



Enabling poor rural people
to overcome poverty

Kingdom of Lesotho

Lesotho Adaptation of Small-Scale Agricultural Production (LASAP)

Main report and appendices

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Currency equivalents

Currency Unit	=	
US\$1.0	=	

Weights and measures

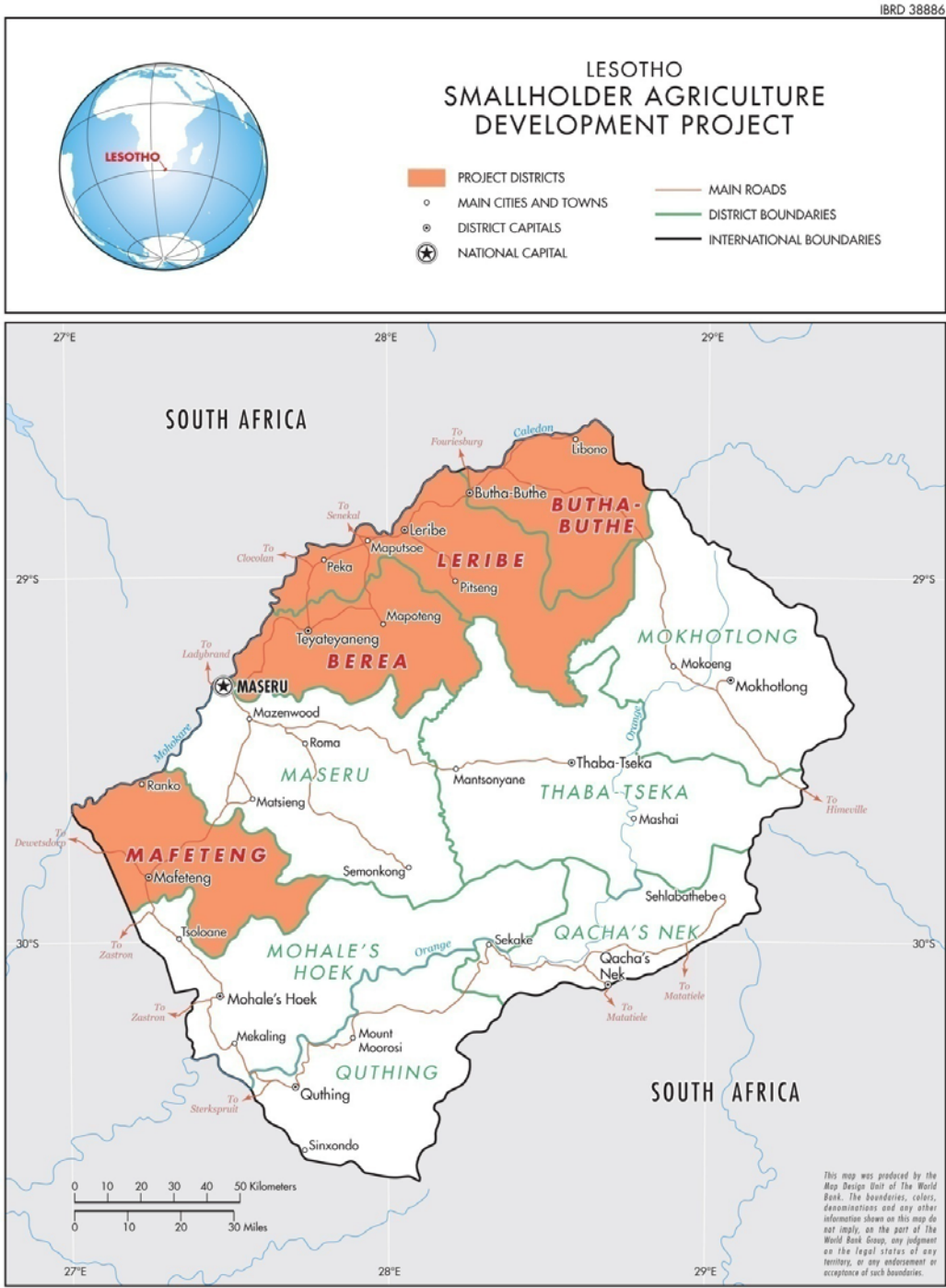
1 kilogram	=	1000 g
1 000 kg	=	2.204 lb.
1 kilometre (km)	=	0.62 mile
1 metre	=	1.09 yards
1 square metre	=	10.76 square feet
1 acre	=	0.405 hectare
1 hectare	=	2.47 acres

Abbreviations and acronyms

AEO	Area Extension Officer
AIP	Agricultural Investment Plan
AIPTs	Agricultural Investment Planning Teams
APCBP	Agricultural Policy and Capacity Building Project
ARC	Agricultural Resource Center
AWPB	Annual Work Plan and Budget
BDS	Business Development Services
BEDCO	Basotho Enterprise Development Corporation
CAP	Community Action Plan
CBL	Central Bank of Lesotho
CCAP	Community Council Action Plan
CGC	Competitive Grants Commission
CGP	Competitive Grants Program
CGS	Competitive Grants Secretariat
CPCA	Country Procurement Capacity Assessment
DA	District Administrator
DAO	District Agricultural Officer
DC	District Coordinator
DEO	District Extension Officer
DFS	Department of Field Services
DMO	District Marketing Officer
DPU	District Planning Unit
FAO	The Food and Agriculture Organization of the United Nations
FCSF	Farmer and Community Support Fund
FMS	Financial Management Specialist
FTC	Farmer Training Centers
GDP	Gross Domestic Product
GEF	Global Environment Facility
GNI	Gross National Income
GOL	Government of Lesotho
GTZ	German Development Cooperation (now GIZ)
IDA	International Development Association
IFAD	The International Fund for Agricultural Development
IFR	Interim Financial Report
IRR	Internal Rate of Return
LDCF	Least Developed Country Fund
LNDC	Lesotho National Development Corporation
LPB	Lesotho Post Bank
MAFS	Ministry of Agriculture and Food Security
M&E	Monitoring and Evaluation

MFDP	Ministry of Finance and Development Planning
MLGC	Ministry of Local Government and Chieftainship
MFLR	Ministry of Forestry and Land Reclamation
MTICM	Ministry of Trade and Industry, Cooperatives and Marketing
NAC	National Aids Commission
NGO	Non-Governmental Organization
NRM	Natural Resource Management
PCMU	Program Coordination and Management Unit
PFO	Project Field Officer
PIM	Project Implementation Manual
PMC	Project Management Committee
PMU	Project Management Unit
PM&E	Planning, Monitoring and Evaluation
PPAD	Procurement Policy Advisory Division
PPR	Public Procurement Regulation
PS	Principal Secretary
PSP	Priority Support Program
RUFIP	Rural Financial Intermediation Programme
SADP	Smallholder Agriculture Development Project
SBD	Standard Bidding Documents
UES	Unified Extension System
WMGA	Wool and Mohair Growers Association

Map of the project area



Executive Summary¹

This project inscribes itself within the framework of the Smallholder Agriculture Development Project in Lesotho, jointly financed by IFAD and the World Bank. The Goal of the SADP is to reduce rural poverty and enhance rural economic growth on a sustainable basis.

The Lesotho Adaptation of Small-Scale Agricultural Production project (LASAP) is designed to promote resilience in agricultural investments and to build the capacity of Lesotho smallholders and institutions to address climate change impacts on agricultural production. The LASAP is financed by a grant from the Least Developed Country Fund housed in the Global Environment Facility and responds to priorities identified in Lesotho's National Adaptation Programme of Action. As an add-on to the SADP, the LASAP sees climate resilience as a key factor of sustainability.

Activities in this project are delineated into 3 Components, with activities closely tied into the SADP activities and project management structures. The GEF-funded investments are to be delivered in the same districts, among the same beneficiaries as the SADP, using the same mechanisms, through SADP AIP and CG planning cycles, by blending funds. Other technical assistance activities are to be delivered by the Ministry of Agriculture as lead executing agency, in partnership with the Lesotho Meteorological Service.

The three components are: 1. Reduced Vulnerability of agricultural production, 2. Enhanced Capacity to support agricultural production in the context of climate change, and 3. Project Management.

The outcomes of the project are: (i) Mainstreamed adaptation in local level agricultural investment planning; (ii) Increased adaptive capacity of small-scale farming systems; (iii) Increased knowledge and understanding of climate variability and change-induced threats on agriculture; (iv) Strengthened capacity of government stakeholders to reduce risks to climate-induced losses on agriculture; (v) Awareness and capacity of local actors increased on climate change impacts and related adaptation measures.

Component 1 will include measures designed to achieve a better understanding of climate vulnerabilities, adaptation and mitigating strategies among small producers. This will begin by the development of basic, local language fact sheets and guidance products on the impacts of climate change on the various production value chains and on adaptation options for each sub-sector. This information will provide basic information to prospective producers who are the intended recipients of AIP and Competitive grants under the SADP, regarding climate resilient production

¹ Mission composition: Joana Talafré, Team Leader; Makoala Marake, Senior National Consultant; Erum Hasan, Social and Gender Expert; Stephen Twomlow, IFAD Regional Climate and Environmental Specialist

techniques. Another key part of this component will involve broadening the set of potential investments supported by SADP Agriculture Investment Plans (AIPs), to include community-based resilience investments. The LDCF project will provide an additional influx of funds through SADP to support the additional costs of activities identified by the communities that are considered to be promising adaptation options.

As a result of additional resources of up to a total of USD 2,000,000, the amount currently available for each AIP would be increased from USD 80,000 to approximately USD 102,000 per sub-center. Training for the AIP Teams will also be undertaken to enable them to facilitate community-based resilience planning. The planning and implementation processes would also be supported by the Adaptation Advisors who will work with the SADP Project Field Officers.

This will allow the AIPs and Grants to become a tool for community-based resilience as well as for increasing production assets and productive capacity among small producer groups, thereby increasing the number of beneficiaries and targeting agricultural production among those who are not yet at the commercialization stage.

In a similar fashion, the LDCF will add an additional 500,000 US\$ into the amount earmarked for SADP Competitive Grants Scheme, to support investments that would be considered as highly promising adaptive production schemes. This additional funding will be targeted towards the additional costs faced by producers when selecting production assets and technologies, to ensure that these are resilient

Component 2 will support activities to strengthen the agro-meteorology capacity in the country, by developing climate change related capacities in production systems simulation models, agriculture-relevant meteorological products, and long-term agro-meteorology knowledge base among the agriculture extension field staff. The project will also build capacity to develop downscaled climate models and scenarios relevant for district-level agricultural use, through strengthening of the climate monitoring infrastructure and training. The project will facilitate the development of production systems outlooks at the horizons 2030, 2050 and 2100, to be used as proactive adaptation and planning tools for the agriculture sector.

In order to build lasting capacity at the institutional level for adaptation, the project will also support the establishment of an agro-meteorological function within the government, working jointly with the Lesotho Meteorological Services and Ministry of Agriculture and Food Security. Extension service in the project districts will be supported through training of Resource Center extension staff, on interpreting climate information, managing climate risks, and adapting agricultural advice to climate conditions.

In order to build capacity to test and validate yield assumptions under various climate conditions and management options and to provide a venue for demonstrating adaptive technologies to producers under the SADP, the LDCF project will support the establishment of small field testing plots in each district (at lowlands, foothills and highlands). These plots will provide testing of the most promising agricultural practices under current and future variability, gather data on crop behaviour and

management options, combined with climate conditions monitoring in the lowlands, foothills and mountains. These plots would provide a useful venue for on-farm demonstrations of the productive benefits of any recommended change for resilience purposes to farmers, as well as the baseline crop and livestock performance data used for future production system simulation modelling.

Component 3 - Because the LDCF is an resilience add-on to the SADP baseline project, the LDCF project will make full use of the SADP team and structures currently in place. This will include embedding the LDCF funds into the various SADP budget lines, and the LDCF indicators within the SADP Monitoring and Evaluation systems.

To further facilitate implementation and to ensure the transfer of adaptation and resilience knowledge to SADP beneficiaries, five (5) adaptation professionals will be recruited and trained within the first six months of the LASAP and embedded within the SADP Team at central and district levels. These Adaptation Advisors will each dedicate 20% of their time to LASAP project management activities, including monitoring and evaluation and coordination, and 80% of their time as technical advisors to the SADP Project Field Officers and SADP beneficiaries to support adaptation and resilience planning within the SADP framework.

All LDCF staff members will be fully integrated into the current PMU arrangements and will be accountable to the SADP project manager. The Monitoring & Evaluation (M&E) and financing would be mainstreamed in regular SADP operations, with the LDCF funding providing financial support for ad hoc consultancies for monitoring and evaluation when needed, specifically a Mid-term and Terminal Evaluation, and any supplementary baseline assessment needs at the start of the LDCF period.

All ASAP activities will be delivered in accordance with the SADP Project Implementation Manual and procedures. The project will also be integrated within the project oversight mechanisms used by SADP, IFAD and the WB, including Project Steering Committee and technical committees.

Socio-economic benefits, particularly gender considerations are at the heart of the project design and have been considered in the context of each activity. The project will implement a series of measures to ensure high participation and greater economic and food security for women. These measures include (i) grants and investments that focus on production value chains that are female-led and dominated (e.g. piggery and poultry farming, and crop production); (ii) investments and grants that provide the capital to enhance production capabilities while in the long-run provide greater autonomy and economic security for women; (iii) community-determined agricultural investment plans which include active participation by women to determine which adaptation and resilience-building activities will be the most beneficial to their lives; (iv) high targets and gender disaggregated indicators for active female participation in all activities of the project; (v) documentation of advances made in achieving socioeconomic benefits through

face-to-face interviews and ongoing monitoring; (vi) using service delivery mechanisms that are used by women to disseminate information.

Logical Framework

Narrative Summary	Key Performance Indicators	Target (<i>Baseline</i>)	Means of Verification	Assumptions (A) / Risks (R)
Goal:				
Reduce Poverty and enhance rural economic growth on a sustainable basis ²	<ul style="list-style-type: none"> ▪ Improvements in household asset index³ ▪ Number of households with improved food security⁴ 		<ul style="list-style-type: none"> ▪ Baseline and impact surveys conducted for SADP 	(A) a key assumption to the overall SADP is that current agro-climatic conditions will continue to be favourable to agricultural production. This project is designed to reduce the risk posed by climate change to agricultural production
Project Development Objective: to increase the resilience of small scale agriculture to climate change impacts by promoting climate-proofed investments for agriculture-based development, as well as by enhancing the resilience of agricultural productivity under increased climate variability.				
Outcome 1: 1. Mainstreamed adaptation in local level agricultural planning	<ul style="list-style-type: none"> ▪ # of beneficiaries who have access to and understand the resilience related guidance, % of which are women 	<ul style="list-style-type: none"> ▪ at least 75% of AIP beneficiaries obtain and understand the resilience related guidance, by end of project, and at least 50% of those are women. (0) 	<ul style="list-style-type: none"> ▪ questionnaire to project beneficiaries 	(A) increased knowledge flows about climate change linkages with agriculture are sufficient to achieve a policy change in local level agricultural planning.
Outputs: 1.1 Vulnerability mapping, analysis & related adaptation guidance included in AIP process	<ul style="list-style-type: none"> ▪ # and quality of appropriate of guidance products produced 	<ul style="list-style-type: none"> ▪ At least 3 guidance products produced and disseminated to SADP recipients. (0) 	<ul style="list-style-type: none"> ▪ Project implementation reports, guidance and technical documents 	(R) there may be some cultural resistance to adopting climate-resilient production techniques, due to perceptions of impacts on labour, among others. This risk will be mitigated through the extension services training and outreach efforts supported by the project.

² as per SADP Goal

³ as per SADP Goal-Level indicators. Note that at the time of writing, specific targets under these SADP indicators were not available.

⁴ id.

Narrative Summary	Key Performance Indicators	Target (<i>Baseline</i>)	Means of Verification	Assumptions (A) / Risks (R)
<p>Outcome 2:</p> <p>2. Increased adaptive capacity of small-scale farming systems</p>	<ul style="list-style-type: none"> ▪ # of beneficiaries who feel equipped to deal with climate change and variability, % of which are women 	<ul style="list-style-type: none"> ▪ all AIP and CG investments include resilience-promoting investments (in NRM, at community level or production assets) and at least 50% of those are held by women. (0) 	<ul style="list-style-type: none"> ▪ AIPs, Grant implementation reports, AIP implementation reports 	<p>(A) the amplitude and rate of climate changes is well understood by the government and beneficiaries alike.</p> <p>(R) there is a risk that beneficiaries will not understand or adopt non-traditional products or production techniques due to a perception of risk, increased labour or benefit loss. This risk will be mitigated through the production of clear guidance and awareness raising efforts.</p>
<p>Outputs:</p> <p>2.1 Adaptive measures introduced to minimize climate change impacts on natural assets and sustain agricultural production</p> <p>2.2 innovative practices, technologies and infrastructures aiming to increase the efficiency and resilience to climate change of smallholder production through a demand-led approach</p>	<ul style="list-style-type: none"> ▪ # of AIP projects implemented that promote resilience ▪ # of competitive grants projects implemented that promote resilience ▪ # of resilience-based investments channelled % of which received by women 	<ul style="list-style-type: none"> ▪ at least 75% of AIP projects promote resilience every year. (0) ▪ at least 65% of competitive grants projects promote resilience every year, with at least 50% of those received by women. (0) ▪ at least 50% of investments channelled are resilience-based and women receive at least 50% of these investments by end of project. (0) 	<ul style="list-style-type: none"> ▪ CGs, Grant implementation reports, AIP implementation reports 	<p>(A) In line with SADP policies, women will continue to be actively engaged in the AIP and CG processes</p> <p>(A) staff composition within beneficiary institutions allows for appropriate targeting of women</p>
<p>Outcome 3:</p> <p>Increased knowledge and understanding of climate variability and climate change induced threats on agriculture</p>	<ul style="list-style-type: none"> ▪ # of downscaled climate models and production system simulations produced ▪ # of trained extension staff who understand and apply improved climate information at field level 	<ul style="list-style-type: none"> ▪ at least 1 downscaled climate model for the northern region and at least 2 production system simulations produced by LMS and MAFS at the end of the project (0) ▪ at least 75% of trained extension staff in each district can 	<ul style="list-style-type: none"> ▪ climate models, simulation reports, project implementation reports ▪ Face-to-face discussions with extension services administered at the end of the project to identify lessons learned ▪ MTE with social and gender expert 	<p>(A) The assumption is that data currently available regionally or for Lesotho enables the production of realistic, credible climate models for the project districts.</p> <p>(R) There is a risk that climate data sharing mechanisms do not evolve during the project's duration. This risk will be</p>

Narrative Summary	Key Performance Indicators	Target (<i>Baseline</i>)	Means of Verification	Assumptions (A) / Risks (R)
		understand and translate climate information into relevant advice, with an expected 30% of trainees being women. (0)	facilitating discussion	mitigated through the development of joint LMS-MAFS MOUs and working protocols to enable free flowing data sharing towards the establishment of an effective agro-meteorological function.
Outputs: 3.1 Monitoring system in place to disseminate timely climate information related to agriculture 3.2 Climate and agro-meteorological information included in agricultural information system	<ul style="list-style-type: none"> ▪ # of people trained in climate modelling and production systems outlooks, % of which are women ▪ # of people trained in climate risk management and adaptive management, % of which are women 	<ul style="list-style-type: none"> ▪ At least 10 people within MAFS, LMS and the resource centers in the 4 districts are trained (with at least 5 women) by mid-term. (0) ▪ At least 4 people in each resource center in the 4 pilot districts are trained in climate risk management, with 50% of trainees being women. (0) 	<ul style="list-style-type: none"> ▪ training report, project implementation reports 	
Outcome 4: Strengthened capacity of government stakeholders to reduce risks to climate-induced losses on agriculture	<ul style="list-style-type: none"> ▪ Degree to which agro-meteorological services are integrated into ongoing MAFS operations 	<ul style="list-style-type: none"> ▪ A central agro-meteorology function is established and the 4 pilot districts benefit from increased agro-meteorological information. (There is no agro-meteorological function in MAFS) 	<ul style="list-style-type: none"> ▪ Face-to-face discussions with extension services administered at the end of the project to identify lessons learned ▪ MTE with social and gender expert facilitating discussion 	(A) The assumption is that data flowing from LMS is sufficient, timely and adequate to ensure the delivery of proper agrometeorology functions. (R) There is a risk that the agro-meteorology function may not be sufficiently institutionalized at the end of the project. To mitigate this risk, the project has proposed the recruitment of an existing member of the public service, to avoid the creation of an additional position, but maintains the creation of a dedicated position within both LMS & MAFS to work concurrently.
Outputs: 4.1 Capacity of Met Service and MAFS staff on the links between climate change and agriculture strengthened	<ul style="list-style-type: none"> ▪ Availability of crop models and scenarios at end of project ▪ # of research reports produced using field testing data ▪ # of trained staff dedicated to agro-meteorological services in MAFS and LMS at the end of the project, % of which are 	<ul style="list-style-type: none"> ▪ at least 1 model and scenario for each staple crop by the end of the project (0) ▪ at least 1 research report per year (0) ▪ at least 1 skilled person in MAFS and 1 skilled person in LMS are dedicated to 	<ul style="list-style-type: none"> ▪ crop models, crop scenarios, briefing materials, project reports ▪ research reports ▪ Training reports 	

Narrative Summary	Key Performance Indicators	Target (<i>Baseline</i>)	Means of Verification	Assumptions (A) / Risks (R)
	women	delivering agro-meteorological services, with at least 1 being a woman. <i>(There is only 1 person in LMS whose skills need to be formalized and updated)</i>		
Outcome 5: Awareness and capacity of local actors	<ul style="list-style-type: none"> ▪ # of beneficiaries who attend & understand climate change awareness raising forums, % of which are women. 	<ul style="list-style-type: none"> ▪ At least 75% of potential AIP and CG beneficiaries attend a climate change awareness raising workshop every year, and at least half of participants are women. <i>(0)</i> 	<ul style="list-style-type: none"> ▪ meeting reports, project documents 	(A) N-A (R) N-A
Outputs: 3.1 effective awareness raising & communication campaign to local stakeholders designed & implemented	<ul style="list-style-type: none"> ▪ # of climate change workshops, meetings or other events 	<ul style="list-style-type: none"> ▪ at least 1 workshop annually in each district <i>(0)</i> 	<ul style="list-style-type: none"> ▪ meeting reports, project implementation reports 	

I. Strategic context and rationale

A. Country Context

1. The Kingdom of Lesotho is a democratic constitutional monarchy, completely surrounded by the Republic of South Africa. The Basotho people seek their livelihoods and economic development on a beautiful albeit difficult environment covering an area of 30,355 square kilometers dominated by the Maloti and Drakensburg mountain ranges. The country is situated at the highest part of the Drakensberg escarpment of the eastern rim of the Southern African plateau between 1500 m and 3482 m above sea level (a.s.l). This landscape is divided into Low Lands & the Senqu River Valley, Foothills, and the Mountains regions (Schmitz and Royani 1987)⁵.
2. These physiographic regions are geographically based on elevation and agro-climatology, but coincidentally delineate livelihood zones (Lesotho VAC, 2005)⁶ with variable vulnerability and resilience to climate change. Over 80 percent of the productive arable lands-and coincidentally the highest population densities of the 1.88 million population (Lesotho Census, 2006)⁷ are found along a narrow belt of lowlands (20–50 km wide) along the western border with South Africa. The foothills (1800 m–2000 m a.s.l), form a narrow strip running northeast to southwest, adjacent to the lower mountain range to the east. This region covers eight percent of the country and also supports high population densities subsistent on mixed crop and livestock systems. The Senqu River Valley (1500–1800 m a.s.l) is a major grassland area marked by shallow soils and suffers a rain shadow effect. The population in this region also depends largely on livestock and mixed farming. The mountains (2000– 3482 m a.s.l.) form approximately two thirds of the country and are primarily used for summer grazing transhumance practices. They also host some unique African alpine and sub-alpine habitats of the Drakensburg range (Marake, 1999)⁸.
3. The latest UNDP Human Development Index (2012) ranks Lesotho as 158th in the world. Fourty three percent of the population lives on less than US\$1.25 per day. Gross National Income per capita is US\$1,879 (in PPP terms, 2005 constant)⁹. Lesotho's HDI rose between 1980 and 2012 by 1.2 percent annually from 0.442 to 0.461, while the HDI of the Sub-Saharan region increased from 0.366 in 1980 to 0.475 in 2012, putting Lesotho below the regional average.¹⁰ In terms of economic equality, Lesotho has one of the highest levels of income

⁵ Schmitz G. and F. Rooyani. 1987. Lesotho Geology, Geomorphology and Soils. Morija Printing Works – Lesotho.

⁶ Lesotho Vulnerability Assessment Committee. 2005. Disaster Management Authority. Government of Lesotho.

⁷ Lesotho National Population Census. 2006. Bureau of Statistics. Government of Lesotho.

⁸ Marake M.V. 1999. Arable Agriculture in Lesotho. In First State of the Environment Report (ed.) K.Q. Chakela. 1999.

⁹ 2012 Human Development Report, data available at <http://hdrstats.undp.org/en/countries/profiles/lso.html> last accessed april 5, 2013.

¹⁰ Ibid.

- inequality in the world (Gini coefficient of 0.66 according to 2011 World Bank estimates).¹¹
4. After the introduction of free primary school education in 2000, first year enrolments increased significantly. However, due to a shortage of teachers and lack of facilities the quality of secondary education is somewhat insufficient with only two percent of youths between 18 and 20 enrolled in tertiary institutions while the only university, the National University of Lesotho, admits merely 1700 students per year. However, Lesotho has a relatively high literacy rate of 82 percent.
 5. The prevalence of HIV&AIDs is the biggest development challenge for Lesotho. 26.7 % of the female population (15-49 years old) and 18% of the male population (15-59 years) are HIV positive (LDHS 2009). This is equivalent to a national rate of 23 % which is the third highest HIV prevalence rate in the world. The percentage of HIV-positive women is greater than the percentage of infected men in almost all age groups except men 40 years and older. The prevalence is considerably higher among young women than young men. This pandemic affects almost every household and increases vulnerability to extreme poverty and food security because families cannot compensate the loss of their breadwinners. In an increasing number of households, one or so adults are missing. This has an enormous impact on both the social structure of households and their economic viability. Thus the pandemic drastically reduces household incomes and depletes assets which must be used to cover medical and burial costs and erodes social safety nets and traditional coping mechanisms. In particular, poor households are not able to cope with transitory crop failures and food insecurity. Children drop out from school because they need to care for the sick and work to generate income.
 6. The prevalence of HIV & AIDS is not anticipated to pose a risk to the project. The impact would likely be limited to the possibility of some participants and beneficiaries falling ill and being unable to carry out agricultural and adaptation measures. This would be at the individual household level and would not be expected to affect project-wide activities implemented at the local, regional and governmental levels. The vulnerability imposed by HIV & AIDS will be taken into account by the project insofar as the project will target subsistence farmers that are particularly vulnerable to climate change. Improved and resilient practices will likely lead to beneficial outcomes and improved food security for those that are vulnerable, including those that have HIV/AIDS.

Economy

7. Lesotho has a small domestic market within a relatively undiversified economy, which recent government administrations have sought to expand. Lesotho experiences a strong dependence on foreign markets, particularly that of South

¹¹ World Bank. Lesotho Country Profile 2011. Available online at: <http://www.worldbank.org/en/country/lesotho>. Accessed on April 25, 2013.

- Africa. Its key exports include water, hydroelectric power, diamonds, wool and mohair and textiles under the African Growth and Opportunity Act (AGOA) agreements with the United States although the latter are due to expire in 2015. Between the years 2004 and 2008, Lesotho experienced a positive rate of economic growth, averaging 3.4 percent. However, given Lesotho's susceptibility and dependence on the foreign market, its economy suffered shocks in 2009 as a result of the global economic crisis. These economic shocks exacerbated the vulnerability of households.¹²
8. Despite a strong economic resilience against the recent global economic recession, the pace of expected recovery has remained slow due to the floods experienced in between December 2010 and January 2011 in which the estimated cost of losses and damages to productive and infrastructural sectors of the economy were equivalent to 3.2 percent of the GDP (DMA, 2011)¹³. Consequently, growth estimates were 3.1 percent in 2011 marking a 2.5 percentage decrease compared to 2010. The economic recovery offsetting the damages of the floods were attributed to the manufacturing sector and high demand for diamond exports.¹⁴ The agricultural sector which employs the majority of the population, however, has been unable to stimulate economic growth to desirable levels. Lesotho has in the past few years initiated some major reforms mostly related to public financial management in order to improve efficiency of resource allocation. It also adopted a strategic approach to reduce the public debt to sustainable levels by using accumulated reserves to service the debt and to build adequate levels of international reserves.¹⁵
 9. Also, Lesotho has been highly dependent on remittances from mine workers residing outside of the country. However, these have reduced dramatically due to the loss of employment of male mine workers in South Africa. An estimated 80,000 out of 150,000 workers have lost their jobs, which creates new challenges for the Lesotho economy. To give an idea of the scope of this problem it is useful to note that in the 1990s alone, remittances sent back by mine workers in South Africa accounted for as much as 67 percent of Lesotho's GDP.¹⁶
 10. Other concerns such as unemployment particularly among the youth, has remained a challenge to the social and economic fabric of the country and may have negative impacts on the economy. It is estimated that 15.3 percent of the youth (25-29 age bracket) are unemployed, and the small size of the private

¹² African Development Bank. *African Economic Outlook 2012: Lesotho*. Online at: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Lesotho%20Full%20PDF%20Country%20Note.pdf>. Accessed on December 8, 2012

¹³ Disaster Management Authority. 2011. Lesotho Disaster Report.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ IRIN. Lesotho: *Ex-Mineworkers Search for New Livelihoods*. Online at <http://www.irinnews.org/Report/92027/LESOTHO-Ex-mineworkers-search-for-new-livelihoods>. Accessed on December 10, 2012.

sector cannot accommodate those youth that have not been employed by the public sector.¹⁷ cursory observations indicate that there is a growing cumulative unemployment rate among university graduates creating a multiple year backlog of graduates who are not getting employment formally in the economy, especially in the public sector, which has hitherto been the biggest employer.

Agriculture and Rural Development

11. Agriculture's share of the GDP has decreased from 50 percent in 1973 to about 15 percent in recent years. Despite its declining contribution to the GDP (8.6% in 2011), relative to other sectors of the economy, agriculture remains the mainstay of the economy in Lesotho and the main source of employment and sustenance for the majority of the rural population.¹⁸
12. Although the majority of the Lesotho population is engaged with agriculture, this sector has yet to be commercially viable both domestically and internationally. Great challenges exist for smallholder farmers¹⁹ to deliver their goods to the market, and cheaper imports from South Africa replace what could be a domestic demand. Agriculture products are still infant industries which although poses a challenge also provides an opportunity for development and growth. These challenges are specifically addressed by the SADP project, who seeks to promote the emergence of agro-food small enterprises.
13. Agricultural development faces a number of challenges, however, beginning with difficult agro-climatic conditions and limited availability of arable land. The country's limited production potential is not fully exploited due to poor farming practices, limited use of quality seeds, inappropriate crop selection and lack of diversification. Agricultural productivity is further undermined by unsustainable land management practices that in many cases have led to declining soil fertility and severe soil erosion. If agriculture were commercially viable, these constraints could likely be overcome through well-targeted investments, but the development of viable, market-oriented crop and livestock production enterprises faces a number of constraints. Local markets are small and they tend to be served by inexpensive, high-quality produce from South Africa. The existing land tenure system may not be particularly conducive for investments in land improvements (e.g. irrigation, soil and water conservation measures, and tree planting). Finally, commercialization efforts by farmers and

¹⁷ African Development Bank. *African Economic Outlook 2012: Lesotho*. Online at: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Lesotho%20Full%20PDF%20Country%20Note.pdf>. Accessed on December 8, 2012.

¹⁸ African Development Bank. *African Economic Outlook 2012: Lesotho*. Online at: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Lesotho%20Full%20PDF%20Country%20Note.pdf>. Accessed on December 8, 2012.

¹⁹ A typical smallholder farmer in Lesotho practices mixed farming with major components of livestock: large stock (dual purpose cattle for milk and drought power) where the average household might a herd of five; smallstock (sheep and goats for kept for wool and mohair respectively) especially in the foothills and mountain communities. Stock sizes range from 10 to a few 100s; At the household level, women will raise on average one indigenous pig and up to 10 chickens; Farm size will range from 0.25 ha to 3 ha per household. The main staples crops are maize, sorghum, beans and wheat.

agribusiness firms are discouraged by market distortions caused by Government's involvement in commercial activities that are either not viable or should be left to the private sector; this is the agro-economic context within which LASAP will be implemented. The SADP project addresses many of these challenges through its interventions aimed at increasing commercialisation of Lesotho's smallholder agriculture, while LASAP will support by building climate resilience of these interventions

14. Despite the difficult environment, opportunities exist in Lesotho for developing commercially viable smallholder agriculture. Successfully exploiting these opportunities will require increasing crop and livestock productivity and enabling smallholder farmers to better respond to market demand for specific commodities. Demographic changes, compounded by rising incomes and accelerating urbanization, are fueling changes in consumption patterns that are creating new opportunities for agricultural producers and processors. Demand is projected to strengthen in the coming years for fresh fruits and vegetables (sold through diverse marketing channels including local market stalls, district- and community-level stores, and large urban supermarkets); for meat and processed livestock products (sold through local market stalls, small- and medium-scale butcheries, and large-scale meat wholesalers); and for milk and dairy products (most milk passes through seven milk collection points before being delivered to the Dairy Plant). Demand is also projected to grow for more specialized "niche products" such as mushrooms, herbs and essential oils, for which a number of local outlets exist, such as hotels, guesthouses, and local craft workshops. Looking beyond the domestic market, demand is also expected to grow for wool and mohair, whose prices in international markets are currently at all-time highs.
15. To take advantage of these opportunities, the Smallholder Agricultural Development Project (SADP) is currently being implemented to support smallholder farmers in targeted areas of Lesotho to exploit economic opportunities, increase their agricultural productivity, and diversify their endeavours into commercially viable and market-oriented enterprises. Identifying commercially viable activities that can be scaled up and replicated can support smallholder agriculture, and render the sector more beneficial for household livelihoods and for the greater economy. To ensure that agricultural activities can be sustainable and economically viable in the long run however, it is necessary to ensure that they are resilient in the face of future climate variability and impacts.

Climate variability and climate change

16. Lesotho's unique environment and geophysical location makes it particularly vulnerable to the perils of climate change and climate variability. As noted in Lesotho's National Adaptation Programme of Action (NAPA, 2007), the country is: "small and landlocked, is liable to drought and desertification, has a fragile mountainous ecosystem, is prone to natural disasters, is situated in the sub-

tropics and has a semi-arid climate”, which warrants special attention under Section 8, Article 4 of the United Nations Framework Convention on Climate Change (UNFCCC).

17. The Lesotho NAPA Team conducted an intensive assessment to characterize the country vulnerability zones. Three main vulnerability zones were depicted namely; Zone I (Southern Lowlands across the Senqu River Valley), Zone II (Mountains) and Zone III (Lowlands and Foothills). Zone I emerged as the most vulnerable area in the country followed by Zone II and subsequently Zone III. Communities that reside in Zone I are mainly smallholder subsistence farmers and small livestock farmers including destitute households that have no means to support livelihood. The area also is under critical environmental stress and would be under high threat of climate change. In Zone II the rugged mountainous terrain with minimal land presents a critical vulnerability area. Zone III is also exposed to risk of climate change due to its drought proneness and livelihoods being supported by farming.
18. The majority of small-scale farmers cultivate an average of less than 1.5 ha of land—land which is severely degraded.²⁰ About 30 per cent of rural people live in extreme poverty. This includes farmers that own less than 0.5 ha of land, people who are landless and households headed by women. Those residing in the mountains are far more impoverished than those living in the country.²¹ The majority of small-scale farmers do not have the capital to access improved technologies and support services to use their land productively. Yields are low due to severe land degradation, reliance on rainfed farming and poor crop husbandry methods. Climate variability— irregular rainfall, abnormal temperature patterns, droughts, storms – increase the risks faced by smallholders.²²
19. Lesotho is generally classified as temperate with the highland areas experiencing severe winters with ground frost up to 200 days a year and temperatures in the lowlands fluctuating around 3° – 5° Celsius. Such climatic conditions undoubtedly limit the scope of crop diversity. The annual rainfall is 780 mm on average and 85 percent unevenly falls between October and April with a range from 450 mm in the southern and western lowlands to 1600 mm in the northern lowlands and eastern highlands (Sekoli 1999)²³. The topographic and climatic variations impose severe constraints on agriculture; only 13 percent of the land is suitable for arable cropping and, since the 1990s, this has dropped to about nine percent because of extensive land degradation, gully

²⁰ IFAD: Overcoming Poor Rural People to Overcome Poverty in Lesotho. Accessed online at: <http://www.ifad.org/operations/projects/regions/Pf/factsheets/lesotho.pdf>

²¹ Ibid.

²² Ibid.

²³ Sekoli, B. 1999. Lesotho Climate and Agroclimatology. In First State of the Environment Report (ed.) K.Q. Chakela. 1999.

- erosion, residential (rural and urban) and industrial encroachment (Marake et. al 1998)²⁴, challenges that continue unabated.
20. On the whole, Lesotho's climatic conditions are optimum for the annual cultivation of most temperate zone crops including maize, sorghum, wheat, beans, peas, vegetables and fruits. The potential for commercial crop production is greatest in the lowlands. However, the country experiences frequent variability in rainfall, droughts and floods.²⁵ The consequence of this variability include drastic crop failures, poor harvests and loss of livestock which exacerbate vulnerabilities, such as food insecurity and sustainable livelihoods. Heavy snowfall, strong winds and floods also pose considerable risks to the subsistence livelihoods of the Basotho people.
 21. Under climate change conditions, Lesotho is predicted to experience warmer climate with uneven patterns of precipitation. According to climate change scenarios, the frequency and intensity of floods, droughts and storms are expected to increase (FNC 2000)²⁶. As experienced in recent times, the storms in Lesotho can be very intense, leading to local flash flooding, increasing severity of erosion and harming human life and impacting human security.²⁷ Increases of moisture in the atmosphere combined with low atmospheric temperatures could lead to more frequent and heavy hailstorms. On the other hand, drier and warmer weather could decrease snowfall and water availability.²⁸
 22. Climate change will affect vulnerable communities²⁹ in Lesotho. A reduction of water resources, severe soil erosion, and land degradation, will negatively impact productivity of crops and livestock systems, and households' livelihoods. Water resources, a main export for the country is also crucial for the foreign exchange earning of the country and makes a significant proportion of the GDP. For example, at the national level the regional transfer of water resources generates approximately M439 million Maloti in 2010 (NSDP, 2012). The vulnerability of these water resources to environmental degradation and climate change cannot be over emphasized. Scenarios predict that if the current climate change projections remain valid, and if the total available fresh water is 5.4 cubic kilometers per annum, the country will enter a water stress period with

²⁴ Marake M.V., G. Shone, J.E. Carlsson, Y. Khatiwada and M. Segerros. 1998. The Production Through Conservation Programme 1981 – 1996: A Historical Document. Department of Conservation, Forestry and Land Use Planning. Ministry of Agriculture, Cooperatives and Youth Affairs and Swedish International Development Agency.

²⁵ UNEP Portal. Lesotho Climate Change Summary. Online at:

http://www.unep.org/eou/Portals/52/Reports/CC_Lesotho_ExecSummary.html. Accessed on December 5, 2012

²⁶ First National Communications to the United Nations Convention on Climate Change. 2000. Lesotho Meteorological Services. Ministry of Natural Resources. Government of Lesotho.

²⁷ Dejene, A., Midgley, S., Marake, M. & Ramasamy, S. *Strengthening Capacity for Climate Change Adaptation in Agriculture: Experience and Lessons Learned from Lesotho* in Environment and Natural Resources Management Series, FAO, Volume 18, page 6

²⁸ Ibid.

²⁹ Vulnerable communities are defined as groups that are weak and liable to serious hardship. These are groups that without substantial support may be in severe and chronic poverty, unable to take advantage of profitable opportunities if they emerge, while with limited defenses in case serious events or shocks occur (Hoogeveen, J., Tesliuc, E., Vakis, R., Dercon, S., 2005)

availability of less than 1,700 cubic meters per capita per year in 2019. It is predicted that this figure will fall to about 1,000 cubic metres per capita per year by 2062 which could have severe implications for Lesotho's future development.³⁰

23. Lesotho's dependence upon rain-fed agriculture and export of water resources makes it highly vulnerable to climate change induced precipitation variability. This will in turn reduce the productivity of crops and livestock, deteriorate access to nutritional elements, and hamper household incomes and food security. Climate change models indicate that the nation will experience higher temperatures and more erratic rainfall patterns in the future. Thus on the one hand, promotion and expansion of irrigation in the mountain areas and upper reaches of the Senqu River Valley has implications for Lesotho's water export outlooks. However, most of the irrigable land is in the foothills and lowlands which have different potential sources of water to the ones supporting the water export venture. Nevertheless, water issues will exacerbate existing environmental degradation, increase the risk of vector and water borne diseases and, overall, increase the vulnerability of the national economy while threatening to stall or reverse development gains. Incidentally, degraded lands are much more vulnerable to climatic hazards than those with good vegetation cover and soil water infiltration capacities. This means that the already high rates of degradation experienced in Lesotho stand to worsen unless suitable rehabilitation works through land use planning and management are undertaken. Recent studies suggest that under future climate regimes there could be a 15 percent biomass loss impacting upon the community access to energy, grazing and biodiversity loss. However, some positive benefits which could occur include increased potential for fisheries due to increased water temperature and reductions in the number of cases of livestock mortality caused by extreme cold conditions.
24. As a result, climate change is predicted to greatly impact the economic sectors of Lesotho. Table 1 highlights the vulnerabilities identified by the NAPA according to sector.

Table 1. List of Vulnerable Sectors and Associated Community Vulnerabilities (source: NAPA 2007)

Vulnerable Sectors	Vulnerability
Water Resources	Ground water resources are negatively affected by shortened rainfall season. This will result in inadequate annual recharge of aquifers, lower water tables and drying up of springs. In the mountains, the wetlands are drying up affecting reliability of

³⁰ NAPA

	perennial streams.
Agriculture	Crop production is adversely affected by reduced rainfall and frequent drought occurrences. Drought and high temperatures exacerbate incidence of diseases and pests. Resultant crop failures lead to famine and food shortages
Forestry	Rural communities depend on biomass fuels as a major energy source. The resilience and regenerative capacity of forest resources are negatively affected by extreme climatic conditions. A decrease in forestry resources negatively impacts on the stability of energy supplies for both cooking and heating.
Livestock & Rangelands	Livestock production is deteriorating due to degradation of rangelands. The net effect is increased livestock mortality rate and quality of livestock products. Extreme weather conditions are conducive to disease and pest incidences.
Culture	The natural heritage and culture of the Basotho is closely linked to the environment. Their housing, clothing, medicine and other traditions are affected by climate change.
Health	Frequent drought occurrences result in limited availability and quality of water leading to disease outbreaks compounded by famine and malnutrition
Energy	Climate change induced drought affects the generation of hydropower.
Soils	Climate change affects soil cover (range and forest resources) negatively. Soil erosion, desertification and land degradation are increased by incidences of drought and flooding. The end result is loss of soil fertility

25. The testimony for the foregoing predictions is the stark reality of the 2010 /2011 flood damages (DMA, 2011) in which the heaviest losses in production were sustained by crops (103.6 million), road transport (M57.4 million), livestock (M29.8 million), and commerce (M20.5 million).
26. Despite being aware of the challenges that climate changes poses, Lesotho is mal-adapted to respond to any of these vulnerabilities. One of the challenges that exist is the lack of meteorological data and information management

- systems. Lesotho does not have reliable historical data on climate, and does not have the technical systems in place to gather current information which would prepare it for future outcomes. Moreover, the limited data collected in the a few stations since the 1970s is not yet digitised and remains in hard primary source format. In order to plan for future climate scenarios, it is thus necessary that Lesotho bolsters its information gathering processes and data analysis to accurately comprehend its climate reality. The lack of information and knowledge can thus lead to maladaptive choices in the face of climate change.
27. A more urgent challenge is that even in cases where climate information is known, for instance a monthly forecast developed by the LMS , it is unclear to local development and/or extension agents working in the agricultural sector, how best to respond to and /or utilize the information. This creates a situation where the information that is gathered is not translated appropriately to key stakeholders. This prevents people from capitalising on relevant data which may in fact impact their production, livelihoods and health. Moreover, the knowledge management strategy of LMS does not yet include a feedback mechanism by which primary beneficiaries could inform the packaging and targeting of appropriate forecasting. In reality the knowledge management strategy of the LMS is poor with no feedback mechanisms from primary beneficiaries to assist in packaging and targeting. Information consequently needs to be gathered at a central level, understood and translated into effective and relevant advisories that can be interpreted and followed at the local level. The decentralisation process is key and the effective decentralised system of governance in Lesotho lends itself well to the dissemination of such information.
28. Another challenge that exists is that farmers are in fact already experiencing and /or perceiving climate change impacts in their routine farming systems and have for decades struggled to cope with the impacts. Lesotho's climate has four distinct seasons: Summer (November to January) is characterized by high temperatures and precipitation; Winter (May to July) is characterized by high-pressure dominance that results in clear skies, dry air, and warm temperatures during the day and a sudden drop in temperatures after sunset, and low precipitation; Autumn (February to April) and spring (August to October) are transitional periods between summer and winter, respectively.³¹ There already perceived deviations and anomalies from these seasonal norms associated possibly with climate change associated variability. However, farmers have been unable to adapt to this climate variability without knowledge of how permanent these changes are. This is compounded by poverty and economic depression which renders them less capable of adapting to the changing climate and consequent livelihood stressors. They thus follow the same

³¹ Lesotho's National Adaptation Programme of Action (NAPA) on Climate Change. Online at: <http://unfccc.int/resource/docs/napa/iso01.pdf> Accessed on November 30, 2012.

- planting and harvesting schedules despite the emerging seasonal anomalies. This has a negative impact on their yield and livelihoods.
29. There are several reasons why farmers have not integrated climate change resilient practices into their agricultural practices. First, socioeconomic changes and environmental degradation have been too fast-paced for people to adapt to shocks. Second, the lack of water, technology (such as drought resistant seeds), implements for improved ploughing and planting, and manure and fertilizer has been perceived as an impediment, owing to which many farmers think they cannot face climate change. Finally, the lack of knowledge and information on climate forecasting prevents farmers from planning ahead.³²
 30. There are also institutional challenges which create barriers to effective adaptation. For instance, while the Department of Meteorology has the mandate for climate change, the Global Environment Facility (GEF) Focal Point that coordinates interventions for climate change adaptation lies in the Ministry of Environment. Similarly, there remain needs for the MAFS to understand and interpret climate change information and transfer it to local farmers. Moreover, the Department of Meteorology, in the Ministry of Energy, Meteorology and Water Affairs, is not equipped to translate this type of sectoral data into production information for extension services and the greater agricultural clientele. This results in a lack of coordination where resources are inefficiently used, information can fall through the cracks, duplication of activities may occur and there is a lack of information dissemination.
 31. Thus despite a multiplicity of policies and plans aimed to address key environment and climate change challenges, delivery is negatively affected by institutional fragmentation, duplication of efforts, insufficient cross-sectorial coordination with the government and non-governmental sectors alike, weak implementation and enforcement of policies and legislation (NSDP, 2012)³³. A National Environment Policy was enacted in 1998 and followed three years later by the promulgation of the Environment Act 2001, which was replaced seven years later by the Environment Act 2008. This Act itself still lacks a strategic framework for its implementation, which further increases the lag phase of action against environmental priorities. This is the context in which the project will be implemented and some of the challenges (lack of coordination, institutional fragmentation, weak implementation) that will be faced. The project however includes components dedicated to making systemic changes that will target some of these challenges.
 32. In addition to insufficient capacity to manage environmental issues at national level, there are considerable limitations at local government level. The Local

³² Dejene, A., Midgley, S., Marake, M. & Ramasamy, S. *Strengthening Capacity for Climate Change Adaptation in Agriculture: Experience and Lessons Learned from Lesotho* in Environment and Natural Resources Management Series, FAO, Volume 18, pp 29-30

³³ National Strategic Development Plan. 2012. Environment, Natural Resources and Climate Change. In National Strategic Development Plan 2012/13 to 2016/17. Ministry of Finance and Development Planning. Government of Lesotho.

Government Act 1997 sets out a framework for sustainable natural resource management but the roles and responsibilities within the decentralized system are not clearly defined and implementation has been limited. However, there is political will to develop a climate change policy for the country and to iron out these organisational challenges. Further, while Lesotho has an impressive decentralised administration system, actors at the district or community level, such as extension officers community council members, have not been equipped with any adaptation training, which would be beneficial to the communities they serve. Overall, the key barriers to adaptation to climate change that were identified during the mission, and will be addressed by this project, are:

- (a) Inadequate institutional and systemic capacity for climate change initiatives; shortage of human resources and technical capacity
 - (b) Lack of coordination among government institutions on varying roles related to climate change adaptation
 - (c) Climate change information not made sector-relevant
 - (d) Insufficient financial resources to implement adaptation activities
 - (e) Lack of awareness both at the institutional and local level of climate change and its impact on livelihoods
 - (f) Adaptation not integrated into other development initiatives
33. It is important to note that Lesotho's agriculture does not just suffer from foundational issues that cannot be overcome through resilient interventions. After all, it should be noted that crop yields of the Free Province State in South Africa, which is just across the border from Lesotho along the districts in which the project will be operating surpasses crop yield in Lesotho by 2.5-9 times. This indicates that more adaptive agricultural design such as resilient livestock, diversified cropping enterprises and improved natural resources management could in fact improve agricultural inputs and improve Lesotho's agriculture.³⁴

Gender

34. Lesotho's long term National Vision 2020 and Poverty Reduction Strategy (PRSP) both recognize gender inequality as an impediment to sustainable development and a barrier to the eradication of poverty. With this awareness, the government has embarked on numerous progressive reforms to improve the status of women in Basotho society. For instance, the Government of Lesotho established a National Policy in 2003 as a rights-based tool geared towards addressing the challenges of gender inequality. The policy highlights that human rights for all must be based on equal participation, non-discrimination and the empowerment of marginalized women and men. While

³⁴ Dejene, A., Midgley, S., Marake, M. & Ramasamy, S. *Strengthening Capacity for Climate Change Adaptation in Agriculture: Experience and Lessons Learned from Lesotho* in Environment and Natural Resources Management Series, FAO, Volume 18, page 6

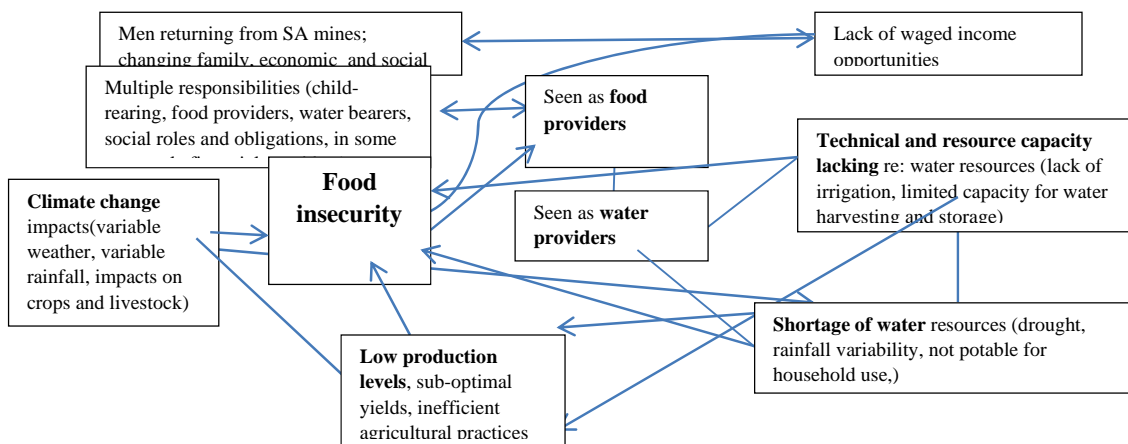
- challenges to gender equality remain, many achievements have been made in this domain.
35. In Lesotho, women are prominent in political life and in various levels of public service. In 2011, women accounted for 49³⁵ percent of elected councillors, and amendments made in 2004 to the Local Government Act of 1997 reserve one third of seats in each council for women.
 36. Women dominate agriculture groups, extension groups, and savings and credit groups in Lesotho in general and in the regions where the project will be carried out. Traditionally, women have dominated the agriculture production of pigs, poultry, fruits and vegetables. Women are also more highly educated in Lesotho as compared to men, and are well represented in the public service and district level administration—although less so in traditional customary governance structures, which deeply influence the socio-cultural context.
 37. Women have a unique relationship with natural resources which render them more vulnerable to climate change. They are responsible for food security of families³⁶ through food collection, crop production, meal preparation, and often through cultivation techniques. One of Lesotho's unique features is women's dominance in piggery and poultry farming, and this role creates an added vulnerability to climate change, due to their economic dependence on these industries. With responsibilities within the household, such as child-rearing, domestic management and meal preparation, women often work longer hours and any added challenges such as those imposed by climate change, will increase their vulnerability and workload. Therefore, climate change adaptation interventions need to include measures to reduce women's workload.
 38. The use and control of natural resources has numerous social and political implications. Gender relationships are impacted by the control and use of such resources, and are thus affected by climate variability and its impacts. Although climate change impacts everyone, women and men play diverse roles in the management of natural resources in Lesotho, as in other countries, and these relationships can be affected differently by climate change. Often times, gender relationships are shaped by the labour that men and women engage in, which climate change impacts will also influence. For instance, women at the community level are responsible for summoning household water, and thus will be impacted by changes in accessibility to water resources. Men in Lesotho on the other hand are responsible for cattle raising and grazing, and will be impacted by any variables that influence livestock health, land erosion and pests due to increasing temperatures.
 39. Some of the specific negative impacts of climate change on women include:
 - (a) Increased shortages of basic resources, such as food, water, and fuel

³⁵ Source: <http://www.genderlinks.org.za/article/lesotho-quota-system-yields-results-at-local-government-level-2012-10-14> Accessed 8 April 2013.

³⁶ Based on community meetings in Butha Buthe and Berea; also commonly a gender specific task

- (b) Increased labour, efforts and financial resources to meet production needs
 - (c) Overuse of existing resources which will lead to environmental degradation and the worsening of the poverty vicious cycle
 - (d) Ecological, security and social vulnerability due to natural disasters
 - (e) Strained gender relationships due to financial and social hardships
 - (f) Increase in epidemics, health-related issues due to changing climate
40. Despite the challenges that climate change can impose on women, they can also be active agents of change in adaptation. Leadership of women in adaptation initiatives such as those introduced by this project, is key in ensuring the sustainability of adaptive practices. It has been determined that the capacity of a social group to adapt is based on the access that these groups have to assets. Resources such as access to land, water, technical capacity, education, health and food security all play a role in women’s ability to implement adaptation strategies.
41. The project will build upon the assets that women currently have (education, indigenous knowledge, community relationships), and foster other kinds of resources such as technical capacity and access to relevant agricultural advisories so as to enhance adaptive capacity.
42. Some of the observable challenges that were noted in mixed community meetings held during the first design mission can be summarized by the figure below:

Factors That Disadvantage Women



- (i) As this project is pegged to the SADP project, the same gender considerations will apply. Women are anticipated to be one of the key beneficiaries of this project. Special measures will be taken to ensure

- women's inclusion and active participation such as: grants and investments that focus on production value chains that are female-led and dominated (e.g. piggery, poultry farming, crop production);
- (ii) investments and grants that provide capital to enhance production capabilities while in the long-run provide greater autonomy and economic security for women; e.g investments in agricultural practices that are beneficial for women (e.g. water related investments such as water harvesting for irrigation or domestic consumption. This will support women both in terms of their agriculture responsibilities, but also on a social level as they are responsible for the provision of household water, thereby lessening the potential labour burden);
 - (iii) community-determined agricultural investment plans which include active participation (if not domination by women given Lesotho's particular context where women dominate agriculture activity and producer groups) by women to self-determine which adaptation and resilience-building activities will be the most beneficial to their lives;
 - (iv) establishment of high participation targets and gender disaggregated indicators for monitoring of active female participation in all activities of the project;
 - (v) documentation of progress achieved on socioeconomic benefits through face-to-face interviews and ongoing monitoring using existing SADP structures;
 - (vi) the use of service delivery mechanisms that are used by women to disseminate information.

This project will offer equal access to opportunities and encourage participation by women in project activities. It will also be located in sites selected by the SADP where women beneficiaries have been identified. There will also be gender-oriented vetting that takes place at the AIP and CG levels to ensure that women are screened in and assisted in the process of obtaining grants.

Given that the project is designed to support smallholders to foster greater economic independence and sustainability, and the emphasis in the project design in targeting women beneficiaries, it is anticipated that the project will result in greater economic autonomy and financial and food security for women.

The project will piggyback on the structures under SADP which target the participation of women. Monitoring staff has been identified within the existing SADP team to record and monitor the participation and outcomes for women during regular field visits; LASAP will use this mechanism to obtain data.

Given the context in Lesotho where women dominate agriculture groups, extension groups, savings and credit groups, agriculture production of pigs, poultry, fruits and vegetables and are more highly educated than Lesotho men, (in Lesotho in general and in the regions where the project will be carried out), it is anticipated that female

participation will be high. Moreover, as the activities identified under agricultural investment plans and commercial grants are derived through consultative and participatory processes, they are driven by the needs expressed by the women producers that engage in them.

Table: Project Components and Anticipated Benefits to Women

Component	Benefits to Women
<p>Component 1 - Reduced vulnerability of agricultural production</p>	<ul style="list-style-type: none"> ▪ measures designed to achieve a better understanding of climate vulnerabilities, adaptation and mitigating strategies improve female small producers' understanding of climate change risks and responses in the area of women-dominated sectors such as piggery, poultry and vegetable production—which would without this project remain unknown. ▪ Translation of adaptation measures into local languages makes climate change knowledge more accessible to women. Given high rate of literacy, Lesotho women are able to read/utilize communication products tailored for them by government ministries. ▪ Investments under the AIPs are broadened to include: protected agriculture (e.g. greenhouses); conservation agriculture, keyhole gardens, permaculture; drip irrigation, water harvesting or water use efficiency measures; and procurement of resilient varieties of crop and livestock. This increases the number of women that can be eligible, and the scope of their participation, thereby increasing the number of women beneficiaries. Without this project additional allocation they would be unable to undertake they adaptation focused investments. ▪ Community-based resilience investments under the AIPs will follow the SADP consultation protocols which typically involve a higher number of women than men. This will allow more women to obtain financing for adaptation investments as to the original structure which sought separate private applicants. The focus on communities will also yield to positive externalities for those women members of the community who would not have applied for the AIPs or competitive grants or are very small producers not eligible for smallholder financing. It would also build resilience in communities which otherwise would not have them. ▪ Enhanced funding under the Competitive Grants scheme also increases space for more women to receive grants. The process will be vetted to ensure high participation of women thereby increasing the number of women beneficiaries. ▪ Enhanced funding under the Competitive Grants scheme allows more women to invest in the additional costs of procuring resilient species of crop and livestock, improved building or infrastructure design to account for extreme weather, alternative sources of energy (such as biogas digesters) for production ventures.
<p>Component 2- Enhanced adaptive capacity to support</p>	<ul style="list-style-type: none"> ▪ Strengthened agro-meteorological capacity will lead to more accurate data and information that can be used for women producers in planning and production. Given women's dominance in the agriculture sector in Lesotho, reliable

<p>agricultural production in the context of climate change</p>	<p>information is a significant benefit and is imperative for effective planning in light of climate change, and ensuring food and economic security. This is particularly useful in the areas of :</p> <ul style="list-style-type: none"> - water security/safety: women are primarily responsible for securing water. Accurate information on floods, droughts and advisories is particularly relevant to ensure sufficient water for households, communities and economic activity. - planting: planting schedules can be accommodated differently if more accurate information is known on rainfall and temperatures for instance. - food security: food can be consumed or rationed at a different pace if there is more data on windstorms and other extreme climate events. <ul style="list-style-type: none"> ▪ Improved training of extension and local staff which is decentralized and works effectively with local female producers indicates that women will receive improved agricultural guidance and advice in light of climate change. ▪ Field testing plots which explore promising agricultural practices under current and future variability, and provide data on crop behaviour and management options which will provide improved agricultural options and knowledge for women producers under various scenarios of climate change. ▪ On-farm demonstrations of the productive benefits of any recommended change for resilience purposes to farmers, as well as the baseline crop and livestock performance data, and testing of alternative crops (in addition to staple food crops) in varied climate conditions will yield to greater knowledge for use by female farmers.
<p>Component 3- Project Management</p>	<ul style="list-style-type: none"> ▪ five adaptation advisors will be recruited and trained during the first six months of the LASAP, and embedded within the SADP Team at central and district levels which will serve to disseminate context-specific adaptation guidance benefitting women at the local level. ▪ High targets and gender disaggregated indicators have been established to measure progress of gender equality achieved within the scope of the project and monitor female participation. The establishment of such indicators and targets will have the SADP team collect gender-specific data, and analyze and report results achieved.

43. Detailed information on gender targeting and how the project design will address gender considerations are highlighted in Appendix 2.

Youth

44. Unemployment is high among the youth which leads to social and economic problems. It is estimated that 15.3% of the youth (25-29 age bracket) are

- unemployed, and the small size of the private sector has been unable to accommodate the youth that have not been employed by the public sector.³⁷
45. Unemployment is also exacerbated by the shortage of mining jobs available to Lesotho men in South Africa. While this means that more youth are taking part in agricultural activities, agricultural resources tend to remain in the hands of the older generation for longer periods.³⁸ Entry into farming is delayed, particularly for young men, as they struggle to gather economic assets and resources.
 46. Agriculture has not been a reliable source of income and many youth prefer to seek waged income opportunities. This project can potentially increase youth interest in and reliability of income from the agricultural sector by generating new knowledge, forecasts, and data about adaptive agricultural practices that can stand the test of time and climate. This may mitigate the risk of potential losses due to climate variability and could possibly attract renewed youth interest in the sector thereby lessening unemployment rates.
 47. The relevance of this project and the SADP is thus significant as it opens an avenue for employment and commercialisation of agricultural activities. As this project is pegged to the SADP, it will particularly benefit those youth that are engaged in AIPs and Commercial Grants. The links between the project and youth employment can be monitored through ongoing consultations and assessed at the end of the project. The youth engagement strategy of the SADP will be utilized to attract participation in the AIPs and CGs.
 48. The capacity building generated from components 1 & 2 can help inform and engage a new generation of farmers and producers. In particular, the test plots that will test crops in different climates and with different seedlings and crops, will yield to important information as to which crops can be optimised in particular climate scenarios.
 49. Further, the strengthening of climate change knowledge of district level officers, extension staff and front line workers, will help support and provide guidance to youth engaging in agricultural activities. The climate relevant production advisories will support decision-making for new farmers. Further information on youth targeting is provided in Appendix 2.

B. Sector and Institutional Context

50. Lesotho is divided into 10 districts, each headed by a District Administrator superintending over all aspects of the decentralized governance systems as prescribed by the Local Government Act 1997. Under this law, the distribution of central government tasks to newly established local authorities and

³⁷ African Development Bank. *African Economic Outlook 2012: Lesotho*. Online at: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Lesotho%20Full%20PDF%20Country%20Note.pdf>. Accessed on December 8, 2012

³⁸ PAD, page 86

reorganization of responsibilities for the delivery of services are expected to result in development that better reflects local priorities. Although the public administration is centralised in Maseru, the Local Government Act of 1997 mandates local councils to provide a wide range of services and ownership of development activities and democratic participative planning processes to ensure that policy making includes all parts of the population, particularly the poor. Line ministries are responsible for development of policies, setting standards and guidelines, supervisory, and managing national budgets.

51. Decentralised local organisational entities are responsible for the control of natural resources, environmental protection, and village water supply. There are also two levels of community institutions. One consists of traditional chiefs and the second are village development councils (VDCs) representing customary governance and state governance.
52. LASAP will be engaging various governance structures, most notably the Community Councils in the implementation of its program of work. The districts of Lesotho are broken up into constituencies, which are in turn broken up into community councils. These councils are composed of elected councillors and are inclusive of women³⁹. Partnerships with councils will be essential as these are responsible for land allocation, economic planning, natural resource management, water supply and economic planning among others. These will be the agents that help determine where pilot activities will unfold.
53. Within each council, councillors have the responsibility obligation to consult with communities to produce development plans, which is why they will be particularly well suited to coordinate local participation. A district development coordinating committee (DDCC) is established in each district. The DDCC considers draft development plans for the district prepared by each council and coordinates such plans into a composite district development plan. SADP is actively engaged with both the district level and community council level which will simplify the integration of LASAP's activities.

Rural and agricultural sector

54. Agriculture is the largest source of employment in Lesotho. The sector is predominantly smallholder based with maize and sorghum as primary staple cereals for household used. There are two potential cropping seasons, summer and winter. However, the majority of farmers only crop for the summer season and utilize the winter season as fallow for animal grazing of the crop residues. Although the majority of the population is involved in agriculture, off-farm activities such as formal employment in the public and private sector in Lesotho and migrant labor remittances provide the main source of income. As the urban centres have limited capacity to produce employment, the agriculture sector

³⁹ Local Government System of Lesotho. Available online at: <http://www.clgf.org.uk/userfiles/1/files/Lesotho%20local%20government%20profile%202011-12.pdf> accessed on April 30, 2013

continues to play a vital role in the Lesotho economy, and must be bolstered to enhance people’s livelihoods.

55. The agricultural sector faces many challenges which include: climate change impacts; limited availability of arable land, limited access to inputs; lack of crop diversification; unsustainable land management practices; lack of local markets; and competition from cheaper South African products. Many of these challenges are being addressed by the SADP in attempts to improve smallholder agriculture commercialization and to develop the potential of Lesotho’s agricultural sector. However, under the current SADP processes none of the actors are focusing on the resilience of agriculture in the face of climate change. This indicates that although the SADP program may make agriculture a commercially viable enterprise for many smallholders, this improvement may not last in the long-term due to climate variability. This project consequently takes a long-term approach by highlighting how improvements in commercial acumen for agricultural farmers can be sustained over time despite the advent of a changing climate. It is, thus timely to make these investments in the Lesotho agricultural sector at the time when demographic changes, increasing urbanisation, and rising incomes are altering consumption patterns. It is foreseen that demand will increase for fresh fruits and vegetables, for meat and other processed livestock and dairy products. Demand is anticipated to be higher for niche products such as mushrooms, herbs, and essential oils.⁴⁰ As producers capitalise on this growing demand, adaptation practices will provide safeguards against climate-related losses in the future.
56. There are several key players operating in the agricultural sector that are necessary to engage with for long-term sustainability of project achievements, and to support smallholder farmers in developing capacity to achieve a greater level of commercial viability. The five key sets of actors are:

Major Public Service Institutions	Ministry of Agriculture and Food Security Department of Environment – GEF Focal Point Ministry of Industry, Cooperatives and Marketing Ministry of Development Planning Ministry of Employment and Labour Ministry of Forestry and Land Reclamation Ministry of Local Government and Chieftainship Ministry of Energy, Meteorology and Water Affairs especially the Department of Meteorology
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⁴⁰ Rapid Assessment conducted for the SADP

Local Institutional Structures	District Councils Community Councils Chief “pitsos”- open public gatherings
Civic associations	Lesotho Farmers Union (LENAFU) & Member Associations Trade associations Producer Organizations and industry groups Women & Youth organizations
NGOs	Serumula Send A Cow World Vision Rural Self-Help Development Association Lesotho Climate Network
Development Partners	FAO World Bank USAID Irish AID European Commission World Meteorological Organisation
Private Sector	Domestic enterprises Service providers Agricultural input sellers

Institutional context for climate change

57. In recognition of the cross-sectorial nature of climate change issues, Lesotho has adopted since 2000 an all-inclusive approach which brings together multi-disciplinary expertise into a common purpose through regular consultations, workshops and seminars (National Report on Climate Change, 2000). In addition to the sector partners and agencies, the Disaster Management Authority is an important stakeholder in terms of responding to potential disaster situations resulting from climate change.
58. The Focal Point of the UNFCCC is the Lesotho Meteorological Services in the Ministry of Natural Resources with no standing committees in support of the implementation of the convention. Task structures are set up for specific purposes and only for the duration of the task. For example, a National Climate Change Steering Committee was initially constituted to assist the Lesotho Meteorological Services to manage specific projects undertaken by a National

Climate Change Study Team in the production of the inventories, vulnerability studies, drafting of the National Communication Report and the NAPA.

59. The following form an institutional structure of main Governmental stakeholders in climate change:

Ministry of Natural Resources: <ul style="list-style-type: none">• Lesotho Meteorological services (Focal Point)• Department of Water Affairs• Department of Energy
Ministry of Forestry and Land Reclamation <ul style="list-style-type: none">• Department of Forestry• Department of Range Management• Department of Soil and Water Conservation
Ministry of Agriculture and Food Security <ul style="list-style-type: none">• Department of Crops• Department of Agricultural Research• Department of Livestock Services
Ministry of Tourism, Environment and Culture <ul style="list-style-type: none">• Department of Environment (NES)
Ministry of Health and Social Services <ul style="list-style-type: none">• Department of Environmental Health
* Ministry of Gender & Youth, Sports & Recreation will be consulted to enhance the linkages between gender/youth and climate change impacts

Meteorological Services

60. Lesotho Meteorological Service (LMS), a Department of the Ministry of Energy, Meteorology and Water Affairs will be a key partner for this project and is the focal point for the UNFCCC. It also houses the current capacity and expertise for climate change modelling including agro-meteorological and weather forecasting services. However, the LMS overall capacity to deliver real time, effective climate predictions, early warnings and agro-meteorological services is severely constrained by several factors:

- (a) Lack of real-time, reliable data on rainfall: at the moment only a few stations are automated, and these are scattered beyond the standard geographic scale as established by the WMO⁴¹
- (b) Low human capacity for developing forecasts and climate models: most LMS staff are trained on the job with few formally trained in meteorology;
- (c) Low technical means, including a lack of equipment, computers, servers and plotters for the development of complex climate products. However, the LMS has recently acquired a high speed computer through the Africa

⁴¹ Guide to Meteorological Instruments and Methods of Observation, 7th edition, 2008, updated in 2010 and 2012, World Meteorological Organization. The guidelines provide desirable geographical distribution of various monitoring equipments depending on the nature of local terrain (coastal, mountainous, plains).

Adaptation Project which will ease the computational and modelling constraints.

61. As a result, the LMS forecasts are often judged as unreliable by the public, and the products that are delivered, such as seasonal forecasts, are often delayed or inaccurate. Two recent projects, the Africa Adaptation Programme (UNDP-Japan) and the UNEP-GEF project on early warning systems, have begun to address these issues, but much remains to be done.
62. However, overall there is great ambition within LMS to lead on climate change issues. The lack of technical skills and a clear climate change policy and coordination framework have impeded the development of a rigorous adaptation programme of action within LMS.

B. Rationale

63. IFAD's involvement in Lesotho dates back to the 1980s. The main objective of IFAD's is to promote food security and family nutrition. The SADP project seeks to promote a logic of promoting home-grown agricultural business in Lesotho, working with smallholders and emerging producers to assist them in gaining better access to market. The SADP project is focused therefore on building the productive assets and capacities among existing producer groups in order to generate employment and income, and to further build national markets. However the SADP is built on the premise that current climate conditions allow sufficient productivity and will continue to prevail, and that increases in productivity can be achieved only with investments in production technology.
64. Climate change scenarios for Lesotho leave much uncertainty with regards to the future availability of water, which is already a major constraint for crop and livestock production. Under current variability, smallholder farmers and producer groups are still struggling to deal with water supply, leaving most of the farming uncertain under rain-fed conditions. Further uncertainty and variability in the precipitation regimes, could jeopardize the foundation of agricultural production, thereby making SADP investments unsustainable. Temperature increases, a higher frequency of flash floods or severe rainfall events, as well as changes in the seasonal patterns, could contribute to further undermining agricultural productivity.
65. The **goal** of this LDCF GEF project is to increase the resilience of small-scale agriculture to climate change impacts by promoting climate-proofed investments for agriculture-based development, as well as by enhancing the resilience of agriculture productivity under increased climate variability. This goal is aligned with the priorities set out in the NAPA (2007). Specifically, this intervention will be targeted towards the SADP beneficiaries and operations to ensure their sustainability in the light of future climate changes.

66. *Resilience*, a concept rooted in ecology, is defined by the IPCC as “the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change” (IPCC WG2 2007: 880). The project will also promote *adaptation* to climate change and climate variability. According to the IPCC, adaptation is the “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates, harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory, autonomous and planned adaptation” (IPCC, WG II, 2007). In the context of this project, an additional focus will be on promoting the adoption of “no-regrets” or “low-regrets” adaptation approaches by producers: measures that are determined to yield socio-economic benefits under a broader spectrum of climate conditions, or regardless of the climate scenario that comes to pass.
67. This project will be complementary to the SADP. Thus the project will be integrated into existing SADP management structures and delivery mechanisms. For example, the project will take place in the same sites as the SADP (Berea, Botha-Bothe, Leribe, Mafeteng) and will use some of the delivery mechanisms of the SADP (competitive grants, AIPs). It will also be delivering activities separately, (e.g. climate models), however these interventions will be complementary to the SADP and build resilience in the agricultural sector.
68. The founding assumption of this project is that without addressing the impacts of climate change, investments in agricultural production or productivity run the risk of being unsustainable under future climate conditions. The purpose of the LASAP will therefore be to ensure that SADP investments are climate proofed to the extent possible, while providing the Lesotho government with the foundational capacity to understand and identify the potential impacts of climate change on agriculture on an ongoing basis. This will allow for a long-term proactive identification of adaptation needs and options within the agricultural sector, bearing in mind the need to ensure continued productivity and growth for smallholders.
69. In order to achieve this, therefore, the LASAP will provide additional funding to support resilience-building measures within SADP agricultural investments, focusing on those measures that can be considered as no-regrets: measures that will enhance agricultural productivity under broader climate variability. A climate risk management approach will be promoted to ensure that agricultural stakeholders understand climate variability and climate change and can make informed choices about production at all levels. In addition to these investments, the LASAP will support the development of national capacity in the area of climate risk management, by providing technical assistance towards the development of better climate monitoring and agro-meteorological services.
70. The activities supported by LASAP will help to build a foundational adaptive capacity in the agriculture sector which will help enhance the resilience of future

national and internationally-supported investments, such as the forthcoming Climate Resilient Wool and Mohair Programme (CRWAMP), a national programme supported by IFAD currently in its design phase. For example, the CRWAMP is expected to replicate and upscale geographically some of the outputs produced by LASAP. This could include:

- (a) producing production systems outlooks for the wool and mohair sectors (whereas LASAP only produces such outlooks for major crops);
 - (b) downscaled climate models in southern regions (whereas LASAP focuses on the 4 northern regions);
 - (c) investing in resilient rangeland management where these activities have already been identified within AIPs (in regions of geographic overlap between LASAP and CRWAMP).
 - (d) Agricultural research into resilient livestock production and management techniques, using the structure established in the agricultural research stations under LASAP;
71. Coordination between the two projects at the institutional level will take place through the MAFS, acting as executing entity for both projects, and the CRWAMP will be able to rely on the Adaptation Advisors that will be recruited under LASAP in its first 6 months of implementation. Coordination at the district level can also occur using the District Agricultural Offices, in areas where both projects operate jointly.

II. Project description

A. Project area and target group

72. The project is intended to target the same beneficiaries as the SADP, which are smallholder farmers and farmer groups that: (a) need support to improve their operations and sources of livelihoods; and (b) have the basic resources and motivation required to successfully improve agricultural productivity and diversifying into market-oriented agriculture. This project will ensure that the SADP project beneficiaries have the tools and knowledge necessary to promote agricultural investments that are considered resilient to climate change or no-regrets options.
73. As it operates within the SADP framework, the LASAP will also intervene in four districts (Botha-Bothe, Leribe, Berea, and Mafeteng). These four districts were selected in consultation with MAFS based on the following criteria: (a) relatively high production potential and presence of more than one agro-ecological zone; (b) accessibility/proximity to markets (for inputs and outputs); and (c) population outreach.
74. The selected districts are located along the border with South Africa and include some of Lesotho's most productive land. They contain around two-

thirds of the lowland areas in the country (including about 52 percent of the arable land) and are home to about 850,000 people (representing 45 percent of the total population) living in approximately 3,000 villages. The districts also experience high climate variability and potentially high impacts from increased droughts and floods, combined with a low level of capacity to identify and address climate adaptation options.

B. Development objective and impact indicators

75. **High Level Goals** : This project will contribute to a number of goals enshrined in various governmental texts and legislation. By supporting the SADP and strengthening agricultural production while ensuring adaptation to climate change, this project will support Lesotho's Vision 2020 and National Strategic Development Plan (2011/12-2016/17), , the Agricultural Sector Strategy (2003), the Lesotho Food Security Policy (2005) and the National Action Plan for Food Security (2007-2017).
76. This project will also contribute to various goals set out in the Poverty Reduction Strategy Paper for Lesotho (1: employment creation; 2: food security; 3: infrastructure development; 6: education; 7: environment; 8: public services). It will also support the Millennium Development Goals (2: Eradicate extreme poverty and hunger; 4: Promote gender equality and empower women; 7: ensure environmental sustainability).
77. This project is also in line with Lesotho's National Adaptation Programme of Action (NAPA), specifically fulfilling priority 4: "improvement of an early warning system against climate induced disasters and hazards". The project also indirectly supports priority 11: "stabilizing community livelihoods which are adversely affected by climate change through small scale industries". The latter priority is fulfilled through the combined efforts of the SADP and this project which seeks to enhance small-scale agriculture.
78. The project seeks to contribute to the overall SADP **goal**, "to reduce rural poverty and enhance rural economic growth on a sustainable basis". In this regard, climate resilience is seen a factor of sustainability.
79. The Project's **Objective** is *to increase the resilience of small scale agriculture to climate change impacts* by promoting climate-proofed investments for agriculture-based development, as well as by enhancing the resilience of agricultural productivity under increased climate variability.

The project's impact indicator is "the number of agricultural producers who feel they can cope with climate change and climate variability, % of which are women". This indicator will be measured through a set of questionnaires (verbal or written) administered to the project beneficiaries during consultations throughout the SADP implementation process (see Monitoring and Evaluation for further detail).

C. Outcomes/Components

80. The project is divided into three components: 1. Reduced Vulnerability of agricultural production, 2. Enhanced Capacity to support agricultural production in the context of climate change, and 3. Project Management.

Outcomes

81. The outcomes of the project are: (i) Mainstreamed adaptation in local level agricultural investment planning; (ii) Increased adaptive capacity of small-scale farming systems; (iii) Increased knowledge and understanding of climate variability and change-induced threats on agriculture; (iv) Strengthened capacity of government stakeholders to reduce risks to climate-induced losses on agriculture; (v) Awareness and capacity of local actors increased on climate change impacts and related adaptation measures.

Components

82. **Component 1 - Reduced Vulnerability of agricultural production.** Component 1 will include measures designed to achieve a better understanding of climate vulnerabilities, adaptation and mitigating strategies among small producers. This will begin by the development of basic, local language fact sheets and guidance products on the impacts of climate change on the various production value chains (e.g. pig farming, cropping, poultry, other short cycle livestock enterprises) and on adaptation options for each sub-sector. This information will provide basic information to prospective producers who are the intended recipients of AIP and Competitive grants under the SADP, regarding climate resilient production techniques.
83. Another key part of this component will involve broadening the set of potential investments supported by SADP Agriculture Investment Plans (AIPs), to include community-based resilience investments. The AIP teams currently support promising agricultural activities, establish investment priorities, and indicate training that will be needed to ensure that the activities can be taken up successfully. The AIPs target three main groups of beneficiaries: (a) existing producer groups that want to improve the production and productivity of their crops, improve their market integration, increase their membership or join forces with other groups; (b) broader community-based groups that manage resources or facilities which are important for market-oriented production; and (c) poorer farmers who have an interest in joining a group or committed farmers with a common interest wishing to form new groups. AIP Teams are comprised of interested producer groups, technical advisors from the local Agricultural Resource Center, and representatives of the local councils.
84. At present, the AIP process begins with an Action Learning Cycle⁴² that brings together communities towards the development of a shortlist of potential

⁴² The participatory Action Learning Cycle (ALC) and Community Action Plan (CAP) concept was introduced in 1999 under the UES as a tool for working with stakeholders at the Headman Village level to plan extension activities and

investments in production (channelled through producer groups), natural resources management (through community councils), and capacity building for production. The LASAP will provide an additional influx of funds through SADP to support activities identified by the communities that are considered to be promising adaptation options. These include the additional costs of:

- (a) Protected agriculture (e.g. protective housing such as shade cloths and low cost greenhouses as appropriate)
 - (b) Conservation agriculture, keyhole gardens, permaculture
 - (c) Drip irrigation, water harvesting or water use efficiency measures
 - (d) Procurement of resilient varieties of crop and livestock
85. The integration of these resilience-building measures into AIPs will be facilitated by the modifications to the AIP eligibility criteria, templates and application formats that are currently used by SADP recipients. This includes a checklist of climate-related questions for AIP teams and extension services to be used during AIP planning phases, and elements of climate-risk assessments at various entry points in the AIP process (needs assessment, investment formulation, evaluation). The AIP eligibility criteria will be modified and weighted so that resilience-building investments can be adequately identified, monitored, and approved. Details of these modifications can be found in the Technical paper: Mainstreaming Resilience into SADP, contained in Appendix 16.
86. As a result of additional resources of up to a total of USD 2,000,000, the amount currently available for each AIP would be increased from USD 80,000 to approximately USD 102,000 per sub-center. It is understood that the SADP will therefore concentrate its investments on the acquisition of productive assets and capacity building for the baseline elements of production.
87. In support of this additional investment, training for the AIP Teams that include Local Community councils, local authorities, technical staff from various ministries, and other stakeholders, will also be undertaken to enable them to facilitate community-based resilience planning. The planning and implementation processes would also be supported by the Adaptation Advisors who will work with the SADP Project Field Officers (see Project Management below).
88. This would allow the AIP to become a tool for community-based resilience as well as for increasing production assets and productive capacity among small producer groups, thereby increasing the number of beneficiaries and targeting

identify possible agricultural investments. The ALC brings together community councils, district level planners, and extension services in a participatory planning process that includes: needs and vulnerability assessments, participatory development of solutions and investment plans, and a monitoring and evaluation aspect that provides action-research-based feedback into the plans and projects. The AIP process is based on a similar principles.

agricultural production among those who are not yet at the commercialization stage.

89. Proposed revisions to the current guidelines for investments supported by the AIPs are included in a technical paper (Mainstreaming Resilience in the SADP) that was produced during the project design phase. It is expected that these small changes to the Operational Manual for the AIPs will facilitate the emergence and identification of resilience building activities. Dedicated information and awareness raising sessions on climate change and resilience will also be organized through Component 2.
90. In a similar fashion, the LASAP will add an additional 500,000 US\$ into the amount earmarked for SADP Competitive Grants Scheme, to support investments that would be considered as highly promising adaptive production schemes. This additional funding will be targeted towards the additional costs faced by producers when selecting production assets and technologies, to ensure that these are resilient. This would include the additional costs of procuring resilient species of crop and livestock, improved building or infrastructure design to account for extreme weather, alternative sources of energy (such as biogas digesters) for production ventures and other measures.
91. A shortlist of measures was included in the Technical paper on Mainstreaming Resilience, along with proposed modifications to the Operational Manual for Competitive Grants. It is envisaged that these modifications will be approved by the SADP management authorities for implementation even prior to the disbursement of the LASAP funds.
92. As for the AIP beneficiaries, CGP grantees will have access to technical assistance during the formulation of their proposals to identify resilient production pathways. This will be ensured through the technical advice provided by the Adaptation Advisors at district level, holding seminars during the grant formulation processes and other awareness raising activities undertaken under Component 2.
93. It is expected that the SADP processes would manage these additional grant resources as per current practice under IFAD rules, without additional management burdens, but with the help of additional LASAP staff that would be brought on board to facilitate this process for the duration of the project (see project management below).
94. This component is directly tied into the SADP Components 2.1 and 2.2.
95. Outcomes, indicators and activities under Component 1 are included below:

Outcome	Indicator	Output	Activities
1.1 Mainstreamed adaptation in local level	# of guidance products used and meetings held related to	1.1.1 Vulnerability mapping, analysis and adaptation related guidance included in AIP	Development of vulnerability and resilience fact sheets and guidelines for producers, CG groups, etc...

agricultural planning	resilience during AIP process	process	Facilitation for community council resilience planning Training for PFOs and Adaptation advisors
1.2 Increased adaptive capacity of small-scale farming systems	# of beneficiaries who feel equipped to deal with climate change and variability, % of which are women	1.2.1 Adaptive measures introduced to minimize climate change impacts on natural assets and sustain agricultural production 1.2.2 innovative practices, technologies and infrastructures aiming to increase the efficiency and resilience to climate change of smallholder production through a demand-led approach	Add on investments into AIPs and CGs to support community-based resilience investments Add-on investments through competitive grants

96. **Component 2 - Enhanced Capacity to support agricultural production in the context of climate change.** A first portion of this component will support activities to strengthen the agro-meteorology capacity in the country, by working together with LMS and MAFS to develop climate change related capacities in production systems simulation models, agriculture-relevant meteorological products, and long-term agro-meteorology knowledge base among the agriculture extension field staff.
97. Working with the LMS, the project would build the capacity of the Lesotho Met Service to develop downscaled climate models and scenarios at a sufficient resolution so that they are relevant for district-level agricultural use. This will require the acquisition of four fully automated agro-meteorological stations, with the associated training for their operation and data collection. On the MAFS side, the project will support the establishment of an agro-meteorological function within the Ministry, through the provision of education scholarship to at least one MAFS staff member, in order to complete a MSc in Agro-meteorology. This person would then be tasked to act as the key focal point for integration of climate information in the Ministry's operations, and for liaising with the LMS and extension services. A similar Scholarship is envisaged for one person in LMS to complete a M.Sc. in Agro-meteorology.
98. In addition, the ministry's extension service in the project districts will be supported through training of Resource Center extension staff, on interpreting climate information, managing climate risks, and adapting agricultural advice to climate conditions. Trained staff at the Resource Center level would then be required to further train the front-line agricultural extension officers at the sub-center level, in order to ensure that the extension system can effectively translate climate bulletins and forecasts into production-relevant advice at community and farm levels.

99. In order to build capacity to test and validate yield assumptions under various climate conditions and management options and to provide a venue for demonstrating adaptive technologies to producers under the SADP, the LASAP will support the establishment of small field testing plots in each district (at lowlands, foothills and highlands). These on-station and on-farm research plots will provide testing of the most promising agricultural practices under current and future variability, gather data on performance of crop varieties and management options, combined with climate conditions monitoring in the lowlands, foothills and mountains. These plots would provide a useful venue for on-farm demonstrations of the productive benefits of any recommended change for resilience purposes to farmers, as well as the baseline crop and livestock performance data used for future production system simulation modelling, which is lacking at the moment. This will also include testing of alternative crops (in addition to staple food crops) and management systems (e.g. agro-forestry) in varied climate conditions. The management and monitoring of these test fields will be ensured by the MAFS Department of Research through the District Agricultural Offices.
100. The demonstration plots will promote community ownership and a participatory approach. These will be selected based on volunteer farmers' engagement invited through SADP in conjunction with Department of Research in the Ministry of Agriculture. Village Councils will select the appropriate allocation of land on which to test resilience. A select number of sites will be managed within existing agricultural extension stations to further test the technologies under various management types. Negotiations on compensation for land, labour, material, and in (unlikely) case of crop failure, will be led by the Department of Research pursuant to its existing research management protocols.
101. Finally, the project will facilitate, through in-service training and consultancies, the development of production systems outlooks at the horizons 2030, 2050 and 2100, using the combination of climate modelling capacity within LMS, crop modeling capacity to be developed within the MAFS (using CROPWAT), historical agro-meteorological data and emerging data from the new agro-met stations for real-time validation. This information will be used for planning purposes within the Ministry of Agriculture and Food Security.
102. Outcomes, indicators and activities under Component 2 are included below:

3. Increased knowledge and understanding of climate variability and climate change induced threats on agriculture

of downscaled climate models and production system simulations produced

Training for LMS in climate modeling and downscaling climate scenarios for 4 project districts
 Acquisition of automated agro-met stations and related training
 Training and delivery of production system outlook for 2030, 2050 and 2100 for the four SADP districts

	# of trained extension staff who understand and apply improved climate information at field level, % of which are women	Training of trainers for extension services @ district level in Climate Risk Management and adaptive management, and agro-met applications
4. Strengthened capacity of government stakeholders to reduce risks to climate-induced losses on agriculture	Degree to which agro-meteorological services are integrated into ongoing MAFS operations	Crop Modeling and scenarios for key crops undertaken by MAFS Crop and livestock research and demonstration through field testing (MAFS), including annual yield and performance reports Scholarships for agrometeorology grad students, 1 of whom to be hired by MAFS as Agro-meteorology officer, and another in LMS. Joint LMS-MAFS meetings and trainings on agrometeorology
5. awareness and capacity of local actors	# of beneficiaries who attend and understand climate change awareness raising forums, % of which are women.	Climate change workshop for sub-center staff (delivered by trained extension officers) Climate change awareness raising workshops

103. **Component 3 – Project Management.** Because the LASAP is a resilience add-on to the SADP baseline project, it will make full use of the SADP team and structures currently in place. This will include embedding the LASAP funds into the various SADP budget lines, and the LASAP indicators within the SADP Monitoring and Evaluation systems. By including gender indicators and targets, LASAP enhances the gender equality aspect of the SADP.

104. To further facilitate implementation and to ensure the transfer of adaptation and resilience knowledge to SADP beneficiaries, five (5) adaptation advisors will be recruited and trained during the first 6 months of the LASAP, and embedded within the SADP Team at central and district levels. These Adaptation Advisors will each dedicate 20% of their time to LASAP management activities, including monitoring and evaluation and coordination, and 80% of their time as technical advisors to the PFOs and SADP beneficiaries to support adaptation and resilience planning within the SADP framework. These nationally recruited posts, which will account for gender and youth participation, will be comprised of :

- (a) One Senior agricultural climate adaptation specialist within SADP PMU to advise SADP staff and coordinate LASAP activities, including knowledge management and to assist in the assessment, selection and delivery of Community Resilience Investment Plans through the AIPs and the delivery of resilience-specific investments under the Competitive Grants Scheme.

- (b) Four district level agricultural adaptation advisors, working with the SADP Project Field Officers at District Agriculture Offices, ensuring the monitoring of LASAP indicators and targets, and providing advice to the SADP project beneficiaries on resilience and adaptation.
105. All LASAP staff members will be fully integrated into the current PMU arrangements and will be accountable to the SADP project manager. The district-based staff will be based with the SADP Project Field Officers (PFOs) and will serve as advisors to the District Agricultural Officers.
 106. In order to ensure that local capacity is used for this function, the project will recruit agriculture or related technical experts, and offer them initial short-term training on climate adaptation during the first few months of their appointments.
 107. The Monitoring & Evaluation (M&E) and financing would be mainstreamed in regular SADP operations, with the LDCF funding providing financial support for ad hoc consultancies for monitoring and evaluation when needed, specifically a Mid-term and Terminal Evaluation, and a supplementary baseline assessment and capacity needs assessment at the start of the LASAP period.
 108. All LASAP activities will be delivered in accordance with the SADP Project Implementation Manual and procedures. The project will also be integrated within the project oversight mechanisms used by SADP, IFAD and the WB, including Project Steering Committee and technical committees, in order not to duplicate structures.

Lessons learned and adherence to IFAD policies

109. This project design has been based on lessons learned from other Global Environment Facility projects in the agriculture sector. A key lesson learned in this regard, as confirmed in recent GEF project evaluations, is that close connection and articulation between the GEF project and its baseline “parent” project is essential to achieving multiplied results for both projects. This close integration will be achieved here by embedding LASAP project staff into the SADP existing PMU and project structures. This also allows for a significant reduction in management costs, which can then be invested in the technical components.
110. Another lesson which has been integrated into this project design, is that the role of extension workers, and in fact their ownership of resilience issues is key to achieving long-term transformation of the agricultural sector. Because so many countries face constraints in ensuring the operations of their extension service, the project not only benefits from the strength of the Lesotho extension service but also will provide additional capacity building, tools and methods that can be owned and deployed by the government on a larger scale later on.
111. Much of this project is based on the key assumption that adaptation and resilience in this case would not entail excessive additional costs but rather a

change in behaviour among smallholder producers. Rather than promote diversification (in or out of agriculture), like many adaptation projects, this project seeks to promote an increased awareness among smallholders of the economic benefits they can accrue and maintain in the long term by adopting adaptive approaches.

112. This project is in line with IFAD policy on **Grant financing** (2009), in that it promotes “(i) ... pro-poor research on innovative approaches and technological options to enhance field-level impact; and/or (ii) building pro-poor capacities of partner institutions, including community-based organizations and NGOs”.
113. According to IFAD’s **Strategic Framework 2011-2015**, small-scale agriculture must be market-oriented to capture the opportunities afforded by growing demand for agricultural products, at the same time that it becomes more productive and more sustainable to thrive in an environment of scarce resources, and to become more resilient to a changing climate. The objectives and expected outcomes/ targets of this project contribute directly to the overarching goal of the Fund’s Strategic Framework, which is defined as “enabling poor rural people to improve their food security and nutrition, raise their incomes and strengthen their resilience”.
114. This project is also in line with Lesotho’s **National Adaptation Programme of Action**, specifically fulfilling priority 4: “improvement of an early warning system against climate induced disasters and hazards”. The project also indirectly supports priority 11: “stabilizing community livelihoods which are adversely affected by climate change through small scale industries”. The latter priority is fulfilled through the combined efforts of the SADP and this project which seeks to enhance small-scale agriculture.
115. Targeting and indigenous people. Due to its anchoring within the SADP, this additional intervention is also in line with the key elements of IFAD’s targeting and indigenous peoples policies, having exercised from the Concept Note stage the fundamental principles of engagement.
116. Similarly, the LASAP strategy is aligned with IFAD’s Climate Change Strategy in that it aims to:
 - (a) Support innovative approaches that assist smallholder producers to build their resilience to climate change;
 - (b) Inform a more coherent dialogue in the country on climate change, rural development, agriculture and food security.
117. The proposal also takes as a guiding reference IFAD’s **Environment and Natural Resource Management Policy**, whose goal is to enable poor rural people to escape from and remain out of poverty through more-productive and resilient livelihoods and ecosystems, including by promoting: (a) scaled-up investment in multiple-benefit approaches for sustainable agricultural intensification; (b) recognition and greater awareness of the economic, social

and cultural value of natural assets; (c) climate-smart approaches to rural development; (d) greater attention to risk and resilience in order to manage environment- and natural-resource related shocks; (e) engagement in value chains to drive green growth; (f) improved governance of natural assets for poor rural people by strengthening land tenure and community-led empowerment; (g) livelihood diversification to reduce vulnerability and build resilience for sustainable natural resource management; (h) equality and empowerment for women and indigenous peoples in managing natural resources; (i) increased access by poor rural communities to environment and climate finance; and (j) environmental commitment through changing its own behaviour.

118. **Gender Equality and Women’s Empowerment (2012).** The recently launched policy aims at increasing IFAD’s impact on gender equality and strengthens women’s empowerment in poor rural areas. This project is in line with the policy and directly contributes to building an “understanding of sustainable natural resource management in a local context”; “equal access to new technologies and training ...”; “gender-differentiated knowledge systems to enhance learning on, and raise awareness of, sustainable uses, management and conservation of natural resources”; “reduction in gender inequalities in community-based users’ groups through training and positive actions”; and “measures to increase women’s voices, alongside men’s, in the planning and running of community water schemes”. The LASAP will make a direct contribution to the first and third strategic objectives, on economic empowerment and equitable workloads, respectively.
119. The proposal also meets the minimum requirements of the GEF Policy on Gender Mainstreaming (May 2012)⁴³.
120. **Environmental impacts.** The LASAP is expected to yield increased positive environmental impacts including a more sustainable management of soil, land, water and biodiversity, as well as the maintenance of key ecosystem services. In itself, this project does not trigger any safeguards, other than the ones already triggered by the SADP, as follows:
- (a) OP/BP 4.01: Environmental Assessment. The policy is triggered by SADP in anticipation of potential negative impacts from both small and medium agri-business activities.
 - (b) OP/PB 4.09: Pest Management. The policy is triggered by SADP due to anticipated increase in use of fertilizers and chemicals by farmers.
 - (c) OP/BP 4.11: Physical Cultural Resources. The policy is not directly triggered by SADP, but lessons learned from other projects in Lesotho have shown that in some of the districts in which the project will be

⁴³ See <http://www.thegef.org/gef/policy/gender>

implemented, such as Leribe and Botha Bothe, artifacts from historical cultural resources have been found at some places.

- (d) OP/BP 4.12: Involuntary Resettlement. It is not anticipated that there will be any land acquisitions as a direct result of the SADP. However, some people in the project area might have to resettle as a result of the 2010 Land Act or might be affected by actions under Sub-component 2.1. The policy is triggered in preparation for situations where project beneficiaries would be affected by the new legislation or any project-related activity in the project areas.

121. The project will operate within the framework of the Environmental and Social Management Framework (ESMF) prepared by SADP that provides a unified approach for the management of potential adverse impacts during project implementation.
122. This project is expected to generate important lessons and best practices for agricultural resilience, and to build long-lasting capacity that can be upscaled, including at the national level through the forthcoming Climate Resilience Wool and Mohair Programme (CRWAMP), another IFAD-supported initiative.

III. Project implementation

A. Approach

123. This project will be intended to build upon, and integrate into, the investments made under the SADP and to provide value added to those activities. It will address environmental and climate change problems that may hinder agricultural production initiatives launched under the SADP, and will maximize IFAD's impact on rural poverty reduction. The primary approach of this project is that, in order to be truly sustainable in the long term, SADP initiatives and agricultural investments need to integrate some resilience-building measures, so as to withstand the future climate conditions while maintaining productivity.
124. The project is in line with Lesotho's highest goals and objectives and seeks to promote investments with the greatest potential impact on improved household food security and incomes among rural households.
125. The project targets vulnerable populations: women, youth and rural farmers. This project will ensure that smallholder investments for their commercial viability, are resilient to climate changes and negative impacts. The project identifies the most suitable activities and adaptation interventions for improving agricultural production in Lesotho.
126. The project promotes a participatory approach and seeks to reverse the decline of agricultural productivity. It will also promote a learning-by-doing approach so as to ensure that communities have the capacity and skills to undertake their own adaptation measures. Information sharing, capacity building and technology dissemination will take place at the local level.

127. The project will strengthen institutional structures so as to ensure that climate change adaptation is strengthened at the systemic level. This will promote long term sustainability of the project and of climate change considerations at large.
128. This project will produce technical advice (e.g. agro-meteorological advice, vulnerability mapping, or crop scenarios), to enhance access to climate data, information and knowledge and to improve understanding of crop resilience in light of climate change. The information gleaned from these technical inputs can be replicated in other parts of the country.
129. Central to this project's approach will be to work jointly with the Lesotho Meteorological Services and the Ministry of Agriculture and Food Security in order to strengthen their partnership, including coordination and the development of joint services for the agricultural sector. The project will also seek to develop partnerships with other key organizations, including the academic sector in Lesotho and South Africa as a means to provide additional research and capacity building in the areas of resilient agriculture.

B. Organizational framework

130. For this project, IFAD will act as the GEF Implementing Agency and will therefore bear the responsibility of reporting to the GEF on use of funds and project performance, on an annual basis. The project will be nationally executed by the Ministry of Agriculture and Food Security, following similar arrangements as those established by SADP.
131. In order to reduce administrative costs and burdens, LASAP staff (5 professionals) will be embedded in the SADP Project Management Unit. One professional will act as the LASAP coordinator and will be based in Maseru in the SADP offices, while the remaining four will be based in the districts, where they will work alongside the SADP Project Field Officers. The LASAP staff will be required to each dedicate 20% of their time to project management, monitoring and evaluation, and the remainder of their time to substantive activities and technical advice. LASAP staff will be placed under the supervision of the SADP Project Manager. Office space, vehicles and additional overhead costs will be covered by the SADP general operating budgets, but the LASAP will allocate some funding towards the purchasing of office equipment for the new staff.
132. The project funds will be transferred into the existing SADP project accounts and disbursed according to annual work plans for the LASAP portions, with the exception of funds earmarked for contributions to the AIPs and CGs, which will be pooled with other SADP resources and managed as such. Tracking of GEF funds will be facilitated by the fact that the LDCF resources to be used for AIP and CG investments will only be drawn upon once a successful application for resilience has been submitted. Annual tracking of other GEF resources will be done through the use of annual workplans and separate expenditure reports will be produced identifying the use of GEF funds.

133. The project will be supervised by the SADP's Project Management Committee, following similar schedules. The LMS, in their capacity as national focal point on climate change, will be invited as a member in the PMC. Workplans, budgets and annual reporting will also be undertaken using SADP's formats, procedures and timelines. In addition, semi-annual progress reports should be shared on an ongoing basis with the Lesotho Meteorological Services, in their capacity as national focal point on climate change issues.

C. Planning, M&E, learning and knowledge management

Planning

134. Project activities should be integrated into SADP's regular planning procedures and implementation manual. It is proposed that the LASAP coordinator complete an Annual Programme Workplan and Budget (APWB) at the beginning of every year, along with other SADP components. For LDCF-funded activities, the project team should prepare a plan of activities, expenditures and procurement of goods and services for the year. An AWPB should include the following information :

- (a) Update on achievements:
- (b) Projections for the upcoming fiscal year:
- (c) Summarized presentation of planned activities by components (Table)
- (d) Detailed presentation by components (narrative)
- (e) Cost and financing

Monitoring and Evaluation

135. Project monitoring and evaluation will be a critical tool for collecting data, monitoring activities, assessing progress and ensuring critical reflection. As this project is based on the existing SADP project, it will mostly be integrated with SADP's monitoring and evaluation system so as not to add extensive work burden for implementing staff. Currently, the M&E Officer has the primary responsibility for monitoring progress and outcomes based on indicators provided in the project results framework. The LASAP project has added a set of indicators to the existing SADP M&E framework, measuring climate change resilience (refer to Section II). The M&E Officer will include these new indicators as part of their reporting, with the support of the LASAP staff who will be embedded in the Project Management Unit and Project Field Offices.

136. The Logframe for LASAP contains a number of indicators that are to be measured through surveys of beneficiaries. It is expected that these indicators will be measured through the AIP and grant planning processes (during an Action Learning Cycle, or during community consultations). A set of consultations, questionnaires and measuring points are indicated in Annex 6 on Monitoring and Evaluation.

137. Regular staff visits by the dedicated staff members (Adaptation Advisors) will also ensure the adaptation-related monitoring and supervision of all grant projects funded through the Commercial Grants Program, as well as the investments supported through the AIPs. This will be undertaken in conjunction with the SADP's own monitoring and evaluation visits. This will also be assessed through the progress reports issued by the grant recipients and through the monitoring carried out by the SADP officers. Further, as is the current practice under the SADP, each grant project has its own monitoring and evaluation arrangements, milestones and performance indicators to be measured against. As per the proposed modifications to the Operational Manuals included in the Technical paper, these evaluation arrangements will also include some analysis of progress in achieving resilience. AIP teams, Commercial Grants Officers and other SADP staff will be capacitated with climate change adaptation training and information so that he/she can be better equipped to support the M&E Officer as well as the LASAP staff persons to assess the performance of "resilience investments".
138. The AIPs are monitored with the support of the PMU Agricultural Investment Planning Officer and district-level PFOs with the M&E officer. Site visits under the AIPs are conducted at least every six months, and it is anticipated that investments under the LASAP will be monitored accordingly. Participating sub-centers will be required to provide periodic technical and financial reports in accordance with the agreed reporting schedule. They will also provide a completion report and these activities will be supported by the PFOs. The PFOs will have received climate adaptation training and will be equipped to support the assessment of community activities relative to their AIP goals.
139. Gender-disaggregated indicators have been developed (refer to Section II) to help assess the level of inclusion of women in this project as well as to promote gender mainstreaming. Gender disaggregated indicators will help identify whether progress has been made in targeting women beneficiaries and promoting gender equity.
140. An additional component of M&E which is not covered by the SADP will have to be carried out: the Global Environment Facility (GEF) requires an annual Project Implementation Report and this will have to be produced yearly in June-July to facilitate IFAD's own reporting to the GEF on finances spent and goals achieved. This report will be developed by the LDCF coordinator and the adaptation officers. A template, in line with GEF requirements, is provided in Appendix 14.
141. A mid-term evaluation of the LASAP is planned for the end of the second year of implementation. This mid-term evaluation will focus on results achieved thus far and determine lessons learned with a few of providing recommendation for achieving better results. The mid-term evaluation will also include a strong social component in assessing the impacts of the projects. Face-to-face consultations will be held with extension staff to assess the lessons being

generated, the barriers and challenges being faced by the beneficiaries in conducting resilient agricultural activities and for evaluating gender inclusion in the first half of project implementation. It will also be useful to examine at this juncture the role and participation of men, whether it is increasing (as more men return to Lesotho from South Africa), whether agriculture provides an entry point for their participation, and whether an influx of men in the sector has any impacts on the gender dynamics. The mid-term evaluation will thus also assess the social angles relative to resilient agricultural practices by smallholders.

142. As per GEF requirements, a final independent evaluation will also be conducted at the end of the project measure the success of the project. Both evaluations will be conducted by external consultants who will operate under the supervision of IFAD's Evaluation Office and Environmental officer. Technical staff working at the PMU, M&E Officer, PFO, district level staff, LMS officials, MAFS officials, grant and investment recipients, Sub-Centre stakeholders will all be collaborating with the appointed persons for effective evaluation.

Learning and knowledge management

143. Stimulating learning and knowledge sharing will promote greater development effectiveness and ensure that the lessons learned from this project are mainstreamed with the appropriate audiences for greater climate resilience.
144. This project will include some key elements of knowledge management and learning. It will strengthen knowledge sharing among different national stakeholders, build learning partnerships both in the agricultural sector and beyond, and equip Lesotho institutions with a learning infrastructure. This project will also facilitate South-South partnership (with an institution in South Africa), and will support IFAD's mandate to fulfill the elements of its knowledge management strategy.
145. The key aspect of this project is that knowledge-sharing and learning are embedded in the entire project cycle. As the activities are based on knowledge production and sharing, this aspect does not require many additional resources as it is built into the logic of the project. The project will also be able to rely on Knowledge management functions already built in to the SADP management structure.
146. The key elements of the project's knowledge management strategy include the following:
 - (a) Using the established SADP and LASAP M&E framework to provide information, analysis, and progress achieved relative to the log frame and indicators;
 - (b) Conducting annual planning, review and monitoring & evaluation workshops to identify key lessons learned, risks and threats;

- (c) Producing regular news, radio and other media news releases on climate forecasts and relevant advisories on agricultural best practices in particular climate situations
- (d) Establishing collaborations with the National University of Lesotho to monitor and evaluate testing plots, share emerging knowledge regarding crop type, particularly alternative crops, and their resilience in different climate settings. This information could be collected at the university and contribute to future learning initiatives. Partnerships can also be sought with other university departments to integrate data in other academic sectors and promote knowledge sharing e.g.: soil conservation, environment, agriculture, climatology, and horticulture.
- (e) Having monthly visits of test plot sites to gather data, successes, lessons learned. SADP staff, extension staff, district agricultural officers, sub-centre representatives, Council members at the village level, and farmers union will be encouraged to participate to understand the outcomes of the testing sites and to disseminate relevant information to their particular audiences. There will be learning exchanges between different sub-centers and villages as information is gathered on different climate scenarios; sub-centres with particular climate characteristics will be informed of outcomes of resilient practices pertaining to their particular climate situation. These visits will also be an opportunity for communities to feedback and provide data on any other indigenous practices being undertaken to address climate change.
- (f) Upon completion of the project LMS and MAFS will be responsible for sharing lessons learned and promoting the approach publicly. The agroclimatology unit in LMS will be institutionally strengthened, staffed and trained to ensure continuous learning on climate related issues and how they pertain to agriculture, as well as how to interpret climate data for relevant agriculture advisories in a more coordinated and collaborative way with MAFS.
- (g) In collaboration with appropriate universities in South Africa (possibly University of Pretoria & University of Cape Town) capacity will be fostered at the national level for climate modelling and climate data management, as well as interpretation of Early Warning Systems, through a Master's degree from the institution. The recipients of these scholarships⁴⁴ will be Lesotho citizens that will bring back this knowledge and share learning and training for others working in the sector. The recipients will also be able to apply the knowledge gained at bolstering Lesotho's climate data

⁴⁴ A budget for three scholarships has been earmarked in the project design, 2 of which would be supported from within MAFS and 1 from within the LMS. However, based on the selection of university and the real costs, provisions could be made for an extension to 4 students if needed. This will have to be confirmed upon appropriate tender and selection of partners during project implementation.

generation and interpretation from an agricultural production system perspective, thus having a long-term institutional impact.

- (h) By working at the community level through AIPs and by using a “resilient villages”⁴⁵ approach, the adoption of resilient practices will be mainstreamed within communities rather than being located at the individual level. This will encourage a culture of learning on climate change adaptation and ensure that the whole community is engaged on climate change impacts and strategies to address them.

D. Financial management, procurement and governance

Financial Management

- 147. All procurement to be financed under the proposed project (LDCF funds) will be carried out in accordance with the procedures applied by SADP, i.e. the World Bank’s “Guidelines: Procurement under IBRD Loans and IDA Credits” dated January 2011, and “Guidelines: Selection and Employment of Consultants by World Bank Borrowers” dated January 2011, and the provisions stipulated in the Legal Agreement. All procurement of goods and works will be done using the Bank’s Standard Bidding Documents. All consultant selection undertaken for firms will be done using the Bank’s Standard Requests for Proposals. The project will carry out implementation in accordance with the “Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD and IDA and Grants” dated October 15, 2006 and revised January 2011 (the Anti-Corruption Guidelines).
- 148. As per the Public Procurement Regulations of Lesotho (2007), procurement has been decentralized to procuring entities, and all procurement decisions will therefore be made at Ministry and/or project level. Delays in obtaining procurement clearances are therefore not envisaged. The key issues concerning procurement for project implementation are: (a) the need for continued capacity building of the project’s Procurement Officer; (b) limited capacity within the MAFS Procurement Unit to assure adherence to World Bank-financed procurement practices; and (c) the potential risk of erroneously using Government of Lesotho or IFAD procurement procedures for SADP-financed activities, since the project will pool IFAD, Government of Lesotho, and World Bank funds.
- 149. Procurement of goods and services under this additional interventions will be implemented as per the SADP Project Implementation Manual and other procedures applied by SADP. The World Bank has conducted a financial management assessment of the Ministry of Agriculture and Food Security (MAFS) and found the financial management residual risk rating for MAFS was Moderate. Generally the LASAP will follow SADP procedures, which are in

⁴⁵ The « resilient villages » approach consists in integrating resilience in all aspects of a village’s activities, livelihoods and assets, including ecosystem health as a basis for protective ecosystem services.

accordance with the WB's and IFAD's requirements. An off-the-shelf accounting package will be used, the financial statements will be prepared according to the IPSAS cash basis and the Supreme Audit Institution will perform the audit in accordance with International Standards on Auditing. A financial management action plan to mitigate internal control weaknesses has been developed. For further information, please refer to Appendix 7.

E. Supervision

150. Supervision of LASAP will be carried out directly by IFAD as an on-going process of implementation support, in conjunction with supervision undertaken for the SADP. It is therefore envisaged that one supervision mission and one follow-up mission will be undertaken every year as per current practice under SADP. Implementation support will focus on planning, gender and targeting, procurement, financial management, M&E, partnerships, the integration of project activities within the evolving governance framework; and later in the life of the project, the achievement of outputs and outcomes. The Country Programme Manager and her/his team will maintain oversight of the supervision process with the assistance of selected specialist consultants and members of the Country Programme Management Team (CPMT).

F. Risk identification and mitigation

151. Risk anticipated during the project implementation and critical mitigation actions have been considered to facilitate effective planning and reduce any adverse impacts on the performance of the project. In this project, there are six major potential risks identified below.

No.	Risk	Impact	Probability	Mitigation
1	Institutional conflicts over ownership of project	Slow down project implementation and jeopardize integration and mainstreaming	Low	LASAP formulation has taken a consultative approach between key stakeholders: LMS, MFLR & MAFS in dealing with the overlapping areas of implementation.
2	Political interference in selection of project sites & beneficiaries	Alienation of the community resulting in low participation	Low	Implementation of ASP has been aligned on existing SADP locational & stakeholder domains reaching out to communities & household especially the not initially targeted by SADP
3	Conceptual understanding of the climate change adaptation by SADP Staff	Lack of support and indifference by current SADP staff	Low	SADP staff has fully participated in LASAP formulation & climate change training scheduled to facilitate ease of climate change incorporation into

				SADP
4	Overload of SADP agenda with new climate change issues	Lack of support & poor implementation of LASAP climate change modifications on SADP protocols	Low	Additional financial & Human resources provided to support additional activities of LASAP
5	Conflicts in the management of communal resources	Dissipated interest in participation & failure to implement community interventions	Medium	Both MFLR & Ministry of Local Government will bring experience in participatory engagement of communities & conflict management in managing the commons.
6	Lack of uptake of resilience technologies and approaches by project beneficiaries	Dissolution of LDCF Grants into the commercially oriented SADP investments	Medium	Project staff will undertake an extensive awareness raising campaign that will include demonstrations of the economic benefits of adaptation and resilience; appropriate training will be provided to the staff and beneficiaries; technical guidance will be provided during implementation.

152. Another relatively minor risk is related to potential delays in the procurement of equipments upon which some of this project's outputs are reliant, specifically the weather stations. This risk is mitigated by the presence, within the PMU, of a dedicated procurement officer who will be able to work with the LASAP and LMS in ensuring appropriate and timely delivery of project purchased equipments.

153. Other risks may arise, of force majeure nature, such as floods and drought. This could lead to delays in both SADP and LASAP implementation. However, since this project seeks to increase smallholder's resilience to these very effects, there is an expectation that the project will provide its own mitigation strategy. Should such events occur, in addition to regular relief operations, opportunities will be taken to further build awareness of resilience-building activities. The Project takes into account the challenges of possible natural calamities when proposing specific activities for inclusion in the AIPs or CGs. In the areas where floods occur frequently, for example, resilience building activities could allow for mitigating the effect of floods by developing flood-tolerant crops/trees, reducing erosion, or through the promotion of protected agriculture.

IV. Project costs, financing, benefits and sustainability

154. The total costs of the intervention, including the GEF-funded LASAP intervention, is 25,746,000 USD over 5 years.

A. Project costs

155. The total costs of the LASAP project will be funded through a grant from the Least Developed Country Fund channelled through IFAD as a GEF Agency. The total GEF grant budget is 4,330,000 USD over four years with an expected start in late 2013. The project expenditures can be divided into two categories: investments and technical assistance. The investment expenses include the funds to be channelled through the AIPs and Competitive Grants, for an amount of 2,500,000 USD or 58% of the LDCF Grant. The Technical Assistance Component comprises 32% of the LDCF Grant, or 1,323,671 USD. Purchases of equipment account for a further 5% of the LDCF Grant, for a total of 226,385 USD. The Final component, which includes project management and monitoring/evaluation costs, constitute the remaining 5%, with a total of 207,142 USD⁴⁶.

Project financing by component (GEF additional Funds) (US\$)

Component	GEF \$	SADP (WB)	SADP (IFAD)	Government	In-kind contributions from Beneficiaries	Total
1. Reduced Vulnerability of agricultural production	3,054,286	7,390,000	7,390,000	2,020,000	980,000	20,787,886
2. Enhanced Capacity to support agricultural production in the context of climate change	1,068,572	1,460,000	1,460,000			3,962,172
3. Project Management, Monitoring and Evaluation	207,142		446,000			725,942
Total Project costs	4,330,000	8,850,000	9,296,000	2,020,000	980,000	25,746,000

156. The GEF grant will finance, as a matter of priority, investments on the ground through the mechanisms established by SADP (CGs and AIPs), for a total of 2,500,000 USD⁴⁷ or 58% of the LDCF grant. Equipment costs, including the purchase and installation of up to synoptic weather stations with agro-meteorological sensors, non-expandable laboratory and agricultural research equipment, and office equipment for the additional staff represents a total of 226,385 USD or 5% of the LDCF Grant. Less than five percent of the grant, or 189,942 USD is dedicated to supporting the management of the grant (staff salaries), and 90,000 USD have been set aside to ensure the compliance with GEF evaluation requirements (Mid-Term and Final evaluations). The remainder of the LDCF grant (1,323,671 USD or 32% of the LDCF Grant) will be used to

⁴⁶ All costs are inclusive of contingencies. Price contingencies are included in the estimated component costs and physical contingencies have been set to zero.

⁴⁷ Ibid.

support technical assistance activities, including training, awareness raising, research and the development of agro-meteorological services and climate modeling products.

Costs by categories of expenditures⁴⁸

Type of costs	GEF	%
Investments	2,500,000.00	58%
Technical Assistance	1,396,471.52	32%
Equipment	226,385.76	5%
PM	207,142.72	5%
total	4,330,000.00	100%

B. Project financing

157. The total costs of the project are 25,476,000. For the LASAP portion, all costs are financed by the Least Developed Country Fund (LDCF) housed in the Global Environment Facility (4.33 million USD), co-financed by the government of Lesotho's, IFAD, and the World Bank contributions to the SADP, as well as the contributions expected in kind and in cash by the beneficiaries of the Grants and AIPs. This means that the GEF additional intervention is providing 17% of the total project costs, with SADP providing the remaining 83%.

C. Summary benefits and economic analysis

158. The SADP baseline project seeks to reduce rural poverty, and increase economic growth and productivity. The proposed LASAP project would integrate climate change considerations into these rural development efforts to ensure that losses are not incurred in face of climate variability and that long-term agricultural investments can be maintained even in light of climate change. At the heart of this project is the concept of "resilience" which is also the overarching benefit that this project seeks to yield.

159. On this premise, the main benefit of this project would be that agricultural production and rural economic activity would continue well into the future without being disrupted drastically by climate change impacts. As the main objective of this project is to increase the resilience of small scale agriculture to climate change impacts by promoting climate-proofed investments for agriculture-based development, as well as by enhancing the resilience of agricultural productivity under increased climate variability, the project will promote the concept of sustainable small-scale agriculture development with a long-term planning perspective. It will also foster a dynamic concept of natural resources management to take into account weather-related factors into agri-business development and food production at a downscaled level.

160. The adaptation benefits that the project will yield include: the avoided damage costs of climate induced impacts; decreased exposure to risk and improved

⁴⁸ All costs inclusive of contingencies

ways of dealing with climate stimuli; capitalising on opportunities that may arise in light of climate variability (e.g. increases in average rainfall); dynamic structures both at an institutional and individual/local level to cope and respond to climate changes; improved resource management; improved planning and anticipatory interventions rather than emergency resorts to deal with climate impacts; and the removal of maladaptive practices which will be unsustainable in the long run.

161. The project will support the integration of climate considerations that are critical to sustain agricultural production into local AIPs and CGs. Through this integration, and using the range of technical guidance, training and awareness raising activities offered by this project, SADP beneficiaries will be able to take into account the possible medium/long-term deterioration of their asset base (soil, water, rangeland etc.) and include this as part of their long-term production planning. The integration of natural resources modification and productivity as a consequence of climate change into agricultural planning will enhance the sustainability of agricultural investments in the targeted areas, while at the same time provide information on required and suitable adaptation response measures that can respond to specific climate change threats.
162. This will lead to several benefits. For instance, innovative practices, technologies and infrastructures aiming to increase the resilience to climate change of agriculture-based activities along the value chain, will be identified and implemented. There will also be greater awareness and capacity at different levels on climate change impacts on agriculture and on the means to implement the associated adaptive responses. Particular attention will be dedicated to training of extension services, agricultural resource centres, sub-centres staff and local actors. This will lead to greater knowledge generation and sharing, as well as training opportunities for front line workers in the agricultural sector. The experience in adaptation leveraged in the four SADP districts can later on be the object of broader dissemination throughout the country, by integrating these practices within the scope of the current extension system. An opportunity for this upscaling is already available through the forthcoming Climate Resilient Wool and Mohair Programme, which is being designed at national scale for support through IFAD.
163. Overall this project and its goal of increasing adaptive capacity and resilience to climate change will lead to the following associated benefits:

Economic Benefits

- (a) Improved livelihoods and economies that are not susceptible to climate-induced losses;
- (b) New income generating opportunities as innovative adaptation technologies and measures are identified and adopted
- (c) Reduction in the risk of price volatility of agricultural goods as climate change lessens impacts on supply and production

- (d) Increased stability in the agricultural economy enabling it to maintain its contribution to the GDP

Environmental Benefits

- (e) Sustainable management of key natural resources by users strengthened
- (f) Sustainable use of water resources
- (g) Environmental knowledge disseminated among stakeholders
- (h) Environmental data collected and interpreted for effective policymaking
- (i) Innovations and up-scaling of sustainable agricultural activities will improve impact on ecosystem goods and services.

Social Benefits

- (j) Food insecurity is reduced
- (k) Women, youth and indigenous peoples are engaged in the project to find new avenues to develop livelihoods in the agricultural sector
- (l) Social cohesion is promoted through community-based planning and participatory methods
- (m) Empowerment of smallholder farmers and other stakeholders to cope with climate change related risks
- (n) Reduced risk of conflicts due to food scarcity or high food prices
- (o) More accessible climate data and agricultural advisory services which will support planning
- (p) Institutional strengthening: more efficient government collaborations and cooperation
- (q) Government more able to respond to climate change, and capable of generating and applying climate data

164. This project will target the same beneficiaries and target sites as identified in the SADP. The LASAP will build on the cost-benefit analysis carried out in SADP to ensure that economic and productivity measures under SADP, are protected well into the future through adaptation interventions and lead to the anticipated benefits identified in SADP.

165. The link between the two projects will lead to greater cost-effectiveness. By basing interventions on SADP mechanisms, LDCF funds will be maximized on adaptation activities, rather than on the promotion of economic activity in the rural sector, per se. This does not mean that LASAP initiatives will not enhance rural economic productivity. By using no-regrets options for adaptation, it is likely that the adoption of new adaptive measures and technologies may in fact be better suited to current climate variability and therefore contribute to yielding higher production. For instance, the adoption of drip irrigation in particularly arid lands may in fact yield greater agricultural and economic output. However,

those will be positive externalities of the project, and will be part of the overarching benefit of fostering resilience.

166. In SADP the economic benefits to be generated by the project are anticipated to come from new farming activities and from additional production realized through underutilized land and labour resources. The incremental benefits that will be achieved by the LASAP will be to ensure that these can stand the test of time in light of climate change.
167. As per the SADP PAD, it is anticipated that the SADP project will reach 5,000 to 7,000 beneficiaries during the project implementation phase. This is a conservative estimate and there are anticipated to be additional beneficiaries that will go un-counted. This will be the case particularly as institutional changes are made at LMS and MAFS and which will have trickle down impacts through policy, organisational changes, and greater capacity to serve the Lesotho people.
168. For the LASAP intervention, using the same number of beneficiaries as SADP, based on the distribution of project funds between investment and technical assistance costs, the project cost per beneficiary group on the investments end is approximately \$357 - \$500. On the technical assistance front, the project cost per beneficiary is approximately \$219-\$307.
169. The foregoing (paragraphs 156 & 157) are not reflecting cost per head: under the SADP beneficiaries are groups, comprised of 5 or more people and some beneficiary groups could be as large as a sub-center servicing several villages. If one applies a 5-person average per beneficiary group, the cost per head is closer to \$71-100 for the investments portion, and \$48-61 per person. It is also to be noted that the investments will in fact have a return and that part of this investment is subsidised by the applicant, but this will be entirely dependent on the actual investment and cannot be calculated in advance. The SADP notes that if beneficiary households realize a minimum of projected set of benefits, the aggregate economic benefits generated by the project will produce and overall internal rate of return (IRR) in excess of 12%.
170. Due to the demand driven nature of this project, and due to the fact that it involves the collaboration of several stakeholders and clients for the application of each grant, project supported investments and technologies cannot be identified with certainty prior to implementation. For instance, the cost or number of drip kits distributed to beneficiaries cannot be calculated as need for those would arise through a lengthy community-based, participatory exercise, based on the requirements of the community.

D. Sustainability

171. Sustainability is an integral part of the project design and will mainly depend on the effectiveness of stakeholder involvement; the appropriateness of the implementation based on prior experiences in Lesotho and international best

practice; adequate technical, legal and institutional capacity, and expertise at the national level; and long term political and financial commitment at the budgetary decision making levels. Thus the LASAP will be collaboratively implemented by three ministries, to all of which the goal and objectives of the project are central. Therefore, the continuity of the interventions is assured on-going commitment in development programmes and strategic plans. For example, the Ministry of Forestry and Land Reclamation has implemented a pilot project on strengthening climate change adaptation in the agricultural sector under the FAO Technical Cooperation Project. Some of the interventions advanced in this project will be lessons and experiences from these pilot initiatives on strengthening climate change adaptation piloted in the districts of Mafeteng, Mofale's Hoek and Thaba-Tseka. The collaboration of the ministries of agriculture and local government also facilitates the integration of key sectors at the appropriate decentralized level and generate synergies to improve the productivity and reserve natural resource degradation, food insecurity and vulnerability.

172. Consultations during formulation have indicated that the issues of this project are prioritized in the National Strategic Development Plan 2012 adopted as a strategic framework for climate adaptive development in Lesotho. Thus the project has strong government support at both the central and local levels. Various stakeholders from the government and non-governmental sectors were involved in the consultations during formulation. All of these agencies are keen on carrying forward the implementation of the top priorities identified in the NAPA 2007 and re-prioritized in national strategic development planning processes.
173. The long term viability and sustainability of the project interventions will also depend greatly on institutional sustainability. This will be achieved through capacity building at all levels, following the principles of integrating the project from the onset into on-going ministerial and departmental programmes rather than launching it as a mere project. Thus the capacity building components of the project will empower stakeholders at all levels, from community to district authorities to national government agencies, to deal with climate change impacts and enhance the adaptive capacities of the Basotho beyond the time limitations of the project.
174. Project risks are limited since the project has strong government commitment. The main risk is that this project will end up becoming another pilot demonstration without future expansion and adoption into development programmes. However, this risk is minimized and almost cancelled out by integrating the projected interventions into on-going programmes. The underlying rationale is that successful approaches and lessons will be automatically integrated into the various programmes of development. Thus the entire project is designed according to vulnerabilities of climate change induced risks for community losses and semi-commercial to commercial

- investment and their economic infrastructure losses. This will ensure building of community resilience and financial sustainability for the Lesotho government.
175. Additional human and financial resource requirements to sustain the activities initiated through the project will be integrated into the national human resource plan and budget. Thus the resources will help sustain and expand the activities into other areas and climate change vulnerable areas throughout the Lesotho.
 176. Replicability has been an important consideration in the design and formulation of the project and each of the main outcomes has replicability components built into outputs. The capacity building for the pilot Resource Centers will be used to develop district resilience strategies over time. Application of institutional, legislative and policy frameworks within the pilot districts will allow for an evaluation and learning process for creation of national strategies. Similarly, capacity building at resource center and sub-center levels amongst various stakeholders in the participating districts will allow for rapid replication of the project interventions into other districts and resource centers therein.
 177. Agrometeorological applications will be piloted both at the national and district levels. Careful monitoring of performance, efficiency, cost-effectiveness and robustness will prove useful in developing a nationwide agrometeorological extension service. The learning captured at the district level and community level will provide strong feedback into strengthening community based agrometeorological messaging systems.
 178. The stakeholders in the process will be: the Ministry of Agriculture and Food Security, Ministry of Forestry and Land Reclamation, Ministry of Local Government and the Department of Lesotho Meteorological Service at both the national and district levels. Stakeholder involvement consists of three related and often overlapping processes: information dissemination, consultation, and “stakeholder” participation. The project design and formulation process has built into the project these principles of participation especially consulting and making use of the skills, experiences and knowledge of NGOs, community and local groups, the private and public sectors, and academic institutions in the design of the project, implementation, and evaluation of project activities.
 179. Project institutional networks will be placed within the overall national or community organizational structures e.g. by building on the local decision making structures, incorporating local knowledge, and devolving project management responsibilities to the local organizations or communities as the project approaches closure. Moreover, the project implementation process will build partnerships among different project stakeholders, fulfillment of commitments to local stakeholders and stakeholders considered to be adequately involved.
 180. The sustainability of project activities will be supported by multiple aspects. First, the integration of resilience-building measures within the support received by volunteer producer groups under Grants and AIPs will help demonstrate

added long-term financial benefits for producers, which will enhance the communities and groups to continue these interventions beyond the duration of the project. Since resilience components are tied into financial support for the enhancement of livelihoods, the likelihood of participants giving up the adaptation components is low, lest they abandon their production projects altogether.

181. Second, the project builds on existing structures and integrates into available proven institutional mechanisms, such as the Action Learning Cycle and the existing extension services. Strengthening existing institutions within the ministries will also contribute to long-term sustainability of project interventions; the acquisition of new awareness, tools, methodologies by extension services and the SADP support staff will create a framework where climate risk management will be more explicitly addressed in the areas concerned, in the long-term.
182. Third, the project will help create and strengthen the agro-meteorological function in the Government of Lesotho, for which both the MAFS and the LMS have committed permanent commitment. The project will support training and the development of new skills, as well as the establishment of the institutional function which will provide benefits to the country long after the project ending. Equipment purchased under this project, including in particular the synoptic stations and the agricultural research equipment, will be owned, operated and maintained by the recipients (grant recipients, the LMS, MAFS) and fully integrated into the existing operational structures. This will help create long-term conditions for better agro-meteorological services and agricultural knowledge locally. In the case of the MAFS, this will be integrated into the Department of Research's operations and budgets, whereas in the case of the LMS, the maintenance of the stations will be integrated within the regular budget for climate monitoring, as per commitments made during the preparatory phase.
183. Finally, the sustainability of the project will be strengthened by its link to the larger-scale context of agricultural investment, for which IFAD has been a partner for over 20 years in Lesotho, and that provides a framework for learning, policy development and implementation in the long-term. Lessons from this project will be integrated into this ongoing policy dialogue.

Appendix 1: Country and rural context background

1. Lesotho has a small population of 1.88 million (Census 2006) growing at an annual rate of about 1.7 % from the population of 970,000 at Independence in 1966. Over 60% of the population live in the four districts that comprise the western corridor where the bulk of arable land is located and which has the best access to physical infrastructure, utilities and service delivery facilities. By ecological zone, 56.7% of Basotho live in the Lowlands, 12.8% in the Foothills and 30.5% in the Mountains and Senqu River Valley. Around 25% of this population live in urban areas. The national average population density is quite low at only 61 per square kilometre, ranging from 24 in Mokhotlong to 112 in Berea. However, expressed in terms of arable land, population density rises to 658 people per square kilometre, with a low of 485 in Thaba-Tseka and a high of 902 in Maseru. Lesotho is undergoing a rapid demographic transition. Whereas the population grew rapidly in the first thirty years of independence, the population remained virtually the same from 1996 to 2006 and it is projected to grow by only 0.13% each year up to 2020.
2. The steady increase in the country's population was driven by previous high fertility rates and rapid National Strategies for Poverty Reduction and mortality decline. The recent slowing in population growth has been driven by two main factors: Declining total fertility rate of 5.4 children per woman in 1976 to 3.5 children per woman in 2006. The latest estimate from 2009⁴⁹ suggests that the total fertility rate has further reduced to 3.3 children per woman and is projected to decline further to 2.8 children per woman by 2025⁵⁰. Secondly, the Crude Death Rate has doubled from 12.8 per 1000 people in 1996 to 26.5 deaths in 2006. These trends have resulted in a significant decline in life expectancy at birth, from 51 years in 1976 to 59 in 1996 but fell to only 41.2 in 2006. The elderly population is increasing with 7.8% of the population aged 60 and above. This shows an increasing need for social services and safety nets. This demographic profile gives Lesotho a large labour force that is an opportunity for development.
3. After 45 years of independence, Lesotho has made much progress towards development of its national economy but a total eradication of poverty has remained an elusive goal. The country is still classified among the Least Developed Countries of the world with per capita income of approximately \$1000. Though located in the centre of the largest and most sophisticated economy on the African continent, Lesotho has not taken full advantage of its opportunities. Instead, it served as a labour reservoir for South African mines and industries. It experienced low economic growth, poor agricultural productivity, low wages, limited industrial skills, poor physical infrastructure and high costs for cross border logistics. These led to an unhealthy dependence on

⁴⁹ Lesotho Demographic and Health Survey

⁵⁰ Bureau of Statistics, 2010

its neighbour and external assistance for employment, incomes, high-level institutions for scientific education and research. The situation has been steadily improving in recent times but remains a challenge to the economic viability of the mountain Kingdom.

Development Priorities

4. The development priorities outlined in the most recent National Development Strategic Plan (2012 -2017) recognises, as a point of departure, the need and urgency for Lesotho to radically transform its economy, intellectual and skills profiles by taking advantage of its geographic location and defining a future that is characterized by the capacity to produce goods and services for the large Southern African markets, the African continent and global markets. This requires political and social stability, a favourable investment climate, a labour force with the necessary technical skills and institutions that are capable of: meeting the challenges of global competitiveness, responding quickly to changing circumstances and dealing with the challenges that are brought about by economic transformation. Together, these factors will help to ensure that Lesotho achieves broad-based and sustainable economic growth and employment generation resulting in long-term reductions in poverty. Sustainable agriculture will remain a foundation for rural livelihoods hence climate resilience considerations are high priority issues.
5. The National Vision is articulated as follows: “By the year 2020 Lesotho shall be a stable democracy, a united and prosperous nation at peace with itself and its neighbours. It shall have a healthy and well-developed human resource base. Its economy will be strong, its environment well managed and its technology well established.” While still facing a number of challenges, Lesotho has made considerable progress in many areas, including progress towards universal primary education, literacy, water and sanitation, gender equality, and various health indicators. Unfortunately, the spread of HIV& AIDS has caused deterioration in several indicators and some Millennium Development Goals are unlikely to be attained by 2015. However, the preparation of Lesotho’s National Strategic Development Plan provides an opportunity to identify key levers for getting us on a sustainable development path. By addressing the challenges and exploiting the opportunities that have been identified, the Government will ensure that sustained progress is made towards achieving the national goals set out in the National Vision 2020, which the NSDP seeks to operationalize. In order to reduce poverty and achieve sustainable development the NSDP advocates the following strategic goals:
 - Pursue high, shared and employment creating economic growth
 - Develop key infrastructure (Minimum Infrastructure Platform)
 - Enhance the skills base, technology adoption and foundation for innovation

- Improve health, combat HIV and AIDS and reduce vulnerability
 - Reverse environmental degradation and adapt to climate change
 - Promote peace, democratic governance and build effective institutions
6. The NSDP emphasizes the necessity of achieving sustained and broad based economic growth as the most effective route for poverty reduction. It sets out the intended growth and development strategy and provides strategic direction to all agencies on the resource allocations and budgeting decisions that will be integrated into the Government's annual Medium-Term Expenditure Framework (MTEF) and Public Sector Investment and Development Programme. It remains to be seen to what extent the critical issues of climate change proofing the economy will take place within all future plans and budgets commitments.

Geography

7. Most of Lesotho's 30,355 square kilometres are mountainous. Over 80% of the land is above 1,800 metres altitude and only 9% of the total area is suitable for arable cultivation. The 2006 Census indicated that the arable area had fallen by nearly 10% from 3,134 km² in 1996 to only 2,833 km² in 2006, mostly as a result of soil erosion and land degradation. However, the encroachment of arable land by residential and industrial developments is significant. Lesotho has few natural resource endowments, but has an abundance of water and natural beauty, whose economic potential has not been fully tapped. Lesotho's mountains offer great potential for wind power and hydropower generation. However, the country is highly vulnerable to extreme weather conditions, including floods, drought and early and late frosts. Even in normal years, frost means that it has a limited growing season. Heavy rainfall contributes to rapid soil erosion and deteriorating conditions of range and arable land. Climate change is likely to make adverse events more frequent and more severe with the greatest impacts on the poor especially in rural communities where the dependence on natural resources is greater.

The Economy

8. Lesotho's economic development is framed by its central location in Southern Africa. Lesotho is a member of the Southern African Customs Union (SACU), the Common Monetary Area (CMA) and the Southern African Development Community (SADC). SACU and CMA are key influences on the trade, exchange rate and monetary policies of all member countries. South Africa remains Lesotho's main trading partner, supplying about 80% of imported goods and many services, as well as buying approximately one-quarter of Lesotho's exports. The main national resource is the abundant, literate and regionally competitive labor force.
9. Gross Domestic Product (GDP) has grown at a real annual average rate of 4.0% between 1982/83 and 2010/11. Unfortunately, this has not resulted in a decrease in poverty because many of the gains in GDP have been offset by

falling remittances. The fall in the number of mineworkers from approximately 120,000 in the 1980s to less than 50,000 today has resulted in a much smaller proportion of households receiving income from abroad. Consequently, the real annual growth rate of Gross National Income (GNI) from 1982/83 to 2010/11 is only 0.9% per annum while Gross National Disposable Income (GNDI), which includes net transfers from the SACU revenue pool, has grown by 1.2% per annum over this period. Since the average annual population growth between 1982 and 2006 was 1.1%, this implies that there has been no real gain in national disposable income on a per capita basis. Income is increasingly generated domestically. Whereas in 1982/83, the majority of domestic consumption was derived from productive activity abroad, Lesotho is now much more independent. The share of GDP as a proportion of total income has more than doubled from 30% to 64%. Although GDP has been positive in every year since 1982/83, periods of acceleration have been followed by years of slow growth (2% or less). GNI has been much more volatile, with several years of negative growth.

10. The strongest driver of GDP growth has been the secondary sector, of which the majority is manufacturing. Between 1982/83 and 2010/11, the primary sector has increased by 1.8%, the secondary sector by 7.8% and the tertiary sector by 3.8%.
11. Agriculture remains important to most households, with over half having some agricultural land and keeping some livestock, and one-third of rural females and two-thirds of rural males engaging in some agricultural work. Women comprised just over 50% of the agricultural share of economically active women in 2011, down from 64.1% in 74.8% in 1980.⁵¹ However, Agriculture's contribution to GDP has been declining. In 1982/83, the primary sector, at that time almost exclusively agriculture, contributed 24.5% of GDP. This has declined to 13.1% of GDP by 2010/11. Agricultural growth over the period averaged only 0.4% per annum. Most crop output is not marketed because grain and cereals are mostly produced for home consumption. This has also been compounded by significant crop failures due to climate variability. For example, in the decade "1995/96-2004/05", on average 33 414 ha of planted area (\approx 30-50%) failed each year across Lesotho. In Lesotho, the root causes of poverty are linked to low level agricultural productivity & crop failures attributed to extreme events driven by climate change/ variability & associated issues: land degradation & soil erosion, inefficient water control and management. Moreover, even under the best of circumstances, agricultural work does not generate much income: two-thirds of all labour do not receive any wages as they are self-employed or work for a family member.
12. Manufacturing has increased more than six-fold. Textiles have been the main growth driver over the last thirty years, but other manufacturing has remained

⁵¹ State of Food & Agriculture 'Women in Agriculture'. FAO, 2011, p105.

high even during the recent global economic crisis. Growth in manufacturing has also been the main engine of job creation. In the past few years, decreases in exports to the United States have been partially offset by increases in exports to South Africa. However, the AGOA arrangements are due to expire in 2015.

13. Growth in the tertiary sector has been in line with overall GDP growth. Public administration has grown by 3.6%. High rates of growth have been generated by some sub-sectors, notably Posts and Telecommunications (11.5%), especially since the take-off of the boom in mobile phones, and Financial Intermediation (10.9%). Hotels and restaurants generated only 1.7%. The decline in remittances has meant that private consumption has only grown in line with population growth since 1982/83. Indeed, up to 2002/03 per capita consumption had declined but there have been increases over the past decade. On the other hand, higher SACU revenues have allowed public consumption to expand rapidly from its low base in 1982/83. Over the last thirty years, the main drivers of investment have been major infrastructure projects, foreign direct investment and public sector projects.
14. Overall, investment (part of which is required to deal with depreciation of existing assets) remained very low throughout the 1980s (less than 40% of GDP and less than 10% of GNDI). It rose to around 25% of GNDI with the implementation of the Lesotho Highlands Water Project in the 1990s but it has subsequently fallen back to around 15%.

Challenges

Poverty, Unemployment and Inequality

15. In 2010, Lesotho ranked 141 out of 169 countries based on Human Development Index (HDI) value of 0.42710. The Index for Lesotho was 0.397 in 1980 but it rose to 0.451 in 1990 and stayed at 0.452 in 1995. It subsequently declined to 0.423 in 2000 and fell further to 0.404 in 2005 before recovering to 0.423 in 2009.
16. Poverty: Although Lesotho has a per capita income of around \$1,000, the national poverty line recorded an average national poverty head count of 54% (58% in rural areas, 40% in urban areas) in the 2002/03 Household Income Survey. The World Bank international \$1 a day poverty line figure produced a significantly lower average national head count of 37% (41% in rural areas, 25% in urban areas)¹¹. It is estimated that 27.5% of the population and 21.4% of households (117,309 out of 548,032) are at risk of multi-dimensional poverty. Larger households with many children, headed by older and less educated people, were worse off, while households headed by migrating males are better off. Households receiving remittance income from abroad have amongst the highest incomes and best outcomes in the rural economy. Unusually, the poorest households grow less of their own food than do higher income households. The Government old-age pension, introduced in 2005 for

all citizens aged 70 and above, has had a significant impact on poverty. The most recent information (LDHS 2009) suggests that 76.7% of the population have access to improved water sources (although that includes 7.6% who rely on protected wells or springs) and that 72.2% are less than 30 minutes from water; in the area of sanitation, 25.1% have improved, nonshared facilities, 38.8% have non-improved, shared facilities and 36.0% have no facilities. In the case of energy, 16.1% of the population (17.0% of households) have electricity, although for cooking, 49.4% use wood, 20.5% use LPG and just 6.1% use electricity.

17. The 2006 Census indicates that there are 221,000 single or double orphans (representing 28.5% of all children aged 0-17 years), equally split between males and females. These cases are mostly attributed to HIV and AIDS related mortality. Increasing orphan hood calls for new, more effective social protection measures. Efforts to provide social grants and bursaries have made important contribution to livelihoods and to school enrolment, with approximately 180,000 orphans now attending primary and secondary school.
18. **Unemployment:** The 2008 Labour Force Survey indicated that Lesotho had a working-age population of 1,237,000 of whom 608,000 people were employed and 192,000 were unemployed, giving an unemployment rate of 24%. Only about 230,000 are believed to have formal wage employment, while a substantial majority of the employed (71.7%) appear to be engaged informally, principally as family labour in household activities such as subsistence agriculture (often only in seasonal jobs) or as informal employees in formal enterprises. Many informal workers do not receive wages but are paid in kind. This high level of underemployment (low labour productivity) suggests ample flexibility in the labour market. Employment growth has lagged behind GDP growth. Much of the economic growth in recent years has come from capital-intensive activities. Growth drivers such as Lesotho Highlands Water Project Phase I and diamond mining have had limited linkages to the rest of the economy and create very few permanent jobs. At the same time, opportunities for well-paid work on the South African mines have been declining. This suggests that the rate of formal employment creation has lagged behind the growth in the labour force plus returning ex-mineworkers. Although the unemployment rate had decreased to 2008, it is likely that the global economic crisis has made the situation worse subsequently.
19. **Inequality:** Household Income and Expenditure Surveys indicate that the national Gini coefficient has fallen from 0.57 in 1994/95 to 0.53 in 2002/03 and that there has been a significant reduction in headcount poverty from 66.6% to 56.6%. This still suggests significant inequality, and income distribution is heavily skewed with the richest 20% securing 60% of income while the poorest 20% receive only 2.8%¹². Inequality is high in both urban and rural areas, having been a structural feature of Lesotho for decades. Even though the top wealth quintile resides predominantly in the lowland areas with half of the

poorest quintile living in the Mountains, the rural-urban divide can explain only 4% of overall inequality, with the remaining 96% being attributable to intraurban and intra-rural inequality¹³. Lesotho similarly has a higher level of consumption inequality than most countries in the region. With a Gini coefficient of approximately 0.5, Lesotho can only expect to reduce the poverty head count by 1% in response to each 1% increase in the growth rate.

20. *Gender Equality*: According to the Gender Inequality Index (HDR 2010, using 2008 data), Lesotho performs relatively well with an index score of 0.685 and a rank of 102. However, women have long been disadvantaged by cultural traditions, even though they play a vital role in the economy (the LDHS 2009 indicates that 35% of households are female-headed). The Legal Capacity of Married Persons Act 2006 repealed many discriminatory provisions in the formal legal system and represents a crucial improvement in women's legal position. Once the Act's provisions are fully implemented, women will be able to access credit, improve their land (assuming they own it), invest their money, engage in entrepreneurial activities and be the sole guardians of their children. Whereas Lesotho is on the right path, the challenge is to continue implementation of the gender policy framework which is expected to reduce women's social subordination and empower them to contribute more fully to development and poverty reduction. Social dynamics are also bound to be impacted as men returning from South African mines are reintegrated into a society where women-run households dominate, and as new roles are carved out for both men and women.

Economic Resilience

21. As a small open economy, Lesotho's growth and prosperity is both driven by and vulnerable to international trends. The recent economic and financial crises have been challenging for Lesotho and the country currently finds itself in a difficult economic environment. The global economic and financial crises have affected Lesotho in several ways: the SACU revenue pool, which provides 50 – 60% of Government revenue, declined, necessitating expenditure reductions; world FDI has decreased as a result of global uncertainty; and the private sector has been forced to reduce output and employment in response to decreased demand for its exports. In addition to our vulnerability to external trends in commodity prices, Lesotho is also affected by movements in the exchange rate. The currency link between the Loti and the Rand provides a fixed exchange rate with main trading partner and greater stability against other currencies. However, producers for international markets (notably textile firms selling to the American market) face potentially volatile movements in the exchange rate. This can have a significant impact on profitability and hence on production levels. The challenge is to encourage greater diversity in markets and products to reduce exposure to risk.

Vulnerability to natural disasters and climate change

22. Lesotho is vulnerable to a range of natural disasters and climate change. Early in 2011, Lesotho experienced the heaviest rains in decades, resulting not only in loss of agricultural output but also damage to infrastructure: power grids have been destroyed, roads have been swept away and bridges have collapsed. In recent years, droughts, hailstorms and other natural disasters have similarly caused periods of loss of output. Rural communities depending on subsistence agriculture are the most vulnerable. Although agriculture, at 8% of GDP, is only a small component of national output, it is an essential source of income for many Basotho. Making provision for such vulnerabilities is therefore an essential priority for development.

Health, HIV and AIDS

23. *Maternal health:* The 2006 Census data suggests that the Maternal Mortality Rate (MMR) is about 939 per 100,000 live births. Although this rate is substantially higher than previous estimates, maternal mortality accounts for only 1.1% of all deaths. The LDHS 2009 states 92% of pregnant women made at least one visit to a professional ante-natal care provider (and 70.4% made 4+ visits) and that 58.7% gave birth in a health facility (this proportion rises with wealth but declines with number of previous births). *Child health:* The Infant Mortality Rate (IMR) had declined from 103 per 1000 live births in 1976 to 74 in 1996 but the 2006 Census data produced an IMR of 94.0 (102.5 for males, 83.9 for females). The Child Mortality Rate is 23.7 (26.5 for males, 21.1 for females). The LDHS 2009 states that 61.7% of all children aged 12-23 months have received all basic vaccinations (and coverage for individual vaccines ranges from 74.9% to 95.7%). On nutrition, LDHS 2009 states that 39.2% of children are stunted (short relative to their age) while 14.8% are severely stunted. However, only 3.8% are wasted (inadequate weight relative to height) and 13.2% are underweight (low weight for age). *HIV and AIDS:* LDHS 2009 states that 26.7% of the female population aged 15-49 and 18.0% of the male population aged 15-59 were HIV positive, equivalent to a national rate of 23.0%. Lesotho has the third-highest HIV prevalence rate in the world. The percentage of HIV-positive women is greater than the percentage of infected men in almost all age groups except men 40 years and older, and prevalence is considerably higher among young women than among young men.

Productivity and Skills

24. People are Lesotho's most valuable resource, but unless Basotho attain the necessary skills, they remain underemployed and their potential is wasted. Lesotho's investments in education and skills development are not reflected in improved productivity across the entire economy. The challenge is to increase productivity and reduce wastage in manufacturing, reform tertiary vocational education and training and tertiary institutions so they can produce an adequate supply of relevant and competitive skills. At present, the skills that are supplied

are often not those that are demanded by the economy and many recent graduates struggle to find productive work locally. This contributes to the brain drain to other countries and increasing youth unemployment. In laying the foundation for better skills development and utilization, the education and training system needs to implement reforms to address the challenges of quality, access and relevance. Other problems include the low level of entrepreneurship, an inadequate range of relevant business skills and inappropriate choices of technology.

Urbanisation

25. Rapid urbanisation is a common form of structural transformation as low income countries make the transition to middle-income status. Urbanisation will bring more Basotho closer to centres of employment as well as to critical services such as schools, clinics and utilities. Provision of such infrastructure is more cost effective in urban areas than in rural areas as a result of geography and economies of scale. This will allow the government to do more with less. Based on demographic trends alone, the Bureau of Statistics predicts that the population living in urban areas will grow by 20% over the next 10 years, whilst the population in rural areas will remain approximately constant. Even faster urbanisation is predicted beyond 2020 and the employment growth stimulated by this Plan is likely to accelerate the trend towards urbanisation, as the majority of job opportunities will be in urban areas. Business activity tends to cluster in core production and transport hubs. The informal sector is able to develop linkages alongside large firms by offering goods and services that firms and workers need. The result is to raise household incomes by creating better-paying, more secure employment in the urban private sector. However, urbanisation, unless properly managed, carries risks. Urban poverty could become a threat. The urban poor who cannot find work are arguably worse off than rural poor because they don't have access to subsistence farming and don't have support from strong rural social networks. There is a risk of urban sprawl and increasing human encroachment on fertile agricultural land. New arrivals living on the periphery of urban areas are particularly vulnerable as they have less access to infrastructure and higher transportation costs that could lead to economic exclusion. In order to address this challenge, the Government will implement efficient planning policies and institutions in order to ensure that the benefits of urbanisation are properly utilised and the risks are mitigated.

Appendix 2 – Poverty, Targeting and Gender

Poverty Targeting

1. Lesotho's population is estimated at close to 1.88 million (2006 census), with estimated levels of poverty at 56.6 per cent.⁵² Lesotho's economy is based heavily on agriculture and in 2011 the agricultural sector contributed 8.6% of the GDP. Agriculture remains the main source of employment and sustenance for the majority of the rural population.⁵³
2. More than 80 per cent of the population resides in the rural areas.⁵⁴ The majority of small-scale farmers cultivate an average of less than 1.5 ha of land—land which is severely degraded.⁵⁵ Of the country's total land area, only less than 10 percent is classified as arable. About 30 per cent of rural people live in extreme poverty with average farm holding of less than 0.5 ha of land. However, the rate of landlessness is increasing especially among youth and households headed by women. The levels of poverty are much higher in the mountain areas compared to the rest of the country.⁵⁶ The majority of small-scale farmers do not have the capital to access improved technologies and support services to use their land productively. Yields are low due to severe land degradation, reliance on rainfed farming and poor crop husbandry methods. Climate variability—irregular rainfall, abnormal temperature patterns, droughts, storms – increase the risks faced by smallholders.⁵⁷
3. As this project is associated and pegged onto the existing Smallholder Agriculture Development Project (SADP), it will target many of the beneficiaries that were identified in the SADP process. These include farmers that are already commercially or semi-commercially oriented, but are constrained by the lack of resources, skills and organisation, and those semi-subsistence farmers that are highly motivated to engage in market-oriented ventures.
4. In addition, this project will also target beneficiaries, particularly the rural poor that have not yet attained the level of semi-commercial farming practices. As climate change is to have devastating consequences for the most vulnerable, the project is designed to yield benefits to the vulnerable by helping them plan for climate variability and its impacts on their livelihood, irrespective of the level of commercialisation of their agricultural practices. The goal of the project is to increase the resilience of small-scale agriculture to climate change impacts by promoting climate-proofed investments for agriculture-based development as well as by enhancing the resilience of agricultural

⁵² UNDP. *International Human Development Indicators: Lesotho Country Profile*. Online at: <http://hdrstats.undp.org/en/countries/profiles/lso.html>. Accessed on December 12, 2012

⁵³ African Development Bank. *African Economic Outlook 2012: Lesotho*. Online at: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Lesotho%20Full%20PDF%20Country%20Note.pdf>. Accessed on December 8, 2012

⁵⁴ World Health Organization. *Country Cooperation Strategy: Lesotho*. Online at: http://www.who.int/countryfocus/cooperation_strategy/ccsbrief_lso_en.pdf. Accessed on December, 11, 2012

⁵⁵ <http://www.ifad.org/operations/projects/regions/Pf/factsheets/lesotho.pdf>

⁵⁶ Ibid.

⁵⁷ Ibid.

productivity under increased climate variability, thereby alleviating the risks faced by the vulnerable operating in the agricultural sector. This will be achieved by targeting interventions at the community level, rather than just at individual enterprise level.

5. The first category of beneficiaries that are articulated by the SADP will be addressed through interventions that will take place through the Agricultural Investment Plans (AIPs) and Commercial Grants. These mechanisms are designed to address smallholder farmers with a view to increase their productivity, improve their quality of produce, and improve the marketing of their crops. These groups, particularly producer groups, include entities that have organised to combat poverty.⁵⁸
6. Secondly, this project will support the SADP by building in climate change adaptation and resilience into SADP activities and will target those poor farmers who have found it difficult to overcome resource and skill barriers to upscale their production and revenue. It is anticipated that the outcomes of this project will encourage the SADP participants to include adaptation considerations into their planning, which will render their enterprises sustainable over the long-term, and address the cycle of poverty. Specific activities that will benefit these beneficiaries include:
 - a. developing basic, local language fact sheets on the impacts of climate change on the various production value chains (e.g. pig farming, cropping, poultry, other short cycle livestock enterprises) for prospective producers that are intended recipients of AIP and Competitive grants under the SADP regarding climate resilient production techniques. As needed, the fact sheets could be revised or updated based on user feedback.
 - b. broadening the set of potential investments supported by an AIP, to include community-based resilience investments. At present, the AIP process begins with an Action Learning Cycle that brings together communities towards the development of a shortlist of potential investments in production (channelled through producer groups), natural resources management (through community councils), and capacity building for production.
 - c. additional funds through SADP to support promising adaptation options, such as (i) protected agriculture (e.g. greenhouses); (ii) conservation agriculture, keyhole gardens, and permaculture; (iii) drip irrigation, water harvesting or water use efficiency measures; (iv) procurement of resilient varieties of crop and livestock
 - d. support of SADP in streamlining its investments on the acquisition of productive assets and capacity building for the baseline elements of production.
 - e. revision of current guidelines for investments in Natural Resources Management supported by the AIPs to include resilience-building strategies, and to allow communities to identify resilience building activities within their AIPs.
 - f. additional funds to the Competitive Grants Scheme, to support investments considered promising adaptive production schemes. This

⁵⁸ PAD, page 87

additional funding would be cover additional costs faced by producers when selecting production assets and technologies that are resilient, such as (i) procuring resilient species of crop and livestock, (ii) improved building or infrastructure design to account for extreme weather, (iii) alternative sources of energy (such as biogas digesters) for production ventures, (iv) drip irrigation, water harvesting or water use efficiency measures.

13. The second category of beneficiaries targeted by this project are those that have not necessarily advanced to the next level of commercialisation, but are subsistence farmers and particularly vulnerable to climate change. These beneficiaries will benefit from this project in a variety of ways.

14. First, this project will support agro-meteorological departments to develop specific climate-relevant advice for farmers at the local level, so as to assist them with making agricultural decisions. It was gleaned from community meetings that such information would be very useful and that an informed extension staff services, at the Resource and Sub-Center levels would greatly assist local farmers, particularly as rainfall patterns shift. This would be a benefit to beneficiaries residing in local communities serviced by such extension services, irrespective of their commercialisation levels. It would also support vulnerable farmers to ensure sustainable agricultural decision-making over the long term, leaving them less vulnerable to the short-term whims of climate. The fact sheets will increase background information on climate change and its impacts on agricultural production and industries and will be supplemented by climate information made available through extension services and local radio stations. The fact sheets would not replace other information dissemination vehicles but will be complementary, and can be revised based on feedback by the targeted recipients. The extension workers will be receiving training on climate change adaptation and will also support more practical know-how for farmers.

15. Secondly, under this project, adaptive technologies will be demonstrated at the community level. Small field testing plots will be established at each project district site to test and validate assumptions under various climate conditions. Such sites will help determine which seeds and crops, and which agricultural practices will be suitable under different climate conditions. These plots will provide hands-on demonstrations of the productive benefits of recommended changes for resilience purposes to farmers. It will also provide crop and livestock performance data which will assist farmers with their decision making. The testing plots will also experiment with alternative crops (in addition to staple food crops) in varied climate conditions. All of this data and information will be useful for a wider breadth of beneficiaries and assist them with their decision-making so as to optimise the resources they invest in their farming.

16. Furthermore, this project will train local authorities such as Local Community Councils and chiefs with adaptation training. This will allow community leadership to further community-based resilience, thereby increasing the number of beneficiaries

and targeting agricultural production among those who are not yet at the commercialization stage.

17. Finally, the institutional strengthening of agro-meteorology in the country, will allow for reliable information that can actually be shared with those residing at the local level and can assist with planting and cultivation schedules. Community meetings revealed that farmers do not have reliable forecasts on weather, which prevents them from planning accordingly. Reliable data coupled with relevant agricultural advisories would target a broad range of beneficiaries beyond the scope of AIP or Commercial Grant recipients.

Poverty Targeting - Sites

18. As mentioned previously, this project will be conducted in the same sites as the SADP to make the most of resources and investments, and to enhance coordination among various development activities. As such the project will take place in the districts of Botha Bothe, Leribe, Berea and Mafeteng.

Berea

19. According to 2011 estimates, 13.6 percent of the national population lives in the district of Berea. The incidence of poverty in the district is 26.4 percent.⁵⁹

20. This project will be carried out through the Teyateyaneng Sub-Centre under Phuthiatsana Resource Centre, within the district of Berea. It consists of 13 Villages.

21. The main economic activities of this sub-centre are piggery, poultry, dairy, sale of handicrafts, vegetable, fruits and wool and mohair production.

22. The environmental condition of the sub-centre is very poor and has impacts on production of livestock and crops. The communities suffer from low vegetation cover, sparse grasslands, the presence of invasive species like trisocoma, and patches of hard soil layer.

Botha Bothe

23. According to 2011 estimates, 5.3 percent of the national population lives in Botha Bothe where the incidence of poverty is 33 percent.⁶⁰

24. This project will be carried out through the Rasekila sub-centre of the Khukhune Resource Centre, located at the North-West part of Botha-Bothe. The Rasekila sub-centre comprises of six villages and the key economic activities of residents are dairy production, poultry keeping, piggery

⁵⁹ Country Briefing: Lesotho. Oxford Poverty and Human Development Initiative, December 2011. Online at: <http://hdr.undp.org/external/mpi/Lesotho-OPHI-CountryBrief-2011.pdf>

⁶⁰ Ibid.

- production, candle making, Vaseline making and fruit and vegetable production.
25. This sub-centre has one of the largest irrigation schemes in the district, which allows some farmers to draw incomes through the production of horticultural crops. Despite such access, when interviewed for their AIP, it was noted that residents of this sub-center were more economically disadvantaged than others. The majority of residents only have one source of income which is not sufficient to provide enough daily food intake.⁶¹
26. Despite the presence of an irrigation scheme which provides additional water to residents, it is worth noting that there has been a significant decrease in rainfall between 1996 to 2011 meaning that irrigation is required to increase crop production. The opportunity for this site is that the upstream hydropower facilities maintain an environmental responsibility of sustaining the flow levels of the Hololo river at a stable level as part of mitigating the down stream impacts of the hydropower dam. Thus this farmers are assured of adequate irrigation water along the Hololo river while the issues of declining rainfall in the period 1996 to 2011 only directly affects farmers who are further afield from the river or are not part of the irrigation scheme. However, the cost of pumping the water to meet the high evapotranspirative demands of the irrigated crops is prohibitive and requires farmers to consider irrigation and pumping alternatives that are more climate change adaptive.
27. Although vegetable production did increase when the irrigation scheme were established, drought intensity between 2000 and 2010 led to lower yields, as well as livestock diseases and theft in the greater community. Crop production became expensive as most farmers had to rely solely on tractors for production purposes, and grazing lands deteriorated at an alarming rate as herders ignorantly burned pastures thinking they were improving them resulting in reduced quality of wool and mohair. Drought is an ongoing problem that the community identified in its agricultural investment plan which has led to low production, low income and overall poverty.⁶²

Leribe

28. According to 2011 estimates, 16.3 percent of the national population lives in the district of Leribe. The incidence of poverty in the district is 32.6 percent.⁶³
29. This project will be carried out through the Tsikoane sub-center of the Hlotse Resource Centre within the Leribe district. The key economic activities in this area are poultry keeping, piggery production, raising sheep and goats, crop production—mostly maize and wheat, vegetable production and forest seedling and fruit trees production.

⁶¹ Rasekila AIP

⁶² Ibid.

⁶³ Country Briefing: Lesotho. Oxford Poverty and Human Development Initiative, December 2011. Online at: <http://hdr.undp.org/external/mpi/Lesotho-OPHI-CountryBrief-2011.pdf>

30. The source of income for the Tsikoane community is largely from cash crops, home brewing, casual labour, factory work and pensions. The livestock sub-sector is based on the husbandry of diverse species of animals including cattle, sheep, goats, poultry, pigs and equines. Through the sale of live animals and products like wool and mohair, livestock play a significant role in the economy of the Tsikoane community. In some cases, schools also produce agricultural products such as eggs and sell.⁶⁴
31. The production of both livestock and crops has declined in Leribe district and Tsikoane sub centres in particular. The expensive agriculture inputs and soil erosion contributed to low yields in recent years. This has led to food insecurity of the households.

Mafeteng

32. According to 2011 estimates, 9.4 percent of the national population lives in the district of Mafeteng where the incidence of poverty is 33 percent.⁶⁵
33. In terms of climate change, Mafeteng is the most vulnerable of all the selected districts due to its aridity. The site this project will be working in receives slightly higher than average rainfall (800mm per annum) compared to the rest of the district, but the rainfall is variable and does not coincide with traditional cropping and planting schedules. Farmers have thus not been able to optimise their production given climate and rainfall variability.
34. In Mafeteng, this project will be carried out through the Ha Seeiso sub-centre of the Matelile Resource Centre, which lies in the North-East foothills of Mafeteng district. The population size of Ha Seeiso sub-centre is estimated at 17,867 people. The average house-hold size in Matelile is around 4-5 people.
35. The main sources of income within the community are informal businesses such as home brewed beer, fruits, as well as seasonal income generating activities such as broilers (chicken) and vegetable production. Since the significant decrease of mining opportunities in South Africa, the community has become more involved in subsistence farming activities as the main sources of income.
36. These subsistence farming activities include: dairy production, layers and broiler production, dual purpose chicken production, nursery development, fruits and vegetable production, piggery, fishery, wool and mohair production, cottage industry and forest plantation.
37. Other livelihood coping mechanisms are famine relief programs, old aged pensions, and incentive packages from World Vision to orphans. The average monthly income is estimated to be M500.00 per household.⁶⁶

⁶⁴ Tsikoane Agriculture Investment Plan, July 2012

⁶⁵ Country Briefing: Lesotho. Oxford Poverty and Human Development Initiative, December 2011. Online at: <http://hdr.undp.org/external/mpi/Lesotho-OPHI-CountryBrief-2011.pdf>

⁶⁶ Ha Seeiso AIP, July 2012

38. The communities served by this Resource Center would greatly benefit from adaptation technologies and guidance, as a greater number of people are engaging in agricultural activities to offset the loss of employment in South African mines.

Gender⁶⁷ – Background

39. Women fare well in Lesotho on some development indicators such as education and wage parity, yet there remain some systemic barriers to gender equality. Households led by women that have been divorced, widowed or abandoned by husbands, tend to have the highest incidence of poverty. On the other hand, women-led households where husbands are migrants for wage employment tend to be better off. Overall, Lesotho is unique in that more than half of the households in Lesotho are headed by women.⁶⁸ However, this trend is changing due to decreasing employment opportunities for Lesotho men in South Africa.
40. In the agriculture sector, traditionally women control piggery, poultry, fruits and vegetable production. Men dominate the cattle industry and are involved in agriculture mainly for clearing land and ploughing. Although women are also involved with sheep and goats, men generally control these activities.
41. The government has undertaken a series of progressive reforms to address some of the challenges which has improved the status of women in society but has not eliminated all the challenges. Due to political and bureaucratic will, Lesotho has a policy context that is favourable to making progress in favour of gender equality.
42. For instance, the Legal Capacity of Married Persons Act (LCMPA) of 2006 repealed many of the acts which limited women's equal participation in society. This Act makes it possible for women to autonomously purchase property, obtain medical insurance or apply for a loan without the permission of their spouse. The Gender and Development Policy of 2003 recognized the need for gender equality, as well as a rights-based approach to achieve economic and social development. The Child's Protection and Welfare Act of 2011 repealed both the civil and customary law regarding the age at which an individual can be married. The marriage of individuals under the age of 18 is not recognized as a valid marriage by the state.⁶⁹ This law helps protect against child marriages.
43. Meanwhile, the Penal Code Bill which codifies criminal offenses has been amended to broaden the definition of assault to include violence between

⁶⁷ Gender refers to "culturally based expectations of the roles and behaviours of women and men. The term distinguishes the socially constructed from the biologically determined aspects of being female and male. Unlike the biology of sex, gender roles, behaviours and the relations between women and men are dynamic. They can change over time and vary widely within and across a culture, even if aspects of these roles originated in the biological differences between the sexes". IFAD, 2012

⁶⁸ Enabling Poor Rural People to Overcome Poverty in Lesotho. IFAD

⁶⁹ Kingdom of Lesotho Introductory Statement During the Presentation of the Initial, Second, Third, and Fourth Combined Report on the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), Presented by Hon. Mpeo Mahase-Moiloa, October 2011 online at:
http://www2.ohchr.org/english/bodies/cedaw/docs/statements/Statement_Lesotho50.pdf

- spouses. The Sexual Offences Act has also increased protection of married women by considering that rape may also occur within a marriage.
44. One of the most significant steps towards gender equality is the reformation of land laws. In June 2010, the Government of Lesotho enacted the Land Act which repealed the Land Act of 1979 that discriminated against women and land ownership. The new Act ensures equal title for both genders and introduces leasehold in rural areas allowing women's access to credit using land as collateral.⁷⁰
 45. Despite the political will and policy climate there have been challenges in integrating some of these laws into local practices and part of this is linked to Lesotho's dual legal system consisting of Common and Customary Law. Lesotho's Customary Law has developed over generations and derives its force from traditional norms and cultural practices which have shaped the Basotho culture and people. Some changes to customary law can be challenging particularly as people are instilled with many of the norms enshrined in customary law.⁷¹ One of the specific challenges, for instance, is that the patrilineal system was formalised within customary law, with a woman classified as a minor for her life.
 46. Part of the ongoing work by the government is on sensitizing local communities on the changes regarding gender equality made at the legal and policy level, and how these impact people on the ground. It could take a long time for change to occur at the level of "hearts and minds" particularly if particular norms are deeply engrained, however the legislative and political climate makes the Lesotho context favorable for achieving greater gains for women. These challenges however, demonstrate the gap between *de jure* and *de facto* approaches for achieving women's empowerment and gender equality.
 47. Another issue that poses a challenge to women's equality is the changing role of women's role. Historically, Lesotho women have dominated households and village life, in part due to men working in South Africa, while women reside in the homestead. Economic and cultural changes however are going to challenge this existence. Many men are now returning from South African mines after years of working abroad. The mass return of men will undoubtedly have social outcomes, particularly as women have dominated households during men's absences.
 48. Domestic abuse and gender-based violence is also an issue of concern and has been increasing⁷². Due to its private nature it can go undocumented, and irrespective of legislative changes can impede women's full participation in society. To address this issue, the government has conducted capacity building sessions for Child and Gender Protection Unit officers, the judiciary, magistrates, prosecutors, chiefs and traditional and religious leaders on how

⁷⁰ Ibid.

⁷¹ Ibid.

⁷² Ibid.

to manage such cases⁷³. The hopes are that increased awareness of these bodies will increase reporting on cases. However, the very norms, and socio-economic conditions that allow gender-based violence to occur are difficult to overturn and require long-term efforts and sensitization campaigns.

49. This issue is also being addressed at the legislative level in the process that is undertaken to develop domestic abuse legislation. The process is a participatory one to develop a comprehensive definition of the types of domestic abuse and to address women and girls at different levels of society.
50. On the political level, women are active in the public and political sectors. There has been an increase of female representation in Cabinet to 39 percent. Assistant Ministers make up 67 percent of the total while 46.2 percent of the Principal Secretaries are women.
51. The increase of women's participation as well as pro-gender equality legislative tools have resulted in Lesotho topping the Gender Gap Index in 2010. Lesotho was identified as the 1st in Sub-Saharan Africa and 8th in the world for closing the Gender Gap by 76.8 percent.⁷⁴

Women, Climate Change & the Proposed Project

52. Women have a unique relationship with natural resources which render them more vulnerable to climate change. They are responsible for the food security of families⁷⁵ through food collection, crop production and weeding /hand hoeing and meal preparation. One of Lesotho's unique features is women's dominance in piggery and poultry farming, and this role creates an added vulnerability to climate change, due to their economic dependence on these industries. With responsibilities within the household, such as child-rearing, domestic management and meal preparation, women often work longer hours and any added challenges such as those imposed by climate change, will increase their vulnerability and workload.
53. The use and control of natural resources has numerous social and political implications. Gender relationships are impacted by the control and use of such resources, and are thus affected by climate variability and its impacts. Although climate change impacts everyone, women and men play diverse roles in the management of natural resources in Lesotho, as in other countries, and these relationships can be affected differently by climate change. Often times, gender relationships are shaped by the labour that men and women engage in, which climate change impacts will also influence. For instance, women at the community level are responsible for summoning household water, and thus will be impacted by changes in accessibility to water resources. Men in Lesotho on the other hand are responsible for cattle raising and grazing, and will be impacted by any variables that influence livestock health, land erosion and pests due to increasing temperatures.

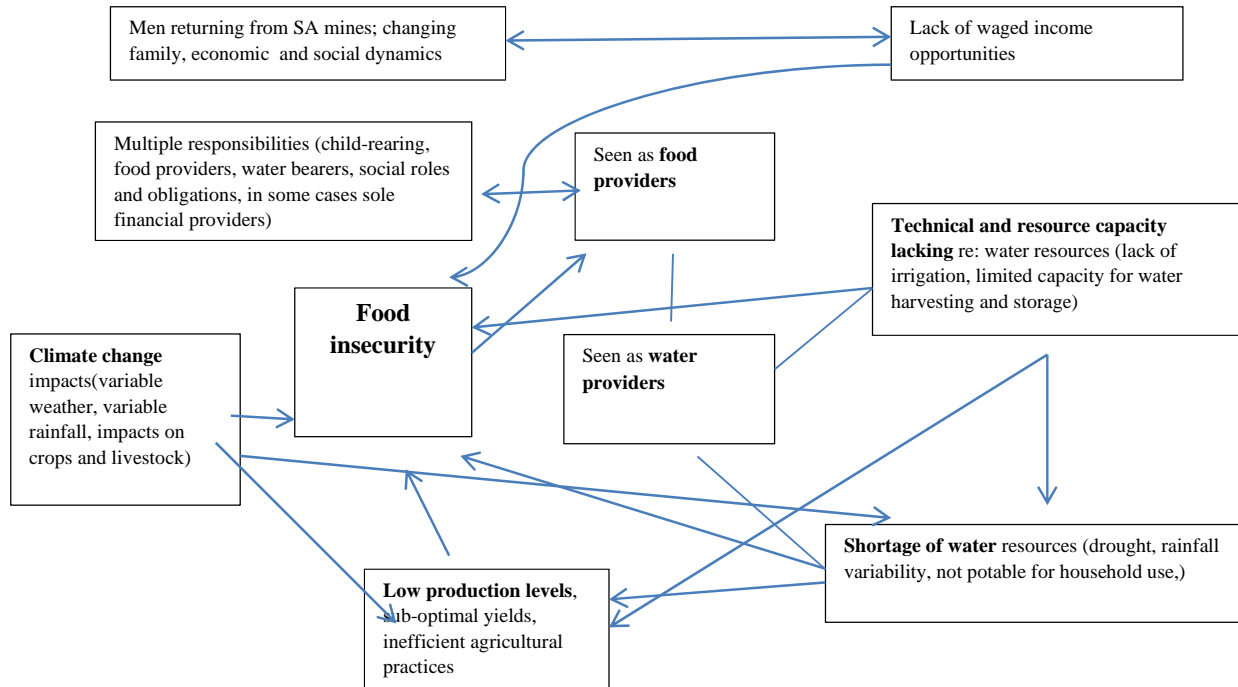
⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ Based on community meetings in Botha Bothe and Berea; also commonly a gender specific task

54. Some of the negative impacts of climate change on women include:
- Increased shortages of basic resources, such as food, water, and fuel
 - Increased labour, efforts and financial resources to meet production needs
 - Overuse of existing resources which will lead to environmental degradation and the worsening of the poverty vicious cycle
 - Ecological, security and social vulnerability due to natural disasters
 - Strained gender relationships due to financial and social hardships
 - Increase in epidemics, health-related issues due to changing climate
55. Despite the challenges that climate change can impose on women, women can also be active agents of change in adaptation. Leadership of women in adaptation initiatives such as those introduced by this project, is key in ensuring the sustainability of adaptive practices. It has been determined that the capacity of a social group to adapt is based on the access that these groups have to assets. Resources such as access to land, water, technical capacity, education, health and food security all play a role in women's ability to implement adaptation strategies.
56. The project will build upon the assets that women currently have (education, indigenous knowledge, community relationships), and foster other kinds of resources such as technical capacity and access to relevant agricultural advisories so as to enhance adaptive capacity.
57. Some of the observable challenges that were noted in the community meetings held during the inception mission can be summarized by the following mind map (see questionnaire and responses in the annex):

Factors That Disadvantage Women



Proposed project

58. As this project is pegged to the SADP project, the same gender considerations will apply. Women are anticipated to be one of the key beneficiaries of this project. Special measures will be taken to ensure their inclusion and active participation. Some of these measures include: (i) disaggregated gender indicators to ensure female participation; (ii) the targeting of agricultural practices that are beneficial for women; and (iii) service delivery mechanisms that are used by women. For instance, this project will offer equal access to opportunities and encourage equal participation by women in project activities. It will also be located in sites selected by the SADP where women beneficiaries have been identified, and will focus on agricultural activities that women typically participate in.
59. At the level of extension staff, government institutions and outreach officers, as climate change adaptation capacity building occurs, the nexus between women and climate change will be highlighted so as to sensitize those that interact at the local level on the implications for women. The District Gender Officer at the government level will be sensitized on climate change issues.
60. Under **Component 1 - Reduced vulnerability of agricultural production**, women will benefit from the measures designed to achieve a better understanding of climate vulnerabilities, adaptation and mitigating strategies among small producers, particularly in the area of women-dominated sectors such as piggery, poultry and vegetable production. Women's knowledge of adaptation measures will also be enhanced through the basic, local language fact sheets on the impacts of climate change on the various production value

chains (e.g. pig farming, field and/or horticultural crops , both indigenous and exotic poultry, and other short cycle livestock enterprises), which will be produced under this component. Trainings and other capacity building exercises will be arranged at timings most conducive to women's schedules so as not to worsen work burden.

61. The women beneficiaries of the AIP process will also benefit through this component, as a key part of this intervention will be to broaden the set of potential investments supported by an AIP to include community-based resilience investments. Examples include:
 - Protected agriculture (e.g. greenhouses)
 - Conservation agriculture, keyhole gardens, permaculture
 - Drip irrigation, water harvesting or water use efficiency measures
 - Procurement of resilient varieties of crop and livestock
62. Women producers have identified the aforementioned interventions, particularly irrigation, as desirable activities. As the AIPs are determined through a consultative learning process, women's concerns and goals will be addressed by the selected investment. The knowledge on how to manage these investments would also enhance women beneficiaries' capacities to adapt their activities to long-term climate variability.
63. Women beneficiaries and applicants for the Competitive Grants Scheme would also benefit from enhanced funding to available to producers when selecting production assets and technologies, to ensure that these are resilient. This would include the additional costs of procuring resilient species of crop and livestock, improved building or infrastructure design to account for extreme weather, alternative sources of energy (such as biogas digesters) for production ventures.
64. Under **Component 2: Enhanced adaptive capacity to support agricultural production in the context of climate change**, women beneficiaries would also benefit from the strengthening of agro-meteorology capacity in the country. With the current lack of reliable climate data, it is difficult to plan production and consumption. Women's cultural role as water bearers and food providers and preparers will be positively impacted if they can plan for upcoming climate and the steps they need to take to protect their food production and security. For instance, planting schedules may be changed if more information is known about rainfall. Similarly, food can be rationed or consumed at a different pace if it is known that there is greater likelihood of drought or windstorm in the short term.
65. Training of Resource Center extension staff, on interpreting climate information, managing climate risks, and adapting agricultural advice to climate conditions, would be extremely beneficial to women producing at the local level. Production-relevant advice would help improve yields, enhance food security and allow for more informed decision-making.

66. The field testing plots in each district to provide testing of the most promising agricultural practices under current and future variability, will also provide data on crop behaviour and management options which will be beneficial to all, including women beneficiaries. On-farm demonstrations of the productive benefits of any recommended change for resilience purposes to farmers, as well as the baseline crop and livestock performance data, and testing of alternative crops (in addition to staple food crops) in varied climate conditions will all provide a greater knowledge base for long-term production planning. As women have traditionally played a dominant role in on-farm activities, they are likely to participate actively in these learning opportunities.

Youth Targeting

67. Unemployment and landlessness are high among the youth which leads to social and economic problems. It is estimated that 15.3 percent of the youth (25-29 age bracket) are unemployed, and the small size of the private sector cannot accommodate those youth that have not been employed by the public sector.⁷⁶
68. Unemployment is also exacerbated by the shortage of mining jobs available to Lesotho men in South Africa. While this means that more youth are taking part in agricultural activities, agricultural resources tend to remain in the hands of the older generation for longer periods.⁷⁷ Entry into farming is delayed, particularly for young men, as they struggle to gather economic assets and resources.
69. The relevance of this and the SADP project thus becomes even more significant as it opens up an avenue for employment and commercialisation of activities. As this project is pegged to the SADP, it will benefit those youth that are engaged with the AIPs and Commercial Grants in particular.
70. As agriculture has not been a reliable source of income, many youth prefer to seek waged income rather than pursue agricultural activities. This project can generate new knowledge, information, and data about adaptive agricultural practices that can stand the test of time and climate, which will render it more attractive to youth wanting to participate but fearing potential losses due to climate. The sustainability aspect of this project will be of particular interest and benefit to the youth that may wish to learn new ways of doing things.
71. The capacity building generated from components 1 & 2 can help inform and engage a new generation of farmers and producers. In particular, the test plots that will test crops in different climates and with different seedlings and crops, will yield to important information as to which crops can be optimised in particular climate scenarios.

⁷⁶ African Development Bank. *African Economic Outlook 2012: Lesotho*. Online at: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Lesotho%20Full%20PDF%20Country%20Note.pdf>. Accessed on December 8, 2012

⁷⁷ SADP Project Appraisal Document, page 86

72. As this project will be implemented both at the individual producer level (through Commercial Grants) and at the community level (through AIPs), the learning gleaned from this project will benefit the youth in the community at large.
73. Further, the strengthening of climate change knowledge of district level officers, extension staff and front line workers, will help support and provide guidance to youth engaging in agricultural activities. The climate relevant production advisories will support decision-making for new farmers.

Appendix 3: Country performance and lessons learned

1. Lessons learned from earlier projects such as APCBP, SADPMA and SANReMP including the SADP underscore the need to avoid an overly complex project design and the desirability of having simple and clear implementation mechanisms. Of all these project experiences, the SADP provides crucial design features upon which the LASAP will template. Specifically, SADP is supporting participatory processes that are inherently complex but that focus on only two main themes: (a) strengthening the ability of agri-business enterprises to respond to market demand, and (b) facilitating market-driven production at the farm level. Its strategic design feature is to catalyze semi-commercial and commercial enterprising while promoting synergies among project-supported activities and building links to other initiatives with similar objectives to strengthen business development and financial services to benefit small enterprises. LASAP will strategically insert into these SADP mechanisms a climate change sensitive ethic which is meant to foster climate change resilience into the investment designs while leaving the rest of the protocols under supervision of SADP. This will reduce transaction costs for the Government and allow pooling of resource from both projects to address the critical investment and climate change resilience simultaneously. This feature is an improvement over the earlier SADP approach which did not take climate change vulnerabilities into account.
2. Climate change and associated hazards will affect many components of human security and will inhibit sustainable development in the areas of politics, natural and built environments, livelihoods, food security, individual and public health, personal security, community sustainability and culture. The National Strategic Development Planning processes in Lesotho have embraced climate change resilience as a critical component of all development plans and investment structures. Our design and formulation process has taken cognizance how SADP in particular was informed by discussions with in-country stakeholders and experiences of earlier projects such as SADPMA and SANReMP.
3. First, we acknowledge that to build public confidence that smallholder agriculture in Lesotho can be an important engine of growth and poverty reduction, there is a need to achieve some “quick wins” that are demonstrably replicable. Second, we appreciate that for SADP supported activities to have maximum impacts, it was critical to focus on beneficiaries who are highly motivated and view farming as business and a primary livelihood source. LASAP concurs with these notions but seeks to climate proof the investments by building into them climate change resilience considerations which if not taken into account could bring all these innovative efforts to naught. This is the spirit encapsulated in the national strategic development plan on matters of climate change proof development and investment planning across the various sectors of our economy with emphasis to agriculture.
4. There is another dimension to the initial targeting considerations of SADP on the so called highly motivated and business like farmers. The brand of

climate change impacts is felt not by this group targeted by SADP but those who cannot afford any coping or adaptive mechanisms and are reliant on commons resources that require collective investment of the community. This group is facing increasing uncertainty in climate patterns in recent years punctuated by frequent crop failures and losses as rainfall comes late or ends prematurely while crops are still in need of water. They face difficulties in determining suitable planting calendars and appropriate crop varieties. This group is completely dependent on anticipated patterns of rainy seasons to plan farming strategies. LASAP seeks to complement SADP by addressing this gap in development response to prioritized needs of agricultural development in Lesotho. It will seek to demonstrate the value of climate resilient agricultural practices as a means to foster participatory local adaptation to climate change that is focused on people's vulnerability, livelihood, coping and adaptive capacity. However, there are significant challenges in using this approach. It is resource intensive, and yet for meaningful results it needs to be applied in a large number of communities. And there are issues about how to ensure that information can be scaled-up and used to ensure that policies and activities that impede adaptation are removed while those that promote it are supported. The LASAP will explore complementary strategies to SADP in addressing these emerging gaps.

5. Climate change is a reality and its impacts are felt daily by communities in Lesotho. It is also crucial for communities to adapt to climate change. Adaptation in this context is defined as 'actions taken to help communities and ecosystems cope with changing climate conditions'. This is not a new concept even in Lesotho because over time, human beings and ecosystems have adapted to different environments and conditions. The current challenge lies in keeping up with the rapidly increasing need for adaptation measures as a consequence of climate change, ensuring that adaptation is considered in political and economic decision-making and is translated into action. It is for these reason, that the collective wisdom of our consultations with stakeholders, drawing from experiences and lessons from earlier initiatives, it was resolved that LASAP should open a window of opportunity for community and poorer households in addition to the select group targeted by LASAP.
6. We recognize how SADP has built on experiences on predecessor projects in matters of community planning processes. The APCBP and SADPMA projects, planning processes at the local level and the terminal report for SADPMA, considered the introduction of Community Action Plans and the initiation of a grassroots planning process as one of the lasting achievement of the project. SADP has adopted a modified version of these community engagement experiences as a means to identify and finance investments at the community level. LASAP will use the same SADP structures to deliver the climate change resilience programme in both the AIPs and the greater community and household adaption initiatives to be supported under the LASAP.
7. Global experience shows that effective agricultural advisory systems can be important catalysts for introducing new practices and improving small farm

productivity. SADP recognized this risk and set out to strengthen the national extension service by supporting training and capacity building activities. ASAO is also dedicating resources for capacity building of extension services at national, district and Resource Center levels respectively in matter of climate change adaptation, vulnerability and resilience including agro-meteorological extension services. In a similar vein, SADP and other predecessor projects recognized the critical role non-governmental players in agricultural advisory services especially innovative initiatives delivered through NGO and Development Partnership programs rather than through the government system. During our consultative overlaps and complementary initiatives were recognized. This project will support current SADP initiatives to assist the government to develop innovation partnerships by providing support to partner with locally-based NGOs in the provision of agricultural advisory services.

8. Earlier projects have provided important lessons about the institutional arrangements that need to be put in place in order for donor-funded projects such as SADP to be implemented successfully. For example, the Programme Coordination and Management Unit (PCMU) of SANReMP was staffed with a competitively recruited project coordinator, M&E officer, procurement officer, and programme accountant, but no technical specialists or component managers. The PCMU was responsible for coordinating program activities and facilitating procurement of goods and services in support of the relevant Ministry departments and districts. While the PCMU performed these functions reasonably well, the fact that it lacked technical specialists and component managers posed a severe challenge, because it was forced to rely heavily on Ministry departments and district officers to ensure proper supervision of contracted service providers, and that led to implementation delays in a number of cases. To avoid a similar problem, the SADP PMU is currently staffed with both administrative and fiduciary staff as well as with technical specialists and field officers posted at the district level and responsible for backstopping the implementers at field level, in collaboration with the Ministry department heads and district technical officers. The LASAP will provide resources for deployment of additional technical staff to complement the SADP team and focusing specifically on climate change aspects.

Appendix 4: Detailed project description

1. The Goal of the SADP is to reduce rural poverty and enhance rural economic growth on a sustainable basis. The goal of the GEF-LDCF intervention is the same, considering that climate resilience is an integral part of sustainability. In order to achieve this goal, the objective of the LDCF intervention is to increase the resilience of small scale agriculture to climate change impacts by promoting climate-proofed investments for agriculture-based development, as well as by enhancing the resilience of agricultural productivity under increased climate variability.
2. Activities in this project are delineated into 3 Components, with activities closely tied into the SADP activities and project management structures. The GEF-funded investments are to be delivered in the same districts, among the same beneficiaries as the SADP, using the same mechanisms, through SADP AIP and CG planning cycles, by blending funds. Other technical assistance activities are to be delivered by the Ministry of Agriculture as lead executing agency, in partnership with the Lesotho Meteorological Service.
3. **Component 1- Reduced Vulnerability of Agricultural Production**, is framed as an add-on to the SADP's sub-components 1.1 (*"Promotion of Innovative Agri-Business Initiatives"*) and 2.1 (*"Increasing Market-oriented Smallholder Production"*).
4. The first activity under this component will be to provide some training for the SADP Project Field Officers and the prospective LASAP Adaptation Advisors on climate change, resilience and risk management in the agricultural sector, in order to enable them to integrate issues of resilience within the Competitive Grants and AIP planning processes. Upon demand, this training could also be opened up to other government stakeholders who express an interest in general climate change training.
5. The second activity will be the production of local language technical guidance materials that will include fact sheets, leaflets or other information packets in local language. These products will be focused on how to address climate change issues in each of the main production sectors targeted by the SADP: small stock, livestock, maize and other crop production, vegetable gardening, or piggery. These will be made broadly available by the SADP and LASAP staff throughout the project at all possible events.
6. As a third activity, the LASAP staff will undertake a retroactive analysis of the AIPs already developed in order to determine any opportunities for integrating adaptation and resilience in the ongoing investments. This activity is necessary due to the time-lag between the start of the two projects: by the time LASAP becomes operational, an estimated 60 AIPs will have been planned, 30 of which would be undergoing implementation. Although the Technical Paper on Mainstreaming Adaptation into SADP Operations provided some early guidance

- on climate change, it is likely that in the absence of funds, some resilience-building activities did not get included into AIPs. Recommendations on adjustments to existing or proposed investments will be made through the AIP, Grant and Technology forums.
7. In support to this activity, the SADP and LASAP staff will undertake joint community outreach among the existing AIP beneficiaries in order to familiarize and raise awareness of climate change issues in the various production chains. This will include AIP teams, district agricultural offices, service providers, NGOs and other stakeholders.
 8. Add-on resilience investments will be channelled through the AIPs and CGs using the modified application forms, evaluation forms and criteria as proposed in the Technical Paper. LASAP staff will participate actively in the process of consultation, AIP development, Grant evaluation and implementation in order to support the emergence of resilience activities within each of these elements.
 9. LDCF Funds will be pooled with IFAD-channelled resources and used in accordance with the budget developed for the LASAP portion of the project. Upon approval of a resilience investment, whether through an AIP or through a Grant, a record of decision should be made, indicating the investment and the additional amount leveraged from LDCF resources. These amounts will be tracked separately for accountability to the GEF.
 10. **Component 2 - Enhanced Capacity to support agricultural production** in the context of climate change is framed as a Technical Assistance component, in support of SADP Component 2.2 and also containing stand-alone adaptation capacity building activities.
 11. A first set of activities under this component will be the deployment of in-service training for the Lesotho Meteorological Service (LMS) on climate modelling and downscaling climate models. The purpose of this training will be to support the downscaling of national or regional climate models to a scale usable by the districts targeted by the project. In support of this activity, which will be delivered in the second year of the project, a set of up to 4 automated agro-climate stations will be purchased by the project for installation and operation by the LMS.
 12. These stations will be placed in areas where they can be monitored and accessed by LMS and/or MAFS staff, such as District Agriculture Offices, Resource Centers or Sub-resource centers. Data on climate, rainfall, and agrological parameters will be transmitted directly to the LMS, and will be shared free of charge on a weekly basis with the MAFS department of research and resource centers to support ongoing planning and research activities. If necessary, a database with shared online access should be set-up. The LASAP and LMS will develop a MOU at the start of the project, including the conditions of purchase, obligations of each party and monitoring arrangements

- for the LASAP regarding data flows. At the end of the project, the stations will remain the property of the LMS.
13. The project will also support joint LMS-MAFS training and work towards the delivery of production systems outlooks for 2030, 2050 and 2100. Production systems outlooks consist in whole-sector or sub-sector scenarios that will be based on climate change. These scenarios are intended to inform long-term planning for the MAFS. This work will be supported by joint training and consultancies.
 14. In order to ensure that the extension service has the appropriate capacity to understand and translate climate information into production advice, a programme for the training of trainers will be deployed at district level. This programme will focus on extension officers at resource center level and will provide MAFS staff with the capacity to understand climate change and variability, undertake climate risk management, promote resilience and avoid maladaptations in the agricultural sector, as well as deliver agro-meteorological services to local users.
 15. Once trained, the resource center staff will be expected to further train the sub-resource center staff in similar subjects. LDCF resources will be provided to support the costs of meetings at sub-center level, as well as for targeted awareness raising workshops and seminars at various levels.
 16. Another activity under this component will consist in establishing, in each district, a number of on-farm and on-station research fields to test crop performance under various climate and management conditions, demonstrate livestock performance under various management options, and test emerging niche products for which yield information under local conditions is not yet available. This activity will be managed by the MAFS Directorate of Research in cooperation with the resource centers and extensions services, and with ongoing assistance from the LDCF Adaptation Advisors.
 17. The project will support the acquisition of non-expandable materials for the installation of the research stations and for the performance of required laboratory functions, such as: a germination chamber to test and certify local varieties, field scales, irrigation equipment, microscope and ph meter, computers and software for the statistical analysis of climate-yield correlations. The project will also support the purchase of expandable materials for the on-station and on-farm research plots, such as seeds and saplings, fertilizers and agrochemicals, laboratory consumables, feed and drugs for livestock and small field equipment. Labour and operations will be provided by the resource centers and the farmers as per their regular practices. The project will also support the publication of research materials, and outreach events for local producers and NGOs.
 18. In support of the long-term establishment of a solid agro-meteorology function within the Government of Lesotho, the project will provide scholarships (tuition

and living expenses) for 3 to 4 students to complete a MSc in Agrometeorology in a University in the region. The sponsored students will be selected from within the public service, with at least 1 from LMS and 1 from MAFS. Tuition and other school fees will be paid directly by the project, whereas students will receive regular stipends to cover living expenses. During the duration of their studies, students will be expected to undertake research relevant to the project (SADP or LASAP) and to report back regularly to the LASAP coordination. Each student will sign a performance agreement at the beginning of the program, and will be required to guarantee a minimum of 2 years of service in country after completion of the study programme, lest the scholarship be reimbursed to the project.

19. During this period, MAFS and LMS will both ensure that the institutional conditions to receive the new graduates are in place. This will include formalizing a permanent budgeted position within the government. The provisional terms of reference for the position of agro-meteorologist within the MAFS are provided in Appendix 15.
20. Following their instatement, the project will support the delivery of joint LMS-MAFS short in-service training on the delivery of agrometeorological functions, as well as regular LMS-MAFS joint meetings on agrometeorology. This will support the establishment of the function in the transitional period.
21. **Component 3 – Project Management.** In line with GEF requirements, this component is limited to less than 5% of the LDCF Grant. The LASAP staff who will be supported by the LDCF Grant will be required to dedicate 20% of their time to project management, monitoring and evaluation, while the remaining 80% will consist in Technical Assistance. This arrangement will therefore ease any additional burden placed on the SADP staff and PMU, while providing technical advice at all steps of the SADP process.
22. LASAP staff will be embedded in the PMU and will be accountable to the SADP Project Manager. LASAP Staff will be recruited and appointed according to the rules currently governing SADP appointments, using similar salary scales and selection panels. For the purposes of this project, the selection panel for the LASAP Coordinator should include at least 1 LMS representative. (see Appendix 5 for additional information)
23. Office space and overhead costs will be covered by the SADP at central level, and district Adaptation Advisors will be housed alongside SADP PFOs. The LDCF grant will cover the additional costs of local travel for LASAP staff, travel for international consultants required to deliver specific LASAP outputs. These costs have been integrated within the various Technical Assistance and Investment components.

Appendix 5: Institutional aspects and implementation arrangements

I. Project institutional and implementation arrangements

A. Project administration mechanisms

1. The SADP focuses on commercial/business orientation amongst the implementers, cuts across a number of ministerial responsibilities, and will involve various other partners and service providers, the private sector and NGOs. In addition to this, the LASAP intervention will bring on board additional stakeholders, chiefly the LMS and the academic institutions.

In order to avoid creating undue burden, while maintaining a close anchoring between SADP and LASAP, it was decided to embed the LDCF project management within the SADP project management and delivery arrangements. In addition to these ongoing arrangements, the following measures are foreseen:

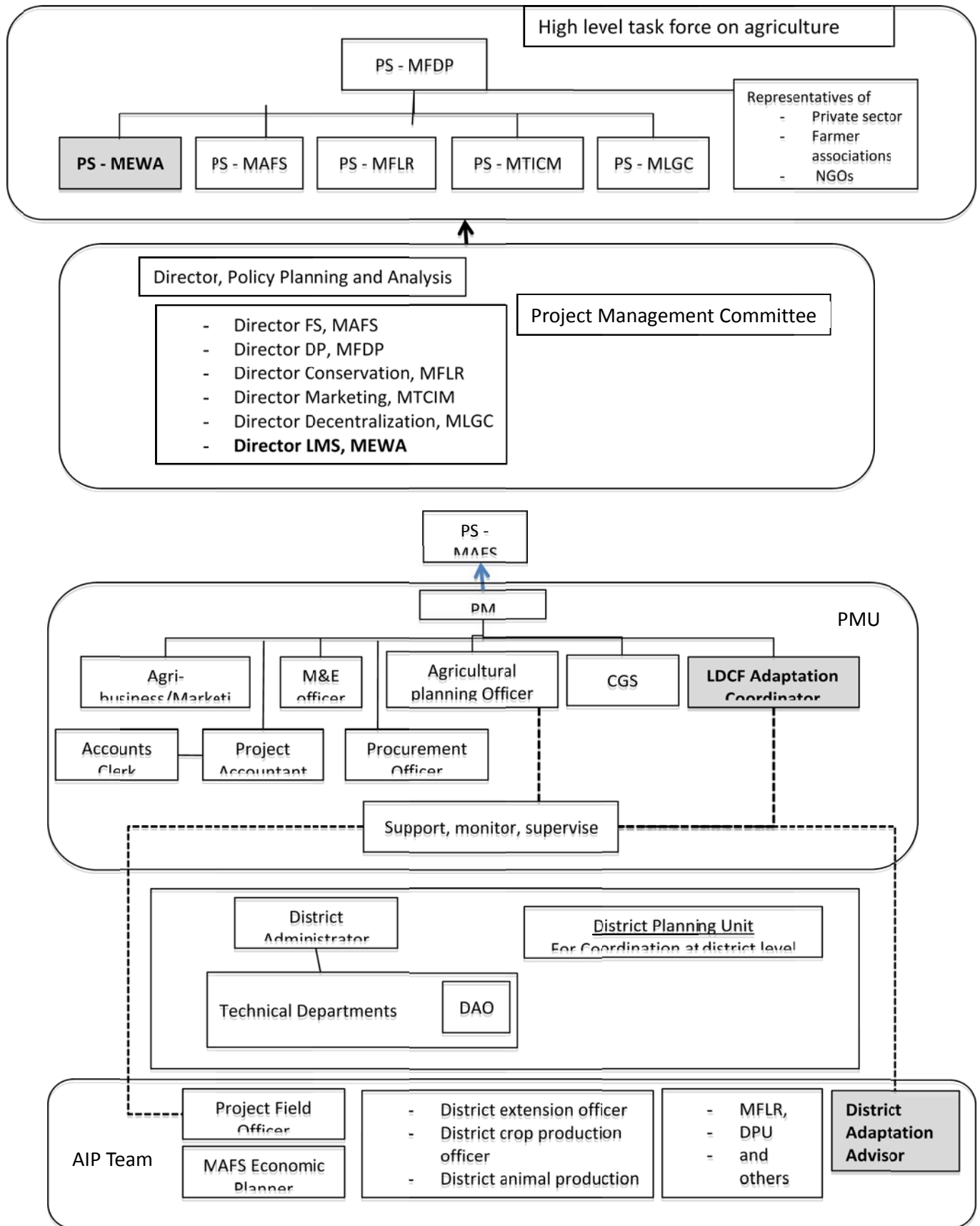
- (a) The participation of LMS in the PMC as focal point for climate change issues in Lesotho.
 - (b) Financial management of LASAP will be entrusted to the SADP PMU in accordance with ongoing procedures.
 - (c) Integration of project monitoring and evaluation, knowledge management and learning for both projects under the same structure, with the LDCF funds providing the opportunity for recruiting additional consultancies when needed.
2. The arrangements are summarized in the Organizational Chart below.
3. ***Project Management and Coordination.*** A Project Management Unit (PMU) has been established for SADP, housed in the Ministry of Agriculture and Food Security (MAFS), and assigned responsibility for day-to-day project coordination and management, including planning and budgeting, procurement, financial management and monitoring and evaluation (M&E) and implementation of project activities. Specific roles and responsibilities of the PMU include: (a) ensuring timely implementation in accordance with the PIM; (b) preparing Annual Work Plans and Budgets and annual Procurement Plans; (c) overseeing Project activities under its direct responsibility and of those under the responsibility of other agencies involved in Project implementation; (d) managing Project finances; (e) maintaining consolidated Project accounts; (f) ensuring adherence to the Safeguard Documents of all agencies involved in the implementation of the Project; (g) developing and maintaining a system of monitoring the Project key performance indicators; (h) ensuring coordination among stakeholders as needed; (i) regularly updating the PMC on Project progress and key issues; and (j) reviewing and approving AIPs at the national level.

4. The PMU is staffed by a Project Manager; a Monitoring and Evaluation Officer; a (two-person) Competitive Grants Secretariat (Sub-component 1.1); an Agri-business and Marketing Officer (Sub-component 1.2); an Agriculture Investment Planning Officer (Component 2); a Procurement Officer; a Project Accountant; an Accounts Clerk; support staff (Administrative Officer, Drivers); a Monitoring and Evaluation Officer; and a Project Field Officer (PFO) in each project district responsible for coordination and monitoring of all district-level activities.
5. In addition to this team, the LDCF intervention will provide 5 additional professional posts to the PMU, 1 of which will be based in the main office in Maseru and the other four who will be based with the PFOs. These positions will be established for the duration of the project only.
6. **Project Oversight.** The PMU reports to the Principal Secretary of MAFS. A Project Management Committee (PMC) oversees and guides overall project implementation and ensure compliance with national policies, strategies and procedures. The PMC includes representatives from the ministries with responsibilities relevant to project implementation: Ministry of Finance and Development Planning (MFDP), Ministry of Agriculture and Food Security (MAFS), Ministry of Forestry and Land Reclamation (MFLR), Ministry of Trade & Industry, Cooperatives and Marketing (MTICM) and Ministry of Local Government and Chieftainship (MLGC). In order to sure appropriate coordination, the LMS will also be invited to participate in the PMC, as a key project partner as well as in their capacity as focal point to the UNFCCC.
7. The PMC reviews and comment all project reports and Annual Work Plans and Budgets (AWPB). It meets quarterly with the Project Manager acting as the Secretary to the PMC.
8. A high level Task Force was established by the Government in 2010 to broadly oversee the development of Lesotho's agricultural sector. This Task Force consists of Principal Secretaries of concerned Ministries (MFDP, MAFS, MTICM, MLGC and MFLR), and is to include private sector and farmer representatives. The PMC periodically reports to this Task Force and flags issues that require high-level decision making.

Organizational Chart Project Management and Oversight

9. Below is the SADP organizational chart as inscribed in the SADP PAD, with the LASAP staff integrated and represented in grayed or bolded areas. For ease of reproduction, the SADP organizational chart has been reproduced without modification from the SADP PAD, with the exception of the Resource Center level, which remains unchanged.

10. The overall coordination of the project at district level is carried out by the District Planning Unit (DPU) chaired by the District Administrator and including the District Agricultural Officer (DAO). The membership includes NGOs and other actors active in the district. The PFO in each district closely works with and support the DPU and the technical officers at district and community level. The LDCF supported Adaptation Advisors would work closely with the PFOs and the DPU to support the delivery and monitoring of LDCF activities and resilience-oriented awareness raising.



Appendix 6: Planning, M&E and learning and knowledge management

Planning

1. Project activities should be integrated into SADP's regular planning procedures and implementation manual. It is proposed that the LASAP coordinator complete an Annual Programme Workplan and Budget (APWB) at the beginning of every year, along with other SADP components. For LDCF-funded activities, the project team should prepare a plan of activities, expenditures and procurement of goods and services for the year. An AWPB should include the following information :
 - (a) Update on achievements:
 - (b) Projections for the upcoming fiscal year:
 - (c) Summarized presentation of planned activities by components (Table)
 - (d) Detailed presentation by components (narrative)
 - (e) Cost and financing

Monitoring and evaluation

2. Project monitoring and evaluation will be a critical tool for collecting data, monitoring activities, assessing progress and ensuring critical reflection. As this project is based on the existing SADP project, it will mostly be integrated with the SADP's monitoring and evaluation system so as not to add extensive work burden for implementing staff. Currently, the M&E Officer has the primary responsibility of monitoring progress and outcomes based on indicators provided in the project results framework. The LASAP project has added a set of indicators to the existing SADP M&E framework, measuring climate change resilience (refer to Section II). The M&E Officer will include these new indicators as part of their reporting, with the support of the LASAP staff who will be embedded in the Project Management Unit and Project Field Offices.
3. The table below indicates the project's outcome-level indicators, targets, baseline values as well as means of verification. Because many of the indicators are designed to be measured during the project's implementation, baseline values are not yet available.

Component	Outcome	Indicator	Baseline	Target	Means of Verification
Objective	to increase the resilience of small scale agriculture to climate change impacts by promoting climate-proofed investments for agriculture-based development, as well as by enhancing the resilience of agricultural productivity under increased climate variability.	# of project beneficiaries who feel they can cope with climate change and climate variability, % of which are women	TBD	at least a 50% increase in the number of people who feel they can cope with climate change and climate variability, of which at least 50% are women	Questionnaire to be administered to project beneficiaries before and after investments
1. Reduced Vulnerability of agricultural production	1. Mainstreamed adaptation in local level agricultural planning	# of beneficiaries who have access to and understand the resilience related guidance, % of which are women	0	at least 75% of AIP participants obtain and understand the resilience related guidance, and at least 50% of recipients are women	questionnaire to project beneficiaries
	2. Increased adaptive capacity of small-scale farming systems	# of beneficiaries who feel equipped to deal with climate change and variability, % of which are women	0	all AIPs and CG investments include resilience promoting investments (in NRM, at community level or production assets) and at least 30% of those are held by women	AIPs, Grant implementation reports, AIP implementation reports
2. Enhanced capacity to support agricultural production in the context of climate change	3. Increased knowledge and understanding of climate variability and climate change induced threats on agriculture	# of downscaled climate models and production system simulations produced	0	at least 1 downscaled climate model for the northern region and at least 2 production system simulation produced by LMS and MAFS at the end of the project	climate models, simulation reports, project implementation reports
		# of trained extension staff who understand and apply improved climate information at field level, % of which are women	0	at least 75% of trained extension staff can understand and translate climate information into relevant advice, and at least 30% of those are women	face-to-face consultations with extension staff at end of project
	4. Strengthened capacity of government stakeholders to reduce risks to climate-induced losses on agriculture	Degree to which agro-meteorological services are integrated into ongoing MAFS operations	0	A central Agro-meteorology function is established and the 4 pilot districts benefit from increased agro-meteorological information	Face-to-face consultations with extension staff at end of project

5. awareness and capacity of local actors	# of beneficiaries who attend and understand climate change awareness raising forums, % of which are women.	0	At least 1 monthly awareness or information session, with at least 50% women's participation	meeting reports, project documents, participants lists
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4. For the indicators that are to be measured through surveys of beneficiaries, it is expected that they will be measured through the AIP and grant planning processes (during an Action Learning Cycle, or during community consultations). The following key questions should be asked of beneficiaries during each Action Learning Cycle, at the beginning of a Technology Forum, or when meeting with potential CG Grantees. The responsibility for measuring these indicators will rest primarily with the LASAP Staff, although SADP staff may take these on if necessary:

Indicator	Question	Timeline
Objective indicator: # of project beneficiaries who feel they can cope with climate change and climate variability, % of which are women	- Do you feel that you can deal with recent changes in the climate or with future changes?	- At the start of an AIP planning process - At the end of an AIP planning process - At the end of AIP implementation
Outcome 1 - # of beneficiaries who have access to and understand the resilience related guidance, % of which are women	- Have you had access to the climate change guidance products?	- At the start of an AIP or Grant planning process - At the end of an AIP of Grant implementation process
Outcome 2 - # of beneficiaries who feel equipped to deal with climate change and variability, % of which are women	- Do you feel that you are equipped to cope with recent changes in the climate or with future changes?	- At the start of an AIP planning process - At the end of an AIP planning process - At the end of AIP implementation
Outcome 3b - # of trained extension staff who understand and apply improved climate information at field level, % of which are women	- Do you feel that you understand climate information?	- At the start of a training session - At the end of a training session - At the end of the project
Outcome 4 - Degree to which agrometeorological services are integrated into ongoing MAFS operations	- Does the Ministry provide adequate agrometeorology services? - Are you able to translate climate information into usable advice for your constituency?	- At the start of training sessions - At the end of the project

5. Regular staff visits by the dedicated staff members (Adaptation Advisors) will also ensure the adaptation-related monitoring and supervision of all grant projects funded through the Commercial Grants Program, as well as the investments supported through the AIPs. This will be undertaken in conjunction with the SADP's own monitoring and evaluation visits. This will also be

- assessed through the progress reports issued by the grant recipients and through the monitoring carried out by the SADP officers. Further, as is the current practice under the SADP, each grant project has its own monitoring and evaluation arrangements, milestones and performance indicators to be measured against. As per the proposed modifications to the Operational Manuals included in the Technical paper (Working Paper 1), these evaluation arrangements will also include some analysis of progress in achieving resilience. AIP teams, Commercial Grants Officers and other SADP staff will be capacitated with climate change adaptation training and information so that he/she can be better equipped to support the M&E Officer as well as the LASAP staff persons to assess the performance of “resilience investments”.
6. The AIPs are monitored with the support of the PMU Agricultural Investment Planning Officer and district-level PFOs with the M&E officer. Site visits under the AIPs are conducted at least every six months, and it is anticipated that investments under the LASAP will be monitored accordingly. Participating sub-centers will be required to provide periodic technical and financial reports in accordance with the agreed reporting schedule. They will also provide a completion report and these activities will be supported by the PFOs. The PFOs will have received climate adaptation training and will be equipped to support the assessment of community activities relative to their AIP goals.
 7. Gender-disaggregated indicators have been developed (refer to Section II) to help assess the level of inclusion of women in this project as well as to promote gender mainstreaming. Gender disaggregated indicators will help identify whether progress has been in targeting women beneficiaries and promoting gender equity.
 8. An additional component of M&E which is not covered by the SADP will have to be carried out: the Global Environment Facility (GEF) requires an annual Project Implementation Report and this will have to be produced yearly in June-July to facilitate IFAD’s own reporting to the GEF on finances spent and goals achieved. This report will be developed by the LDCF coordinator and the adaptation officers. A template, in line with GEF requirements, is provided in Appendix 14.
 9. A mid-term evaluation of the LDCF project is planned for the end of the second year of implementation. This mid-term evaluation will focus on results achieved thus far and determine lessons learned with a few of providing recommendation for achieving better results. The mid-term evaluation will also include a strong social component in assessing the impacts of the projects. Face-to-face consultations will be held with extension staff to assess the lessons being generated, the barriers and challenges being faced by the beneficiaries in conducting resilient agricultural activities and for evaluating gender inclusion in the first half of project implementation. It will also be useful to examine at this juncture the role and participation of men, whether it is increasing (as more men return to Lesotho from South Africa), whether agriculture provides an entry

point for their participation, and whether an influx of men in the sector has any impacts on the gender dynamics. The mid-term evaluation will thus also assess the social angles relative to resilient agricultural practices by smallholders.

10. As per GEF requirements, a final independent evaluation will also be conducted at the end of the project measure the success of the project. Both evaluations will be conducted by external consultants who will operate under the supervision of IFAD's Evaluation Office and Environmental officer. Technical staff working at the PMU, M&E Officer, PFO, district level staff, LMS officials, MAFS officials, grant and investment recipients, Sub-Centre stakeholders will all be collaborating with the appointed persons for effective evaluation.

Learning and knowledge management

11. Stimulating learning and knowledge sharing will promote greater development effectiveness and ensure that the lessons learned from this project are mainstreamed with the appropriate audiences for greater climate resilience.
12. This project will include some key elements of knowledge management and learning. It will strengthen knowledge sharing among different national stakeholders, build learning partnerships both in the agricultural sector and beyond, and build Lesotho institutions' capacity to learn about climate change and adaptation. This project will also facilitate South-South partnership (with an institution in South Africa), and will support IFAD's mandate to fulfill the elements of its knowledge management strategy.
13. Knowledge-sharing and learning are embedded in the entire project cycle and do not require many additional resources as they are built into the very logic and activities of the project. Key elements of the project's knowledge management strategy include the following:
 - (a) Using the established SADP and LASAP M&E framework to provide information, analysis, and progress achieved relative to the log frame and indicators;
 - (b) Conducting annual planning, review and monitoring & evaluation workshops to identify key lessons learned, risks and threats;
 - (c) Producing regular news, radio and other media news releases on climate forecasts and relevant advisories on agricultural best practices in particular climate situations
 - (d) Establishing collaboration with the National University of Lesotho to monitor and evaluate testing plots, share emerging knowledge regarding crop type, particularly alternative crops, and their resilience in different climate settings. This information could be collected at the university and contribute to future learning initiatives. Partnerships can also be sought with other university departments to integrate data in other academic

sectors and promote knowledge sharing e.g.: soil conservation, environment, agriculture, climatology, and horticulture.

- (e) Having monthly visits of test plot sites to gather data, successes, lessons learned. SADP staff, extension staff, district agricultural officers, sub-centre representatives, Council members at the village level, and farmers union will be encouraged to participate to understand the outcomes of the testing sites and to disseminate relevant information to their particular audiences. There will be learning exchanges between different sub-centers and villages as information is gathered on different climate scenarios; sub-centres with particular climate characteristics will be informed of outcomes of resilient practices pertaining to their particular climate situation. These visits will also be an opportunity for communities to feedback and provide data on any other indigenous practices being undertaken to address climate change.
- (f) Upon completion of the project LMS and MAFS will be responsible for sharing lessons learned and promoting the approach publicly. The agrometeorology unit in LMS will be institutionally strengthened, staffed and trained to ensure continuous learning on climate related issues and how they pertain to agriculture, as well as how to interpret climate data for relevant agriculture advisories in a more coordinated and collaborative way with MAFS.
- (g) In collaboration with appropriate universities in South Africa (possibly University of Pretoria & University of Cape Town) capacity will be fostered at the national level for climate modelling and climate data management, as well as interpretation of Early Warning Systems, through a Master's degree from the institution. The recipients of these scholarships⁷⁸ will be Lesotho citizens that will bring back this knowledge and share learning and training for others working in the sector. The recipients will also be able to apply the knowledge gained at bolstering Lesotho's climate data generation and interpretation from an agricultural production system perspective, thus having a long-term institutional impact.
- (h) By working at the community level through AIPs and by using the "resilient villages" approach, the adoption of resilient practices will be mainstreamed within communities rather than being located at the individual level. This will encourage a culture of learning on climate change adaptation and ensure that the whole community is engaged on climate change impacts and strategies to address them.
- (i) The Mid-term and final evaluations will provide further avenues for gathering, assessing and sharing lessons learned, both from a project

⁷⁸ A budget for three scholarships has been earmarked in the project design, 2 of which would be supported from within MAFS and 1 from within the LMS. However, based on the selection of university and the real costs, provisions could be made for an extension to 4 students if needed. This will have to be confirmed upon appropriate tender and selection of partners during project implementation.

performance and from the perspective of benefits to the beneficiaries. Consultative approaches will be used for both so that local lessons learned are also elicited.

Appendix 7: Financial management and disbursement arrangements

1. As part of the SADP project preparation, a financial management assessment was conducted of the Ministry of Agriculture and Food Security (MAFS). The financial management residual risk rating for MAFS was judged to be Moderate. The LDCF Grant will be managed in accordance with policies and procedures foreseen for the SADP, with issues specific to the LDCF Grant highlighted as below.
2. **Budgeting arrangements.** The PMU prepares an annual project budget for SADP and is responsible for producing variance analysis reports comparing planned to actual expenditures on monthly and quarterly bases. The LDCF project budget will be integrated into the SADP annual budgets. The periodic variance analysis will enable the timely identification of deviations from the budget. These reports will be part of the interim unaudited financial reports (IFRs) that will be submitted to the Bank on a quarterly basis.
3. **Accounting arrangements.** The SADP uses off-the-shelf accounting software for project financial management and the production of accounts. The accounting package enables transaction processing, production of project annual financial statements, IFRs, and other reports as required for the effective management and monitoring of the project. The project will use the cash basis of accounting as prescribed under the Cash Basis Standard as issued by the International Public Sector Accounting Standards Board. The accounting procedures will be spelt out in the Project's Financial Management Manual which will be prepared during the project preparation phase. LDCF Grant portion will be managed according using the same tools.

Internal control and internal auditing arrangements:

4. **Internal Auditing.** MAFS has an internal audit unit consisting of staff deployed by the MFDP with a reporting line to the Principal Secretaries of MFDP and MAFS. The internal audit unit will periodically conduct internal audits and submit reports to the PMC on a bi-annual basis.
5. **Internal Control Systems.** The PMU will put in place an internal control system so as to ensure the preparation of accounting records, the approval of transactions and the orderly management of financial resources and assets. The Financial Management Manual will indicate the key internal controls that the project will put in place.

Funds flow and disbursement arrangements:

6. **Banking arrangements.** The PMU has opened two Designated Accounts denominated in United States Dollars at the Central Bank to receive the funds from IDA and IFAD as well as two Project Accounts denominated in Maloti. Counterpart funding from the Government of Lesotho will also be remitted to a separate Project Account. The LDCF Grant funds will be channelled through IFAD as the GEF Implementing agency into the IFAD account, and further pooled with other project resources for use against the established budget and procurement plan.

7. **Funds flow arrangements.** Under SADP, upon effectiveness of the financing agreement and submission of a withdrawal application, the Bank disburses an initial amount equivalent up to four months expenditure into the Bank Designated Account. Subsequent disbursements are made on the basis of withdrawal applications and Statements of Expenditures (SOEs). For the two grant mechanisms used in the project (sub-components 1.1 and 2.1), the PMU has established simple reporting mechanisms and a simple monitoring and control system for each grant. For the LDCF Grant component, funds will be advanced on a semi-annual basis based on project reports and implementation plans. Accounting will be consolidated at the PMU with simple accounting being maintained at the district level. The mechanisms will be those already detailed in the PIM.
8. The Statements of Expenditures (SOEs) to be submitted to IFAD for the LDCF Component, will report actual cost with Goods, Works and Services, as appropriate.
9. **Disbursement arrangements.** As per the SADP, the transaction-based disbursement reporting will be used. Disbursement methods will include direct payments, special commitments and reimbursements. Details concerning disbursements will be spelt out in the project's Disbursement Letter using the SADP project's disbursement categories and IDA credit allocations.
10. **Financial reporting arrangements.** The PMU will prepare quarterly unaudited IFRs for the project in form and content satisfactory to IFAD on the LDCF Grant, which will be submitted to IFAD within 45 days after the end of the quarter to which they relate. The project has agreed on the format of the IFRs during the project preparation phase and the annual financial statements will be prepared using International Public Sector Accounting Standards.
11. **Auditing arrangements.** The project financial statements will be audited by the Office of the Auditor General in accordance with International Standards on Auditing, and the audit report together with the management letter and management responses will be submitted to the Bank within six months after the financial year-end.
12. **Conclusion.** The conclusion of the assessment undertaken under SADP was that the financial management arrangements met the Bank's minimum requirements under OP/BP10.02. The overall residual risk rating for MAFS is moderate; so the project will have one field supervision mission per annum and this will apply to the GEF grant as well. The financial management action plan outlines the mitigating measures, which, if implemented, would strengthen the financial management arrangements.

Appendix 8: Procurement

1. As this project is an add-on to the already operational SADP, all procurement to be financed under the proposed project (GEF funds) will be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated January 2011, and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011, and the provisions stipulated in the Legal Agreement. All procurement of goods and works will be done using the Bank's Standard Bidding Documents. All consultant selection undertaken for firms will be done using the Bank's Standard Requests for Proposals. The project will carry out implementation in accordance with the "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD and IDA and Grants" dated October 15, 2006 and revised January 2011 (the Anti-Corruption Guidelines).
2. The SADP Project Management Unit (PMU) includes an experienced Procurement Officer with previous experience in the Bank's Procurement and Consultant Selection policies, guidelines and procedures. The Procurement Officer will take the lead on all GEF project procurement matters, working under the supervision of the Project Manager and in consultation with the LDCF Coordinator.
3. As part of the project preparation, an assessment was also made of the existing capacity of the MAFS Procurement Unit. At the time of appraisal, within the MAFS Procurement Unit the senior positions of Head of Procurement and Senior Procurement Officer were vacant. A Procurement Officer and two Assistant Procurement Officers were in place and suitably qualified, but with limited experience in Bank procurement procedures. As per the Public Procurement Regulations of Lesotho (2007), procurement has been decentralized to procuring entities, and all procurement decisions will therefore be made at Ministry and/or project level. Delays in obtaining procurement clearances are therefore not envisaged. The key issues concerning procurement for project implementation are: (a) the need for continued capacity building of the project's Procurement Officer; (b) limited capacity within the MAFS Procurement Unit to assure adherence to World Bank-financed procurement practices; and (c) the potential risk of erroneously using Government of Lesotho or IFAD procurement procedures for SADP-financed activities, since the project will pool IFAD, Government of Lesotho, and World Bank funds.
4. The Risk Assessment was rated as moderate. Corrective measures to mitigate the overall risks have been agreed with the Government as part of the overall SADP implementation agreement and include: (a) World Bank Procurement and Consultant Selection Guidelines will be shared with MAFS and PMU staff; (b) training on World Bank Procurement and Consultant Selection Methods and Procedures will be conducted for the key MAFS and PMU staff to be involved in

procurement and consultant selection; (c) hands-on support will be provided for MAFS and PMU staff in World Bank Procurement and Consultant Selection Methods and Procedures; (d) all contracts for the PPA and selected contracts for the main project will be subject to prior review; (e) a suitably qualified and experienced Procurement Officer will be maintained in the PMU; and (f) the PMU will prepare a Procurement Manual (part of the PIM) to clearly indicate the roles and responsibilities of different staff and the procurement procedures to be followed under the proposed project. An acceptable Procurement Plan covering the first 18 months of the project is available.

5. A tentative procurement plan for the LDCF grant is included below (assuming a project start in the second quarter of 2013):

Component	Type	Item	Amount (USD)	Timeline
Cross-cutting (20% PM, 40% Component 1, 40% Component 2)	National staff	LASAP coordinator	150,857.14*	Over 4 years
	National staff	4 District Adaptation Advisors	534,857.14*	Over 4 years
Component 1	International Consultancy	Climate adaptation and agriculture specialist	50,000.00	2014
Component 2	International Consultancy	Climate modelling and downscaling specialist and trainer	24,500	2014
	Non-expandable equipment	4 automated weather stations with agro-met sensors	120,000	2014
	International Consultancy	Production systems outlook expert and trainer	30,000	2014
	National consultancy	Trainer for extension services training programme	20,800	2014
	National consultancy	Crop modelling specialists	99,840	Annually, 2014 to end of project
	Expandable equipment	Laboratory consumables, agricultural inputs, biological material for agricultural research stations	73,000	Over the duration of the project

	Non-expandable equipment	1 germination chamber, 2 ph meters, 4 field scales, 1 microscope, 2 laptops, irrigation equipment, statistical analysis software	26,874	2013-2014
	International Consultancy	Agrometeorology specialist	6,000	2014

*note: amount not including salary indexations for 4 years of service, corresponding to a total of : 264,000 USD for all posts.

6. Materials and equipment procured by the LDCF grant will be handed over to the various partners according to MOUs that will highlight the rights and obligations of each partner for the duration of the project and the conditions for long-term transfer of property from the project to the Lesotho Government at the end of the project.
7. It is anticipated that such agreements will be developed between the project and the LMS and the MAFS Directorate of Research. In addition, the project will fund directly the tuition and living expenses of the sponsored students under Component 2, based on a set of performance and continued service conditions.

Appendix 9: Financial and Economic Analysis

1. This LDCF grant is an add-on to the SADP, and its purpose is not economically driven, but rather sustainability driven. The economic rationale for the SADP therefore applies to the LDCF grant, but an additional lens of sustainability of the proposed investments should be added when considering potential economic benefits and rates of return on investments. Below is a summary of the financial and economic analysis reproduced from the SADP PAD. The purpose of the LDCF grant is to reduce the climate induced risk to these proposed investments.

Commodity	Demand trend and supply situation	Main producers and production systems	Prospect for viability	Likelihood of SADP support*
Cereal crops	Maize is the most popular staple food. Annual national requirements for cereals estimated at 360,000 tons.	Grown by the majority of farmers, mainly for household consumption. 70% of the annual national requirements met by import (including food aid).	Very low for maize, unless yields improve dramatically. Gross margins are much better for sorghum and wheat (but not under traditional technology)	Low. There could be a potential for sorghum or wheat, but more depth analysis (including information on the demand) will be required.
Egg	Common livestock product. Local production meets 80% of the domestic requirements.	Various – small, medium to large. For small and medium farmers, women are mainly involved.	Reasonable.	Medium
Poultry meat	Most popular meat, annual consumption estimated at 9 million kg	Various – small, medium to large. For small and medium farmers, women are mainly involved. Lowlands.	Reasonable.	Medium to high.
Pork meat	Demand increasing. Import fluctuated due to swine, but at one point, the annual import reached 2.7 million kg.	Mainly small and medium scale farmers, mainly women.	Reasonable to high, especially in relatively accessible areas in lowlands and foothills.	High
Milk	Demand increasing, mostly (over 70%) met by imported long life milk	Small and medium-scale farmers, concentrated in lowlands.	Reasonable, but the current market structure is not conducive for farmers to exploit the opportunities	Low for the time being – due to organizational mismanagement issues
Wool and mohair	Demand affected by global market and prices. After a downward trend, the price and demand seem to be picking up again	Some estimated 50,000 producers (mostly small-scale with a herd size 10-50 animals). Predominantly in the mountain areas.	Low-medium. Some opportunities for value addition outside conventional auctioning through South Africa. Specialized markets.	Low-medium. The project area covers more lowlands/foothills than mountain areas.
Vegetables (traditional)	Demand increasing	Small, medium and larger scale farmers.	High	High
Vegetables (high value)	Demand is there for export, but fluctuates depending on the global price and supply.	Emerging commercial farmers.	Medium.	Low-medium. May not benefit many SHs. Possible challenges with standards/quality.
Fruits	Demand is high, shown by the level of imports.	Tree crops such as apples and peaches are grown all over the country, but majority not for markets.	Could be competitive /profitable, but returns to investments take a long time.	Medium. Supply to formal markets may be challenging for SHs. Local level processing and value addition offers potential.

* “Project support” will be based on demand and interest by actors derived from evolving opportunities and financial viability. Therefore, this column indicates assumptions about commodities likely to be supported under the project.

2. Based on the available market analysis and experiences, the SADP focuses on horticulture and livestock products for its marketing activities. As experience is gained and the effectiveness of farmers/farmer groups in producing and marketing the range of selected commodities are assessed, the most promising ones are supported. Increased market-oriented production will stimulate agricultural enterprises to supply production inputs, such as nurseries, seed producers, feed suppliers, and hatcheries and there could be opportunities for other niche products such as medicinal plants, herbs and essential oils. The LDCF grant will support targeted research into these niche products under its Component 2, to determine their resilience and future viability, while ensuring that the commodities, production assets and management practices used for the other product value chains are resilient.

3. The SADP is based on the assumption that agro-climatic conditions that are suitable to certain agricultural products will remain unchanged in the long-term. The challenges include low productivity, dispersed production, inconsistent quality, inefficiency in production and marketing, and poor market linkages. Climatic conditions and climate change effects also point to the importance of promoting cost-effective measures to mitigate weather-related risks (such as low-cost irrigation, green houses, protective nets, etc.).

4. Efforts to commercialize smallholder agriculture in Lesotho would need to focus on, at least initially, exploiting local market opportunities where Basotho producers would not face strong competition from established imports from South Africa, are more likely to be able to compete to substitute imports and/or have comparative advantage. Key elements would be to improve productivity and production efficiency, improve quality, improve economies of scale, establish and improve market linkages (both inputs and outputs), and establish smallholders as reliable suppliers. Resilience-building measures will increase the sustainability and long-term productivity of these investments, while providing for increased productivity under today’s agro-climatic conditions and climatic variability.

Appendix 10: Draft project implementation manual

1. This project will use the SADP Project Implementation Manual and the SADP Operational Manuals for AIPs, Competitive Grants and Technology Packages. Please refer to these documents.

Appendix 11: Compliance with IFAD policies

2. The GEF proposal complies with IFAD policies related to targeting, gender, indigenous peoples and in addition to comply with its strategic framework for 2011-2015, whose overarching goal is to enable poor rural people to improve their food security, raise their incomes and strengthen their resilience.
3. The proposal is also aligned with (a) IFAD's Policy for Environment and Natural Resource Management, which proposes greater attention to risk and resilience in order to manage environmental and natural resource-related shocks and (b) the IFAD Strategy on Climate Change, which is articulated around three objectives: (i) support the innovative approaches in order to assist the small producer (women and men) to increase their resilience to climate change; (ii) assist these small agriculturists to take advantage of available financing and incentives for mitigation; and (iii) promote a documented and more coherent dialogue on climate change, rural development, agriculture, and food security.
4. Furthermore it follows procedures for Environmental and Social Assessment and complies with the majority of the IFAD environment and natural resources management core principles promoting: i) recognition and greater awareness of the economic, social and cultural value of natural assets, ii) greater attention to risk and resilience in order to manage environment and natural resource related shocks, ii) improved governance of natural assets for poor rural people by strengthening community-led empowerment, iv) livelihood diversification to reduce vulnerability and build resilience for sustainable natural resource management, v) increased access by poor rural communities to environment and climate finance and vi) environmental commitment through changing its own behaviour.

Table 1: Compliance with IFAD Policies

Policy/Strategy	Project measures
Strategic framework 2011-2015	Helping rural men and women manage productive assets and natural resources more efficiently and sustainably
Targeting	Concentrating activities in favour of rural populations and smallholders whose main source of livelihoods is climate-sensitive agricultural production
Gender	Promoting empowerment to further participation of women producers and reducing the disproportionate impacts of climate change on women and girls
Environmental and Natural Resource Management Policy	Recognizing and deepening greater awareness of the economic, social and cultural value of natural assets and attaching greater attention to risk and resilience in order to manage environment and climate-related shocks
Climate Change Strategy	Increasing access by poor and rural communities to environment and climate finance support while furthering innovative approaches to help smallholder producers build their resilience to climate change.
Procedures for environmental and social assessments	Promoting the sustainable use of natural resources and protection of key ecosystem services

IFAD Policy on Engagement with Indigenous Peoples	Supporting indigenous peoples in enhancing the resilience of the ecosystems in which they live and in developing innovative adaptation measures.
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Summary of IFAD Policies

Below there is a brief description of the main IFAD policies more specific to the GEF additional funds.

5. **Targeting.** The policy outlines a number of guiding principles framing IFAD operations on rural people who live in poverty and food insecurity and are able to take advantage of the opportunities to be offered; expand outreach to proactively include those who have fewer assets and opportunities and in particular, marginalized groups such as minorities and indigenous peoples with a special focus on women. The policy defines “targeting” as a set of purposefully designed, demand-driven and mutually agreed upon actions and measures that ensure, or at least significantly increase the likelihood, that specific group of people will take advantage of a development initiative. At the same time, these actions and measures aim at preventing disproportionate benefit capture by other groups.
6. The targeting strategy involves the following measures that are applicable to this Project: **Geographic targeting** bearing in mind that direct interventions are not national in coverage these will be focused on geographic areas where agricultural investments have the highest rates of return; **Direct targeting** as project support would be channelled to specific producer groups using community-based targeting approaches.
7. **Gender.** The policy aims at increasing IFAD’s impact on gender equality and strengthens women’s empowerment in poor rural areas. Although the policy does not specifically address gender issues in the context of the environment in general, it provides some guidance indicating that IFAD should support and promote (i) government recognition of women’s rights to the benefits from and control over natural resources; (ii) understanding of sustainable natural resource management in a local context; (iii) provide equal access to new technologies and training for enhanced conservation and use of animal/plant genetic resources and food production for both women and men; (iv) gender-differentiated knowledge systems to enhance learning on, and raise awareness of, sustainable uses, management and conservation of natural resources; (v) strengthened capacity for governance of integrated natural resource management through inclusive approaches such as participatory mapping, decision-making and governance; (vi) learning on, and awareness of, gender-differentiated management of natural resources; (vii) reduction in gender inequalities in community-based users’ groups through training and positive actions; and (viii) measures to increase women’s voices, alongside men’s, in the planning and running of community water schemes.

8. The policy goal of IFAD's Gender Equality and Women's Empowerment is to deepen the impact and strengthen the sustainability of IFAD supported development initiatives. LASAP will support IFAD's objectives of addressing gender inequalities and empowering women. This project will emphasize the links among gender, climate change, agricultural and economic activity, leading to a deeper and more sustainable impact by focusing on systemic adaptation actions. With its parity indicators, LASAP will reinforce IFAD's mandate to provide equal opportunities for rural women and men to participate in agricultural and commercial activities. By unpacking the relationships among climate change adaptation, food security, agricultural production and commercial activity, through a gender lens, and placing women at the locus of activity, LASAP will lead to improved capacities and decision-making abilities for women.
9. The project also meets the minimum requirements of the GEF Policy on Gender Mainstreaming (May 2012)⁷⁹:
 - (a) In order to implement GEF-financed projects, GEF Partner Agencies are be required to have established either a policy or policies (this may include relevant laws, regulations, and guidelines), a strategy, or an action plan that requires the Agency to design and implement projects in such a way that both women and men (a) receive culturally compatible social and economic benefits; (b) do not suffer adverse effects during the development process; and that (c) fosters full respect for their dignity and human rights;
 - (b) The Agency has instituted measures to strengthen its institutional framework for gender mainstreaming, for example, by having a focal point for gender, or other staff, to support the development, implementation, monitoring, and provision of guidance on gender mainstreaming;
 - (c) The Agency's criteria for project review and project design require it to pay attention to socio-economic aspects in its projects, including gender elements. (Yes, IFAD has these systems in place). iv) The Agency is required to identify measures to avoid, minimize and/or mitigate adverse gender impacts (Yes, this will a focus of project activities and studies throughout).v) The Agency's policies, strategy, or action plan address gender sensitive activities while recognizing and respecting the different roles that women and men play in resource management and in society;
 - (d) The Agency has a system for monitoring and evaluating progress in gender mainstreaming, including the use of gender disaggregated monitoring indicators;

⁷⁹ See <http://www.thegef.org/gef/policy/gender>

- (e) The Agency monitors and provides necessary support for implementation of its policies, strategy, or action plan by experienced social/gender experts on gender mainstreaming in projects;
10. Concerning **Climate Change Adaptation and Mitigation** the policy indicates that IFAD should support and promote: (i) project design and implementation based on an understanding of how climate change affects different categories of poor rural people, and women as compared with men;(ii) provision of training to women and men on key adaptation topics, including adjusting cropping patterns based on climate variability, sustainable agricultural systems for nutrition and high-value-added products, sustainable land management, early warning systems and disaster risk reduction; (iii) gender equality in access to climate change mitigation funds.
 11. **Environment and Natural Resource Management Policy:** Resilient livelihoods through the sustainable use of natural assets. For the purposes of this policy, the term ‘environment and natural resource management’ focuses on the use and management of the natural environment, including natural resources defined as raw materials used for socio-economic and cultural purposes, and ecosystems and biodiversity with the goods and services they provide.
 12. The goal of the policy is to enable poor rural people to escape from and remain out of poverty through more-productive and resilient livelihoods and ecosystems. Its main purpose is to integrate the sustainable management of natural assets across the activities of IFAD and its partners. The policy sets out 9 core principles to guide IFAD’s operations including: (1) Scaling-up investment in multiple-benefit approaches for sustainable agricultural intensification; (2) Recognizing and deepening greater awareness of the economic, social and cultural value of natural assets; (3) Furthering ‘climate-smart’ approaches to rural development; (4) Attaching greater attention to risk and resilience in order to manage environment and natural-resource-related shocks; (5) Engaging in value chains to drive green growth; (6) Improving governance of natural assets for poor rural people by strengthening land tenure and community-led empowerment; (7) Pursuing livelihood diversification to reduce vulnerability and build resilience for sustainable natural resource management; (8) Ensuring equality and empowerment for women and indigenous peoples in managing natural resources and; (9) Increasing access by poor rural communities to environment and climate finance.
 13. **Climate Change Strategy** to ensure a systematic focus on the implications of climate change for its activities at the country level. The strategy aims to maximize IFAD’s impact on rural poverty in a changing climate. It has three purposes: (a) to support innovative approaches to helping smallholder producers build their resilience to climate change, (b) to enable smallholder farmers to take advantage of available mitigation incentives and funding and,(c)

to inform a more cogent dialogue on climate change, rural development, agriculture and food security.

14. **Procedures for environmental and social assessments**, reviewed by the Executive Board in April 2009 setting out key environmental and social principles. Adopted principles commit IFAD to: a) address the vulnerability and adaptation needs for the rural poor, b) promote the sustainable use of natural resources and protection of key ecosystems, c) focus on partnership-oriented initiatives for improved social and environmental quality, d) address environmental and social impact assessments of agricultural and non-agricultural activities in an integrated manner, e) incorporate externalities and minimize social costs, f) implement participatory approaches, with special emphasis on the role of women, g) promote the development of indigenous peoples and other marginalised groups (pastoralists, hunters and gatherers) while enhancing their livelihoods: securing ownership /access to ancestral land and territories; strengthening their institutions, promoting Free Prior Informed Consent (FPIC), and valuing indigenous knowledge systems, h) promote environmentally sound agricultural and manufacturing processes, i) ensure systematic environmental and social monitoring and, j) undertake Strategic Environmental Assessments; where appropriate;(iv) increased research on gender-sensitive technologies that are energy and water efficient, and promote resilience to changing climatic events and other risks; and (v) solutions to the specific challenges faced by women, men and children in climate change-related policy dialogue, and mainstreaming effective responses into policies, programmes and projects.
15. IFAD Policy on Engagement with **Indigenous Peoples**, IFAD identifies indigenous peoples as an important target group because they face economic, social, political and cultural marginalization in the societies in which they live, resulting in extreme poverty and vulnerability for a disproportionate number of them. IFAD's work promotes communities in taking full advantage of their traditional knowledge, culture, governance systems and natural resources, all of which form part of their tangible and intangible heritage.

Appendix 12: Cost Tables (COSTAB)

Appendix 13. IFAD Template for Project Implementation Report (GEF)

1. Project general information

Please provide the following information and note any changes at bottom of table.

Information Required		
Country		
Region		
Grant Title		
Associated GEF Programme or Framework (if applicable)		
Grant Type		
Reference numbers		
GEF ID Number		
IFAD Grant Agreement		
IFAD ID Number (LGS)		
GEF Focal Area and Programmes		
GEF Focal Area:		
GEF OP or SP:		
Critical milestones		
GEF Approval date		
IFAD Approval date:		
Date of Project Effectiveness		
Mid-term Evaluation		
Grant start up (launched)		
Final Evaluation date		
Estimated closing date		
Grant Financing (USD)		
GEF Project Preparation Grant Amount		
GEF Grant Amount:		
Total Grant GEF Cost:		
Proposed Co-financing		
Actual Co-financing secured		
Amount Disbursed		
<p>Amount Expensed: The expenses are collected from the physical report, may not reflect the true figure.</p>	By category (please indicate category and amount)	Total expenditure
	<i>Category I</i>	
	<i>Category II</i>	
	<i>Category III</i>	
Summary of project rating		
Overall development objective rating		
Overall Implementation progress rating		

Overall risk rating	
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2. Project objective

Please state and rate the likelihood of reaching the project grant goal, global environmental objectives and developmental objectives.⁸⁰ Definition of ratings can be found in PIR instructions, annex 1.

Goal/Objectives	Please state goal or objective and include narrative on likelihood of reaching the set goal or objective	Overall rating
Project grant goal		
Global Environmental objectives		
Developmental objective		

3. Rating project performance for 01 JUL 11 to 30 JUN12

Please indicate approved objectives to be reached and make an overall self-assessment and provide ratings and narrative assessment of “likelihood of achieving project objective” and “implementation progress”. Ratings descriptions are included in PIR instructions as Annex 1. Expand tables as necessary. Gender mainstreaming and disaggregated information (e.g engagement of women and girls including indigenous peoples, progress on socio-economic status such as income, poverty and land titling etc., benefits/progress from project activities) to be provided as much as possible. Provide information on the project’s catalytic effect with respect to policy change, scaling up- and replication, as necessary. Also, mention how global environmental benefits and impacts are measured at scale (landscape/watershed, national etc.) as much as possible.

Component			
Overall implementation progress rating			
Implementation Progress <i>Please indicate <u>achievements</u> to date and <u>impact</u> - where applicable.</i>			
Self Assessment <i>Please implementation status of subcomponents and rating of <u>sub-components</u></i>	Please provide self-assessment of the implementation of each sub-component	Rating	Rating
		Rating	
		Rating	
		Rating	
		Rating	
Risk rating		Level of	

⁸⁰ Project “goal” is the highest level objective. Project “objective” is the second highest level of objectives, these are for UNDP and UNEP the “project’s objective” and for the World Bank the “global environmental objective”.

<p><i>Please indicated assumptions and overall level of risk in achieving this component</i></p>		<p>Risk</p>	
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<p>Component</p>			
<p>Overall implementation progress rating</p>			
<p>Implementation Progress <i>Please indicate achievements to date and impact - where applicable.</i></p>			
<p>Self Assessment <i>Please implementation status of subcomponents and rating of <u>sub-components</u></i></p>		<p>Rating</p>	
		<p>Rating</p>	
		<p>Rating</p>	
		<p>Rating</p>	
<p>Risk rating <i>Please indicated assumptions and overall level of risk in achieving this component</i></p>		<p>Level of Risk</p>	

<p>Component</p>	<p>Component III – Project Management</p>		
<p>Overall implementation progress rating</p>			
<p>Implementation Progress <i>Please indicate achievements to date and impact - where applicable.</i></p>			
<p>Self Assessment <i>Please implementation status of subcomponents and rating of <u>sub-components</u></i></p>		<p>Rating</p>	
		<p>Rating</p>	
		<p>Rating</p>	
		<p>Rating</p>	
<p>Risk rating <i>Please indicated assumptions and</i></p>		<p>Level of Risk</p>	

overall level of risk in achieving this component			
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4. Contributions of the project towards focal area strategic targets for 01 JUL 2010 to 30 JUN 2012

Please indicate the project's contributions towards GEF focal area strategic priorities.

5. Involvement of the National GEF operational focal point (when feasible and relevant) in M&E

Please describe how the focal point is engaged in M&E.

6. Engagement of the project in creating private sector partnership

Please indicate the modalities and the results.

7. Climate Change Focal Area: For Climate Change projects please provide an overview table with numeric results for the appropriate indicators (provided in the tracking tool). In other words, for all projects there should be a column stating amount of CO2 reductions achieved, for energy efficiency projects a column with numbers for energy saved, etc. Please see table in Annex 2

Project contribution to Climate Change Strategic Priorities & Programs													
<i>Renewable Energy</i>													
Project Title	GEF Project ID	GEF Grant million US\$	Direct GHG Reductions to Date (Mt CO2)	Indirect GHG Reductions to Date (Mt CO2)	GEF -4 SP3 and GEF-4 SP4 - Indicator 1: Adoption/ Creation/ Enactment/	GEF -4 SP3 and GEF-4 SP4 - Indicator 2: On-grid Electricity Production to	GEF -4 SP3 and GEF-4 SP4 - Indicator 3: MW of Renewable Energy	GEF 3 Strategic Priority 4 - Indicator 1: No. of Businesses and Households Served by Renewable Energy to Date	GEF 3 Strategic Priority 4 - Indicator 2: Quantity of Energy Produced from Rural Renewable Energy Installation	GEF -3 Strategic Priority 2 - Indicator 1: No. of Lending Financial Institutions to Date	GEF -3 Strategic Priority 2 - Indicator 2: Quantity of Energy Produced to Date (GWh)	OP 7 Projects - Indicator 1: Growth in Interest in the Technologies - No. of Stakeholders Indicating Interest in	OP 7 Projects - Indicator 2: Electricity Produced from Grid-connected RE Installed to Date
<i>Energy Efficiency</i>													

GEF-3 Strategic Priority 2 - Indicator 2: Quantity of Primary Energy Saved to Date (GWh)	
GEF-3 Strategic Priority 2 - Indicator 1: No. of Lending Financial Institutions to Date	
GEF 4 Interim Strategy Rehabilitation of Large power Plants – Indicator 2: <u>Primary Energy Savings to Date</u>	
GEF 4 Interim Strategy Rehabilitation of Large power Plants – Indicator 1: Electricity Capacity Rehabilitated to	
GEF-4 SP2 - Indicator 2: Quantity of Primary Energy Saved to Date (GWh)	
GEF-4 SP2 - Indicator 1: Volume of Investments to Date (millions US\$)	
GEF-4 SP1 – Indicator 2: Quantity of Primary Energy Saved or Replaced to	
GEF-4 SP1 – Indicator 1: Adoption/Creation/Enactment/of	
Indirect GHG Reductions to Date (Mt CO2)	
Direct GHG Reductions to Date (Mt CO2)	
GEF Grant million US\$	
GEF Project ID	
Project Title	
Transport	
GEF-4 SP5: Indicator 2: No. of Annual Person-trips Taken on Sustainable	
GEF-4 SP5: Indicator 1: Adoption/Creation/Enactment/of	
Indirect GHG Reductions to Date (Mt CO2)	
Direct GHG Reductions to Date (Mt CO2)	
GEF Grant million US\$	
GEF Project ID	
Project Title	

5. Special Concerns and Lessons Learned

Please describe lessons learned in during FY 2011 and indicate any concerns.

a) Lessons learned in the field

b) Special Concerns

6. Reports generated in 01 JUL 2011 to 30 JUN 2012

Please list any relevant documentation being attached to this report.

Appendix 14. Terms of Reference for MAFS Agro-meteorologist

The below Terms of Reference are designed to guide the establishment of a permanent agro-meteorological function within the MAFS, for which the LDCF, through LASAP, will provide additional training and support.

The functions of the agro-meteorologist would be as follows:

- Act as point of liaison for the Lesotho Meteorological Services in the receipt and transmission of climate and agro-climate information;
- Develop agro-meteorological products and decision support systems designed for transmission to the various departments of the ministry, and relevant extension services;
- Support the downscaling of climate information and products for application in crop and animal agriculture and food security sectors at all levels to reduce climate variability and change related risks;
- Coordinate field trials and demonstrations related to climate variability and change impacts on crop production systems;
- Coordinate delivery of agro-meteorological products and services (information, warnings, and advisories) on climate related risks to crop and animal agriculture and allied sectors in partnership with National Meteorological Services and other relevant institutions;
- Support efforts to integrate Indigenous (local) knowledge in agro-meteorological management practices including decision support systems;
- Agro-meteorological data analysis for Lesotho
- Issuing of crop-yield forecasts based on statistical analysis
- Contribution to research and development in particular with regards to the calibration and extension of crop growth models and crop yield forecasting techniques, as well as to climate change impacts on agriculture.

It is proposed that this permanent position be administratively housed in the Department of Planning, but with dedicated liaisons within the departments of Research and Field Extension. This person would be required and authorized to communicate directly with district agricultural offices during the delivery of their function.

In relation to the LASAP project, this person would be expected to deliver the following tasks:

- Work with LMS to collect data from the additional agro-met stations in each of the project districts
- Participate in all modeling, simulations and downscaling trainings and product development
- Supervise the operations and performance of the field testing plots to be installed in each district, with the support of the DAO.

Qualifications and Required experience

- B.Sc in Agriculture, Agronomy or related discipline
- M.Sc in Agro-meteorology (to be provided through LDCF funding)
- 3 to 5 years professional experience in Agricultural production
- Familiarity with meteorological and climate change issues in Lesotho
- Strong numeracy skills an asset
- In-depth knowledge of agriculture in Lesotho
- Sesotho and English Fluency

Female candidates are encouraged to apply.

Appendix 15: Technical paper

**Mainstreaming Climate Change Considerations in the Smallholder
Agriculture Development Programme (SADP) Operations**

Technical Paper

Joana Talafre
Makoala Marake
Erum Hasan

February 2013

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I. Introduction

IFAD and the Government of Lesotho agreed to work together to develop a project to be financed by the Least Developed Country Fund, housed in the Global Environment Facility, to promote climate change adaptation among smallholders. This project “Lesotho Adaptation of Smallholder Agricultural Production” (LASAP) is intended as a complement to the SADP, within which it will be integrated.

During design phase of the LASAP project, an overall approach to linking the two projects was agreed by stakeholders, the SADP team, and the Lesotho Government. The LASAP is designed to work through SADP established mechanisms, such as the Agriculture Investment Plans and the Competitive Grants Schemes, to promote resilience among small producers. In addition, it will also support targeted investments into enhancing climate monitoring, training for agricultural extension staff and awareness raising among SADP participants.

While the SADP had been in operation for one year to date, LASAP is not expected to be operational until late 2013. It was therefore determined that while LASAP project documentation is being developed, an effort to mainstream climate resilience considerations into SADP operations should be made in order to allow for resilience opportunities to emerge during the AIP and CG planning cycles.

This technical paper proposes how SADP operations and teams could integrate questions related to resilience of smallholder production into their ongoing project activities, specifically focusing on the AIPs, Competitive Grants and Technology Packages, so as to take advantage of emerging opportunities.

This paper contains some background information of the potential and perceived impacts of climate change in Lesotho particularly on smallholders and presents a rationale for rapid integration of climate resilience factors into SADP mechanisms. It also contains recommendations on concrete actions, modifications or amendments to existing SADP documentation that can be taken in the short term at no additional cost. This is based on the understanding that the next level of integration will occur once LASAP funds become available, with relevant investments and capacity building provided.

This paper was prepared by the Consultants engaged in designing the LASAP project and will be annexed to the Project Design Report. The paper was presented to the SADP Project Management Committee on Tuesday, February 12, 2013 and subsequently approved for immediate use by SADP staff and teams.

A. The LASAP Project

The goal of the LASAP is to increase the resilience of small scale agriculture to climate change impacts by promoting climate-proofed investments for agriculture-based development, as well as by enhancing the resilience of agricultural productivity under increased climate variability.

The five adaptation outcomes of the Project are: (i) Mainstreamed adaptation in local level agricultural investment planning, (ii) Increased adaptive capacity of small-scale farming systems, (iii) Increased knowledge and understanding of climate variability and change-induced threats on agriculture, (iv) Strengthened capacity of government stakeholders to reduce risks to climate-induced losses on agriculture, and (v) Awareness and capacity of local actors increased on climate change impacts and related adaptation measures.

The LDCF project will operate in the same districts as the SADP and make use of the SADP delivery mechanisms (i.e. AIPs and Competitive Grants), while also delivering activities separately where necessary (i.e. agrometeorology applications). This will include efforts to mainstream resilience considerations within the baseline SADP activities.

The design of the LASAP Project entails the following interrelated components:

Component 1: Reduced vulnerability of agricultural production

This Component includes measures designed to achieve a better understanding of climate vulnerabilities, adaptation and mitigating strategies among small producers. It is tied into the SADP Components 2.1 and 2.2. This begins by the development of basic, local language fact sheets on the impacts of climate change on the various production value chains (e.g. pig farming, field and/or horticultural crops, indigenous and exotic poultry, and other short cycle livestock enterprises). These documents will also provide basic information to prospective producers who are the intended recipients of AIP and Competitive grants under the SADP regarding climate resilient production techniques.

Another key part of this component will involve broadening the set of potential investments supported by an AIP, to promote further community-based resilience investments. At present, the AIP process begins with an Action Learning Cycle that brings together communities together to develop a shortlist of potential investments in production (channelled through producer groups), natural resources management (channelled through community councils), and capacity building for production (channelled through emerging producer groups). The LDCF funds will provide an additional influx of funds (2 million USD) through SADP to support activities indentified by the communities that are considered to be promising adaptation options. These include, among others, the additional costs of:

- Protected agriculture (e.g. greenhouses)
- Conservation agriculture, keyhole gardens, permaculture
- Drip irrigation, water harvesting or water use efficiency measures
- Procurement of resilient varieties of crop and livestock

The additional resources (USD 2,000,000) from the LDCF will enable the amount currently available for each AIP to be increased from USD 80,000 to approximately USD 102,000 per sub-center. During the first year of its implementation, the LASAP project team will also undertake a retroactive analysis of existing AIPs to propose additional resilience building investment (up to 22,000 USD per AIP). It is understood that the SADP will, therefore, be able to further concentrate its investments on the acquisition of productive assets and capacity building for the baseline elements of production initiatives.

In support of this additional investment, training for the AIP Teams including local authorities (chiefs and councils), technical staff from various ministries, and other stakeholders, will be undertaken to enable them to facilitate community-based resilience planning.

In a similar fashion, the LDCF will add an additional 500,000 US\$ into the amount earmarked for Competitive Grants Scheme, to support investments that would be considered as highly promising adaptive production schemes. This additional funding would be targeted towards the additional costs faced by producers when selecting production assets and technologies that are resilient. This would include the additional costs of procuring resilient species of crop and livestock, improved building or infrastructure design to account for extreme weather, or alternative sources of energy (such as biogas digesters) for production ventures, for example.

Component 2: Enhanced adaptive capacity to support agricultural production in the context of climate change

A first portion of this component will seek to strengthen the agro-meteorology capacity in the country, by working together with LMS and MAFS to develop climate change related capacities in production systems simulation models, agriculture-relevant meteorological products, and long-term agro-meteorology knowledge base among the agriculture extension field staff.

The project will build the capacity of the Lesotho Met Service to develop downscaled climate models and scenarios at a sufficient resolution so that they are relevant for district-level agricultural use, particularly in the four SADP project districts. This will require the acquisition of four fully automated agro-meteorological stations, with the associated training for their operation and data collection. Data sharing mechanisms will be established so that climate information is transmitted to LMS and MAFS in a timely manner. A second activity will provide technical and in-service training to LMS staff in the downscaling applications and climate scenario building.

The LASAP project will also support the establishment of an agro-meteorological function through the provision of an education scholarship to at least one MAFS staff member and one LMS staff member, to complete a MSc in Agro-meteorology. These persons would then be tasked to act as the key focal point for integration of climate information in their respective Ministry's operations, and for liaising with the other ministries. In the case of MAFS, this function will be institutionalized through the designation of a permanent position. Terms of reference for this position are developed and included in the LASAP Project Design Report.

In addition, the MAFS extension service will be supported through training of Resource Center extension staff on interpreting climate information, managing climate risks, and adapting agricultural advice to climate conditions. Trained technical staff at the Resource Center level would then be required to further train the front-line agricultural extension officers at the sub-center level, in order to ensure that the extension system can effectively translate climate bulletins and forecasts into production-relevant advice.

The project will also support the establishment of small on-station and on-farm research plots in each district (at lowlands, foothills and highlands), to provide testing of the most promising agricultural practices under current and future variability, gather data on crop and small stock behaviour and management options, combined with monitoring of climate conditions in the lowlands, foothills and mountains. These research and demonstration plots would provide a useful forum for on-farm demonstrations of the productive benefits of any recommended change for resilience purposes to farmers, as well as the baseline crop and livestock performance data used for future production system simulation modelling, which is lacking at the moment. This will also include testing of alternative crops (in addition to staple food crops) in varied climate conditions.

Finally, the project will facilitate, through in-service training and consultancies, the development of production systems outlooks at the horizons 2030, 2050 and 2100, using the combination of climate modelling capacity within LMS, crop modeling capacity to be developed within the MAFS, historical agro-meteorological data and emerging data from the new agro-met stations for real-time validation. This information will be used for planning purposes within the Ministry of Agriculture.

The LDCF project will provide additional technical and management support to the existing SADP project management architecture. A LDCF Coordinator will be embedded in the central PMU of SADP, and 4 Adaptation Advisors (AA) will be associated to the SADP Project Field Officers.

B. Purpose and Scope of this paper

The purpose of this paper is to provide avenues for integrating considerations related to climate change, resilience and adaptation into ongoing SADP operations. In order to do this, the Consultants benefitted from their assessment and understanding of SADP operations, as seen during the first LASAP design mission, as well as consultations with SADP stakeholders and beneficiaries. The Consultants then further analysed the SADP guiding documents and operational manuals, to determine concrete avenues and pathways for a first-level integration of climate change considerations.

Considering the anticipated impacts of climate change, and regardless of which climate scenario materializes, over the next 20, 50 to 100 years, providing smallholder farmers with the tools to adapt proactively to increased climate variability is imperative.

In the current context, resilience is understood as the ability of a community to withstand climate shocks and increased climate variability. There are various approaches to promoting resilience that range from increasing productivity to diversifying out of agriculture. This paper proposes that the integration of adaptation into SADP operations seek to promote the adoption of “no-regrets” options within agricultural development, in line with the SADP principle of “agriculture as a business”. No-regrets adaptation options are measures that provide a developmental benefit regardless of the climate scenario that arises. As such they are less risky than other options, which require redirecting investments or large financial flows. This paper, therefore promotes approaches that can yield agricultural productivity benefits regardless of the climate conditions that materialize in the future. This provides a low-risk approach for smallholders, while ensuring the sustainability of any SADP-supported investments.

This paper considers the AIP and CG Operations Guidelines used by the SADP project team, and proposes a set of amendments to the guidelines, templates and evaluation criteria. The paper also considers a mechanism by which resilient technologies can be included in the Technology Transfer Component of the SADP, although this component was less developed at the time of writing. The paper does not fully consider the other aspects of SADP, namely the Marketing and Information components, because the integration of climate change into these activities would entail significant costs and were deemed to be less effective given the state of preparedness of local stakeholders at time of writing. In the longer term, the integration of climate early warning systems with market information systems could be a desirable approach, but one that should be the object of another project altogether.

Wherever possible, the recommended amendments and changes to SADP operations will be differentiated between those that can be achieved immediately

and without LDCF Funds, and those that should await only the arrival of LDCF Funds in order to be implemented.

C. Climate Change In Lesotho

Lesotho, like much of Southern Africa, is considered highly vulnerable to climate-related challenges due to over-reliance on rain-fed agriculture for food production, a high proportion of the population engaged in subsistence farming, and a relatively undiversified economy. Climate change will also have detrimental impacts on the agriculture sector in the country already ravaged by recurrent droughts. Root causes of vulnerability to climate change and climate variability in Lesotho also relate to natural conditions: erratic rainfall, poor soils, and worsening land degradation in the face of rapid population growth and big livestock herds.

As predicted in Lesotho's First National Communication, climate change is likely to cause a reduction in average rainfall. All the models predict progressive increases in temperatures for all seasons up to year 2075. The implications are that Lesotho is likely to experience a warmer climate with lower rainfall in the spring and summer seasons, higher precipitation in winter, and a gradually increasing precipitation in autumn. The result could be a shift in precipitation patterns in such a way that good seasonal rains that characterize the summer season could then set in late in autumn. This is likely to have serious implications for agro-ecological conditions in the country as the growing season is pushed forward and perhaps shortened. On the other hand, an increase in winter precipitation may suggest increased activity in frontal systems which may result in heavier snowfall occurrences and strong devastating winds which often bring disasters and human suffering. Higher incidences of severe rainfall events are also expected which, combined with ongoing soil erosion rates, could lead to significant increases in flooding events.

These changes are also likely to have a far reaching regional impact. Due to its situation at the highest part of the Drakensberg Escarpment, it is characterized by steep mountains, which are extensively eroded. The headwaters of the Senqu (Orange), Mokare (Caledon) and Makhaleng rivers cut deeply into the surface and form major drainage areas across much of the country extending into greater southern Africa as the Orange River Basin.

In the agricultural sector, climate change impacts analyses reveal both challenges and opportunities, with small predicted increases in yield of major crops (maize, sorghum and dry beans) in normal years, compounded by increased variability and extreme events such as droughts, floods, or early frosts. Given the existing constraints on agriculture in Lesotho, including soil erosion, limited access to irrigation, low productivity and low levels of technical inputs, these opportunities are not likely to be realized without significant attention to climate variability and climate risk management.

D. Key terms and Principles

For the purposes of this paper, climate **resilience** (when referring to human systems) is defined as the ability to absorb climate change induced disturbances while retaining a sufficient quality of life. A resilient community has a secure future despite the effects of climate change. This is determined by the degree to which the social system is capable of organizing itself to increase its adaptive capacity for learning from past disasters for better future protection and to improve risk reduction measures.

Adaptation comprises the various adjustments in thinking, decisions and activities taken in response to observed or expected changes in climate. Because adaptation actions can entail costs that can be significant, the concept of no-regrets or of low regrets adaptation can be a useful tool to understand the degree of corrective action that can be taken. Low-regret adaptation options are those where moderate levels of investment increase the capacity to cope with future climate risks. Typically, these involve over-specifying components in new builds or refurbishment projects. **No-regrets** adaptation actions are investments that would provide development benefit regardless of the climate scenario that materializes in the future, or that are sustainable in a broader variety of climate conditions.

In this paper and within the framework of the LDCF project, we focus mainly on no-regrets and low-regrets options for smallholder so that maximum adaptation benefit can be achieved at the lowest cost.

II. Integrating Resilience in Agricultural Investment Plans

(SADP Component 1.2)

Agriculture Investment Plans are developed with a commercialization objective in mind. Therefore the activities that are proposed in the AIPs are directly concerned with enhancing production means and assets, including natural assets such as land and water. AIPs are developed in a community-led approach, but they are mostly owned by producer groups whose proposals are included in the Plans, and who are the primary intended beneficiaries of SADP.

Given the climate change impacts that are expected in the mid- and long-term, the sustainability of AIPs will depend on the extent to which the investments are capable of withstanding climate variability or climate shocks, or their resilience. While the AIP guidelines mention the need to be “responsive to climate change” as one of the factors of overall sustainability of the SADP, there is currently no consideration of how this might be achieved within the project framework or within the AIPs.

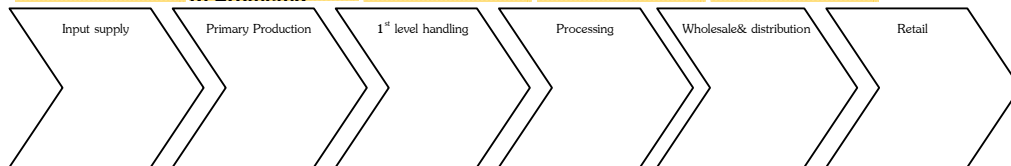
It will therefore be important to ensure that the AIPs not only propose investments that are “resilient” but also refrain from supporting investments that are likely to be at increased risk from climate change, otherwise called “maladaptation”. In addition, AIPs could also propose non-traditional agricultural investments that are aimed at increasing resilience through diversification of livelihood strategies, income generation, or the rehabilitation and resilient management of the natural production base. The Resilience Checklist proposed at the end of this document provides guidance to the AIP teams and SADP staff on the identification of resilience and maladaptations.

At present, the results framework for the Component 2 of the SADP does not include any mention of the climate resilience of investments supported through AIPs. There is, therefore, no way to measure whether or not the investments supported are in fact resisting climate shocks or variability. A set of climate resilience related indicators are therefore proposed for inclusion in the broader SADP Results Framework.

Resilience in Productive Investments

The AIP Operational Manual (section 3.1) provides that Productive Investments will be financed if they have a demonstration effect or if they produce outputs that will have benefits beyond the supported group. It is proposed that a third criterion for selecting productive investments be added as part of the primary focus of the AIPs, to specify that investments should also promote climate resilience (see also section 6.4.4). Examples of such investments are included in the list below: some of them represent only minor modifications to the existing investments, the additional costs of which could be supported by the LDCF funds. Most of them are targeted towards input supply and primary production. The figure below is reproduced from figure 3-1 of the AIP Operational Manual (p.5).

<p>a) Supply of improved and drought resistant seed varieties multiplication.</p> <p>Abis) Supply of seeds and seedlings for emerging crops</p> <p>b) Supply of new (heat tolerant) improved livestock breeds.</p> <p>c) Supply of organic fertilisers and chemicals</p> <p>d) Local seed multiplication</p> <p>e) Local seedling production of resilient tree species</p> <p>f) Stock feed improvement</p>	<p>a) Improved water supply for crops and livestock: irrigation, roof water harvesting; micro dams for water harvesting; water use efficiency practices (e.g. drip irrigation)</p> <p>b) Poultry/piggery production: improved housing, feed and water dispensing facilities (taking future climate conditions into consideration, e.g. increased heat and rain intensity).</p> <p>c) Improved soil management: erosion control, soil fertility management, reforestation for water retention,</p> <p>d) Mushroom production or other niche products for diversification</p> <p>e) Improvements to grazing lands</p> <p>f) Conservation agriculture</p> <p>g) Protected</p>	<p>a) Woolshed construction</p> <p>b) Fruit and vegetable processing technologies</p> <p>c) Milking parlours</p> <p>d) Slaughter houses for livestock</p> <p>e) Sorting and grading of produce</p> <p>g) Bulking facilities for produce</p>		<p>a) Upgrading of rural marketing facilities/rural wholesaling</p> <p>b) Small roads improvement</p>
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Examples of eligible productive investment with resilient options in bold

The LDCF project will support the provision of training and services to AIP beneficiaries, AIP teams as well as other supporting stakeholders, such as PFOs, on resilience and climate risk management in the agriculture sector, with a focus on production.

It is also expected that a good portion of the LDCF funds channelled through the AIPs could be targeted toward supporting investments in natural resources management. Activities under this rubric that are already mentioned in the AIP Operational Manual (for example in section 3.1) can be considered as means by which to increase resilience, by rehabilitating the natural environment and natural resource base. However, whereas the AIP investments in NRM are targeted towards *productive* natural resources, LDCF resources could be targeted to support broader ecosystem regeneration for the restoration of ecosystem services at a larger scale. This would include erosion control and gully reclamation, rangeland rehabilitation, reforestation (including in the mountainous areas), river bank stabilisation, or community-based natural resources management schemes.

Because the purpose of the LDCF project is to reduce vulnerability everywhere in the pilot areas and not just in the production sector, it is also proposed that a part of the LDCF funds be targeted to support community- administered “household” level investments in resilience. For example, the community groups or aspiring producers who are selected as beneficiaries in an AIP process could be encouraged to include as part of their proposed investments, a set of small-scale household level improvements towards resilience which they would pre-select and administer themselves. Such improvements could include:

- Key hole gardens training and basic inputs
- Household drip irrigation training and technology
- Water harvesting in community buildings (schools, churches, clinics)

A. Recommended modifications to the AIP development process

In addition to the recommended additions above it is also suggested that some minor modifications be made to the process of developing an AIP, as outlined in the Operational Manual Section 6.4. These modifications will be supported by the LDCF funds and by the supplementary project staff provided through the LDCF. It is expected that the LDCF staff will work closely alongside the Project Field Officers in their support of AIPs.

During awareness raising (6.4.1), it will be important to add a component related to the impacts of climate and climate change on production. This may require additional capacity building to ensure that communities understand what the impacts can be on their productivity and on the AIP as a whole. The same tools that are being proposed for the sub-center situation analysis (6.4.3) can be used to understand the factors of climate vulnerability, provided that the appropriate questions are asked⁸¹. In general, it will be important to understand the climate constraints currently faced by the producers and communities as well as those to come from climate change in the long term. It will also serve as an opportunity to

⁸¹ The LDCF funds will support training for the AIP teams and ARC staff on the conduct of vulnerability analyses.

sensitize the project beneficiaries to the potentially more resilient ways of producing or of managing natural resources.

It may also be useful to present various climate scenarios during the round table discussions and village-level meetings. When identifying the various strengths, weaknesses and opportunities for the sub-center, testing the opportunities against various climate scenarios could allow for the prioritization of the most resilient investment avenues.

B. Further suggested modifications – Annexes to the Operational Manual

In line with the above suggested changes, it is recommended that the Indicative outline for AIPs contained in Annex 2 of the AIP Operational Manual be modified to add some consideration of the climate resilience of the proposed investments. It is proposed that a short analysis of climate change impacts on the proposed investment option be added on as follows (modifications in bold). The Resilience Checklist in the Annex to this document provides basic advice on how to conduct a resilience analysis:

Annex 2 - Draft Outline of Agricultural Investment Plans

(...)

G) Investment Options

Identify investment options for the most suitable commodities in the sub-centre. The team will perform cost/benefit analysis **and a climate change resilience analysis** for the options identified.

G.1 Productive Investments Options

Give priority list of the options, as agreed with the community; including cost benefit analysis **and climate change resilience analysis**; potential returns to farmers and capacity to implement

G. 2 Natural Resource Management Options

Give priority list of the options, as agreed with the community; including cost benefit analysis **and climate change resilience analysis**; potential returns to farmers and capacity to implement

G.3 Training and Services

Give priority list of farmer and other courses that will benefit agriculture in the sub-centre.

H) Risk management

Identify the risks that may affect the production for the market and the measures

It is further proposed that Annex 6 of the AIP Operational Manual, containing the negative list, be amended to include the following:

<p>Annex 6 – Restrictions on Project</p> <p>(...)</p> <p>Proposals for private productive investments sub-projects, like irrigation, hatchery or milk collection centres, should clearly show the following:</p> <ul style="list-style-type: none"> – it is to benefit a large group of community members, especially the vulnerable; – it has a demonstrating effect and can be replicated – it is introducing a new variety or way of doing business to meet market demand – it is introducing a dimension of climate resilience or reduces community vulnerability – the matching contribution, as stipulated, is available
--

It is also proposed that Annex 7 containing the checklist for verification of proposals, be amended to add two criteria regarding resilience and climate risk, specifically as below:

<p>Annex 7 Project verification checklist</p> <p>(...)</p> <p>Criteria for assessment of compliance with acceptance rules:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">1. Sub-project proposal is not on the negative list:</td> <td style="width: 20%;"><input type="checkbox"/> yes</td> <td style="width: 20%;"><input type="checkbox"/> no</td> </tr> <tr> <td>2. Sub-project duration is not more than 4 years:</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>3. Community in-kind contribution is based on reasonable and valid calculations:</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>4. Written confirmation that community will provide a cash and/or in-kind contribution of at least 10% of total cost of proposed project, of which at least 10% (or 20% of income-generation component) is in cash:</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>5. Benefits exceed costs (financial rate of return greater than 12%, if applicable)</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>6. Group members (30% of adults) are attached:</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>7. Complete project description is attached:</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>8. Technical design specifications are attached (if necessary):</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>9. Business plan is attached (if necessary):</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>10. Estimated Sub-project budget is attached:</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>11. Complete additional documentation is provided:</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/> no</td> </tr> <tr> <td>12. Project integrates climate risks and resilience issues</td> <td><input type="checkbox"/> yes</td> <td><input type="checkbox"/></td> </tr> </table>	1. Sub-project proposal is not on the negative list:	<input type="checkbox"/> yes	<input type="checkbox"/> no	2. Sub-project duration is not more than 4 years:	<input type="checkbox"/> yes	<input type="checkbox"/> no	3. Community in-kind contribution is based on reasonable and valid calculations:	<input type="checkbox"/> yes	<input type="checkbox"/> no	4. Written confirmation that community will provide a cash and/or in-kind contribution of at least 10% of total cost of proposed project, of which at least 10% (or 20% of income-generation component) is in cash:	<input type="checkbox"/> yes	<input type="checkbox"/> no	5. Benefits exceed costs (financial rate of return greater than 12%, if applicable)	<input type="checkbox"/> yes	<input type="checkbox"/> no	6. Group members (30% of adults) are attached:	<input type="checkbox"/> yes	<input type="checkbox"/> no	7. Complete project description is attached:	<input type="checkbox"/> yes	<input type="checkbox"/> no	8. Technical design specifications are attached (if necessary):	<input type="checkbox"/> yes	<input type="checkbox"/> no	9. Business plan is attached (if necessary):	<input type="checkbox"/> yes	<input type="checkbox"/> no	10. Estimated Sub-project budget is attached:	<input type="checkbox"/> yes	<input type="checkbox"/> no	11. Complete additional documentation is provided:	<input type="checkbox"/> yes	<input type="checkbox"/> no	12. Project integrates climate risks and resilience issues	<input type="checkbox"/> yes	<input type="checkbox"/>
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2. Sub-project duration is not more than 4 years:	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
3. Community in-kind contribution is based on reasonable and valid calculations:	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
4. Written confirmation that community will provide a cash and/or in-kind contribution of at least 10% of total cost of proposed project, of which at least 10% (or 20% of income-generation component) is in cash:	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
5. Benefits exceed costs (financial rate of return greater than 12%, if applicable)	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
6. Group members (30% of adults) are attached:	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
7. Complete project description is attached:	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
8. Technical design specifications are attached (if necessary):	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
9. Business plan is attached (if necessary):	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
10. Estimated Sub-project budget is attached:	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
11. Complete additional documentation is provided:	<input type="checkbox"/> yes	<input type="checkbox"/> no																																		
12. Project integrates climate risks and resilience issues	<input type="checkbox"/> yes	<input type="checkbox"/>																																		

The Annex 8, containing the reviewers' evaluation grid, could also be modified by adding an additional review criteria, to increase the integration of resilience issues.

Annex 8 - Sub-project Proposal Appraisal and Evaluation Card

Proposed additional criterion 8b: "does the project contribute to increasing resilience or reducing vulnerability of agricultural production or producers?"

(...)

5. Environmental appraisal (if required)

- Collect evidence that the proposed sub-project does not violate existing environmental regulations, including land use and resource use restrictions;
- Evaluate any potential negative environmental impacts, including those on water, air, soil, human health, fauna and flora, geological environment, etc.;
- **Evaluate any potential negative or positive impacts on the project arising from climate change and climate variability;**
- Prepare recommendations on possible alternative solutions that may provide better environmental protection **or climate change resilience**; and
- Prepare recommendations on the level of environmental assessment that may be required at further stages of the project.

Integrating Resilience in Competitive Grants

The Competitive Grants are intended as another means by which to channel SADP resources towards promising producer groups. The objectives of the Grants are to create market opportunities for small and medium agriculture businesses, and to promote increases in productivity and quality of crop and livestock outputs. The Grants can be targeted towards the introduction, testing and demonstration of innovative production technologies that are designed to increase profitability and competitiveness and market access. Each grant has the potential to leverage increased benefit through a required for each grantee to demonstrate the benefits to a broader audience.

The Grants are available in two levels: up to 25,000 US\$ for activities focusing on value-added technologies and promoted by existing businesses or associations and smaller ones, for emerging entrepreneurs, up to 5,000 US\$. A portion of the LDCF project funds (approximately 500,000 US\$) will also be integrated into the CG scheme in order to support investments into resilience-building measures for producers and businesses. These measures could include retro-fitting or rehabilitation of production infrastructure, acquisition of climate resilient productive assets (e.g. animals, seeds), or the adoption of more resilient means of production.

As written above, the LDCF funds will also support targeted training on adaptation, resilience and climate risk management for the stakeholders involved in the Grants, including producer groups who have already been selected, and prospective groups, as well as service providers and technical reviewers.

In order to further integrate resilience into the Grants scheme, the priorities as set forth in Section 4 of the CG Operational Manual should be revised. A climate resilience screening of proposals might be useful to ensure that the CGs do not support investments that have a high risk of failure under emerging climate conditions. For example, if the climate predictions entail increased drought, high water intensity crops and tree species may not be recommended for support. This would support the sustainability of the SADP as a whole. The Resilience Checklist in the Annex to this document provides guidance on analysing the risk to various investments.

C. Grant objectives

As a first level of mainstreaming, it may be useful to present the objectives of the Grants in a slightly amended manner:

4. Priorities for the CGP Grants

Priority actions of the grant funded projects would focus on appropriate and affordable technologies and business initiatives in the context of the Lesotho agriculture, which would provide possible long-term solutions in a flexible manner, thus benefiting smallholders and developing private agribusiness sector to:

- increase competitiveness and profitability, **while remaining resilient to future climate changes**;
- increase value-added to local products;
- increase market access, market-acceptability and demand for local smallholder produce.
- improve agribusiness management practices, including better linkages with smallholder farmers/producers, processors, traders and service providers;

The Operational Manual also highlights a list of potential project ideas (Section 4 and Annex 3.1), many of which already represent no-regrets adaptation options in that they can increase the capacity of communities to adapt regardless of the climate changes that come to pass. Additional ideas could be added to this proposed list, such as :

- Use of alternative renewable energies for production (solar, wind, bio)
- Retrofitting or upgrading of production facilities in light of anticipated climate changes
- Water use efficiency equipment and technologies

D. Recommended modifications to the evaluation criteria

Furthermore, some of the ideas in the list could be further checked or analysed for resilience or climate risks, particularly when it comes to the introduction of new products, species, varieties or technologies. To this effect, a revision of the criteria for evaluation of the applications (Section 7.2 and Annex 4.3) is recommended, as per the table below. It should be noted that in order not to change the total scoring for this criteria, the amount of points for the replicability criteria were slightly reduced:

Project results and sustainability (maximum 30 points)	
Are the proposed results and financial and other impacts of the project clearly presented and are they feasible?	5
How large and rapid are the proposed financial results and impacts to smallholder farmers/producers and agribusinesses of the SADP districts and their contribution to the improvement to the technical and financial viability of business?	10
Will the project provide a positive impact and benefits on a significant number of direct participants and indirect beneficiaries within the smallholder farmers and producers of the SADP districts?	5
Does the proposed project contribute to the development of effective and sustainable business linkages (including partnerships between the service providers and beneficiaries)?	5
Are there clear ideas how the project activities can be continued and developed in the future (after the end of the project)?	3
Are the project results at risk from anticipated climate change? (from 0 if at high risk, to +2 if very resilient)	2

Other entry points into the evaluation format could also be suggested, such as adding an additional criterion on resilience in the “environmental impact” category, or in the “technology” category. However it was felt that the less obtrusive approach would be preferred, and that emphasizing the link between resilience and sustainability was a sound manner of conceptualizing the climate risks for proponents.

The process proposed to facilitate the integration of resilience into the CG scheme is similar to the process proposed for the AIPs. LDCF Staff would support the CG unit in the project management unit, by providing technical support and participating in the working groups, evaluation committees and other stakeholder forums, including meetings with prospective producers (together with the PFOs). LDCF funds would also be targeted towards capacity building and training activities for extension officers, producer associations and other relevant stakeholders, as well as producing technical guidelines and fact sheets on the impacts of climate change on various agricultural production chains.

III. Integrating resilience into the Technology Packages for Smallholders

Under its Component 2.2, the SADP foresees a series of sub-contracts or arrangements with Non-governmental organizations who would take on the role of piloting and disseminating new and innovative technologies, coupled with training and support for smallholder farmers. These arrangements will also involve the public extension services, to ensure the appropriate dissemination of technologies.

The component foresees that the technology themes would be selected at annual technology forums that will bring together all key participants from the public and private sector, including NGOs and producers.

A. Technology themes

The Operational Manual for the sub-component also lists a set of investment priorities and themes (section 1.4). It is proposed, in order to facilitate the integration of climate resilience issues, that the scope of technologies supported be broadened to include not only “technologies that are under development in Lesotho” but also “resilience-promoting technologies that are under implementation in Lesotho or in other comparable situations”. This would allow Lesotho to gather experience from other countries facing similar challenges. It is also proposed to slightly modify the list of broad categories to be supported, to include the following:

1.4 Investment Priorities & Themes

- Livestock husbandry including feeding, breed improvement and artificial insemination, milk processing, smallholder pig and poultry production, disease control; **climate proofing productive assets**;
- Crop production such as improved homestead gardening, production of mushrooms and other **resilient** niche products, use of open pollinated varieties, seed production and introduction of new varieties (**tolerant of climate extremes**), introduction of new varieties and methods of fruit production;
- Water harvesting and low cost irrigation technologies, **water use efficiency technologies and practices**;
- Soil health including conservation agriculture and organic production; **agro-**

As is the case for the AIPs, the LDCF will support the production of guidelines on climate-proofing of productive assets and guidelines on potentially resilient (or no-regrets) niche products for resilient diversification. (see component 1 of the LASAP project document).

B. Recommended changes to the Technology Packages process

In order to further support the integration of climate change issues into the sub-component, it is also proposed that the LDCF-supported staff be integrated into the various working groups (Section 2.2) and evaluation committees overseeing the activities. This participation will allow them to promote information sharing on the issues of climate change and climate resilience during the information sessions (Section 2.3) and more specifically during the technology forums (Section 2.4) where it is proposed that a specific set of presentations on climate impacts on agriculture could be made. This can help ensure that technologies that emerge from the forums are also vetted for possible climate risks and impacts, and to increase awareness of future climate impacts and conditions.

As a result of this integration, the evaluation of proposals by NGOs or private operators should also take climate resilience issues into consideration. To this effect, an additional criterion could be added among the list of evaluation criteria (Section 2.7 and Annex 4), under the technical approach category:

2.7 Evaluation of Proposals

(...)

b) Technical approach:

- Feasibility of the approach
- Probability of success within the time frame
- Clear description of methodology and treatment of results
- Potential constraints defined and solutions proposed
- Probability of success within the time frame proposed
- Adequate plan for technology dissemination
- **Resilience of the approach and/or consideration of climate change in the proposal**

For the evaluation format (Annex 4 of the Technology Packages Operational Manual) it is proposed that this final indicator be scored on no more than 2 points out of the 20 for this rubric. This may require reducing the number of points available for the other

A similar section should then be integrated into the Application Format (Annex 3), under item 10: “Describe the climate risks or benefits to this proposal and explain how the proposed project promotes resilience”.

IV. Key questions for mainstreaming resilience

From a sustainability point of view, as well as from an economic point of view, mainstreaming climate resilience issues into agricultural investment requires a new way of thinking. In most cases, testing the assumptions that form the basis of an investment will suffice to highlight the key climate vulnerabilities. In fact, most agricultural yield predictions and productivity projections are based on the maintenance of “normal climate conditions” (e.g. historical long-term average conditions). However, it is now apparent that Lesotho will face increased variability, and an increased amplitude between climate extremes. This could have the unfortunate consequence of negating any investments in the future.

In order to assist the SADP staff in undertaking this “resilience analysis” a set of guiding questions can be posed when considering investments, for which mitigating strategies could then be proposed:

In the **livestock sector** (including small stock), examples of key questions could be:

- Are the species or breeds vulnerable to frost, cold temperatures, or heat waves?
- Are the proposed livestock husbandry installations sufficient to ensure adequate water supply?
- Are the proposed installations at risk from strong rains, flooding, strong winds, temperature fluctuations/extremes?
- Is the energy supply for production dependent on water or rainfall (e.g. hydro)?
- To what extent is the availability of feed supply subject to climate conditions?

In the **crop sector**, example of key questions could be:

- Are the varieties and seeds tolerant to droughts, floods, or frost?
- Do the crops have a limit of temperature tolerance?
- Would new pests or diseases emerge in case of drought or floods, or in case of increased temperatures, humidity and rainfall?
- Do the current or proposed water management practices promote water use efficiency?
- Do the proposed niche products tolerate climate extremes and variability such as increased rain, longer dry periods, strong rainfall events?
- Are the projected yields subject to climate conditions remaining the same?
- Are the proposed cultivars competing with others for water or soil?
- Will new varieties or crops significantly change planting and harvest dates – if so will this have impacts on other activities?

These questions, if well integrated into the SADP investment cycle, could contribute to helping emerge those investments that have the highest chances of yielding continued economic benefit in the long term, regardless of the climate conditions.

The Resilience Checklist provided in the Annex to this document provides additional guidance on how to undertake a climate risk analysis.

V. Conclusion

It is expected that, through awareness raising and training of the AIP stakeholders, resilient and no-regrets investments will emerge. In fact, many of the investments currently promoted through AIPs are already considered as no-regrets adaptation options that can promote resilience and reduce vulnerability among project beneficiaries.

LDCF project funds will support and enhance capacity development at all levels of the SADP framework. The LDCF funds will also support the development of clear technical guidelines on resilience within the key production areas supported by SADP (pig or poultry production, maize and sorghum production, for example) and could also support the analysis of new production value chains in light of climate change (for example, mushrooms or other crops).

Depending on final project design, it is possible that a more straightforward division of labour between the LDCF and SADP funds channelled through the AIPs and Grants could be achieved. For example, the LDCF funds could support only those investments listed as resilient in the lists above, whereas the SADP could then increase its funds towards the other production enhancing investments and technologies. At the time of writing, however, this issue had yet to be finalized, and it was deemed preferable to promote a mainstreaming approach within SADP operations in order to take advantage of opportunities to make the programme more sustainable and more efficient.

VI. Appendix 1 – Resilience Analysis Checklist

The following is intended as additional guidance to the AIP teams, PFOs and SADP Staff and Stakeholders on how to undertake a climate resilience or climate risk analysis of the proposed investments. This checklist can be applied at all steps in the SADP process, but it is intended to be applied in consultation with the beneficiaries.

The climate resilience analysis involves testing the assumptions governing a given investment against the basic climate change scenario for Lesotho which predicts:

- Increased average temperatures
- Lower rainfall in the spring and summer seasons
- Higher precipitation in winter
- Gradually increasing precipitation in autumn.
- Heavier snowfall occurrences
- Strong devastating winds
- Higher incidences of severe rainfall events
- Increases in flooding events
- Increases in variability and uncertainty of climate within and between years

1. Analysing current climate constraints

Together with communities, an analysis of current constraints on agricultural production could involve the following questions:

Water

- is rainfall sufficient to ensure productivity in the targeted sector?
- are the rainfall patterns seasonally regular?
- is water available for irrigation?
- are there occurrences of flooding?

Land

- is soil degraded or is land eroded?
- is there deforestation?
- are the rangelands regenerating at a normal rate?

Climate

- are crops and livestock performing well under current temperatures?
- have there been losses due to heat waves or early frost?

If the answers to any of the these questions are yes, then it may be opportune to adjust the proposed investment in order to address these constraints. Chances are the constraints of today will be exacerbated by climate change.

2. Understanding the impact of climate change on the proposed investment

A basic set of questions have been proposed in this paper in order to guide the analysis of resilience of proposed investments.

In the **livestock sector** (including small stock), examples of key questions could be:

- Are the species or breeds vulnerable to frost, cold temperatures, or heat waves?
- Are the proposed livestock husbandry installations sufficient to ensure adequate water supply?
- Are the proposed installations at risk from strong rains, flooding, strong winds, temperature fluctuations/extremes?
- Is the energy supply for production dependent on water or rainfall (e.g. hydro)?
- To what extent is the availability of feed supply subject to climate conditions?

In the **crop sector**, example of key questions could be:

- Are the varieties and seeds tolerant to droughts, floods, or frost?
- Do the crops have a limit of temperature tolerance?
- Would new pests or diseases emerge in case of drought or floods, or in case of increased temperatures, humidity and rainfall?
- Do the current or proposed water management practices promote water use efficiency?
- Do the proposed niche products tolerate climate extremes and variability such as increased rain, longer dry periods, strong rainfall events?
- Are the projected yields subject to climate conditions remaining the same?
- Are the proposed cultivars competing with others for water or soil?
- Will new varieties or crops significantly change planting and harvest dates – if so will this have impacts on other activities?

In addition to the questions above regarding the current conditions, the communities should test the viability of the investment against the following conditions. This involves considering the viability of the *commodity* being produced (ie the crop or the livestock) as well as the *means of production* (cultivation practices, land husbandry, livestock husbandry, buildings, shelters, etc.). The key question to ask is “will the investment continue to be viable/profitable/productive if there is...”:

- 5% to 10% less rainfall?
- more heat during growing season?
- early frost?
- less soil moisture?
- lower river flow?
- later onset of rain?
- longer rainless periods during the growing season?
- flood?

- drought?

If it is found that for one of the emerging conditions an element of the proposed investment is not viable (for example, the breed of chicken promoted would not be productive under an increase in temperature of 2 degrees on average), then an adaptation option should be proposed.

3. Making recommendations for adaptation

Recommendations for adaptation should focus both on addressing the current constraints and the future constraint. A resilient investment is one that can resist a maximum number of current and future constraints.

Recommendations for adaptation can include:

- Changes in the *commodity* being produced, for example improved varieties that resist a larger temperature amplitude, droughts, pests, that use less water, etc..
- Changes in the *inputs* being used for production, for example fertilizers and agrochemicals that replenish soil fertility without damaging the soil's long term conditions.
- Changes to the type of production *means and assets*, for example using biomass energy as an alternative to potentially failing hydro-electricity, or improving the design of animal shelter to provide added cover in case of extreme events;
- Changes to the *management* practices, for example increasing water use efficiency, mobilizing new sources of water, or promoting no-tillage practices.

4. Testing for maladaptation

Maladaptations are investments or activities that seem like they are addressing a current constraint, but are in fact aggravating a future constraint. For example, planting Eucalyptus to reforest degraded land may appear as a viable solution today, but because Eucalyptus are high water consuming species, they may create a water scarcity situation in the ecosystem in the longer term, thereby impacting overall production.

In proposing investments and adaptation options, therefore, it may also be useful to answer the following key questions:

- Will the proposed action create additional demand on water or land?
- Will the proposed action create long term costs or have long-term labour implications?

- Does the proposed action depend entirely on climate-sensitive services (for example, rainfall)?
- Will the proposed action introduce a potentially invasive species or variety?
- Will the proposed action compete for natural resources with the key productive sectors?

Conclusion

There is no perfect adaptation solution, one that addresses all of today's risks and tomorrow's uncertainties. However, the resilience analysis can help determine which low-regrets or no-regrets actions can be deployed today for ongoing benefits for the community.

The result of the above analysis will therefore be the adoption of an adaptation solution that presents the least risk for the communities, the maximum benefit under current constraints, and the most chances of continued viability under a climate change scenario.