functions of implementation of infrastructure development projects ensuring equal gender representation in all processes. LGSP II will continue its commitment to promoting more open, transparent and accountable government processes, with program activities designed to further open the space for citizens to interface with and hold government accountable. Mechanisms for effective citizens' and community engagement in these processes would be further enhanced, including in local planning processes and Suco Council decision-making. In this connection, the LGSP II capacity development support to the Suco Councils will emphasize the communities' and councils' involvement in the planning, implementation and oversight of small infrastructure and service delivery projects in their respective communities.

Under **LGSP II Output 2 "Improved institutional, legal, and regulatory framework established in support of effective local governance"**, the project will provide support to establishing a legal framework for a local government system and improved local service delivery, with a focus on a broader approach to local government and governance reform within the present context in Timor-Leste and the future anticipated municipalization process.

The LGSP II extension phase began in 2012 and runs until 2013. UNDP and UNCDF are committed to continue the LGSP beyond 2013, based on the decentralization policies of the recently elected new Government (September 2012). Because of this commitment and the valued contribution of LGSP to local planning and development processes in TL and its good relationship and embedding within the MSA and Local Administrations, the LGSP II provides a perfect platform for the LDCF for mainstreaming climate risks and -vulnerabilities in Local Administration planning and budgeting processes, for addressing climate risks in infrastructure development and for nationwide up-scaling of good practice. It is thus proposed to design the **LDCF project as a third component under the LGSP II**.

Financial sustainability

The project is anticipated to produce high returns and is financially sustainable due to improved quality and sustainability of small scale infrastructure. Studies of similar small scale irrigation and water supply CCA projects from the region (Lao PDR) show economic internal rates of return (EIRR) of more than 25% and a benefit/cost ratio of more than 2.0 (i.e., the present value of the benefits of CCA is more than twice the present value of CCA related costs). In addition improved designs and working methods will be up-scaled nationwide, which will also impact positively the large annual investment budget of Timor Leste. Furthermore livelihoods will be protected and the habitability of an area of homeland for a significant segment of the population will be preserved. The project will directly contribute to the achievement of MDG objectives in the target areas.

Institutional sustainability

At the institutional level the project will help to support and sustain on-going government efforts to strengthen sub-national capacities in planning, budgeting and implementation. At the organizational level, the sustainability of the project is dependent on functional sub national government agencies and departments, as well as planning structures such as the District planning committees. MSA is undergoing a significant institutional reform process which includes establishing a more visible presence at sub-national level. Through Outcome 2 specifically, the project will help to establish and orientate these offices in the target Districts through LGSP within a key area of MSAs overall mandate, improving local service delivery of Local Administration. It is highly relevant therefore to MSA's mandate and comes at an opportune time for strengthening its institutional presence nationally. Utilizing democratic structures and the potential for participatory planning methods at the Suco and Sub-district levels will improve the resilience of local governance systems to climatic variability and risk, but considerable capacity building is required (see also CIA findings in Annex 11).

Also in other respects the project will work through existing institutions and mechanisms; Outcome 1 will help to strengthen the role and mandate of the MCIE as the lead national agency on climate change with responsibility for related national policy and implementation through other sectors; Outcome 3 will provide direct benefits to communities and will thus strengthen their livelihoods and local institutions.

Environmental

Environmental Sustainability is ensured through the whole project design which links the fields of local governance, infrastructure development and ecosystem management. The project is guided by the emerging field of ecosystem based adaptation with strong linkages to community based adaptation. The underlying idea is that ecosystem services used by communities must be sustained through sound management practices in order to ensure livelihood security. The associated project activities will counteract the prevailing land use change trends which are driven by overexploitation of natural resources. The project will also demonstrate over an area covering at least 50,000 Ha that investments in ecosystems will pay off, since they protect important livelihood

assets and infrastructures which are important for rural service delivery. Physical infrastructure investments will be small scale and focused largely on the upgrading of existing structures rather than the implementation of new 'greenfield' projects. The process of identifying and prioritizing investments will be driven by local community engagement and knowledge thereby drawing in best practice experience of environmental risks and constraints. New UNDP operational procedures also require all significant environmental risks to be identified in advance, eliminated through design alternatives or managed to offset such risks to acceptable levels.

Social

Overall the project will improve the service delivery in MDG relevant sectors, mainly water supply, by building climate resilient small-scale rural infrastructure or climate adapting existing ones. This will benefit an estimated 188,158 people. Through the development and application of climate change vulnerability assessments communities will more effectively and efficiently benefit from government development activities. Women will especially benefit from improved water supply schemes for domestic consumption and sanitation, given their major role in water provision of families. The time saving effect of better water supply will contribute to enhanced income generating activities of those women. The same holds true for other vulnerable groups, which currently are disproportionally affected from climate variability, e.g. shortages in water supply for domestic and agricultural use. In addition they depend to a greater extent on ecosystem services as the average population.

2.9 Replicability

The project has a high potential for replicability. Firstly the development approach, with the framework with the four steps: awareness raising, targeted Information, research activities and mainstreaming, which is integrated in the project design is in itself geared toward replicability (Figure 15). Secondly, the LDCF project is strongly linked to the LGSP programme which is one of the central pillars of the government's support for nation-wide improved service delivery and administrative reform at sub-national level. Therefore all field tested project activities in the field of capacity development for improved management of climate risks hold the potential to be up-scaled as well. Thirdly the project addresses issues which are prevalent not just in the focus Districts of Liquiça, Ermera and Baucau, but equally in other Districts also showing evidence and facing associated impacts of increasing climatic variability. Furthermore the methods being applied to strengthen the quality and climate resilience of local planning and budgeting so that it can take into account additional requirements and costs will be standardized in approach and integrated in the local planning guidelines of MSA. Fourthly the project has identified a number of clear gaps in existing practices and procedures for the provision of rural infrastructure, specifically in the area of construction standards and guidance which are currently based on "business as usual" climatic variables. This provides the project with a clear niche for work on policy influencing, with the potential to impact on similar types of infrastructure investment more widely nationally. A key element which the project will promote is the importance of building climate resilience also by using ecosystem services to help manage catchments where rural infrastructure is located. Finally the project will put in place a system of documentation of innovation and good practice for generating evidence for policy influencing and development of a climate risk dialogue and exchange mechanism. This will ensure that knowledge is exchanged, adapted and indeed applied to other contexts.

2.10 Stakeholder involvement plan

A wide range of other government institutions and partners, beyond the lead ministries, will be involved particularly for their organizational, scientific and technical inputs as well as for project outreach. The ICA (Annex 11) has also identified some actors, especially at the local level, that will need to be engaged as stakeholders in the project. These include formalized local level institutions, such as Water User Groups, but also other strong community players such as traditional authorities known as the Lia Na'in and Bee Na'in as well as the church. Consultation with these actors and institutions at the community level during the planning phase of the infrastructure will be important to create community ownership and support for the project.

It is important that the various outputs that will be delivered under the project outcomes build on relevant expertise already available in the country and improve upon what is presently available. These linkages will also provide platforms for knowledge exchange and mutual learning. The following Table 2 reflects the findings of stakeholder consultations carried out during the PPG phase, with key project related roles identified and agreed in each case.

Stakeholder	**Role in Project**
MSA, National Directorate for Local Administration	o Implementing Agency LDCF project o Executive Member in Project Board o Appoints Project Manager o Lead agency with responsibility for local governance reform lead implementation of especially components 2 and 3 o Investment fund (Component 3) release to focus Districts based on approved climate resilient plans; M&E Districts o Liaise with MCIE on implementation of component 1 o Support standardization of climate resilient designs, evidence-based policy influencing and up-scaling o Organize awareness raising and training events
MCIE, National Directorate for International Environmental Affairs and Climate Change	o Lead government agency component 1 o Executive Member in Project Board o Support to evidence-based policy influencing and up-scaling o Organize awareness raising and training events
MPW, National Directorate for Water Resources and BESIK	o Collaborate on climate resilient design approaches, designs and sustainable O&M for rural water, sanitation and hygiene sector o Standardization of designs and climate resilient policy development
MPW, Roads 4 Development	o Collaborate on climate resilient design approaches and design for small drainage structures, ecosystem based approaches, bio-engineering, and other related small infrastructure works; o Standardization of designs and climate resilient policy development o Technical capacity development for communities and LAs
Districts of Liquiça, Ermera and Baucau (Sub-) District Development Commissions LA staff	o Project focus Districts o Implementation of project components 2; CVRVA, local planning, Strategic District Plans, budgeting and climate resilient infrastructure development o Implement investment component 3: develop annual climate-resilient investment plans, determine budgets, implement climate resilient small scale infrastructure and ecosystem services o Main target of capacity development activities o Support standardization of climate resilient designs, up-scaling of good practice to whole District Plans and evidence-based policy influencing
Communities and Local decision makers	o Provide local knowledge, support stakeholders acquire adequate understanding of local realities and facilitate development of practically feasible solutions

Suco Chiefs Traditional authorities Lia Na'in and Bee Na'in Water User Groups Church	o Facilitate CVRVA, project identification and local planning o Support climate resilient project designs o Facilitate the development of ecosystem based measures for climate resilient small infrastructures and action plans o Support Contractors (private or NGO) with project implementation o Support and/or implement O&M of small scale climate resilient infrastructure o Target Group of trainings and awareness raising on infrastructure O&M and ecosystem management
Development Partners (AusAID, EU, WB, ADB, UNDP, UNCDF, GIZ)	o Co-financing and collaboration on project implementation o Exchange of data/evidence, learning, methodologies and tools o Support development and functioning of knowledge platform on climate variability risk and vulnerabilities of MCIE o Joint policy influencing on overarching systemic and transformational climate resilience issues o Co-organization of capacity development activities
Gender Advocacy groups SoS for Gender Equity Ministerial Gender Focal Persons District Gender Officers UNWOMEN	o Facilitation of stakeholder consultations with women's groups o Refinement of CVRVA methods and assessments o Support integration of gender and climate change in local planning and budgeting process o National outreach on implications of climate change for lives and livelihoods of rural women o Lead mainstreaming gender and climate change in sector strategies, policies and plans o Capacity development and awareness raising on climate change and women.
INGO's, NGOs, Consulting Companies, National University of Timor Leste, (Vocational) Training Institutes	o Implementation of contracted services (development of CVRVA methodology and conducting assessment, climate resilience innovation technology and infrastructure designs, development of capacity development strategies/plans, curriculum development and implementation of CD/training, research and case studies, awareness raising materials and activities) o Support to joint climate resilience knowledge development and sharing o Support MCIE knowledge platform / policy influencing
Construction Companies and NGOs	o Implement infrastructure components of projects o Advice on improvement of designs, contract documents o Advice on improvement of community mobilization process and O&M o Target group of trainings on construction standards of climate resilient rural infrastructure

Table 2, Stakeholder involvement plan

e following Country Programme Outcome as defined in CPAP or CPD:

, transparent, accountable, equitable and gender-responsive in planning and delivery of services; 2.1: Vulnerable groups, particularly IDPs, disaster-om opportunities for sustainable livelihoods; 2.2 Local communities and national/district authorities practice more effective environmental, natural

Sustainable Development Key Result Area (same as that on the cover page, circle one):

y OR

. Promote climate change adaptation; OR 4. Expanding access to environmental and energy services for the poor.

rogram:

r	Baseline	Targets (End of Project)	Source of verification	Risks and Assumptions
or-specific) ns and or small ks, which raded to withstand risks ange in strict level ent plans, imate risk e climate esigns (of	Designs for small scale infrastructure works insufficiently address present and projected increased climate variability, especially in terms of future water resource availability and intensity of extreme weather events, leading to capital loss due to inappropriate designs and unnecessary asset loss due to extreme weather events and inadequate maintenance Within the existing participatory local planning process, localized climate risks and –vulnerabilities are not analyzed, and climate risks	By the end of the project climate resilient designs are developed for all small scale infrastructure works constructed through the project and 75% of these climate resilient designs are accepted by national level sector agencies as the nation-wide standard design By the end of the project a minimum of 50% of sub-district annual development plans in the project areas include at least 3 specific climate	Project evaluation report Project progress and investment monitoring reports Project technical reports	A: Central Ministries and sector projects are willing to engage in the process of developing climate resilient designs and to endorse (joint) national standards A: Willingness within MSA and LAs to make existing local development planning and budgeting processes more participatory, needs- and asset-based, climate change sensitive and accountable R: Central Ministries are unwilling to coordinate, share experiences and use/integrate climate risk recommendations R: Decentralization process under the newly elected Government is further delayed which may

	Indicator	Baseline	Targets (End of Project)	Source of verification	Risks and Assumptions
Outcome 1[31] Policy makers and the public in Timor Leste are aware of critical climate risks to rural (infrastructure) development and are systematically being informed on up to date evidence-based information on climate hazards through vulnerability assessment and cross government coordination mechanisms. (ATLAS activity)	Number and type of stakeholders served by the multi-sector knowledge sharing and policy influencing platform of MCIE Number of evidence-based climate change risk/vulnerability assessment reports and policy recommendation documents, timely disseminated through the knowledge sharing and policy influencing platform Number of sectors which have endorsed MCIE's national climate change policy framework and strategy, and which have subsequently translated and/or integrated climate risks in key sector policies	Policy makers have little awareness and understanding of climate risks on sector development goals, sector policies do not or insufficiently address climate risks and vulnerabilities Due to sector fragmentation little exchange of knowledge, lessons and experiences takes place, existing platforms are shaped around national programmes (like NAPA working group) but do not function adequately outside the framework of these programmes due to limited capacity of MCIE/NDIEACC for multi-stakeholder process facilitation and sector leadership .	At least 5 platform members from relevant National Directorates and 2 members each from (or one representative organization): Local Administration, civil society, private sector, International NGOs, education institutes At least five evidence-based policy influencing documents disseminated through the platform At least 4 sectors have formally endorsed the MCIE climate change policy framework and strategy and have translated or integrated climate risk concerns into at least 1 sector policy	Project progress and review reports Interviews with policy staff of different sectors and inventory/analysis of new policy documents on relevant sectors	A: MCIE is willing to take the lead for inter-sector coordination and strategy/policy development on CC R: Sectors unwilling to integrate climate risks into policies and activity designs, because of more challenging complexity and likely higher budget requirements and thus in the short-term less perceived benefits R: The newly established NDIEACC within MCIE will have limited capacity to begin with
Output 1.1 Climate variability risk and vulnerability information compiled and evidence-based policy influencing capacity developed by MCIE contributing towards a comprehensive national climate change policy framework and strategy.					
Output 1.2 Platform for national dialogue and information sharing on climate risks established and coordinated by MCIE, based on the existing NAPA working group structure, delivering regular bulletins, information updates and policy briefs.					
Output 1.3 Organization strategy and capacity development plan in climate risk management developed for NDIEACC and tailored, function based training and support in climate risk management provided for NDIEACC staff and at least 50 other national and 50 District level technical staff conducted (agriculture, forests, rural development, water supply, water resources, rural infrastructure).					

[31] *All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.*

	Indicator	Baseline	Targets (End of Project)	Source of verification	Risks and Assumptions
Outcome 2 Local Administrations integrate climate risks into participatory planning, budgeting and standards of small scale rural infrastructure development. (equivalent to activity in ATLAS)	Climate change vulnerability guidelines and tools developed under the project are accepted by MSA as integral part of local planning and budgeting process (Yes/No) Percentage of Sub-districts which use climate change vulnerability assessments and CC adaptation activity identification guidelines/tools as integral part of the local development and planning and budgeting process [AMAT 1.1.1.3] Number of (district) engineering and contractor staff in focus Districts with a solid understanding of climate-induced risks to small scale infrastructure works and of possible adaptation and mitigation measures (design, construction, maintenance)	Within the existing participatory local planning and budgeting process, at present localized climate risks and –vulnerabilities are not analyzed, and climate risks for small infrastructure works are not understood, nor are resilience and protective measures planned and budgeted for. Local Administrations have little understanding of their role in terms of ensuring climate resilient development and climate risk resilient small scale infrastructure Engineering staff and contractors at District level have very little understanding of requirements for climate resilient infrastructure development	By the end of the project the climate change vulnerability guidelines and tools have become an integral part of the national local planning and budgeting process as endorsed by MSA At least 75% of Sub-districts in 3 Districts use the new climate change vulnerability assessments and have identified and implemented climate resilient designs and climate risk protection measures for small scale infrastructure works By the end of the project at least 200 (district) engineering and contractor staff have a solid understanding of climate-induced risks to small scale infrastructure works and of possible adaptation and mitigation measures (design, construction, maintenance)	Climate change vulnerability guidelines and tools packaged and formally endorsed by MSA (letter or progress report); Assessment whether MSA has adapted the local planning and budgeting process guidelines to include the climate change vulnerability assessment guidelines/tools. Project field reports and technical verification survey Sub-district and District Annual development Plans Number of participants from (district) engineering and contractor staff in capacity development activities of the project in focus Districts	A: Baseline development funds available in focus LAs over the project period A: LAs willing to improve the existing local development process and to integrate climate risks through more dialogue with communities and the use of sufficiently detailed risk/vulnerability analysis to capture localized climate risks A: Existing capacity of Local Administrations, especially in engineering, sufficient to build upon for addressing additional challenge of climate risk, including improved operation and maintenance of infrastructure R: LAs in Liquiça, Ermera and Baucau unwilling to invest in cost of climate risk mitigation because of other (political) priorities and prefer to replicate conventional non climate resilient investment projects, since they are cheaper and thus a larger part of the population can be claimed to be addressed. R: Climate resilient designs for small scale infrastructure not based on adequate community consultations and not addressing longer term CC projections, and therefore not appropriate or sustainable
Output 2.1 Development of climate variability risk and vulnerability assessment guidelines and tools which are integrated and up-scaled within the participatory district and sub-district level planning process for identifying climate variability adaptation and resilience activities for small scale infrastructure					
Output 2.2 District annual activity plans developed and under implementation in a participatory way, using climate variability risk and vulnerability assessment guidelines/tools, and which comprise climate variability adaptation and resilience activities for small scale infrastructure and with ecosystem based measures, in at least 10 sub-districts in the 3 Districts of Liquiça, Ermera and Baucau.					

Output 2.3 Codes, guidelines and best practices for climate resilience measures for small scale rural infrastructure (including ecosystem based approaches and gender differentiated concerns) are developed, disseminated and advocated for integration into existing infrastructure design standards and guidelines and for nation-wide application.					
Output 2.4 Capacity Development Plan developed and technical capacity enhanced for district and sub-district level local administrations to understand and integrate climate risk information into local planning, budgeting and budget execution, in at least 10 sub-districts in the 3 districts of Liquiça, Ermera and Baucau.					
Output 2.5 Capacity Development Plan developed for District engineering and local contractor staff and at least 100 District engineering and local contractor staff trained in climate resilient design, construction and maintenance of small scale rural infrastructure.					
	Indicator	**Baseline**	**Targets (End of Project)**	**Source of verification**	**Risks and Assumptions**
Outcome 3 Small scale rural infrastructure made resilient against climate change induced risks (droughts, floods, erosion and landslides) in at least the 3 Districts of Liquiça, Ermera and Baucau. (Physical Investment Component) (equivalent to activity in ATLAS)	Number of Local Administrations (Districts and Sucos) which invest in climate resilient small rural infrastructure works, including complementary soil and land management measures as integral part of the local infrastructure development process Number of people benefiting from climate resilient small scale infrastructure works which are constructed in accordance with climate resilient designs in the three project focus Districts (target 100,000) [AMAT 1.2.1.2] Coverage in Hectares of complementary soil and land management measures in 3 Districts (target 50,000)	Designs for small scale infrastructure works, implemented at the Local Administration level, are often prepared by national level sector departments or agencies. These designs are at present not climate resilient, nor adapted to local conditions. Local Administrations also lack the capacity to make climate resilient designs and to construct in accordance with required higher quality standards.	In at least ten sub-districts in 3 Districts, various new small scale infrastructure works are constructed in accordance with the new climate resilient designs and additional measures are implemented to safeguard existing infrastructure works against climate risks, benefitting at least 100,000 people. At least 100,000 people benefited from climate resilient small scale infrastructure works in the 3 focus Districts A minimum of (total) 50,000 hectares of catchment stabilization measures have been implemented	Project technical reports and field verification District annual construction plans and engineering designs used for each activity District population data and project reports on number of Sucos and Sub-districts with projects implemented Project reports on number of complementary soil and land management measures and total Ha implemented	A: Adequate LA capacity to deal with additional work load from Project investments A: Project activity planning and -financing will be adequately integrated in LA planning and budgeting cycles R: Procurement system at LA not always conducive to get qualified contractors and in combination with weak supervision this does not always ensure good quality work R: Insufficient capacity of local contractors to perform in accordance with improved design and quality standards
Output 3.1 Small scale physical infrastructure (water storage and supply, rural roads, small bridges, irrigation & drainage) designed, built and/or rehabilitated in at least 100 villages across at least 10 sub-districts in the 3 Districts of Liquiça, Ermera and Baucau (benefitting > 100,000 people), to a specification that takes into account anticipated climate risks.					
Output 3.2 Complementary soil and land management measures to build resilience to climate induced risks (natural retention of surface water, slope stabilization, groundwater infiltration) implemented at sub-catchment level in at least 10 sub-districts across the 3 Districts of Liquiça, Ermera and Baucau, covering at least 50,000 hectares.					

4 TOTAL BUDGET AND WORK PLAN

Award ID:		Project ID(s):	
Award Title:	Country Name Project Title		
Business Unit:			
Project Title:	Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk		
PIMS no.			
Implementing Partner (Executing Agency)	Government of Timor Leste, Ministry of State Administration in collaboration with Ministry of Commerce, Industry and Environment (for Outcome 1)		

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:
OUTCOME 1: Policy makers and the public in Timor Leste are aware of critical climate risks to rural (infrastructure) development and are systematically being informed on up to date evidence-based information on climate hazards through vulnerability assessment and cross government coordination mechanisms.	**MSA and MCIE**		**UNDP**	71200	International Consultants	20,010	55,224	55,224	20,544	151,002	1A
		62160	**LDCF GEF**	71200	International Consultants	29,000	60,400	65,400	39,400	194,200	1B
				71300	Local Consultants	16,600	29,200	29,200	29,200	104,200	1C
				71600	International Travel	0	2,500	2,500	2,500	7,500	1D
				71650	Local Travel	5,860	8,560	8,560	7,360	30,340	1E
				72100	Contractual services	7,000	16,000	16,000	16,000	55,000	1F
				72300	Materials and Goods	2,600	2,600	3,000	2,330	10,530	1G
				74200	Audio visual & Print Production	3,000	7,000	7,000	3,230	20,230	1H
				74500	Miscellaneous	2,000	2,000	2,000	2,000	8,000	1I
					Sub-total UNDP	**20,010**	**55,224**	**55,224**	**20,544**	**151,002**	
					Sub-total LDCF	**66,060**	**128,260**	**133,660**	**102,020**	**430,000**	
					Total Outcome 1	**86,070**	**183,484**	**188,884**	**122,564**	**581,002**	

OUTCOME 2: Local Administrations integrate climate risks into participatory planning, budgeting and standards of small scale rural infrastructure development.	**MSA**		**UNDP**	71200	International Consultants	8,010	21,612	21,612	9,612	60,846	2A
		62160	**LDCF GEF**	71200	International Consultants	41,000	45,200	48,200	48,200	182,600	2B
				71300	Local Consultants	14,040	17,640	17,640	13,320	62,640	2C
				71600	International Travel	0	2,500	2,500	2,500	7,500	2D
				71650	Local Travel	12,280	19,630	19,330	15,630	66,870	2E
				72100	Contractual services	25,000	67,000	52,000	35,000	179,000	2F
				72277	Equipment	43,000	0	0	0	43,000	2G
				72300	Materials and Goods	1,000	2,000	2,000	1,000	6,000	2H
				74200	Audio visual & Print Production	2,000	7,000	7,000	6,000	22,000	2I
				74500	Miscellaneous	1,000	1,000	1,000	1,000	4,000	2J
					Sub-total UNDP	**8,010**	**21,612**	**21,612**	**9,612**	**60,846**	
					Sub-total LDCF	**139,320**	**161,970**	**149,670**	**122,650**	**573,610**	
					Total Outcome 2	**147,330**	**183,582**	**171,282**	**132,262**	**634,456**	
OUTCOME 3: Small scale rural infrastructure made resilient against climate change induced risks (droughts, floods, erosion and landslides) in at least the 3 Districts of Liquiça, Ermera and Baucau	**MSA**		**UNDP**	71200	International Consultants	16,020	19,224	19,224	19,224	73,692	3A
		62160	**LDCF GEF**	71200	International Consultants	84,000	96,400	108,400	113,400	402,200	3B
				71300	Local Consultants	44,760	44,760	44,760	34,680	168,960	3C
				71600	International Travel	0	0	0	0	0	
				71650	Local Travel	16,360	16,000	16,360	16,360	65,080	3D
				72100	Contractual services	0	0	0	0	0	
				72200	Equipment	94,000	0	0	0	94,000	3E
				72300	Materials and Goods	9,200	11,000	11,000	11,000	42,200	3F
				74200	Audio visual & Print Production	0	0	0	0	0	
				74500	Miscellaneous	4,000	4,000	4,000	4,000	16,000	3G
				72600	Grants	50,000	842,650	842,650	842,650	2,577,950	3H
					Sub-total UNDP	**16,020**	**19,224**	**19,224**	**19,224**	**73,692**	
					Sub-total LDCF	**302,320**	**1,014,810**	**1,027,170**	**1,022,090**	**3,366,390**	
					Total Outcome 3	**318,340**	**1,034,034**	**1,046,394**	**1,041,314**	**3,440,082**	

PROJECT MANAGEMENT	**MSA**	**62160**	**UNDP**	71200	International Consultants	0	0	0	0	0	
				71650	Local Travel	3,140	4,440	3,440	3,440	14,460	4A
			LDCF GEF	71200	International Consultants	0	0	0	0	0	
				71300	Local Consultants	45,400	45,400	45,400	45,400	181,600	4B
				71650	Local Travel	0	0	0	0	0	
				72200	Equipment and furniture	31,000	1,000	1,600	0	33,600	4C
				72500	Office Supplies	2,920	3,960	3,960	3,960	14,800	4D
				DPS	Direct Project Services	0	0	0	0	0	4F
					Sub-total UNDP	**3,140**	**4,440**	**3,440**	**3,440**	**14,460**	
					Sub-total LDCF	**79,320**	**50,360**	**50,960**	**49,360**	**230,000**	
					Total Management	**82,460**	**54,800**	**54,400**	**52,800**	**244,460**	
				UNDP TOTAL		**47,180**	**100,500**	**99,500**	**52,820**	**300,000**	
				LDCF TOTAL		**586,400**	**1,355,273**	**1,361,733**	**1,296,593**	**4,600,000**	
				PROJECT TOTAL		**633,580**	**1,455,773**	**1,461,233**	**1,349,413**	**4,900,000**	

Summary of Funds: [32]

Co-financing Source	2012	2013	2014	2015	2016	Total
LDCF / GEF	0	586,400	1,355,273	1,361,733	1,296,593	4,600,000
UNDP TRAC	0	47,180	100,500	99,500	52,820	300,000
UNDP parallel: LGSP	1,206,800	728,800	0	0	0	1,935,600
Government in-kind: MCIE-NDIEACC	0	400,000	400,000	400,000	400,000	1,600,000
Government parallel: MSA-PDD1	0	6,755,085	6,755,085	12,168,276	12,168,276	37,846,722
Government parallel: MPW-BESIK	0	2,645,769	2,645,769	2,645,769	2,645,769	10,583,077
Total	**1,206,800**	**11,163,234**	**11,256,628**	**16,675,279**	**16,563,459**	**56,865,399**

[32] *Summary table should include all financing of all kinds: GEF financing, cofinancing, cash, in-kind, etc...*

Note	Description of cost item
	OUTCOME 1
1A	UNDP TRAC resources for sharing of costs of International Environment Engineer, fulltime (2012 10 months) and 10% allocated to Outcome 1; and UNDP TRAC resources for International CC Policy Advisor, 50% of costs, 2013 2 months, 2014 6 months, 2015 6 months, 2016 2 months and fully allocated to Outcome 1
1B	Provides for 10% of the International Environment Engineer fulltime (2012 10 months), (@ USD 12,000/month) to overall support the delivery of all Outcome 1 related outputs; and 50% of the International CC Policy Advisor (@ USD12,000/month) with a time allocation fully to Outcome 1 of 2013 2 months, 2014 6 months, 2015 6 months and 2016, to lead all content deliverables under Outputs of Outcome 1. International consultant on Capacity Development and Organization Strengthening USD 28,000. The total amount required for the two positions is USD 194,200.
1C	Provides for national consultants: CC Policy Consultant 100% allocated to Outcome 1 of in total 42 months (@ USD 1,500/month), to support the overall delivery of all Outputs under Outcome 1 and positioned within NDIEACC at MCIE; Monitoring and Evaluation Specialist 50% allocated to Outcome 1 of in total 42 months (@ USD 1,700/month), to provide overall support to component M&E, evidence-based policy advice and learning; Translator 50% allocated to Outcome 1 of in total 40 months (@ USD 800/month for 10 month/year), to provide overall translation support. The total amount required for is USD 104,200.
1D	Three international flights and flight transfers (@USD 2,500/event) for the International Environment Engineer or International CC Policy Advisor, for advocacy and sharing lessons and experiences on integrating climate resilience in national policies and knowledge management.
1E	Local travel costs (including local DSA and transportation) to be used in the following way: All supportive local travel for implementation of Outputs under Outcome 1 - DSA and travel costs for 190days national government officials, 260 days district government officials and 100 days non-government persons, in support to evidence generation, knowledge exchange, learning and policy influencing on climate resilience (@ USD30/person/day) for 4 years. An additional USD 11,200 is allocated for fuel costs and USD 2.640 for a driver to support this work. The total amount required to support local travel costs is USD 30,340
1F	Contractual services to support implementation of: Output 1.1 and 1.2 – development of PR and advocacy packages, evidence-based policy influencing documents and publications for policy influencing and knowledge development for government officials and non-state actors (USD28,000); Output 1.3 – development of capacity development and training packages for organizational strengthening and CD of staff for NDIEACC and knowledge platform members (USD 27,000); [CD support and training provided by consulting team in collaboration with service providers] Total USD 55,000
1G	Web-based Information 'system', materials and related consumables (USD 10,530).
1H	Climate resilience awareness raising materials (in local language and English), guidance documents: USD 20,230.
1I	USD 8,000 is allocated for contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials
	OUTCOME 2
2A	UNDP TRAC resources for additional costs of International Environment Engineer under Outcome 2, fulltime (2012 10 months) and 30% allocated to Outcome 2; and support to Output 2.4 and 2.5 International short-term consultant on Capacity development and Local Governance strengthening USD 36,846
2B	Provides for 30% of the International Environment Engineer to overall support the delivery of all Outcome 2 related outputs under Outcome 2 fulltime (2012 10 months), (@ USD 12,000/month); Project Monitoring and Evaluation USD 17,000

2C	Provides for national consultants: Senior Infrastructure Engineer 20% allocated to Outcome 2 of in total 48 months (@ USD 1,700/month), to provide support to focus Districts on implementation of Outcome 2, climate resilient infrastructure design and innovation, construction implementation, drawing lessons, standardization; Infrastructure Engineer 10% allocated to Outcome 2 of in total 48 months (@ USD 1,700/month), to provide support to focus Districts on implementation of Outcome 2, climate resilient infrastructure design and innovation, construction implementation; Local Planner and development specialist 30% allocated to Outcome 2 of in total 36 months (@ USD 1,200/month), to provide support to focus Districts over the first 3 years on implementation of Outcome 2, CVRVA implementation, climate resilient local plan development; Monitoring and Evaluation Specialist 50% allocated to Outcome 2 of in total 42 months (@ USD 1,700/month), to provide overall support to component M&E, climate resilient infrastructure development; The total amount required is USD 62.640.
2D	Three international flights and flight transfers (@USD 2,500/event) for the International Environment Engineer, team member, or key stakeholder for advocacy and sharing lessons and experiences on integrating climate resilience in local planning, budgeting and infrastructure design.
2E	Local travel costs (including local DSA and transportation) to be used in the following way: All supportive local travel for implementation of Outputs under Outcome 2 - DSA and travel costs: Output 2.1 (CVRVA): for 120days national government officials, 170 days district government officials and 70 days non-government persons, in support to evidence generation, knowledge exchange, learning on climate resilient infrastructure and local planning/budgeting (@ USD30/person/day) for 4 years. Output 2.2 (planning) and 2.3 (infrastructure design): for 125 days national government officials, 320 days district government officials and 220 days non-government persons, in support to evidence generation, knowledge exchange, learning on climate resilient infrastructure and local planning/budgeting (@ USD30/person/day) for 4 years. An additional USD 13,000 (Output 2.1) and USD 15,200 (Outputs 2.2 and 2.3) is allocated for fuel costs and USD7,920 for driver support to support this work. The total amount required to support local travel costs is USD 66,870.
2F	Contractual services to support implementation of: Output 2.1 – development of the CVRVA methodology and tool, integration in local planning process, conducting assessments, preparation of maps, capacity development and training delivery, M&E and further adaptation of the tool; Outputs 2.3 (local planning)and 2.4 (infrastructure design) - capacity development and training delivery, including training materials and guidelines. The total amount required USD 179,000
2G	Purchase of one vehicle and 2 motor bikes for consulting team logistics (USD 43,000).
2H	Materials and related consumables (USD 6,000).
2I	Climate resilience awareness raising and support materials (in local language and English) for local planning, budgeting and infrastructure design, District strengthening: USD 22,000.
2J	USD 4,000 is allocated for contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials
	OUTCOME 3
3A	UNDP TRAC resources for the additional costs of International Environment Engineer under Outcome 3, fulltime (2012 10 months), based on 60% allocation to Outcome 3
3B	Provides for 60% of the International Environment Engineer to overall support the delivery of all Outcome 3 related outputs, fulltime (2012 10 months), (@ USD 12,000/month). International infrastructure expert consultant for innovation projects and climate resilient design support USD 20,000; International local CC planning expert USD 10,000; Project Monitoring & Evaluation USD 41,000. Total USD 402,200.

3C	Provides for national consultants: Senior Infrastructure Engineer 80% allocated to Outcome 3 of in total 48 months (@ USD 1,700/month), to provide support to focus Districts on implementation of Outcome 3, climate resilient infrastructure plans and design and innovation, construction implementation supervision, O&M, drawing lessons, standardization; Infrastructure Engineer 90% allocated to Outcome 3 of in total 48 months (@ USD 1,700/month), to provide support to focus Districts on implementation of projects, climate resilient infrastructure design and innovation, construction implementation; Local Planner and development specialist 70% allocated to Outcome 3 of in total 36 months (@ USD 1,200/month), to provide in the first 3 years support to focus Districts on developing climate resilient investment plans and monitoring of implementation of Outcome 3. The total amount required is USD 168,960.
3D	Local travel costs USD 65,080 allocated for fuel costs and drivers for the project team to support district level output implementation.
3E	Purchase of six motor bikes and two vehicles for consulting team logistics (USD 94,000).
3F	Materials and related consumables in support to project implementation (USD 42,200).
3G	USD 16,000 is allocated for contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials
3H	USD 2,577,950 is allocated as grants to the three focus Districts for climate resilient small scale infrastructure works (USD 2,097,950) and supportive ecosystem services / Bio-engineering works (USD 480,000)
	PROJECT MANAGEMENT
4A	UNDP TRAC resources to support staff monitoring visits to project sites (USD 14,460).
4B	Provides for national PSU positions: Project Coordinator 100% allocated to PM of in total 48 months (@ USD 1,700/month), to provide overall support to project management; Human Resources /Administration 100% allocated to PM of in total 48 months (@ USD 1,000/month), to provide support to HRM and project admin tasks; Finance 100% allocated to PM of 9 months/year or in total 36 months (@ USD 1,000/month), to provide support to financial management, payments, transparency and accountability, disbursement and M&E of grants and reporting to GEF on financial progress and utilization; Translator 50% for translation support services; The total amount required for is USD 181,600.
4C	Equipment for project office including: 8 laptops (@USD 900/item), 2 printers (@USD 400/item), 1 scanner (@USD 300/item), and 2 projectors (@ USD 500/item) and other small equipment (total USD 4,500); Office furniture USD 10,800 and refurbishment USD 9,000. The total amount required for this equipment is USD 33,600.
4D	Costs of office operation with stationery, power, water, communications, office amenities, fuel, small office equipment at USD 14,800.
4E	UNDP will implement the project under the Direct Implementation Modality; Direct Project Services therefore do not apply.

5 MANAGEMENT ARRANGEMENTS

5.1 Project Steering and Management Arrangements

This Project will be implemented by UNDP under direct implementation arrangements (DIM), which is the principle implementation modality under the 2009-2013 Country Programme Action Plan (CPAP). The Ministry of State Administration will act at the lead partner from the government of Timor Leste as well as responsible party for the investment component (Component 3). UNDP is committed to promote a phased move towards National Implementation (NIM) in preparation for the next country programme cycle. Therefore a limited capacity assessment of MSA was undertaken in June 2011, which evaluated the present administrative and financial management capacity of MSA (Annex 12).

The LGSP II is institutionally housed in the Ministry of State Administration (MSA) and is directly accountable to the Project Board under the guidance of the Minister of MSA. The LDCF project will be institutionally integrated within the LGSP II as a third component, see Figure 20, and will thus be governed by the LGSP II Project Board and management arrangements. This way establishment of separate project steering and management arrangements can be avoided, which is deemed more efficient as well as more acceptable to MSA. Annex 13 provides the LGSP II project document for reference and further details.

The LGSP II Project Board will oversee overall LGSP and LDCF programme activities. The Project Board meets twice a year to discuss progress and endorse programme orientations. The Project Board is also responsible for endorsing the annual work plan, and mid and annual progress reports. The Project Board is chaired by the Minister of MSA. The LGSP II Project Board consists of:

1. Minister of MSATM (Chair), or his designated alternate
2. senior MSATM officials directly involved in the programme;
3. a representative from MoF;
4. a UNCDF representative;
5. a UNDP representative;
6. one representative from each participating development partner organization

For the purpose of the LDCF project a representative from the MCIE, DNEIACC, and MPW will be added to the Project Board.

The LGSP II is implemented by UNDP-UNCDF with operational responsibility delegated to an International Project Manager (CTA). The LGSP Project Manager heads the Project Management Unit (PMU) with the support staff of the LGSP II. LGSP output 1 (improved LG capacity) is implemented through a multi-disciplinary Team (see Figure 18), in close coordination with the National Directorate for Local Development (NDDL), LGSP output 2 (decentralization reform) is implemented through a second multi-disciplinary Team (see Figure 18), in close coordination with the Office of the Minister, with a view towards ensuring that the policy reform work is coordinated at a high level within the Ministry, and that decisions on policy direction can be taken by the Minister as needed. An additional project team will be recruited to support implementation of Output 3 (the LDCF project) and achieving project outcomes and outputs. The LDCF National Project Coordinator and support staff will be managed directly by the LGSP Project Manager in close coordination with the International Environment Engineer.

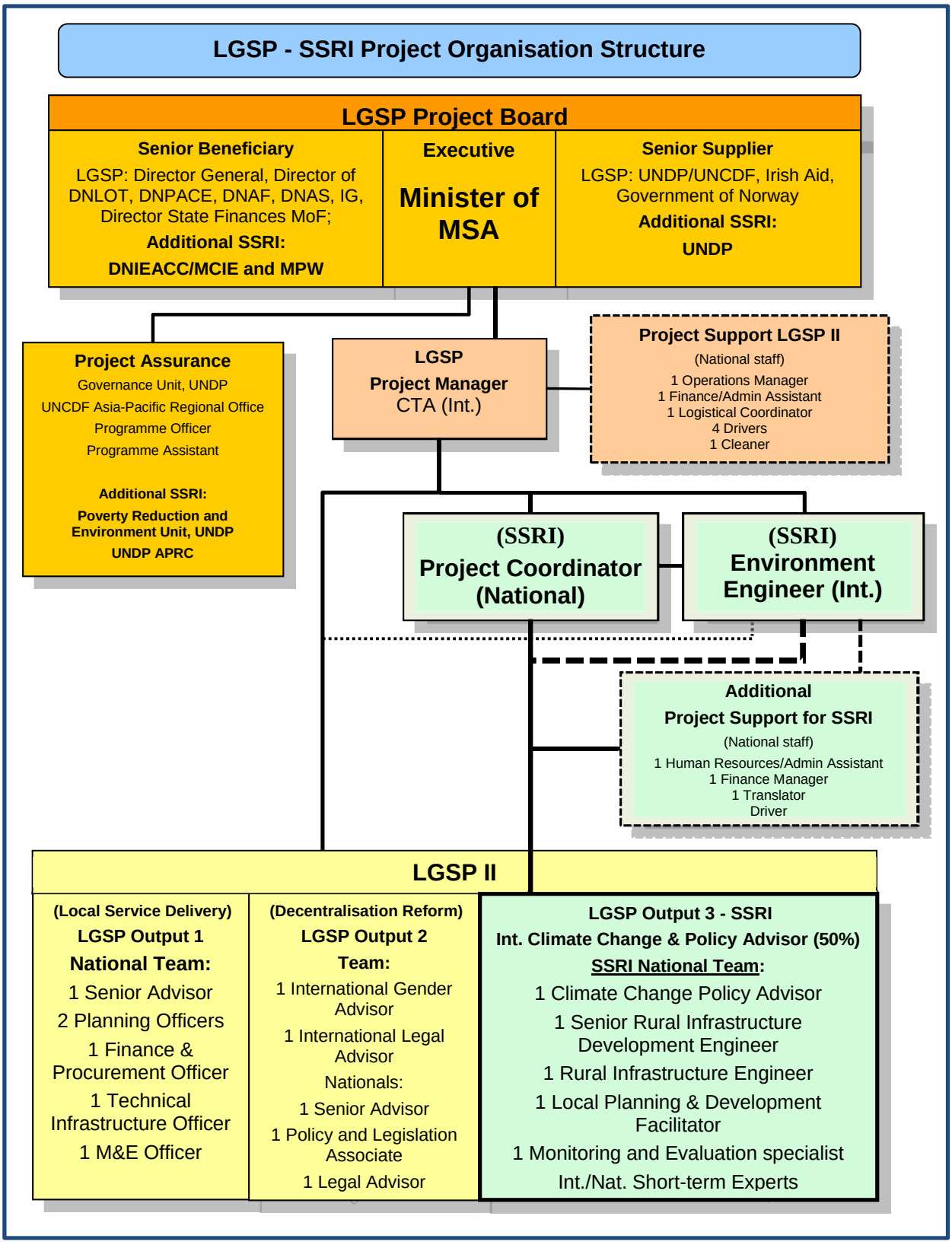


Figure 18, LGSP-LDCF Project Steering and Management arrangements

The national support staff comprises of 1 Project Coordinator, 1 Human Resources/Admin Assistant, 1 Finance Manager, 1 Translator and Drivers, financed from LDCF resources. International core staff include a fulltime International Environmental Engineer and a part-time international CC Policy Advisor. The International Environmental Engineer will act as the content leader of the LDCF project team, and will advise the National Project Coordinator on all matters related to project implementation. The national consulting team of the LDCF project comprises of the following positions:

- 1 CC Policy Advisor (posted at NDIEACC)
- 1 Senior Rural Infrastructure Development Engineer
- 1 Rural Infrastructure Engineer
- 1 Local Planning & Development Facilitator
- 1 Monitoring and Evaluation specialist
- Package of Int./Nat. Short-term Experts

Although the three LGSP outcomes each have their own implementation team, the three teams will liaise and collaborate closely with each other and provide mutual support for achieving individual outputs as well as overarching project results. All project staff are also expected to liaise and coordinate with other directorates of the MSA, the Office of the Inspector General, the DNIEACC, as well as with other Ministries and public sector institutions on relevant project activities. ToR outlines for the consulting team are provided in Annex 10.

5.2 Fund Management Arrangements

The LDCF project will follow the Direct Implementation Modality (DIM), in line with LGSP, and UNDP will directly manage project funds under Outcomes 1 and 2 and the implementation support services and innovation project implementation under Outcome 3. Under DIM, MSA will be a 'responsible party' to UNDP for investment grants under Component 3, except for project implementation support services and innovation projects. Project fund flows for these investments, will be arranged via a Letter of Agreement (LoA) between UNDP and MSA, and will be based on approved yearly investment plans to be developed by participating Districts. The grants will be channeled through MSA, which will after approval of budget allocations channel the funds in the existing way as PDD1 funds for payment of approved plan implementation services.

With regard to financial management, all UNDP/GEF funded expenditures will be managed and audited in accordance with standard UNDP procedures. Any payments made by Local Assemblies through MSA (within the framework of LGSP/LDCF) for project investments and expenditures from investment grants will be undertaken within the framework of government procedures for financial management and audited as per Government audit regulations. In addition the Project Coordinator will ensure adequate monitoring of progress and expenses as well as transparency in accordance with the UNDP procedures.

Although the LDCF project will follow the MSA planning process to the maximum extent, under the LDCF project Local Administrations will follow the LGSP procurement system of competitive bidding as developed under the LDP. The usual 'simplified procurement' by Districts for PDD1 bracket projects as well as community contracting for projects < USD 50,000 will therefore not be applied. Regarding innovation projects, these will be procured directly by UNDP through the LDCF project consulting team. Also in exceptional circumstances, up to the discretion of the LGSP Project Manager, it can be decided to

deviate from the 'competitive bidding process' through the local administrations and for UNDP through the project team to procure services directly.

SSRI Investment Budget (Component 3)													
District/Sub-district		Budget per Year									Budget per Sub-District		
SI		Total	2013		2014		2015		2016		Total Investment PIDP/PDD USD [3 years]	Imple-mentation Support USD [4 years]	Total Investment w/ Support USD [4 years]
Total Component 3		3,366,390											
Implementation support		781,440											
Innovation projects		350,000	50,000		100,000		100,000		100,000				
Investment (PDID/PDD)		2,234,950											
	District	Sub-District											
1	Liquica	Bazartete		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
2	Liquica	Maubara		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
3	Ermera	Atsabe		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
4	Ermera	Hatolia		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
5	Ermera	Letefoho		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
6	Ermera	Railaco		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
7	Baucau	Baguia		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
8	Baucau	Laga		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
9	Baucau	Quelicai		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
10	Baucau	Vemase		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
11	Baucau	Venilale		17,760	67,726	17,760	67,726	17,760	67,726	17,760	203,177	71,040	274,217
Total investment additional to PDIP/PDD					*744,983*		*744,983*		*744,983*		*2,234,950*		
Total Investment incl. innovation projects			50,000		844,983		844,983		844,983		2,584,950		
Total Implementation Support Budget				195,360		195,360		195,360		195,360		781,440	
Total Inv. and Implementation Support				245,360		1,040,343		1,040,343		1,040,343			3,366,390

Figure 19, Investment budget LDCF project Component 3

The above Figure 19 shows the investment budget under Outcome 3 of the LDCF project. In the first project year (2013) only planning, design and procurement (preparation) will be conducted for investment projects to be implemented in 2014. In case some opportunities arise in 2013 to kick start some innovative projects, a small budget of 50,000 has been allocated for this in 2013; for 2014-2016 the innovation project budget is USD 100,000 per year. The project implementation support, mainly the consulting team for support to Local Administrations in project identification, design, procurement, supervision and M&E, will be available throughout the whole four year project period and is budgeted at USD 17,760 per Sub-district per year. In addition for 2014-2016 each Sub-district will have a budget allocation of USD 67,726 for climate resilient small scale infrastructure projects. The total investment per Sub-district for 2014-2016 is USD 88,486 per year, including implementation support, and USD 274,217 over the four years project period. The total investment budget of Component 3 is USD 3,366,390.

To stimulate the planning, design and implementation of specific ecosystem services under the LDCF project, the yearly investment budget is divided in grants for small scale infrastructure projects (including integrated ecosystem/bioengineering services) and in specific 'Climate resilience ecosystem services' grants, as shown in Figure 20 below. These figures are a guideline and based on actual circumstances can fluctuate at actual Sub-district level and over the years.

Investment Grants Component 3	2013	2014	2015	2016	Total
Output 3.1: Infrastructure investment					
Climate resilient infrastructure grants	50,000	684,983	684,983	684,983	2,104,950
Output 3.2: Complementary eco-system measures investment					
Climate resilience ecosystem services grants	0	160,000	160,000	160,000	480,000
	50,000	844,983	844,983	**844,983**	***2,584,950***

Figure 20, Investment budgets for infrastructure and ecosystem services Component 3

Audits will be conducted in accordance with UNDP financial rules and regulations. Annual audits of the financial statements relating to the status of UNDP (including GEF) funds will be undertaken according to the established procedures set out in the Programming and Finance manuals.

5.3 Roles and Responsibilities

The Project Board is responsible for making management decisions for a project in particular when guidance is required by the LGSP Project Manager. The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. The Project Board approves the Annual Work Plan and Budget and any essential deviations from the original plans.

In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager. Potential members of the Project Board are reviewed and recommended for approval during the L-PAC meeting. Representatives of other stakeholders can be included in the Board as appropriate. The Board contains three distinct roles, including:

An Executive: individual representing the project ownership to chair the group. This will be a most senior official from the ministerial level MSA Timor Leste.

Senior Supplier: individual or group representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. This will be a Representative from UNDP that is held accountable for fiduciary oversight of LDCF resources in this initiative.

Senior Beneficiary: individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary is responsible for validating the needs and for monitoring that the solution will meet those needs within the constraints of the project. The role represents the interests of all those who will benefit from the project, or those for whom the deliverables resulting from activities will achieve specific output targets. The Senior Beneficiary role monitors progress against targets and quality criteria. This role may require more than one person to cover all the beneficiary interests. For the sake of effectiveness the role should not be split between too many people. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries. The most important party in this group will be a high level representative of MSA to ensure that the two processes of local governance and public administration reform are actively linked. The MCIE, National Directorate of International Environment Affairs and Climate Change, will ensure coherence between its existing activities and Component 1 of the project for which it will be responsible. Furthermore the MPW will ensure collaboration on development and up-scaling of climate resilient infrastructure development.

Specific responsibilities would include:

Defining a project

- Review and approve the Initiation Plan (if such plan was required and submitted to the LPAC).

Initiating a project

- Agree on Project Manager's responsibilities, as well as the responsibilities of the other members of the Project Management team;
- Delegate any Project Assurance function as appropriate;
- Review the Progress Report for the Initiation Stage (if an Initiation Plan was required);
- Review and appraise detailed Project Plan and AWP, including Atlas reports covering activity definition, quality criteria, issue log, updated risk log and the monitoring and communication plan.

Running a project

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Ensure the expected output(s) and related activities of the project are well defined
- Make sure that progress towards the outputs required by the beneficiaries remains consistent from the beneficiary perspective
- Promote and maintain focus on the expected project output(s)
- Prioritise and contribute beneficiaries' opinions on Project Board decisions on whether to implement recommendations on proposed changes
- Resolve priority conflicts
- Address project issues as raised by the Project Manager;
- Provide guidance and agree on possible countermeasures/management actions to address specific risks;
- Agree on Project Manager's tolerances in the Annual Work Plan and quarterly plans when required;
- Conduct regular meetings to review the Project Quarterly Progress Report and provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans.
- Review Combined Delivery Reports (CDR) prior to certification by the Implementing Partner;
- Appraise the Project Annual Review Report, make recommendations for the next AWP, and inform the Outcome Board about the results of the review.
- Review and approve end project report, make recommendations for follow-on actions;
- Provide ad-hoc direction and advice for exceptional situations when project manager's tolerances are exceeded;
- Assess and decide on project changes through revisions;

Closing a project

- Assure that all Project deliverables have been produced satisfactorily;
- Review and approve the Final Project Review Report, including Lessons-learned;
- Make recommendations for follow-on actions to be submitted to the Outcome Board;
- Commission project evaluation (only when required by partnership agreement)
- Notify operational completion of the project to the Outcome Board.

Executive

The Executive is ultimately responsible for the project, supported by the Senior Beneficiary and Senior Supplier. The Executive's role is to ensure that the project is focused throughout its life cycle on achieving

its objectives and delivering outputs that will contribute to higher level outcomes. The Executive has to ensure that the project gives value for money, ensuring a cost-conscious approach to the project, balancing the demands of beneficiary and supplier.

Specific Responsibilities (as part of the above responsibilities for the Project Board)

- Ensure that there is a coherent project organisation structure and logical set of plans
- Set tolerances in the AWP and other plans as required for the Project Manager
- Monitor and control the progress of the project at a strategic level
- Ensure that risks are being tracked and mitigated as effectively as possible
- Brief Outcome Board and relevant stakeholders about project progress
- Organise and chair Project Board meetings
- The Executive is responsible for overall assurance of the project as described below. If the project warrants it, the Executive may delegate some responsibility for the project assurance functions.

Senior Beneficiary

The Senior Beneficiary is responsible for validating the needs and for monitoring that the solution will meet those needs within the constraints of the project. The role represents the interests of all those who will benefit from the project, or those for whom the deliverables resulting from activities will achieve specific output targets. The Senior Beneficiary role monitors progress against targets and quality criteria. This role may require more than one person to cover all the beneficiary interests. For the sake of effectiveness the role should not be split between too many people.

Senior Supplier

The Senior Supplier represents the interests of the parties which provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring, implementing). The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. The Senior Supplier role must have the authority to commit or acquire supplier resources required. If necessary, more than one person may be required for this role. Typically, the implementing partner, UNDP and/or donor(s) would be represented under this role.

Specific Responsibilities (as part of the above responsibilities for the Project Board)

- Make sure that progress towards the outputs remains consistent from the supplier perspective
- Promote and maintain focus on the expected project output(s) from the point of view of supplier management
- Ensure that the supplier resources required for the project are made available
- Contribute supplier opinions on Project Board decisions on whether to implement recommendations on proposed changes
- Arbitrate on, and ensure resolution of, any supplier priority or resource conflicts

The supplier assurance role responsibilities are to:

- Advise on the selection of strategy, design and methods to carry out project activities
- Ensure that any standards defined for the project are met and used to good effect
- Monitor potential changes and their impact on the quality of deliverables from a supplier perspective
- Monitor any risks in the implementation aspects of the project

Project Assurance

Overall responsibility: Project Assurance is the responsibility of each Project Board member; however the role can be delegated. The Project Assurance role supports the Project Board by carrying out objective

and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed.

Project Assurance has to be independent of the Project Manager; therefore the Project Board cannot delegate any of its assurance responsibilities to the Project Manager. A UNDP Programme Officer typically also holds the Project Assurance role.

The implementation of the assurance responsibilities needs to answer the question "What is to be assured?" The following list includes the key suggested aspects that need to be checked by the Project Assurance throughout the project as part of ensuring that it remains relevant, follows the approved plans and continues to meet the planned targets with quality.

- Maintenance of thorough liaison throughout the project between the members of the Project Board.
- Beneficiary needs and expectations are being met or managed
- Risks are being controlled
- Adherence to the Project Justification (Business Case)
- Projects fit with the overall Country Programme
- The right people are being involved
- An acceptable solution is being developed
- The project remains viable
- The scope of the project is not "creeping upwards" unnoticed
- Internal and external communications are working
- Applicable UNDP rules and regulations are being observed
- Any legislative constraints are being observed
- Adherence to RMG monitoring and reporting requirements and standards
- Quality management procedures are properly followed
- Project Board's decisions are followed and revisions are managed in line with the required procedures

Specific responsibilities include:

Initiating a project

- Ensure that project outputs definitions and activity definition including description and quality criteria have been properly recorded in the Atlas Project Management module to facilitate monitoring and reporting;
- Ensure that people concerned are fully informed about the project
- Ensure that all preparatory activities including training for project staff and logistic support are timely carried out

Running a project

- Ensure that funds are made available to the project;
- Ensure that risks and issues are properly managed, and that the logs in Atlas are regularly updated;
- Ensure that critical project information is monitored and updated in Atlas, using the Activity Quality log in particular;
- Ensure that Project Quarterly Progress Reports are prepared and submitted on time, and according to standards in terms of format and content quality;
- Ensure that CDRs and FACE are prepared and submitted to the Project Board and Outcome Board;
- Perform oversight activities, such as periodic monitoring visits and "spot checks".

- Ensure that the Project Data Quality Dashboard remains “green”

Closing a project
- Ensure that the project is operationally closed in Atlas;
- Ensure that all financial transactions are in Atlas based on final accounting of expenditures;
- Ensure that project accounts are closed and status set in Atlas accordingly.

The National Project Director (NPD) The NPD position does not exist within the LGSP set-up. LGSP is implemented under the Direct Implementation Modality and the NPD role has been delegated to the LGSP Project Manager (CTA). In case the NPD function will be established in a next phase of LGSP, the roles and responsibilities of the NPD will be clarified as part of the extension project document. In general terms, the NPD would then be a High Official from MSA responsible for overseeing overall project implementation on regular basis and ensuring that the project objective and outcomes are achieved. This function would not be funded through the project. The NPD, assisted by the Project Manager, would report to the Project Board on project progress. The NPD would be responsible for coordinating the flow of results and knowledge from the project to the Project Board.

National Project Coordinator (PC): The national Project Coordinator will be a senior staff recruited by UNDP in close coordination with MSA, MCIE, MPW and LGSP. The national Project Coordinator has the authority to run the project on behalf of the Implementing Partner within the constraints laid down by the Board. The national Project Coordinator’s prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The PC will be responsible for the day-to-day management, administration, coordination, and technical supervision of project implementation. S/he will provide overall operational management for successful execution and implementation of the programme. S/he will be responsible for financial management and disbursements, with accountability to the Government and UNDP. The PC will ensure provision of high-quality expertise and inputs to the project.

In carrying out her/his responsibilities, s/he will advocate and promote the work of adaptation to climate change in Timor Leste and will also closely work and network with the relevant government agencies, UN/UNDP, the private sector, NGOs, and civil society organizations.

Prior to the approval of the project, the Project Developer role is the UNDP staff member responsible for project management functions during formulation until the Project Manager from the Implementing Partner is in place.

Specific responsibilities would include:

Overall project management:
- Manage the realization of project outputs through activities;
- Provide direction and guidance to project team(s)/ responsible party (ies);
- Liaise with the Project Board or its appointed Project Assurance roles to assure the overall direction and integrity of the project;
- Identify and obtain any support and advice required for the management, planning and control of the project;
- Responsible for project administration;
- Liaise with any suppliers;
- May also perform Team Manager and Project Support roles;

Running a project

- Plan the activities of the project and monitor progress against the initial quality criteria.
- Mobilize goods and services to initiative activities, including drafting TORs and work specifications;
- Monitor events as determined in the Monitoring & Communication Plan, and update the plan as required;
- Manage requests for the provision of financial resources by UNDP, using advance of funds, direct payments, or reimbursement using the FACE (Fund Authorization and Certificate of Expenditures);
- Monitor financial resources and accounting to ensure accuracy and reliability of financial reports;
- Manage and monitor the project risks as initially identified in the Project Brief appraised by the LPAC, submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the Project Risks Log;
- Be responsible for managing issues and requests for change by maintaining an Issues Log.
- Prepare the Project Quarterly Progress Report (progress against planned activities, update on Risks and Issues, expenditures) and submit the report to the Project Board and Project Assurance;
- Prepare the Annual review Report, and submit the report to the Project Board and the Outcome Board;
- Based on the review, prepare the AWP for the following year, as well as Quarterly Plans if required.

Closing a Project

- Prepare Final Project Review Reports to be submitted to the Project Board and the Outcome Board;
- Identify follow-on actions and submit them for consideration to the Project Board;
- Manage the transfer of project deliverables, documents, files, equipment and materials to national beneficiaries;
- Prepare final CDR/FACE for signature by UNDP and the Implementing Partner.

Project Support: The Project Support role provides project administration, management and technical support to the Project Manager as required by the needs of the day-to-day operations or by the Project Manager. The project support functions are available through a National Project Support Unit (PSU). MSA will provide office space for the PSU at central level. PSU staff will be funded by the project to ensure delivery of results as specified in the Project Results Framework. The PSU will ensure project implementation proceeds smoothly through effective work plans and efficient administrative arrangements that meet donor requirements. The PSU will be composed of the following core staff: Finance Officer, HR and Admin Officer, Translator, and drivers. The M&E specialist will also provide extensive services to project implementation.

Specific responsibilities: Some specific tasks of the Project Support Team would include:

Provision of administrative services:

- Set up and maintain project files
- Collect project related information data
- Update plans
- Administer the quality review process
- Administer Project Board meetings

Project documentation management:

- Administer project revision control
- Establish document control procedures

- Compile, copy and distribute all project reports

Financial Management, Monitoring and reporting
- Assist in the financial management tasks under the responsibility of the Project Manager
- Provide support in the use of Atlas for monitoring and reporting

Provision of technical support services
- Provide technical advices
- Review technical reports
- Monitor technical activities carried out by responsible parties

District Development Commissions: The District Development Commissions are the highest planning units within the Local Administrations. They comprise of members of all line agencies that have a presence in the respective District. The mandate of the DDCs is to identify projects and services according to village needs and merge the Suco and Sub-district level plans in annual and five year action plans for the whole Districts, through a project prioritization process at Sub-district and District level. The District plans will require endorsement from the national level. The work of the DDSPs is facilitated by District Administration staff and staff from line Agencies, providing principle focal points for the provision of capacity development and TA for this project.

Contractors: The implementation of the components of the project will be supported by contractors (private companies and/or NGOs), selected according to UNDP procurement rules. The Government Implementing Partner may contract other entities, defined as Responsible Parties, to undertake specific project tasks through a process of competitive bidding. However, if the Responsible Party is another government institution, Inter Governmental Organisation or a United Nations agency, competitive bidding will not be necessary and direct contracting will be applied. Confirmation of direct contracting will need to comply with criteria, such as comparative advantage, timing, budgeting and quality. If direct contracting criteria cannot be met the activity will be open to competitive bidding.

Administrative Implementation Manual: Based upon UNDP's Project Operations Manual, further details on project internal functions, processes and procedures will be outlined in an Administrative Implementation Manual to be produced during the inception period, and the first Annual Work Plan and Budget of the project.

5.4 Intellectual property rights

These will be retrained by the employing organization of the personnel who develops intellectual products, either Government or UN/UNDP in accordance with respective national and UN/UNDP policies and procedures.

5.5 Communications and visibility requirements

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at http://intra.undp.org/coa/branding.shtml, and specific guidelines on UNDP logo use can be accessed at: http://intra.undp.org/branding/useOfLogo.html. Amongst other things, these guidelines describe when and

how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at http://intra.undp.org/coa/branding.shtml. Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines").
The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

6 MONITORING FRAMEWORK AND EVALUATION

The project will be monitored through the following M& E activities, which are in line with LGSP monitoring and reporting requirements. The M& E budget is provided in Table 3 below.

Project start:

A Project Inception Workshop will be held within the first 4 months of the project starting and will include those with already assigned roles within the project organization structure, the relevant UNDP country office staff and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

The Inception Workshop should address a number of key issues including:

a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and PMU staff vis à vis the project team. Discuss the 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 will be discussed again as needed.
b) Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
e) Roles and responsibilities of the LGSP II / LDCF project organization structure should be clarified and the outcomes of the Inception Workshop discussed at the first planned LGSP Project Board meeting.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored by the PMU using the UNDP Enhanced Results Based Managment Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (January 1st to December 31st). The APR/PIR combines both UNDP and GEF reporting requirements.

  The APR/PIR includes, but is not limited to, reporting on the following:

  - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
  - Project outputs delivered per project outcome (annual).
  - Lesson learned/good practice.
  - AWP and other expenditure reports
  - Risk and adaptive management
  - ATLAS QPR
  - Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits:

The PMU and UNDP CO will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the PMU and CO and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward 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. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. 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.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. 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 results.

Type of M&E activity	**Responsible Parties**	**Budget US$** *Excluding project team staff time*	**Time frame**
Inception Workshop and Report	▪ Project Coordinator ▪ UNDP CO, UNDP GEF	Indicative cost: 5,000	Within first two months of project start up
Measurement of Means of Verification of project results (objectives and outcomes).	▪ UNDP GEF RTA/Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop. Indicative cost: 15,000	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress (outputs and activities)	▪ Oversight by Project Coordinator ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project coordinator and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project Coordinator and team	None	Quarterly
Mid-term Evaluation	▪ Project Coordinator and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 20,000	At the mid-point of project implementation.
Final Evaluation	▪ Project Coordinator and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost : 25,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project Coordinator and team ▪ UNDP CO ▪ local consultant		At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project Coordinator and team	Indicative cost 8,000	Yearly
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US$ 73,000 (+/- 1.5% of total budget)	

Table 3, Monitoring & Evaluation work plan and budget

7 LEGAL CONTEXT

This document together with the CPAP signed by the Government and UNDP (which is incorporated by reference) constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA) and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

- put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP/GEF hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

The UNDP Resident Representative in Timor Leste is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP Regional Coordination Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

- Revision of, or addition to, any of the annexes to the Project Document;
- Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
- 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
- Inclusion of additional annexes and attachments only as set out here in this Project Document