Pilot Project Idea Note: South Africa

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(The Project Idea Note (PIN) is allowed to be a maximum of 10 pages in length, with further additional appendixes if need be.)

1.   BACKGROUND[1]

Predicted climate change and the challenge it presents

There is good agreement across climate models that South Africa and the broader southern and East Africa region are predicted to become warmer and drier over time with an increased prevalence of extreme events in the form of droughts and floods (Engelbrecht et al. 2011, IPCC 2013). This in turn will both directly and indirectly affect human livelihoods and forest landscapes in a number of ways. Increasing vulnerability to drying, droughts, wild fires and floods will increase both local residents and downstream communities' reliance on intact ecosystems to provide ecosystem services, such as regulation of water flow in a resilient manner. In this context, deforestation, forest- and land- degradation can significantly exacerbate enhance the vulnerability of humans to climate change. For this reason there has been a growing emphasis on the concept of 'ecosystem-based adaptation' and the importance of restoring and managing natural landscapes for improved resilience to climate change related impacts (Roberts et al. 2012, Munang et al. 2013).

In addition, the predicted changes in temperature and rainfall are predicted to result in a change in fire regimes through their effect on fuel loads and an increase in the prevalence of warm, dry conditions conducive to wild fires (Dale et al. 2001). Fire has both a profound impact on the extent and distribution of indigenous forests in the region (Geldenhuys 1994, Bond and Keeley 2005) and can present a significant risk to plantation forestry as was seen during the fire in Mpumalanga, South Africa and eSwatini in July 2007.

This concept note focusses on two forms of climate change adaptation within the domain of forest and land-use. The first is an ecosystem-based adaptation approach to improving forest resilience, interpatch connectivity and ecosystem service provision to reduce, the vulnerability of forest associated communities to predicted climate change impacts. The second focusses on reducing the risk of fire to plantation forest compartments, which is likely to be exacerbated through predicted future warming and drying across the region.

Rationale of project formulation

Both project types (i) halting, reducing and reversing forest degradation through improved forest management and (ii) reducing the risk of fire to forests through integrated fire management in adjacent landscapes, are widely applicable across sub-Saharan Africa where similar ecological and socio-economic conditions as well as climate change adaptation needs often prevail. As such, the proposed projects are true early pilot ventures with substantial opportunity for expanded implementation over time.

Improved Forest Management

Indigenous forests in South Africa provide a broad suite of ecosystem services to local residents and downstream agriculture, urban areas and industry in the form of water regulation, food, fuel, building materials and medicinal plants. Their role in both climate change mitigation and adaptation have come to the fore with parties increasingly

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[1] To include the concept of "paradigm shift" in the pilot project.

understanding their role in sequestrating carbon, providing ecosystem services in a resilient manner and reducing the intensity of disaster events in the form of floods and droughts. Furthermore, South African indigenous forests are known for their high biodiversity, with at least 24 different types of forests occurring in the country (von Maltitz et al. 2003).

Despite their considerable value, there is uncertainty regarding the management of many forests. Approximately 55 % of the national forest estate occurs on land not directly owned by the state. Of this area, 23% is on land under communal tenure and 23% on private land. Forests falling outside of formally protected areas tend to be poorly protected and managed, and under increasing threat of deforestation and degradation (Berliner, 2009). The main causes of forest loss include slash and burn agriculture, informal housing, wild fires and the spread of alien invasive plants.

Whereas deforestation and clearance of forests may not be as prevalent in South Africa as it is in neighboring countries, forest degradation is wide spread, and on the increase. There are various causes of forest degradation in South Africa, these include patch clearing for housing, cannabis and other crop cultivation, illegal harvesting of timber and non-timber forest resources, hunting, and the spread of alien invasive plants on forest margins and inside forest canopies. Forest degradation has led to a decline in a number of forest dependent species , in particular those targeted by illegal poaching, a decline in forest health and resilience, and an increased vulnerability to alien plant infestation and wild fires. Importantly, forest degradation is leading to significant declines in above ground carbon stocks (Berliner, 2015, Mangwale, et al. 2017).

While ample legislation and policies exist to protect forests in South Africa, these are mostly poorly enforced. To address drivers of degradation, the implementation of Sustainable Forest Management as delivered and applied through community based participatory forest management are urgently needed. These approaches are strongly supported by current national policy and legislation, which advocates their adoption at scale.

Forests occur along the mountain escarpment and eastern seaboard of South Africa in a fragmented and discontinuous manner. Their current distribution is considered as a relic of a once more widespread biome that has become more discontinuous and fragmented over time as the climate and further drivers (e.g. fire) have changed. Due to their widespread distribution and diversity, from the Southern Cape to the northern border with Zimbabwe, two early pilot project sites are proposed: (i) the Cata Community Forestry Enterprise in the southern part of the country in the Eastern Cape, and (ii) the Tshirovha Waterfall Development located near the northern border in the Limpopo Province.

Both pilot project sites have been chosen as they represent 'typical' cases of forest degradation that can be replicated across South Africa and the region. A preliminary assessment of satellite imagery of these two sites, clearly shows extensive forest degradation and patches of forest loss (Appendix 1). Furthermore, the pilot forests are surrounded by landscapes, forms of tenure and drivers that are common in the region - expanding small holder agriculture, expanding settlements and extensive timber plantations.

Forests typically serve as a 'livelihood safely net' for poor an vulnerable communities. Millions of rural and urban dwellers across the world make use of a wide diversity of forest products to fulfill several livelihood requirements, from direct household provisioning to cash income, cultural needs, and as a fall back in times of emergency or a means to income diversification (Shackleton and Shackleton, 2004; Shackleton *et.a*l, 2011). Because many communities may be partially dependent on forests, as well as surrounding small scale agriculture for their livelihoods, non-sustainable land and forest use will significantly increase the severity of climate change impacts on these communities. There is there for an urgent need to restore and improve the sustainable management of forests in a manner that provides tangible benefits and improves forest and surrounding landscapes resilience to climate change. In this regard, one of the proposed interventions will be the development of new value chains associated with eco-tourism and sustainably harvested non-timber forest products, that may reduce reliance on livelihood options that are more vulnerable to climate change (e.g. crop production). It has been well documented that forest products perform an important function in reducing vulnerability and ameliorating poverty (Shackleton et.al, 2011).

Integrated Fire Management

The savanna and grassland landscapes of the region in which indigenous forests and commercial plantations are nested are characterized by the prevalence of fire (Scholes and Archer, 1997). In turn, fire has often shaped the spatial extent of indigenous forests in the regions (Geldenhuys 1994) and can present a clear threat to plantation forestry. The fire which swept through the Mpumalanga lowveld of South Africa and eSwatini in July 2007, led to the loss of human life, the destruction homesteads, the loss of over 200,000 hectares of grazing land, the death of extensive numbers of livestock, and loss of over 50,000 hectares of commercial plantations in South Africa and a further 18,000 hectares in eSwatini (Dlamini 2009). Further to the immediate catastrophic impact, such fires can have long-lasting negative impacts on the plantation forestry sector in the country and associated employment, income opportunities and livelihoods (Dlamini 2010).

This is not an isolated case of an extensive, destructive fire in the region. The recent 2017 and 2018 fires in the southern Cape, Knysna area of South Africa are another example of the impact of fire on indigenous forests, commercial plantations, homes, infrastructure and human livelihoods. Furthermore, unmanaged wild fire is often a clear threat to forests, woodlands, agriculture and livelihoods in many of the dryland areas of East and southern Africa and is expected to be exacerbated under predicted climate change (Hoffman et al. 2009, Saito et al. 2014).

To reduce the frequency of intense wild fires in the region, parties have developed the approach of 'Integrated Fire Management' (IFM) that seeks to both suppress fire when it does occur, but more importantly, to reduce substantial continuous fuel loads that are necessary to sustain uncontrollable run-away fires (Goldammer and de Ronde 2004). Through pro-actively implementing early prescribed burning, grazing activities and the removal of alien invasive plants, parties are able to reduce and fragment grass and woody fuel loads across landscapes. The approach is truly 'integrated' combining fire awareness, -prevention, -detection, -suppression as well as prescribed burning to strategically achieve a number of goals. In addition to the primary goal of reducing the risk of fire to human lives,

livelihoods and assets, fire is used to manage the quantity and quality of grazing in lands adjacent to forest areas, thereby leading to improved livestock production and associated income opportunities.

Two early project areas in which IFM will be implemented are proposed. Both are located in the south of the Mpumalanga Province in South Africa in the broader area where the devastating 2007 fire occurred: (i) Nkomazi Local Municipality in Ehlanzeni Municipality (Trans-boundary to Mozambique) and (ii) Mkhondo Local Municipality in Gert Sibande Municipality (Trans-boundary to eSwatini). Within each area, the focus will be on (i) creating cross-border protocols and collaboration; (ii) strengthening early warning systems on the ground; and (iii) ground level fire prevention and initial response strengthening. There is good opportunity to use the two projects as true 'pilots' to test expanded implementation across the dryland areas of SADC.

Socio-economic context and potential beneficiaries

Each of the four project sites has been chosen based not only on the opportunity to implement much needed ecological measures, but the urgent need to address the vulnerability of the rural poor in many parts of the country. All four locations are home to poor communities where up to 80% of the population live below the poverty line (Stats SA 2010) and there is generally low levels of economic activities and limited employment opportunities. Most income is generated from outside the region, in the form of social grants and migrant labor, and almost all commodities and food are purchased from outside of the region, there is therefore almost no market economy. The migration of males seek employment in urban hubs has resulted in a predominance of woman headed households and a high dependency on forest resources to support basic needs and livelihoods.

Each project is located within a mosaic of substantial indigenous forest patches and plantation compartments, surrounded by rural homesteads, small-scale agriculture, and grasslands and woodlands that are degraded to a certain extent (through clearance, erosion or infestation by alien invasive species). Though participatory forest and fire management, the project aims to both provide new income and economic opportunities, while reducing the vulnerability of both local residents and downstream communities to predicted changes in climate.

In terms of reducing the vulnerability of the broader population and economy to climate change, emphasis has been placed on selecting project sites located in important transboundary catchments. The Tshirovha Waterfall Development is located in the upper reaches of the Luvuvhu River catchment which flows into the Limpopo River that flows from South Africa into Mozambique. Similarly, the integrated fire management programs in the Nkomazi and Mkhondo Local Municipalities are located in the Inkomati River Basin that transcends South Africa, eSwatini and Mozambique.

Policy framework

South Africa is often recognized for its progressive environmental and climate change related policies and regulation (Table #). Following early development of the National

Climate Change Response Strategy in 2004, the country has gradually developed a substantial scientific, policy and strategy foundation on which to base future activities and measures. A National Climate Change Response White Paper was published in 2011 and a National Climate Change Adaptation Strategy is about to be finalized following an extensive consultation and review period.

The Medium-Term Strategic Framework (MTSF) is the Government's main strategic plan for the period 2014-2019 through which to affect the goals of the National Development Plan. The framework includes a set of fourteen outcomes that define delivery agreements that involve all spheres of Government. Outcome 10 of the framework focuses on "the protection and enhancement of environmental assets and natural resources". Resilience to climate change is at the core of the Outcome that seeks to halt the depletion of ecological infrastructure and restore healthy catchments that can regulate water flow and quality. Outcome 10 has five sub-outcomes, all of which the proposed projects will contribute towards:

- Sub-outcome 1: Ecosystems are sustained, and natural resource are used efficiently
- Sub-outcome 2: An effective climate change mitigation and adaptation response
- Sub-outcome 3: An environmentally sustainable, low carbon economy resulting from a well-managed just transition
- Sub-outcome 4: Enhanced governance systems and capacity
- Sub-outcome 5: Sustainable human communities

In general, the proposed project activities align well with the goals of each national water, forest, biodiversity and agricultural resources Act and contribute to both national development and climate change outcomes.

Table #: Pertinent national policies that are relevant to forest and land-use based responses to climate change.

Year	Acronym	Climate change, forest and fire related policies
1983	CARA	Conservation of Agricultural Resources Act
1998	NWA	National Water Act
1998	NFA	National Forest Act
1998, 2002	NEMA	National Environmental Management Act
2004	NEMBA	National Environmental Management Act: Biodiversity Act
2011		National Climate Change Response White Paper
2012	NDP	National Development Plan
2018		National Climate Change Adaptation Strategy (expected)

Effecting a paradigm shift

The set of early projects will form an important part of national efforts to shift towards low-carbon and climate-resilient sustainable development. The *paradigm shift* concept, logic model and GCF fund-level impacts and project-level outcome framework has been adopted to develop, communicate and report the projects in a clear and structured manner. The manner in which the project may lead to a paradigm shift is initially described in Table #.

In addition to the elements described in Table #, an important unique paradigm shift component is the strong shift towards the implementation of SFM and IFM by local residents in a participatory, bottom-up manner, thereby creating local value and buy-in. South Africa does have large scale formal forest and fire management programs in certain areas of the country, typically implemented by a corporation, municipality or government-owned entity. The significant shift in approach suggested in this project, is implementation by local communities.

Table #: Effecting transformational change or a paradigm shift through the # project

1. Potential for scaling up and replication
The two project types were specifically selected due to the need for this form of intervention across South Africa and the region as a means of adapting to climate change and reducing the vulnerability of the rural poor. The proposed participatory SFM approach is widely applicable to forest fragments throughout the highland mountainous areas of South Africa, Zimbabwe, Mozambique, Malawi, Tanzania, Kenya and the Albertine Rift region. Similarly, the proposed IFM approach, primarily implemented by local residents, is applicable throughout the dryland grasslands, savannas and sub-humid woodlands (Miombo) of southern and East Africa.
2. Potential for knowledge and learning
Both project types are primarily aimed at teaching, employing and supporting local residents to undertake required SFM and IFM activities on the ground. In addition, both projects will include broader education and awareness components as well as the development of early warning systems in the case of IFM. The intention is to approach the projects as true pilots, where they will be used to learn and inform subsequent expanded implementation.
3. Contribution to the creation of an enabling environment
A central component on the projects is addressing current systematic and institutional barriers to implementation, thereby creating an enabling environment that will lead to the sustainability and expansion of activities. For example, the IFM project will develop cross-border protocols and collaboration on fire management, the lack of which have often systematically inhibited IFM across transboundary landscapes in the region and the ability to reduce the frequency of disastrous fire events.
4. Contribution to regulatory framework and policies
As noted above, the proposed project types align well with existing South African water management, forest and biodiversity policy and regulation. In addition, the directly contribute to the goals of the National Development Plan and national climate change policy, both in terms of climate change adaptation and mitigation.

2.   OBJECTIVES[1]

The project objectives and outcomes are described in a manner that aligns with the GCF's fund- and project- level impacts.

2.1   Broad objective

The principle overall objective is to increase the resilience of human livelihoods and forest landscapes in southern Africa to climate change, while at the same time, reducing

the risk of climate change related disasters, particularly floods and runaway fires, to local residents, infrastructure and downstream economic hubs.

Both project types - taking a participatory approach to (i) halting, reducing and reversing forest degradation through improved forest management and (ii) reducing the risk of fire to forests through integrated fire management in adjacent landscapes – would deliver a broad set of adaptation and mitigation objectives and outcomes aligned with the GCF's investment strategy (Table #, #). Although each is primarily an adaptation measure, improving the resilience of livelihoods, water, resources, ecosystems and infrastructure, their implementation is likely to lead to a decrease in atmospheric carbon dioxide through reducing further forest degradation and increasing terrestrial carbon stocks as forests and soils recover.

Table #: Objectives aligned with the GCF's strategic fund-level impacts

Adaptation:
• Enhanced livelihoods of people, communities and regions
• Increased resilience of health, food and water security
• Increased resilience of ecosystems and ecosystem services
• Improving the resilience of infrastructure and built environment
Mitigation:
• Reduced emissions from deforestation, forest degradation and other forms of land-use

Table #: Anticipated GCF strategic project-level outcomes

Adaptation:
• Strengthened adaptive capacity and reduced exposure to climate risks
• Strengthened government institutional and regulatory systems for climate responsive development planning
• Increased generation and use of climate information in decision-making
• Strengthened awareness of climate threats and gender-sensitive risk reduction processes
Mitigation:
• Stabilization of forest cover
REDD+:
• Reduced emissions from deforestation and forest degradation
• Reduced emissions and increased removals through the sustainable management of forests and conservation of carbon stocks
• Increased carbon sequestration through the enhancement of forest carbon stocks

2.2 Narrow objectives

To implement a cost-efficient community-based participatory approach to:

- Sustainable Forest Management of important indigenous forest areas that have the ability to provide ecosystem services in resilient manner and decrease the intensity of flood events.
- Improved resilience of fragmented forest patches through reforestation of critical ecological corridors
- Develop micro enterprises opportunities within non-timber forest product and tourism value chains.
- Integrated Fire Management across landscapes that are a mosaic of indigenous forests, commercial plantations, commercial agriculture, rangeland and homesteads.

The further economic, social, environmental and gender-equity outcomes associated with the two project forms are described at length in the section below titled 'benefits'.

3.   IMPLEMENTING AGENCIES

To be confirmed by JICA or DAFF.

4.   ACTIVITIES OF THE PROJECT[1]

We have adopted this simplified table for the purposes of the initial PIN. Could JICA please let us know if these are the appropriate column headings to describe the activities? We are aware that in a full project proposal, the headings would be Activities, Description, Inputs and Description again.

Table #: Proposed set of Sustainable and Participatory Forest Management activities

Activity		Sub- activity	Outputs
1 Community engagement and training	1.1	Community liaison	Community Outreach Officers empowered
	1.2	Ranger Programme	Forest Rangers trained and deployed
2. Zonation and mapping (Forest and village resource use area)	2.1	Participatory mapping (Project target sites) (Ranger mentorship as part of this process)	Community Resource Use Areas defined and mapped Conservation areas defined and mapped Priority areas for ecosystem restoration identified and mapped (forest corridors) Village expansion areas identified
	2.2	Forest Monitoring programme developed	Forest Data App developed (For use by Rangers)
3 Participatory Forest Management (PFM/SFM) practices applied	3.1	Participatory Forest Management Committees established/revitalised Training and outreach programmes established	Revitalise/Establish PFMCs Mainstream principles of SFM within community structures

Activity		Sub-activity	Outputs
4. Development of NTFP focal interest groups	4.1	Research and development to identify sustainable NTFPs with commercial value	Potential pilot projects identified (super foods, fibres, oils cosmetics, medicines and so forth)
	4.2	Crafters	Crafters Association established
	4.3	Medicinal plants	Traditional Medicine Practitioners association established
	4.4	Hunting and poaching issues	Recreational hunting association established. Poacher control and outreach officer/ranger post established
	4.5	Livestock management and forests	Livestock management plan comities established
	4.6	Household Food growers	Agriculture and land management comity established
5. Forest and landscape restoration	5.1	Establish synergies with other projects (NRM - Working for Programmes)	Forest and landscape Restoration Projects established
		Restoration of forest ecological corridors	Ecological corridors restored and conserved improving land scape resilience to climate change

Table #: Proposed set of Integrated Fire Management Activities

Activity		Sub- activity	Outputs
1 Prioritization of sites in transboundary areas between South Africa, Mozambique and eSwatini	1.1	An assessment of priority sites based on fire regimes, fire risk and beneficiaries	Assessment of priority areas, local implementing parties and associated maps. Identification and detailed description of scope of direct and indirect beneficiaries.
2. Development of cross-border protocol and collaboration	2.1	Through the SADC secretariat, to start a multi-national engagement on transboundary integrated fire management.	International discussion and agreement on the structural, legal, governance and operational aspects of transboundary fire management
	2.2	Development of joint transboundary protocol on IFM	A protocol defining the structural, legal, governance and operational components of transboundary fire management
3 Strengthening of early warning systems on the ground	3.1	Enhance early warning (Fire Danger Index) information delivery to entities on the ground	An early warning system that provides FDI and further information to implementors, administrators and schools.
	3.2	Enhance flow of information from Weather SA	A set of engagements with officials of Weather SA.

			Development of operational protocol to allow the timeous flow of weather data into early warning systems.
4. Enhance fire prevention, suppression and early prescribed burning through local communities	4.1	Training and support of local residents to undertake prescribed burns in a strategic manner that reduces fuel-loads and enhances rangeland production	The systematic implementation of prescribed burning in a cost-efficient community-based manner.
	4.2	Training and support of local residents to undertake early suppression of unplanned fire.	The creation of early response teams within local communities. Professionally trained and equipped community members who would undertake initial suppression activities
	4.3	Awareness creation and engagement with local communities on fire management and suppression operations.	A structured engagement process to ensure that (i) all parties within the landscape are adequately informed of fire management activities, and (ii) their views and concerns are included when developing fire management programs.

5.   PERIOD OF THE PROJECT

To be confirmed by JICA or DAFF.

6.   APPROXIMATELY BUDGET

To be confirmed by JICA or DAFF.

7.   BENEFITS

Table #: Sustainable development co-benefits of proposed projects.

Economic co-benefits:
• A reduction in catastrophic plantation fires that historically have had grave economic consequences for both large commercial forestry companies and emerging small-growers.
• IFM will lead to an improvement in grassland condition in areas in which forest compartments are located leading to improved livestock production and associated economic opportunities.
• The revitalization of ecotourism activities and economic opportunities associated with growing tourism in the region.
• Community based agro-forestry can lead to sustained income over the long term.

• Promoting and researching sustainable harvesting of non-timber forest products (improved access and sharing of genetic resource benefits)
Social co-benefits:
• Skill development and employment opportunities in remote rural areas that have high levels of unemployment and where few such revenue opportunities are rare.
• A reduction in rural unemployment should enhance social stability and well-being. Unemployment can lead to unstable households and crime and therefore urgently needs to be addressed.
• Reduced impact of fire on rural households, crops, livestock, schools and infrastructure in general.
• Improved conservation, awareness of values of forest and Capacity for participatory forest management
• Improved resilience of forest associated livelihoods.
• Pilot projects established for micro forest based non-timber forest products enterprises, and eco-tourism.
Environmental co-benefits:
• Restoration and long-term sustained management of highly biodiverse critical indigenous forests.
• Improved landscape connectivity and ecosystem resilience to climate change
• Improved law enforcement through training, awareness, improving forest ranger system and community-based monitoring
• Decline in non-sustainable and illegal harvesting and improved harvesting practices for fibers, medicinal plants, wood carving, fire wood
• Improved efficiency and impact of alien plant removal programs
Gender-sensitive development impact:
• *DAFF to confirm: One would imagine that most on the ground activities would be implemented by gender equal teams. Working on Fire works on this basis. All of its field teams are half male, half female.*

Table #: Additional benefits aligned to the GCF's assessment framework.

Needs of the recipient:
As described in the rationale, there is a clear need to expand IFM across South Africa in order to reduce the risk of fire to human lives, livelihoods, forests and infrastructure. In addition, whereas the rates of deforestation in South Africa are less than that observed in countries within the tropics, there is clear forest degradation below canopy at scale, which urgently needs to be addressed to restore the resilient nature of intact forests. This is especially important in scarp forests that are often located in the upper reaches of key catchments providing important water regulation services.
Country ownership:
The Government of South Africa, through the Department of Agriculture, Forestry and Fisheries (DAFF), will oversee and co-ordinate the long-term implementation of the projects. The activities were initially identified and suggested by DAFF as part of their broader response to climate change.
Efficiency and effectiveness:
On the ground measures will be specifically developed in a participatory, bottom-up manner with the intention of recruiting local residents to undertake a large fraction of SFM and IFM activities. In addition to creating buy-in and local ownership, this approach has been chosen due to its efficiency and considerably lower wage and logistics costs compared to common alternatives.

8.   MONITORING AND EVALUATION

Although the project is likely to lead to a reduction in GHG emissions from deforestation and forest degradation as well as an enhancement of forest carbon stocks through improved management, the intervention is primarily viewed as a climate change adaptation activity that provides resilient ecosystem services to neighboring residents and downstream communities, agriculture and economic centers. The monitoring and evaluation framework therefore focusses primarily on the adaptation outcomes of the proposed projects.

Monitoring and evaluation aim to provide ongoing information that helps to assess whether project activities and expected outcomes are on track and allows management to take corrective measures if need be. The structure of the monitoring and evaluation is therefore closely aligned with the logical framework used to structure and communicate project objectives, outcomes and activities above.

Table #: An example of a monitoring framework where output and impact indicators are created to measure the level of development, implementation and success of each activity.

Activity		Sub- activity	Output Indicators	Impact indicators
1 Community engagement and training	1.1	Community liaison	Number and attendance of community liaison meetings	
	1.2	Forest ranger Programme	Funding available for forest ranger programme Number of rangers trained and deployed	No. of households benefited by ranger programme. No. of years of funding to support forest ranger programme
2. Zonation and mapping (Forest and village resource use area)	2.2	Participatory mapping (Project target sites) (Ranger mentorship as part of this process)	Forest zonation plans verified and accepted by DAFF and community leaders, showing boundaries for conservation areas/ecotourism and resource use areas (low intensity, medium intensity harvesting)	Area of forest proclaimed as of special forest reserve area (under NFA)
	2.3	Forest Monitoring programme developed	Number of rangers , number of reported incidents of poaching, , identification of key forest health indicators Forest monitoring digitised into a cell phone app	Changes in key forest health indicators (canopy cover, incidents of poaching, alien infestation rates, sightings of indicator forest fauna etc)
3 Participatory Forest Management (PFM/SFM) practises applied	3.1	Participatory Forest Management Committees established/revitalised Training and outreach programmes established	Number of members of PFM comities, Number of meetings held per year. Number of PFM sub committees established	

4. Development of NTFP focal interest groups	4.1	Research and development to identify sustainable non-timber forest products with commercial value	Indicators to track progress of each committee : Number of members Has a constitution been drawn up? Identification of opportunities and constraints No. of business plans developed Number of business plans implemented	Number women deriving an income from NTFP Number of men deriving an income from NTFP Number of eco-tourism related jobs
	4...	Each working group e.g. Crafters, Medicinal plants, Ecotourism....	As above	
5. Forest and landscape restoration	5.1	Establish synergies with other projects (NRM - Working for Programmes)	Number, type of project synergies established with government and non-government agencies	Area (ha) of forest restored or replanted tCO2e sequestrated
		Restoration of forest ecological corridors	Establishment of funding streams and management plans for forest and landscape restoration	Area (ha) of forest ecological corridors reforested Number of patches reconnected

9. RISK ASSESSMENT

The assessment and description of risk and associated mitigation measures follows the framework adopted by the GCF. In its assessment of environmental and social risk, it follows the International Finance Corporation's (IFC) eight Performance Standards and their objectives.

In general, the majority of the technological and operational aspects are well known, have been tested elsewhere in the region and do not present a significant risk to the delivery of the project. However, long-term commitment by all parties can be a risk, but one that can be addressed to a large extent through (i) participatory "bottom-up" development and extensive engagement, and (ii) the creation of a broad set of clear incentives that stimulate adoption and maintenance over time.

Table #: A description of potential risks to project realization using the GCF's risk classes and associated International Finance Corporation (IFC) Performance Standards

Description	Risk category	Level of impact	Probability of occurrence and potential mitigation measures
Poor support from municipal officials and integration into regional planning	Technical and Operational	Medium	Probability: Medium, if not addressed early. Low is addressed at inception. Mitigation: Early engagement with municipal and provincial authorities is necessary to address land-use planning risk.
Non-sustainable harvesting of Non-	Technical and Operational	Medium	Probability: Medium

Timber Forest Products			Mitigation: Continued forest monitoring on a timely basis and the creation of an early warning system.
Insufficient financial incentives and limited beneficiaries	Financial	High	Probability: High Mitigation: A key consideration during the project development is the identification and development of a broad suite of incentives, including direct payments, and improved job and resource access opportunities.
Commercialization of NTFPs	Financial	Medium	Probability: Medium Mitigation: The sustainable harvest and trade of NTFPs needs to be addressed through a robust feasibility assessment and early project planning.
Feasibility of tourism operations	Financial	Medium	Probability: Medium Mitigation: A full feasibility assessment of tourism opportunities need to be undertaken.
PS1 Assessment and management of environmental and social risks			
Poor support from traditional leaders	Social and environmental	High	Probability: High, if not addressed early. Low if addressed at inception. Mitigation: It is vital that activities in areas under communal land tenure are developed in a participatory, "bottom-up" manner to enhance commitment by all parties.
Policy and regulatory support	Social and environmental	Low	Probability: Low Mitigation: Extensive policy and regulatory support already exists for forest management, halting further forest degradation and integrated fire and grassland management.
PS2 Labor and working conditions			
Fair treatment, non-discrimination, equal opportunity, health and safety	Social and environmental	Low	Probability: Low Mitigation: South Africa has progressive policy and law that regulate the recruitment and employment of labor. This is unlikely to present a risk to the project.
PS3 Resource efficiency and pollution prevention			
Pollution	Social and environmental	Low	Probability: Low Mitigation: The implementation of the proposed projects will not introduce additional pollutants to the area.
PS4 Community Health, Safety and Security			
Adverse impacts on health and safety of communities	Social and environmental	Low/ Medium	Probability: Forest management - Low; Fire management - Medium. Mitigation: Improved forest management is unlikely to adversely effect the health and safety of communities. However, improved fire management does need to be developed in a properly planned and

			executed manner to avoid potential fire risk to local residents and their fields and livestock.
PS5 Land acquisition and involuntary resettlement			
Land acquisition and resettlement	Social and environmental	Low	Probability: Low Mitigation: The projects do not require the resettlement of people or a change in land tenure or ownership.
Lack of improved livelihoods	Social and environmental	High	Probability: Medium Mitigation: Limited beneficiaries can strongly inhibit the long-term sustainability of ventures. This needs to be specifically addressed during the project development phase.

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APPENDICES

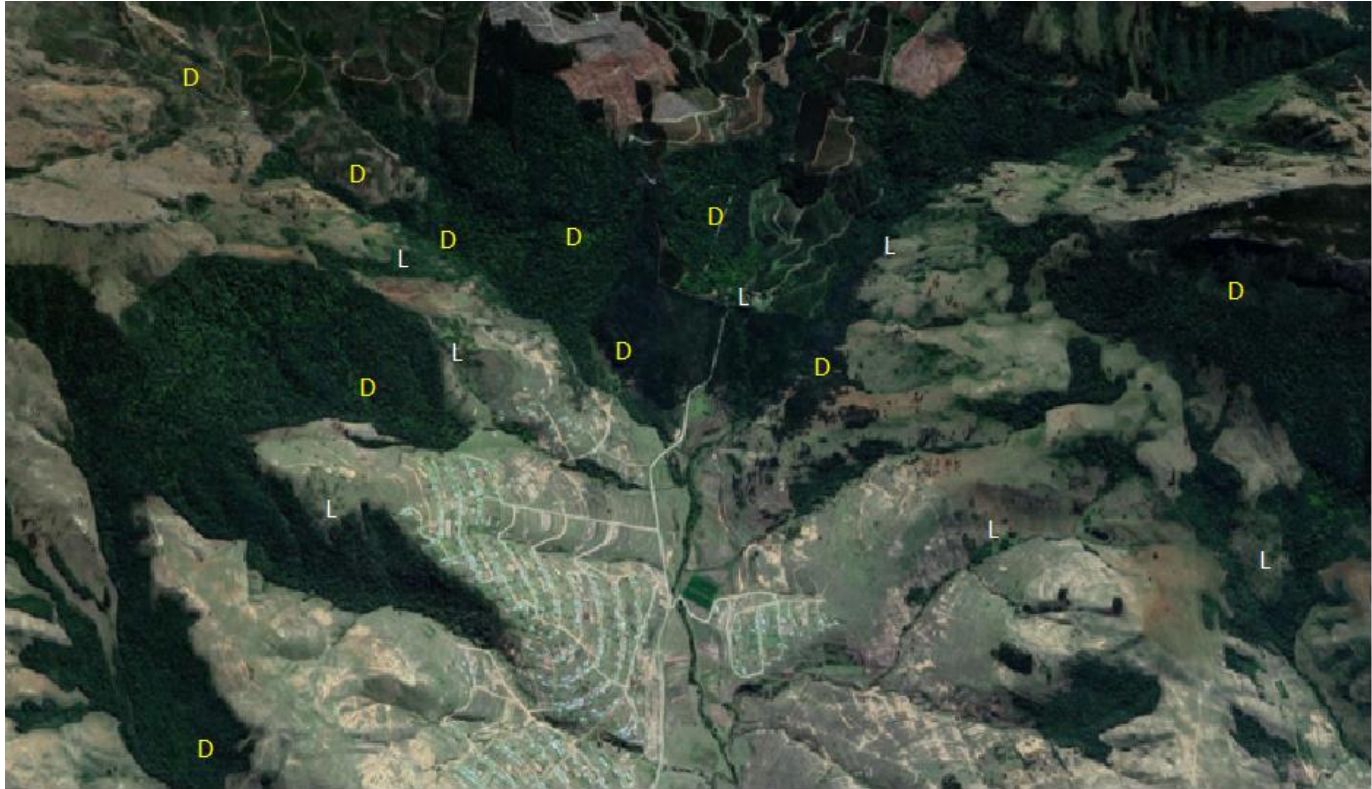## Appendix 1: Satellite images illustrating proposed project sites

Figure 1: Forest and plantations around the village of Cata, showing areas of forest loss (L) and degradation (D)

Figure 2: Forest and plantations around Thata Vondo showing areas of forest loss (L) and degradation (D).