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# **KERE RESILIENCE PLAN OF THE ATSIMO-ANDREFANA REGION, MADAGASCAR**

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COLLEGE OF HEALTH AND HUMAN SCIENCE

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# TABLE OF CONTENTS

GLOSSARY .....	IV
ACKNOWLEDGEMENT .....	V
EXECUTIVE SUMMARY .....	VI
WORDS OF THE GOVERNOR OF THE ATSIMO-ANDREFANA REGION .....	VIII
SECTION 1: THE BASIC PLAN.....	1
1.1 Introduction .....	1
1.1.1 The Atsimo-Andrefana Region .....	3
1.1.2 Legislative and Strategic Frameworks .....	5
1.1.3 Linkage with the Regional Development Plan of the Atsimo-Andrefana Region .....	6
1.2 Purpose, Scope, and Objectives.....	8
1.2.1 What does a Resilient Region Look Like? .....	9
1.2.2 Objectives.....	10
1.2.3 Plan Activation .....	11
1.3 The Conceptual Framework .....	11
1.4 Methods Participatory Scenario Planning .....	13
1.4.1 Operationalizing the PSP.....	14
1.4.1.1 The Breathing-In.....	14
1.4.1.2 The Internal Analysis.....	15
1.4.1.3 The External Analysis.....	16
1.4.2 The Scenario Development “What Could Happen?” .....	17
1.4.2.1 The Trend Analysis.....	17
1.4.2.2 Building Scenario Logics “What Should Happen?” .....	20
SECTION 2: FROM SCENARIOS TO ACTIONS.....	26
2.1 Scenario Deployment .....	26
2.2 Concept of Operations .....	27
2.2.1 Strategic Action-Plan.....	29
2.2.1.1 Institutional & Procedural Enablers.....	29
2.2.1.2 Social Enablers .....	29
2.2.1.3 Physical Enablers.....	29
2.2.2 Financial Resources.....	30
2.2.3 Institutional & Procedural Enablers .....	31
2.2.4 Social Enablers .....	33
2.2.5 Physical Enablers.....	36
2.2.6 Theory of Change .....	39
2.2.7 Plan Review and Program Evaluation.....	40
BIBLIOGRAPHY AND REFERENCES .....	43

## LIST OF FIGURES

Figure 1 - The Kere as Per the PSP Workshop Participants .....	2
Figure 2 - Map of the two Kere affected Districts in the Atsimo-Andrefana Region.....	5
Figure 3 - Conceptual Framework for Community Resilience Building .....	13
Figure 4: Scenario Planning Workshop in Ampanihy .....	14
Figure 5 - Trend Analysis for the Atsimo-Andrefana Sub-Region.....	19
Figure 6 - Anti-Kere Strategic Interventions .....	27
Figure 7 - SOG for the Atsimo-Andrefana Regional Kere Resilience Plan.....	28
Figure 8 - The TOC for the Atsimo-Andrefana Kere Resilience Plan.....	40

## LIST OF TABLES

Table 1 - Legislations and Implication to the Kere Resilience Plan .....	5
Table 2 - Link between the Atsimo-Andrefana PRD with the Kere Resilience Plan .....	6
Table 3 -SWOT Analysis for the District of Ampanihy and Betioky.....	15
Table 4 - Atsimo-Andrefana Anti-Kere Strategic Action Plan.....	31
Table 5 - The transformative Resilience Project Evaluation Framework .....	41

## GLOSSARY

ACF	Action Against Hunger
AES	Water Agency for the South
ADRA	Adventist Development Relief Agency
APC	Approche Par Compétences
BIANCO	National Anti-Corruption Bureau
CPGU	Cellule de Prévention et Gestion des Urgences
CRIC	Comité de Réflexion des Intervenants en Catastrophes
C4D	Communication for Development
DRR	Disaster Risk Reduction
EM	Emergency Management
FAO	Food and Agriculture Organization
FID	Development Intervention Fund
FEWS NET	Famine Early Warning Systems Network
JICA	Japan International Cooperation Agency
IEC	Inform, Educate, Communicate
IGOs	Intergovernmental organizations
INGOs	International Non-Government Organizations
IPC	Integrated Phase Classification
NGOs	Non-Government Organizations
3D Resilience	The three dimensions of resilience
ONN	Notional Office of Nutrition,
PTFs	Technical and financial Partners
PDR	Regional Development Plan
PSP	Participatory Scenario Planning
PRR	Plan de Relance et de Résilience
SCL	Citizen Participatory System
SESs	Socioecological Systems
SIDGS	Stratégie intégrée de développement du Grand Sud de Madagascar
The BNGRC	The National Bureau of Risk and Catastrophes Management
ToC	Theory of Change
UN	United Nations
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WFP	World Food Program

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## EXECUTIVE SUMMARY

The biosphere is a delicate balance between species that depend on one another for survival. All species face threats and changes to their environment and must adapt to survive. This holds true for humans, whom over the course of their history, have adapted to and overcome numerous disasters. This resilience behaviour has allowed humans to grow and survive in the harshest of conditions, while maintaining their identity and culture. Such evolution is already evident in Madagascar, the subject of this plan, which can serve as an example for other similar contexts.

Disaster resilience is a paradigm with a central focus on equipping communities with the capabilities to survive severe conditions, such as those of the *Kere*<sup>1</sup>. It seeks to stimulate new thinking that encapsulates adaptive capacity, resources and sustainable practices and systems. It aims to improve existing survival capability and capacity so people can overcome *Kere* hardships and “bounce forward” (Fletcher & Sarkar, 2013) from its impacts with minimal help from the outside world. In other words, a resilience plan seeks to guide the building of a set of capacities that further enable inhabitants of the districts of Ampanihy and Betioky (as an integral part of the larger system of the Atsimo-Andrefana Region) to cope well and bounce forward from the *Kere*.

The *Kere* is a recurrent complex starvation phenomenon that claims hundreds of lives per of year in each occurrence. Affecting the southern part of Madagascar, it traps the entire area in an entrenched state of poverty, including the meridional part of the Atsimo-Andrefana Region. In recent decades, not a year has passed without the local national media broadcasting horrifying images of starved individuals and alarming reports of *Kere* casualties. Cognizant of the historical significance of humanitarian aid to *Kere* survivors, this Plan is built upon the “New Way of Working<sup>2</sup>” whereby development and emergency action complement one another. It provides strategic and tactical guidance that counters, removes and reduces *Kere* root causes. Because resilience of the subregion is a set of capacities, resources and systems, and the *Kere* is a dynamic socioecological disaster,

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<sup>1</sup> Starved to death

<sup>2</sup> <https://www.un.org/jsc/content/new-way-working>

resilience endeavours are informed by collective insight into future *Kere* events the participatory scenario planning.

The participatory scenario planning involved the research-planner, representatives of *Kere* survivors and stakeholders (9 regional government agencies and 5 non-governments) in a collaborative transdisciplinary workshop to generate a strategic plan that envisions multiple plausible scenarios of future *Kere* events. Considering the district of Ampanihy and Betioky as an open system exposed to an environment that is vulnerable, uncertain, complex and ambiguous, the process examined internal and external parameters that can trigger the *Kere*. This process engendered four plausible *Kere* scenarios: the *Omary tsy Miova* (The Status quo), the *Anjagne* (The Prosperous Time), the *Kivota* (The Anarchy), and the *Farandro* (The Apocalypse). These *Kere* scenarios are tied to sets of tactical activities that, if properly implemented in advance, can trigger transformational change that would remove the likely occurrence of the foresighted *Kere* events. The Concept of Operations section of the plan below features detailed strategic interventions aimed toward building the resilience of the subregion of Ampanihy and Betioky to future *Kere* events.

## **WORDS OF THE GOVERNOR OF THE ATSIMO-ANDREFANA REGION**

The Region of Atsimo-Andrefana is committed to enhancing the resilience of all our community, especially those that are under the constant duress of the *Kere* in the district of Betioky and Ampanihy.

Our Regional Development Plan (2019) outlays our long-term vision to making Atsimo-Andrefana green, productive, model and peaceful. Achieving these aims requires tremendous efforts from us so that the suffering from challenges such as the *Kere* can be eradicated.

One of the priority axes of our Regional Development Plan is the invigoration of the regional economy starting from the grass-roots, constructed from the enhancement of community capital. This *Kere* Resilience Plan will play an integral role in helping us to achieve this aim. In addition, this Resilience Plan provides the Region and our partners a developmental roadmap to a resilience pathway over the next 10 years. This plan also identifies key issues and priorities where we need to focus our attention, while endeavouring on the huge developmental tasks ahead of us.

Through the regional *Kere* resilience plan, we will work with our partners and the community to make the Atsimo-Adrefana a region where people can respond to and overcome the voy *Kere* without the constant requirement of aid; to become a more resilient region that enables individuals, families, and raza to recover more quickly and with greater strength when faced with *Kere* related hardship.

**The Governor**



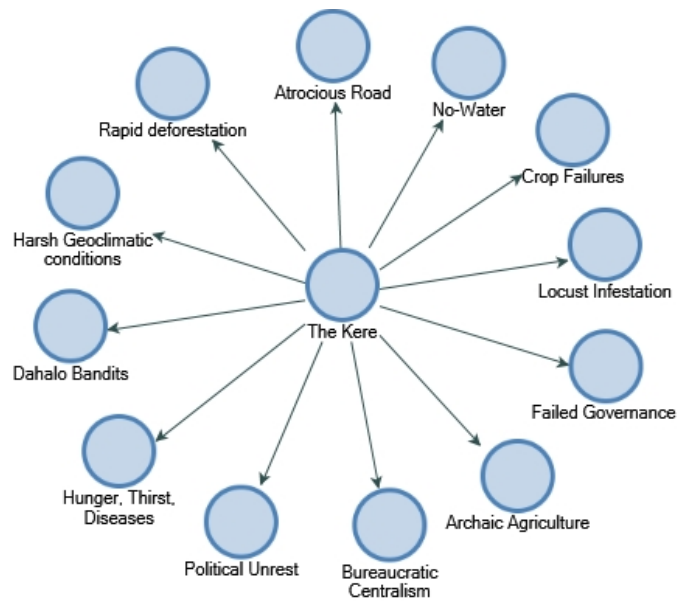
# SECTION 1: THE BASIC PLAN

## 1.1 INTRODUCTION

The *Kere* is a catastrophic phenomenon that has been affecting the Deep South (the ‘Grand Sud’ of Madagascar) since the end of the year 1929. Traditionally perceived as a drought induced food crisis, it is, according to Ralaingita et al. (2022), the compounded effects of multiple socioecological factors including, but not limited to: desertification, El Niño effects, drought, poor governance, inaccessibility, poverty food and conflict. The anatomy of the *Kere* discussed by Ralaingita et al. (2022) discloses a complex causation of interacting parameters whereby humans are both catalyst and victims. Workshop participants in Ampanihy identified the *Kere* as a dynamic and multifarious *Voy*<sup>3</sup>. Each *Kere* event differs in trigger factor, scope and intensity but, workshop participants identify crop failure as the most common cause. When the *Kere* occurs, population and animals are exposed to thirst, hunger, illnesses, and violence wherefrom scores perish, but also many survive. That is, those with higher *fiohira* (resilience) survive while those with lower resilience perish. Resilience, in this instance, refers to ways by which people survive and overcome the *Kere*. This plan is built upon these aptitudes that people of the Atsimo-Andrefana Region, especially the district of Ampanihy and Betioky, exhibit to cope with and survive the *Kere*.

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<sup>3</sup> Disaster



*Figure 1 - The Kere as Per the PSP Workshop Participants*

Disaster resilience is an approach that seeks to empower the community to recover and be self-sustained in the face of adversity. Traditionally, disaster resilience is a risk-based approach meaning, resilience is achieved through mitigation and reduction of risks posed by specific hazards, e.g. cyclones or drought (Folke et al., 2010; Cavallo, 2017) as well as exposure and vulnerability to those hazards. From a resilience thinking paradigm, this type of approach is termed as “the specified resilience approach” as it deals with the resilience "of what, to what" (Folke et al., 2010; Berkes and Ross, 2013). Difficulty emerges when unknown or novel-hazardous risks emerge, e.g. Covid-19. Complementary to this positivist-reductionist attitude is the all-hazards approach to resilience general resilience (ibid).

Unlike the specified resilience approach, which focuses emergency interventions and plans on disaster risks based on threats and risks assessment, general resilience does not specify hazard risks. It determines that the “community as a whole” (the subregion) is a complex adaptive system that constantly adapts to its environment regardless of disturbances. It is a collective behavioural and processual ability that allows the subregion to bounce back or to bounce forward from disturbances (Paton and Johnston 2017:124). Fundamentally, it’s the inherent characteristic that drives people’s determination to life. This characteristic encapsulates competency or

capacity to absorb, to adapt and to transform from disturbances which can be enhanced and empowered with a well-thought out forward-looking scientific approach involving affected population and concerned stakeholders (Dos Santos and Partidário, 2011) the participatory scenario planning (Oteros-Rozas, 2015).

Participatory Scenario Planning (PSP) simultaneously engages the *Kere* affected population with exogenous actors to explore and scan key uncertainties that may shape the future (Goodspeed, 2020:21) of the Atsimo-Andrefana region regarding the *Kere*, with specific emphasis on the district of Ampanihy and Betioky. The recurring *Kere* has led to severe loss of life and protracted poverty within the subregion (PRR BNGRC, 2016). Whilst this ongoing situation presents a pressing challenge to both the community, the government, and partners, it also offers opportunities whereby decades of *Kere* experience incubate knowledge. The PSP captures these knowledges through which innovation emerges and resilience building efforts can begin. This process, which is community-centred, establishes the foundation of this plan. It aims to solve a protracted problem with the full participation of the *Kere* victims, the government, and non-government entities. Best-suited for a well-defined open community boundary (the Atsimo-Andrefana region's administrative boundary) that possesses a certain level of agency and autonomy, the PSP engenders a resilience plan tailored to the region.

### **1.1.1 THE ATSIMO-ANDREFANA REGION**

Located in the south-west of Madagascar, the Atsimo-Andrefana Region is one of the 22 regional administrative governorates of Madagascar. It has nine districts two of which are highly affected by recurrent *Kere*, namely the district of Ampanihy-West and the district of Betioky-South presented in Figure 2.

The District of Ampanihy is in the south of the Atsimo-Andrefana region. It has a land surface of  $\approx 13\,300$  Km<sup>2</sup> and a population of about 431 700 (PRD, 2019). Comprised of 11 rural communes, it is the home to the ethnic group of Mahafaly and other minor ethnic groups such as the N'tandroy and Antanosy. Mainly pastoralist, principal activities of the

inhabitants include raising angora goats for mohair, raising herds of zebu-cattle, artisanal small-mining, poultry, and crops – chiefly beans, corn, and cassavas (CREAM, 2013; CPGU Atlas, 2012). Semi-arid with an average rainfall of  $\approx 350$ mm/year and an average temperature of 24°C, the district of Ampanihy is dominated by the calcareous and karstic plateau of Mahafaly and *ferralitic* sandy soils (FEWS Net, 2017). With a porous aquifer and a water-table at about 50 m deep, its two rivers – the Linta and Mandrare – are wadi/endoreic Rivers that remain dry yearlong (JICA Rapport Final, 2006). As a result, finding water constitutes a major challenge for the district (ibid). The most common vegetation are spiny plants, xerophytic shrubs, cacti and highly endemic flora and fauna.

The district of Betsioky abuts the district of Ampanihy in the north-west. Birth place of the *Kere*<sup>4</sup> and natural hub to migratory locusts (Lecoq et al., 2011), the district is low-lying with dense spiny forests constituted mainly of cacti, plants of Didiereaceae family, Xerophile and Euphorbiaceae thickets, interspersed with grassy savannahs. Despite benefitting from the Onilahy River in the north and the Lake Tongobory, poor soil, arid climate, deep ground water sources and low annual rainfall ( $\approx 350$ mm/year) make food production challenging (FEWS Net, 2017). These factors alone, added with the heavy non-stop red-sandy Tiokatimo (trade-wind) and frequent locust infestations compound the challenge. The district has a population of  $\approx 309\ 547$ , a land surface of  $\approx 7\ 659$  Km<sup>2</sup>, and 19 rural communes. Home to the tribe of Antanosy and Mahafaly, they practice both livestock growing and agriculture. The region's chief crops include several types of legumes, groundnuts and sweet potato, as well as some localized market vegetable gardening.

N.B: The rural poverty rate of the Atsimo-Andrefana Region is 87.4%, with a 55.4 % illiteracy rate, and an infant mortality rate of 47% (Monography CREAM, 2013).

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<sup>4</sup> Initial spread of biologically manipulated cochineal beetle (*Coccus cacti*) in 1923 in Tongobory—Betsioky Sud by Perrier de la Bâthie and George Petit to eradicate the cactus forest (Kaufmann, 2001)

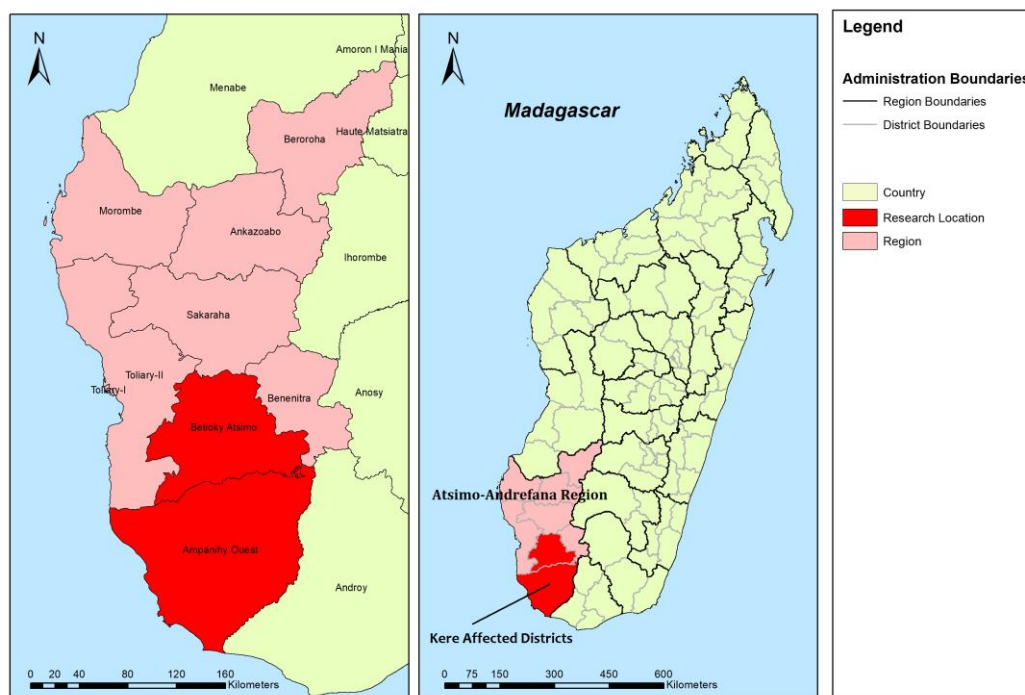


Figure 2 - Map of the two Kere affected Districts in the Atsimo-Andrefana Region

### 1.1.2 LEGISLATIVE AND STRATEGIC FRAMEWORKS

This plan, although constructed with the contribution of *Kere* survivors, regional government agencies and non-government stakeholders, takes account of existing legislation and policies relevant to the *Kere* as presented in Table 1.

Table 1 - Legislations and Implication to the Kere Resilience Plan

Policies and legislation	Specific Mentions	Kere Implication
<i>The National Disaster Management Act Loi n°2015-031</i>	Establishing the nation polity in disaster management	Disaster risk reduction and crisis management
<i>Decree N° 2019-1958 Ministry of Interior Affairs National Bureau of Disaster Risks and Catastrophes (The BNGRC)</i>	Presidential Decree on re-engineering of attributions and organization of Government disaster management agencies	Coordination and emergency management
<i>The National Plan for Desertification and Drought (Madagascar – Government, 2008)</i>	Ministry of Environment 2008-2018	Section 5. Aligned National Plan Categorized under Priority Funding Zone

Policies and legislation	Specific Mentions	Kere Implication
<i>National Strategy of Disaster Management 2016-2030</i>	National Strategic Policies the CPGU, the BNGRC (Madagascar – Government, 2016)	National strategies on disaster Risk management and crisis management
<i>Recovery and Resilience Plan for El Niño induced Drought in the Deep South, Madagascar (PRR UNDP BNGRC, 2016)</i>	The BNGRC and the UNDP Madagascar; Identification of El Niño impacted and underlying famine risks; contains strategic-actions –2016	<ul style="list-style-type: none"> <li>Identifies 7 districts <i>Kere</i> Hot-Spot: Atsimo-Andrefana Region: Ampanihy, Betioky;</li> <li>Androy Region: Ambovombe, Bekily, Tsihombe, Beloha;</li> <li>Anosy Region: Amboasary</li> </ul>
<i>Stratégie intégrée de développement du Grand Sud de Madagascar (SIDGS, nd)</i>	Informed by the PRR; General overview of the poverty in the Deep South; strategic vision for the emergence of the region	Multisectoral developmental programs; identifies and acknowledges protracted poverty issues
<i>Plan Régional de Développement de la Région Atsimo-Andrefana 2019 (PRD 2019)</i>	Establishes regional development goals, challenges and area of priorities under the approach “l’esprit émergence”	Identifies multisectoral priority actions through “Espace de Solidarité” maps including the district of Ampanihy and Betioky

### 1.1.3 LINKAGE WITH THE REGIONAL DEVELOPMENT PLAN OF THE ATSIMO-ANDREFANA REGION

This Plan takes on account elements that are presented in the Regional Development Plan of the Atsimo-Andrefana Region (PRD, 2019). Alignment between this *Kere* Resilience Plan and the PRD 2019 is presented in Table 2.

*Table 2 - Link between the Atsimo-Andrefana PRD with the Kere Resilience Plan*

The PRD Atsimo-Andrefana		The <i>Kere</i> Resilience Plan
<b>1. Economy</b>	Modernize and climate resilient Agriculture and animal husbandry; promotion of small business; transformative industry; rice farming in Tongobory	<p><i>Physical Enablers:</i> Modern Farming; Agriculture exploitation of Lake Tongobory;</p> <p><i>Scalable Intervention:</i> cattle breed improvement, Promote industrial crops transformation</p>
<b>2. Environment</b>	Rhyme agriculture with environment protection; implement hydro-agricultural development; new approach to	<i>Physical Enablers Reforestation:</i> A massive trees plantation to cover

	environment protection (APC & TGRN); reforestation	hundreds of acres of land Smart Trees Project; <i>Social Enablers Sustainable Intervention:</i> Promote introduction of new species of zebu-cattle, goats; Utilization of the approach IEC and C4D
<b>3. Structural Organization</b>	Regional open-up with construction of roads and bridges; Improve communes interconnection; Construction of roads and bridges; construction of intercommunal market places	<i>Physical Enablers Road:</i> economic opening-up of the deep-south for greater flow of goods and services; Aggressive advocate for the construction of the road RN10; <i>Local Market:</i> Construction of intercommunal market places;
<b>4. Society and Sociability</b>	Anti-insecurity Regulations using the Dinabe; Anti-corruption measure	<i>Social Enablers Enhancing Community Capitals:</i> Solving dahalo/insecurity issues with the Dina and social reintegration; <i>Institutional &amp; Procedural Enablers Approval and launching:</i> opening of a regional office of the BIANCO (anti-corruption agency)
<b>5. Governance</b>	Improve regional administration skills, working conditions and security	<i>Institutional &amp; Procedural Enablers Approval and launching Capacity Building:</i> Design of a need-based intuitional capacity building, Cross-sectoral technical training
<b>V.2.9. Espace Solidarité: Ejeda -Ampanihy</b>		
<b>6. Economy, Crop growing, animal husbandry, mining</b>	Modernized: Climate resilient Agriculture; improve animal husbandry (cattle breed improvement) & veterinary services; promotion of small business; Promote eco-friendly mining (kaolin, Labradorite, Granite, Mica et Bauxite); eradicate armyworms; impluvium, hydraulic dykes and irrigation systems of Onilahy River	<i>Physical Enablers:</i> Modern Farming; Vulgarization of climate smart farming concept; Training of trainers to agricultural technical agents; Promote industrial crops transformation; Scalable Intervention eco-mining; <i>Water Resolution:</i> Advocate for innovative water retention systems in drought sensitive villages: impluvium, artificial lake
<b>7. Environment</b>	Promote change of mentality for environment protection; smart reforestation; ecotourism	<i>Social Enablers Enhancing Community Capitals Break Psychological Barriers:</i> Utilization of the approach IEC and C4D Re-invigoration of the culture of forest preservation; Promoting the implication of Dina to deforestation

<b>8. Structural Organization</b>	Open-up the subregion with road construction; promote intercommunal markets/roads; Better IT services	Idem as above
<b>9. Society and Sociability</b>	Training to connect the Dinabe with the law;	Idem as above
<b>10. Governance</b>	Train local civil servants in administrative & management; Improve security, safety and working conditions	Idem as above

## 1.2 PURPOSE, SCOPE, AND OBJECTIVES

*plan seeks to ensure that crisis affected community can regain their autonomy.*

*It should seek to discourage dependency on outside assistance.*

***Pr. David E. Alexander (2026:30)***

This Plan aims to provide the Atsimo-Andrefana Region with an operational capability to handle the *Kere* and its associated developmental challenges. This will reduce the pressure on the central government and relax the region's almost total dependency on outside aid. It will improve the region's capacity to empower its population to be self-reliant in the face of the recurring *Kere* by focusing on building and promoting resilience. It seeks to break the status quo that retains the region, especially the districts of Ampanihy and Betioky, in the vicious cycle of collapse/recovery from the *Kere*. In short, it presents a framework that helps to build a regional system that can withstand the *Kere*.

This plan, which is a live document, can be embedded within a larger plan (i.e. developmental program) and can also be incorporated into a tactical specified operations program. It provides an overarching strategic framework of operations that includes institutional, social and physical resilience enablers, encompassing disaster risk reduction and management, social capital enhancement and lifeline capabilities. It sets out specific measurable objectives to be achieved in order to counter the root cause and progression of the *Kere* hereinabove emphasized.

It seeks to provide a problem-based framework of cooperation and companionship with the community, the regional governorate, and technical and financial partners which, for decades,



provided important aid in saving lives and reducing the impact of the *Kere* to the populations of the Ampanihy and Betioky districts. That is, it establishes a working structure of collaboration towards a set of shared goals and achievable objectives.

This Plan will guide the development of new Atsimo-Andrefana regional policies, strategies, intervention programs, services and advocacy campaigns that promote regional resilience. Where these already exist, this Plan will provide the guidance to further strengthen and support their outcomes.

This Plan was developed with the full participation of the people of the Ampanihy and Betioky and key stakeholders (regional government agencies, the BNGRC, IGOs, INGOs). Also, a significant amount of research, resources and engagement was invested to ensure that it responds to the needs and aspirations of the community and reflects priorities of the regional and central government, while applying good practice.

This Plan is not an emergency plan, but it contains emergency response and humanitarian action interventions. This is a resilience plan that encompasses the dichotomy between humanitarian and development efforts (termed by the United Nations Agency as the New Way of Working) and brings together all sectors with a direct and indirect link to the *Kere* for a common goal building the resilience of the Atsimo-Andrefana Region to the *Kere*.

### **1.2.1 WHAT DOES A RESILIENT REGION LOOK LIKE?**

In consideration of the context of the district of Ampanihy and Betioky, this plan indicates that the following basic characteristics can reflect a resilient region:

- Effective governance and decentralized institutions: politically stable (diverse and inclusive); able to support developmental programs; adequate resources; in touch with local realities; should facilitate region-wide learning; possess *Kere* response capability; protect citizens from hazards and engage in crisis management and risk reduction; own and enforce adequate public policies (Twigg, 2007)

- Enhanced social capital: involve local knowledge in any developmental programs; harmonize community's ownership of natural resources; provide communities with a voice in *Kere* relevant policy processes; heighten community cohesion; improve public awareness and education system; enable self-reliance and recovery from disaster shocks and stresses with little outside intervention (Bahadur et al., 2010; Béné et al. 2011)
- Functional critical infrastructures and key-resources (CIKR): possess reliable supporting lifelines: roads, bridges, banks, gas stations, and IT; enjoy public safety and protection; efficient structural and non-structural measures mitigation policies; maintain public buildings and infrastructure in compliance with codes and standards (www.fema.gov)

### 1.2.2 OBJECTIVES

The Plan aims to provide a roadmap toward building the resilience of the Atsimo-Andrefana Region to the *Voy Kere* with specific emphasis on the districts of Ampanihy and Betioky. Building resilience means intentionally guiding the Region system's process of preserving functionality and enhancing livelihood qualities, while retaining the essence of the region's identity and integrity. It posits three core objectives:

- To enable and enhance the Region's institutional capacity to meet challenges posed by the recurring *Kere* in the district of Ampanihy and Betioky;
- To strengthen the ability of the fokonolo (community of people) to absorb *Kere* hardship, to adapt to the evolving *Kere* and to smoothly transform when the situation is untenable.
- To eliminate or reduce underlying factors that stimulate the *Kere*.
- **N.B:** Because the *Kere* is a dynamic phenomenon, adaptive response to it is an ongoing effort involving transformative change. Thus, building the resilience to the *Kere* is a continual process.

### 1.2.3 PLAN ACTIVATION

This sub regional resilience plan is neither a crisis management plan nor an emergency response plan but, more of a proactive preventive plan. Its activation is triggered by its approval, allowing for immediate commencement. The plan contains four plausible *Kere* scenarios and a set of ConOps strategic interventions that if implemented proactively would eliminate all forms of future *Kere*.

## 1.3 THE CONCEPTUAL FRAMEWORK

This resilience plan is influenced by the resilience thinking paradigm. This outlines the dynamic and complex interaction between people and nature to form socioecological systems (SESs) (Walker and Salt, 2006:14). It explores the ways in which these interactions can be understood and managed in the face of disturbances such as the *Kere* (Folk et al., 2010). Resilience is the behaviour that enables the SESs, be it the individuals, groups or the region, to deal with the vulnerable, uncertain, complex and ambiguous (VUCA)<sup>5</sup> environment it belongs to and depends on (Walker and Salt 2006:11). In dealing with a VUCA environment, the region learns to cope with and persist, incrementally adapt, or transform to a new functional structure should the *Kere* situation become untenable (Ralaingita et al., in revision). Because of the dynamic change caused by the VUCA to the SESs, parts (humans and animals) may fail to cope and survive due to their *marefo* and *boroka* (fragile) state the vulnerability (Walker, 2020). Vulnerability is the exposure of the community to potential harms and losses caused by the *Kere*, while resilience reflects their capacity to persist and recover from it. Conventionally, vulnerability is expressed as the function of risk and hazard but, this research planning perceives it as the inverse of resilience (Kasperson and Kasperson, 2005; Manyena, 2006; Lei et al., 2014; Bahadur and Tanner, 2014). Simply put, when the subregion of Ampanihy and Betsioky as part of the larger system of Atsimo-Andrefana Region loses resilience; it becomes vulnerable to the *Kere*. Inversely, the *Kere* occurs because the subregion is vulnerable.

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<sup>5</sup> <https://www.vuca-world.org>

This *Kere* resilience plan is inspired by the functional approach proposed by McAslan (2011) the community disaster resilience framework (CDRF) and the 3D resilience framework proposed by Béné et al. (2012). The conceptual framework builds upon three community capitals called resilience enablers: institutional/procedural, social and physical as shown in Figure 2. It hypothesizes that community resilience can be built through enhancing of these three enabling capitals (Ibid). Each enabler has a set of attributes, as follows:

- *Physical enablers*: comprised of the improvement of the critical infrastructures and key resources (CIKR) within the community boundary, e.g., roads, WASH<sup>6</sup>, IT utilities, Food and health. These enablers are enhanced to improve absorbency, adaptive and transformative capacity of the community.
- *Institutional/Procedural enablers*: instrumental in creating a *Kere* specified management institution/program; to plan and coordinate program interventions, e.g. emergency, risk reduction programs and people-centered Early Warning System (EWS). These enablers are enhanced to improve community' absorbency, adaptive and transformative capacity.
- *Social enablers*: focused on building the community's social capital (through community engagement in bridging and linking) and enabling social change, via enhancing of education, modernizing of agriculture, re-alignment of the Dina for collective good – management of natural resources and social security. These enablers are enhanced to improve community' absorbency, adaptive and transformative capacity.
- *Disaster Resilience sustained outcomes*: physical lifelines support improved livelihood, easy flow of goods and information; procedural/institutional systems support the flow of information, coordination of developmental effort, response operations and acquisition resources; and social systems support the community's collective engagement. Synergic achievement of these key ingredients enhances people absorptive, adaptive, and transformative capacity that leads to a sustained resilience pathway as shown in Figure 2.

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<sup>6</sup> Water, Sanitation, Hygiene

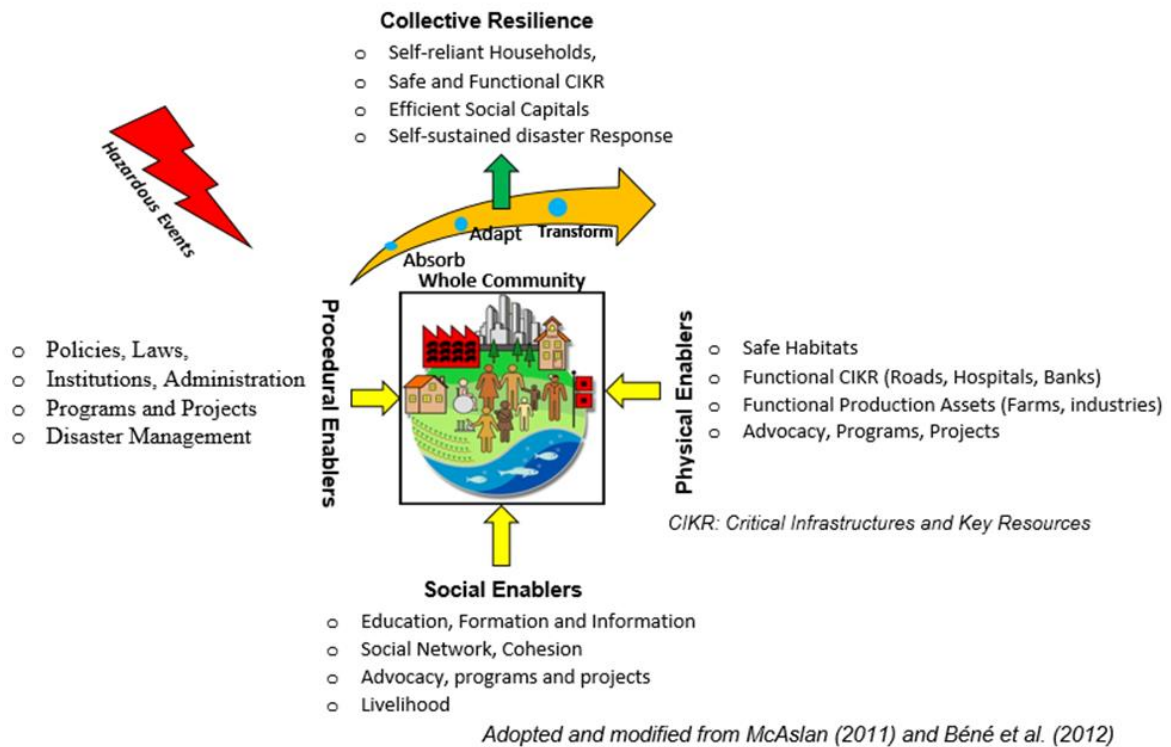


Figure 3 - Conceptual Framework for Community Resilience Building

#### 1.4 METHODS PARTICIPATORY SCENARIO PLANNING

Participatory Scenario Planning (PSP) is the method utilized for this planning endeavor. It helps identify strategic actions emanating from scenarios of plausible future threats of the *Kere* to the Atsimo-Andrefana Region, especially the *Kere*-prone districts of Ampanihy and Betioky. The PSP process involves the critical implication of heterogeneous representatives of *Kere* survivors, government and non-government stakeholders (Rawluk et al., 2018). It engages participants in a social and mutual learning mode to discuss community mechanisms of resilience to *Kere*, a better and efficient way to deal with it, and attempts to generate action-oriented strategic policy construction from scenarios of possible future *Kere* events (Oteros-Rozas, 2015; Cronwall & Jewkes, 1995). It results in two faceted outcomes. First, transdisciplinary multiple learning outcomes (Chermack 2011:35); for example, while reflecting on and learning from their socio-ecology dynamics, participants foster relational and social bonds among themselves and learn by being part of the planning process. Second, the scenario planning process enables collective

reflection (Lindgren and Bandhold, 2009:35), discussion and identification of future risks associated with *Kere*, its dynamic, and identification of appropriate resilient strategic measures.

A three-day public planning workshop was held at the meeting room of the Municipality of Ankiliabo, Ampanihy-West from October 1st to October 3rd, 2019 (Figure 4). 36 participants represented the *Kere* survivors, regional government (e.g. Environment, Agriculture, AES, Health, Population), and non-government (IGOs and NGOs) stakeholders. Participants discussed the answers of the key-questions of “what next”, “what if” and “so what” to the district of Ampanihy and Betioky regarding future *Kere* events. “What next” determines potential threats that lurk in the future regarding the *Kere*. The “what if” fleshes out possible scenarios for analysis with an aim to generate actionable strategies. The “so what” reveals the necessary priorities, procedures and operations to each scenario-based action-plan.

N.B: Scenarios emerged from hours of methodological trial. They represent the speculation of the spectrum of plausible, possible and preposterous futures of the district of Ampanihy and Betioky as part of the large system the Atsimo-Andrefana Region, vis-a-vis the *Kere*.



*Figure 4: Scenario Planning Workshop in Ampanihy*

## **1.4.1 OPERATIONALIZING THE PSP**

### **1.4.1.1 The Breathing-In**

The process begins with “breathing in”, familiarizing the workshop participants with the PSP conceptual approach and stimulating their strategic futuristic thinking. It consists of analyzing the VUCA environment of the *Kere*-prone districts of the Atsimo-Andrefana Region from within and without. The analysis of the internal environment of the region was done with the SWOT method (strength, weakness, opportunity, threats), while the external analysis utilized the STEEP technique (social, technological, ecology, economic, political).

#### 1.4.1.2 The Internal Analysis

This process involves an appraisal of *Kere*-prone districts (Ampanihy and Betioky) as part of the Atsimo-Andrefana regional system regarding this specific VUCA environment. The SWOT tool analyses the Strengths, Weaknesses, Opportunities and Threats of the districts as part of a bigger regional system. It helps to examine factors that enable or inhibit the resilience of the community. The simplified outcomes of the SWOT analysis are presented in Table 3.

*Table 3 -SWOT Analysis for the District of Ampanihy and Betioky*

STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> <li>• Available Vast arable land</li> <li>• Young population</li> <li>• Socially serene</li> <li>• Application of the Dina (Traditional Customary Law)</li> <li>• Hard working people</li> <li>• Rich in Mining (coal, gold, cobalt)</li> <li>• Presence of plethora of INGOs</li> <li>• Health care access to very poor</li> <li>• Presence of all government branches</li> <li>• Strong social bound</li> </ul>	<ul style="list-style-type: none"> <li>• Dependency on humanitarian aid</li> <li>• Archaic agriculture technique</li> <li>• Protracted corruption</li> <li>• Cemetery of projects</li> <li>• Resourceless Government offices</li> <li>• Lack of saving skills, resources waste</li> <li>• No road</li> <li>• Difficult access to water</li> <li>• Poor electrification</li> <li>• Deteriorating school system</li> <li>• Costly tradition over attachment to traditions</li> <li>• Savage birth polygamies</li> <li>• Soil degradation,</li> <li>• Deforestation—Charcoal, cooking wood, slash-and-burn</li> </ul>

	<ul style="list-style-type: none"> <li>• Statelessness</li> <li>• WASH issue Water, sanitation and hygiene</li> <li>• Frequency of Crop Failure</li> <li>• Undernourishment</li> <li>• Protracted Poverty</li> </ul>
<b>OPPORTUNITIES (+)</b>	<b>THREATS (-)</b>
<ul style="list-style-type: none"> <li>• Existence of social cohesion</li> <li>• High potential of agro-industry</li> <li>• Presence of many International NGOs</li> <li>• Potential of local market</li> <li>• Potentials for Extractive mining industry</li> <li>• Socially receptive Mahafaly people</li> <li>• Untapped sea resources</li> <li>• Untapped and available labor forces</li> </ul>	<ul style="list-style-type: none"> <li>• No economic perspective</li> <li>• Aimless youth proliferation of dahalo banditry</li> <li>• Atrocious road</li> <li>• Hospital avert reliance to traditional healers</li> <li>• Continuous social marginalization</li> <li>• No Kere resolution at sight</li> <li>• Continual dilapidation of public infrastructure</li> <li>• Increased Climate change and El Niño</li> <li>• In and out attitude of International NGOs</li> <li>• Kere become business to exogenous entity</li> <li>• Impact of political unrest</li> <li>• Increased insect/pesticide pollution</li> <li>• No government aid and support</li> <li>• Inexistent anti-Kere strategy</li> <li>• Increased insecurity</li> <li>• No government emergency relief structure.</li> <li>• Constant food crisis</li> </ul>

#### 1.4.1.3 The External Analysis

The STEEP Analysis tool is a framework to gauge how the external environment influences inhabitants of the two *Kere*-prone districts (Chermack, 2011:103). It examines how forces of the vuca environment impact the community from five perspectives – Social, Technological, Ecological, Economic, and Political.

The process begins with the determination of the time-horizon (Lindgren and Bandhold, 2009:57; Chermack, 2011:90). Because scenario planning is a futuristic thinking, participants were challenged to determine how far into the future *Kere*



scenarios will reach. After debates, projected estimates for time-horizons of two, five, seven, ten, fifteen and twenty years were proposed, followed by a voting process. The time-horizon of ten years received the most votes, and thus was selected as the analysis time-horizon. The next step articulates and validates the “focal question” of the PSP via examination of underpinning issues pertaining to the *Kere* in the districts of Betioky and Ampanihy:

*Considering social, technological, economic, environmental, and political forces, what are risks or threats that are likely to drive change in the next 10 years to promote the Kere?*

**The STEEP Analysis**

Social	Technological	Environmental	Economical	Political
<ul style="list-style-type: none"> <li>- Lack of saving skills,</li> <li>- Rampant corruption,</li> <li>- Lawlessness,</li> <li>- Wobbly Social cohesion,</li> <li>- Distrust to justice system,</li> <li>- Unaffordable health care,</li> <li>- High illiteracy rate,</li> <li>- Feel marginalized,</li> <li>- Gender issue,</li> <li>- Over-domination of tradition,</li> <li>- Over-expenditure in tradition,</li> </ul>	<ul style="list-style-type: none"> <li>- Atrocious road,</li> <li>- Dilapidate/poor school system,</li> <li>- Archaic farming practice,</li> <li>- Bad IT services,</li> <li>- Poor electrification,</li> <li>- Over reliance on Cooking, wood/charcoal;</li> <li>- Archaic farming</li> </ul>	<ul style="list-style-type: none"> <li>- Increased charcoal/cooking businesses,</li> <li>- Locust/armyworm infestation,</li> <li>- Unpredictable rainfall,</li> <li>- El Niño and Climate change effects,</li> <li>- Continuous slush &amp; burn,</li> <li>- Soil degradation,</li> <li>- Rapid deforestation,</li> <li>- Extended dry spell,</li> <li>- Insecticide pollutants,</li> <li>- Proliferation of illegal logging and poaching</li> </ul>	<ul style="list-style-type: none"> <li>- Loss of livestock,</li> <li>- Collapse of Mohair market,</li> <li>- Collapse of sisal market,</li> <li>- Collapse of cotton market,</li> <li>- Archaic small-mining,</li> <li>- Continual Crop failure,</li> <li>- Archaic agriculture,</li> <li>- High Joblessness,</li> <li>- No entrepreneurship,</li> <li>- Disruption of livelihood,</li> <li>- Absolute destitute</li> <li>- Inflation</li> </ul>	<ul style="list-style-type: none"> <li>- Recurrent Political unrests,</li> <li>- Public Politics distrust,</li> <li>- Erroneous Imposed Policies,</li> <li>- Elections source of trouble,</li> <li>- Central Gov. Disconnect,</li> <li>- Regional Gov. No power no resources,</li> <li>- Disruption of livelihood,</li> <li>- Increase of Lawlessness and social Insecurity,</li> <li>- Community upheaval</li> </ul>

**Figure 5: The STEEP Analysis**

## 1.4.2 THE SCENARIO DEVELOPMENT “WHAT COULD HAPPEN?”

### 1.4.2.1 The Trend Analysis

The scenario development begins with the process that identifies critical forces that provide the general trend hence the trend analysis. Critical forces are also referred to as driving forces and can be predetermined, certain or uncertain (Chermack, 2011:136). Among these driving forces are two with the highest potential, the most significant and uncertain. Resulting ‘Critical Uncertainties’ are tied to the driving forces because what is uncertain is intimately related to what is predetermined (Chermack, 2011:128). The critical uncertainties are the key

driving forces used to form scenarios that can challenge current thinking and provide insight into how the future might develop. To detect the Critical Uncertainties is the most crucial and versatile part of the PSP process. It prioritizes examination and analysis of identified driving forces. Driving forces are predictable VUCA parameters that do not depend on any chain of events (Schartz, 1991).

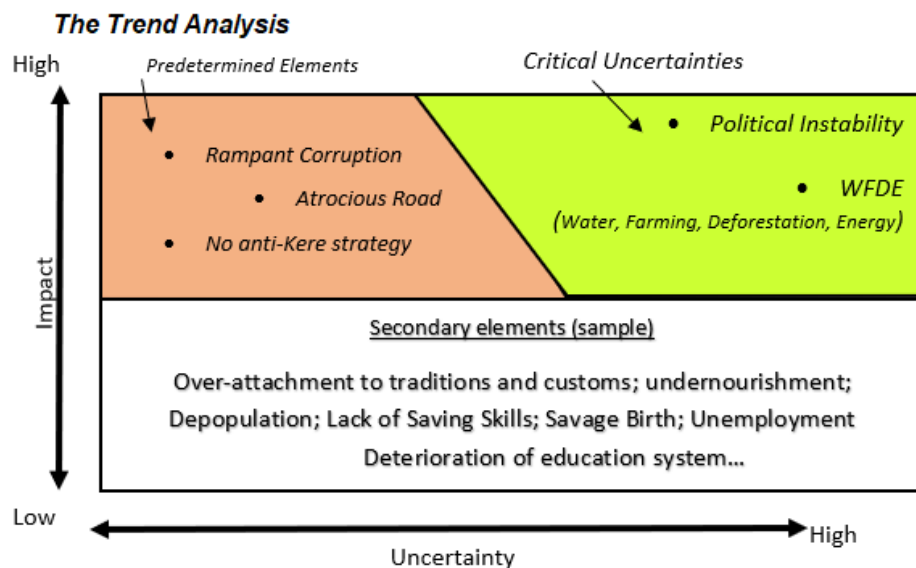
The process triangulates data from the SWOT Analysis and the STEEP Forces. It produced a substantial list of predetermined elements. These, in turn, were discussed one-by-one to gauge the level of implication and susceptibility to drive change that may influence the formation and occurrence of *Kere* in the next ten years. For instance, participants talked about the recrudescence of a new form of *dahalo* bandits at the wake of the 2009 political unrest following a coup d'état. They theorized that such a situation caused a governance vacuum to the powerless and resourceless provinces and has triggered a new form of *dahalo* bandits. According to workshop participants, if a similar situation reoccurs in the next ten years, without curbing unemployment among youth, lawlessness will reign, triggering a new type of *Kere*. After hours of debate, participants presented their first resolution which contains fifteen driving forces. Another round of trials and second voting process reduced the number of driving forces to the following:

- Political Instability (6 votes);
- *Rapid deforestation, Cooking Energy (charcoal and cooking-wood), Archaic Farming, and Severe Lack of Water (3 votes each).*

In discussing the implication of political unrest to the *Kere*, group-work on political forces had based their arguments on an analytical view of major political upsets 1983, 1992, 2002, 2009 and 2018. These periods of unrest, each roughly ten years apart, often occurred before major *Kere* phenomena, such as the 1993

SOS Sud Kere and the Tiomena<sup>7</sup> Kere of 2009. Participants concluded that since the root causes of these political instabilities have never been addressed, their recurrence within the next 10 years is highly likely.

After long and heated debates, it was agreed that the Kere events restricted to Ampanihy and Betioky are often relatively moderate when compared to the Androy region. Participants hypothesized that Kere in the two targeted regions is a compounded effect of deforestation at an exponential speed, the severe lack of water, the archaic nature of agriculture technique, and the high demand of cooking energy (charcoal and Kitay). Thus, these four driving forces must be kept together to form a critical uncertainty. Hence, the second driving force is formed by: Water, Farming, Deforestation, Energy the WFDE. The trend analysis is exhibited in Figure 6.



*Figure 6 - Trend Analysis for the Atsimo-Andrefana Sub-Region*

The critical uncertainties made of the coupled Political Instability and the WFDE (Water, Farming, Deforestation, Energy) compound future Kere. The increased difficulty of access to water, caused by extended dry spells, triggers successive

<sup>7</sup> Red Dusty Wind

crop failures. This situation is exacerbated by the low yield of the archaic nature of farming technique utilised by the pastoral Mahafaly. Successive crop failures are tied to the continual food crisis. To survive, the O'ndaty shift to natural resources. Under this duress, more trees are chopped down for quick cash money via charcoal and cooking wood. In search of fresh nutrient soil, the O'ndaty increasingly practice the *teteke and hatsake* (slash-and-burn) while others shift to illegal harvest of rare fauna and flora resulting in rapid deforestation. Aimless youths adopt anti-social behaviours, fuelling insecurity. Participants pinpointed the hike of *dahalo* bandit activities, during and after the *Kere*.

The trend analysis identified Political Instability and the WFDE as the most likely forces to influence the occurrence of novel *Kere* within 10 years. The next step involves plotting scenarios based on these two key factors.

#### **1.4.2.2 Building Scenario Logics “What Should Happen?”**

The scenario logic involves plotting the scenarios sometimes called proto-scenarios (Delbecq and Van de Ven, 1971). It involves populating two independent variables – political instability and WFDE – into a 2x2 matrix referred to as the scenario matrix or scenario cross. Each variable is placed on the X and Y axes of the matrix and assigned a degree of uncertainty. For Political Instability (on the horizontal axis X), participants labelled the two extremes as Ceased and Continue; WFDE was placed on the vertical axis Y, and the two extremes were labelled Improve and Deteriorate. After hours of debate and discussion, a general sketch of four scenarios of the *Kere* emerged in each of the quadrant of the Scenario Cross. Scenario One outlines the continued status quo; Scenario Two outlines a positive development; Scenario Three outlines a negative development; Scenario Four outlines the worst-case development. Divided in four groups, workshop participants were challenged to think of relevant and plausible

events related to each scenario to plot the scenarios. They were tasked to answer these questions:

- Scenario 1: What if Political Instability continues, but WFDE improves?
- Scenario 2: What if Political Instability ceases and WFDE improves?
- Scenario 3: What if Political Instability ceases, but WFDE deteriorates?
- Scenario 4: What if Political Instability continues and WFDE deteriorates?

Plots were then titled, outlined and presented to the workshop audience for discussion. The four developed *Kere* scenario stories are presented in Figure 5.

N.B: each process involved informing participants, discussing and debating.

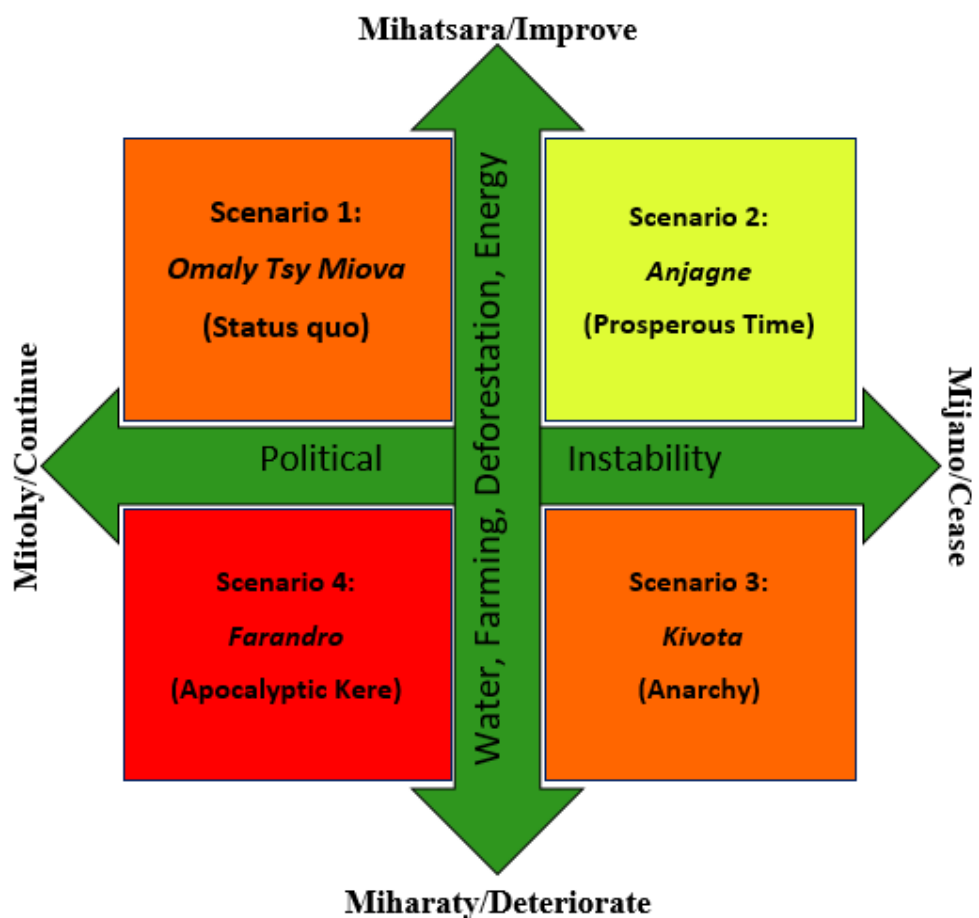


Figure 7: Scenario Cross for the Atsimo-Andrefana Regional Plan

### **Scenario 1: Omaly Tsy Miova (The Status Quo)**

Under Omaly Tsy miova scenario, political instability continues in the capital city of Antananarivo while the WFDE improves in *Kere* prone-districts. This situation engenders an administrative vacuum in the outer regions, especially in the remote and isolated *Kere* prone-districts. As a result, a situation of statelessness occurs. The regional government's presence diminishes to the extent that lawlessness becomes prevalent. Although conditions of production are good, people cannot work at full capacity because of insecurity. Local markets deteriorate while theft and violence proliferate. As the situation continues, natural resources are plundered, and deforestation grows at an exponential speed. Charcoal and cooking wood businesses flourish while endemic fauna and flora species are smuggled. Distrust in the state justice system grows due to rampant corruption. Consequently, people begin to take matters into their own hands by applying the Dina. The *Kere* begins while victims are left to their own fates. Relief efforts are provided by international NGOs.

### **Scenario 2: Anjagne (The Best Future Peace Time)**

Within ten years, if the WFDE improves and the political instability ceases, *Anjagne* occurs whereby everything works and the *Kere* is contained or reduced to the minimum level. In this optimal scenario, the *O'ndaty* produce food and businesses go on. The WFDE is improved with hydrologic infrastructures built throughout the Mahafaly Plateau and the *Betioky* districts. The mohair industry is revived, and Angora goatherds resume business. Law and order are established, and social security is stable. Because production picks up and local business/trade is functional, people are *boririke* (self-reliant) and able to face and overcome idiosyncratic hazards, such as illness, on their own. As a result, *Kere* is reduced to its minimum level while the *O'ndaty* reach a development path. In short, livelihood is increased. Corruption is reduced because governing power is in the

hands of the people or decentralized. The decentralized government puts in place an anti-*Kere* strategy by creating an institution dedicated to preventative measures.

### **Scenario 3: *Kivota* (Anarchy)**

The *Kivota* scenario depicts a situation in which the WFDE deteriorates while political instability ceases. There is a stable government at the central level but the productive sector of the *Kere*-prone districts, consisting mainly of crop growing and animal husbandry, is in decline. This is an alternative future whereby nothing has been done to address the *Kere*. Agriculture suffers from extended dry spells. Farmers are tricked by intermittent rains to begin tilling and sowing. When these rains cease, younger plants dehydrate and die. Warm weather and high humidity serve as prime conditions for migratory locusts, which devastate any attempted crops. As the situation persists, anthropic pressure to the forest grows. Trees are chopped down for charcoal, cooking wood and timber at an alarming rate. More *O'ndaty* progressively shift to slash-and-burn to access nutrient-rich soil for *volivotse* (catch crop). Livestock (mainly zebu-cattle and angora goats) become increasingly exposed to lack of fodder, thirst, illness and cattle theft (*dahalo*) subsequently sold for derisory prices. In the districts of Ampanihy and Betioky, the crippling effects of the drought drives many to localized migration mostly to the urbanized towns and cities. As the hardship caused by lack of food and water persists, the social fabric of the *O'ndaty* deteriorates. Individualism begins to occur. Due to disconnect between the central government and peripheral provinces continues, the remote and geographically isolated *Kere* prone districts fall into a stateless situation whereby the law of the strongest prevails. International NGOs intensify distribution of relief aid, though due to the efforts of the powerful few, the people in need rarely if at all receive this aid. Consequently, the *O'ndaty* are left to their own fate. As the situation continues, prices of critical needs (food, water and medication) skyrocket, signalling a shift of *Kere* intensity and scope.

Foreigner NGOs arrive *en masse* distributing humanitarian aid while the government remains inactive. This type of *Kere* is of a mild intensity and lasts a year or two.

#### **Scenario 4: Farandro (The Apocalyptic *Kere*)**

*Farandro* scenario is to occur if the WFDE deteriorates and political instability continues. Under the prevailing political atmosphere if nothing is done within the next ten years, this dreadful *Kere* scenario occurs. With *Farandro* scenario, the O'ndaty simultaneously experience drought, starvation, statelessness and increased dahalo activities. Because of the enduring drought; the *Kere*-prone districts experience continual crop failures, loss of livestock, rapid deforestation and proliferation of dahalo banditry. As the situation unfolds, water becomes very scarce, and food items disappear. Supplies of food, water and medication from the abutting regions is hindered by both difficult accessibility to the subregion and rampant insecurity, causing whatever does arrive to hike in price. Starved O'ndaty migrate to urbanized towns and squat in public spaces such as local markets. The already defunct regional public system is overwhelmed by the event while lawlessness, nepotism and corruption run rampant. Households proceed to total decapitalization and migrate away for good. Taxi-bus stations are filled with migrants departing their homeland to the north of Madagascar informing a regional depopulation. Already-dilapidated schools are abandoned while aimless youths roam the streets. Villages are emptied and undernourished O'ndaty inundate urbanized towns that become insalubrious, fetid and ugly favouring the emergence of pandemic illnesses that would constitute a novel public health risk. With a quasi-permanent absence of the government, local inhabitants depend heavily on exogenous relief aid to survive the extraversion of governance<sup>8</sup>. International aid agencies inundate the subregion. Correspondingly, the harvest of

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<sup>8</sup> a governing system that totally relies on outside resources to function



natural resources reaches its peak whereby land vegetation is cleared and rare fauna and flora such as lemurs, turtles and rosewoods are poached at an exponential rate. Despite the heavy presence of international NGOs, the death toll rises, and the number of populations affected soars the beginning of a cataclysmic *Kere*.

## SECTION 2: FROM SCENARIOS TO ACTIONS

*the purposes of scenario planning are to learn about the possible futures, prepare for them, and avoid the catastrophe...* Thomas Chermack (2011:185)

### 2.1 SCENARIO DEPLOYMENT

PSP workshop participants evaluated a list of nested key-activities tied to the identified set of scenarios that are of necessary importance to contain, eliminate, and prevent the occurrence of future novel *Kere* events within the next ten years. Achieving these activities is pivotal to building the resilience of the Atsimo-Andrefana Region to the *Kere*. However, due to the complex and dynamic characteristic of activities involved, under the time constraint, workshop participants decided to present one set of strategic interventions. Following the functional and conceptual approach adopted from the CDRF (McAslan, 2011) and the 3D resilience (Bene et al. 2012), nested resilience enabling activities are identified through institutional & procedural, social, and physical enablers' themes. Each *Kere* resilience enabler is made of a nested set of attributes. Completion of these three sets of enablers shapes the region's resilience to the *Kere*, especially the districts of Ampanihy and Betioky. Physical systems such as lifelines support productive assets and livelihood; adequate institutions, plans and clear operational procedures support well-being; and improved social capital sustains collective efficacy. Their synergic effects boost the region's capacity to absorb, to adapt, and to transform from *Kere* hardship hence the resilience to the *Kere*. The complex set of *Kere* resilience enablers is exhibited in Figure 8.

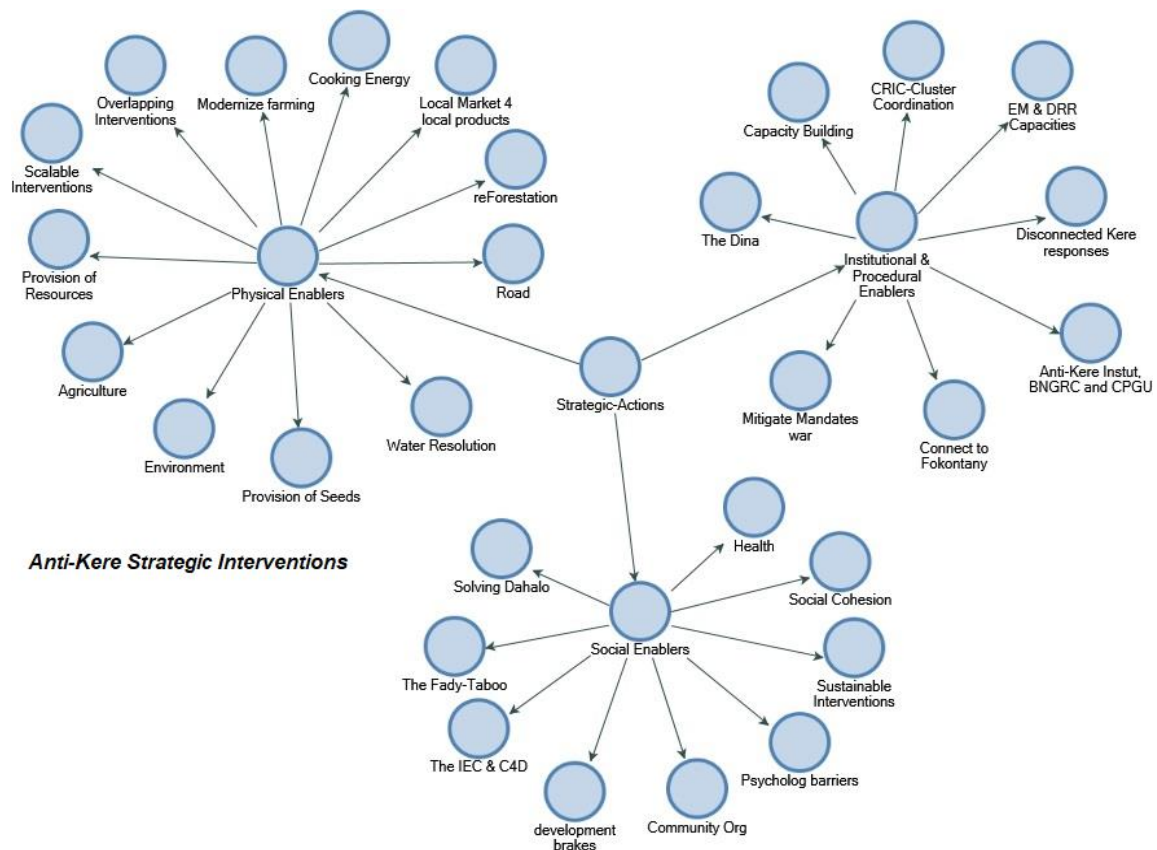


Figure 8 - Anti-Kere Strategic Interventions

## 2.2 CONCEPT OF OPERATIONS

A concept of operations (ConOps<sup>9</sup>) is the operational description of the strategic action-plan to achieve a plan’s objectives. It explains in broad terms themes that construct the anti-*Kere* strategic interventions to achieve resilience. As much as possible, multifarious and interconnected activities are presented in simple prose and graphic forms. Every theme and activity are tied to objectives in order to reach a desired end-state. They are the ultimate response to a predetermined factor identified as underpinning cause of future *Kere*. First, the ConOps introduces a Standard Operation Guideline (SOG). The SOG provides a generic guidance for action-plan implementation. It also exhibits details of interventions at strategic and operations levels not at a tactical level. Because this Plan is a government document, it is expected that any individual(s) assigned to carry out the initial role (Task Force) and the subsequent

<sup>9</sup> [https://www.dhs.gov/sites/default/files/publications/NICS\\_CONOPS\\_508-v2.pdf](https://www.dhs.gov/sites/default/files/publications/NICS_CONOPS_508-v2.pdf)

implementation of this plan are trained and experienced civil servants or officials of other status. Building regional resilience to the *Kere* is an enormous undertaking, which requires an interdisciplinary synergic effort dependent on various key factors, including community and political support. It is therefore highly recommended that the leading role is assigned to an elected official(s) supported by technical experts.

The SOG begins with Step 1, involving political lobbying and acceptance of the plan at both central and regional levels. Step 2 begins upon approval of the Plan. It consists of forming a Task Force (TF) and the exploration of resources to support plan implementation. The TF must reflect the complex realities of the *Kere*, and thus shall be constituted by an interdisciplinary expert prioritizing the natives of the Atsimo-Andrefana region, especially the *Kere*-prone districts of *Ampanihy* and *Betioky*, to maintain regional integrity and identity. Step 3 involves design and implementation of key programs and interventions, including provision of emergency services, enhancing community capital, and upgrading of agricultural practices. The SOG is presented in Figure 9.

**The SOG**

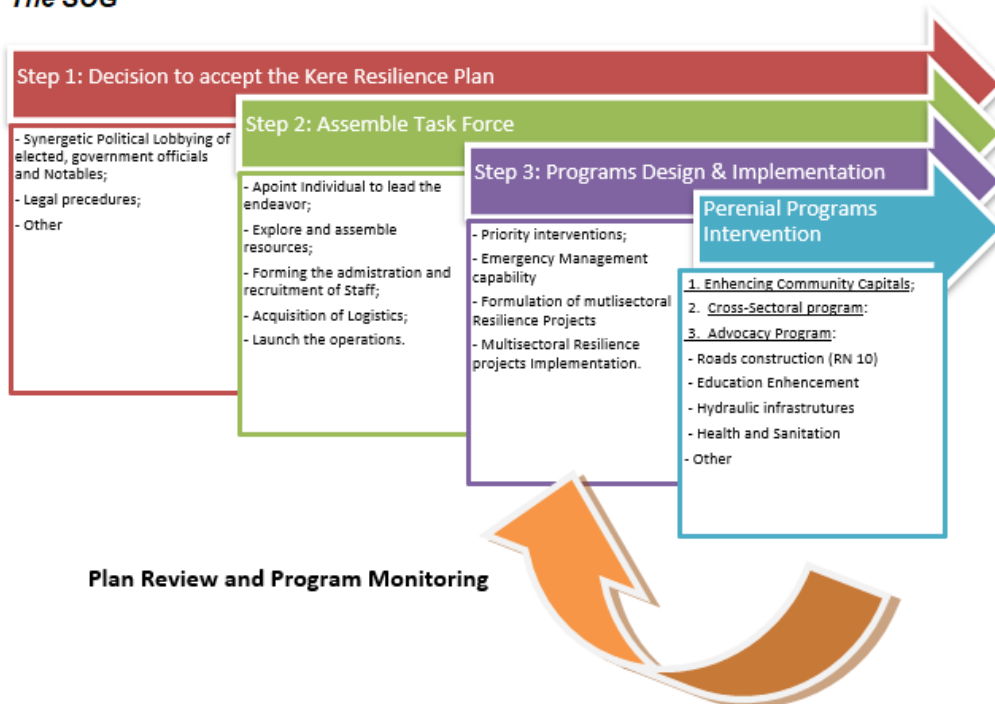


Figure 9 - SOG for the Atsimo-Andrefana Regional Kere Resilience Plan

## 2.2.1 STRATEGIC ACTION-PLAN

The action-plan provides detail of critical interventions to realize the goals and objectives of the resilience plan. It introduces three *Kere* resilience enablers: institutional & procedural, social, and physical enablers. Each of these themes encapsulates attributes that are strategic, operational, and tactical activities. These attributes are presented with descriptive theme interventions in Table 5.

### 2.2.1.1 Institutional & Procedural Enablers

Institutional & Procedural Enablers is comprised of eight themes which are the Dina, Capacity Building, CRIC-Cluster Coordination, EM & DRR Capacities, Disconnected *Kere* Response, Anti-*Kere* Institution BNGRC and CPGU, Connect to Fokontany (wards), and the Mitigation of Mandates war. It must be highlighted that Institutional & Procedural Enablers provide decision makers, planners, and implementing entities with the ability to better understand the context and serve as the foundation upon which adaptability and innovation may be exercised.

### 2.2.1.2 Social Enablers

The social component of resilience to the *Kere* concerns the building of the region's community capitals. It is comprised of nine themes which are: Health, Social Cohesion, Sustainable Interventions, Psychological Barriers, Community Organization, Development Brakes, the IEC<sup>10</sup> & C4D<sup>11</sup>, the Fady (Taboo), and Solving the dahalo problem. Aiming to involve people collectively prepared to confront and overcome difficult circumstances, it involves the promotion of a mental model transformative shift.

### 2.2.1.3 Physical Enablers

The physical components of the resilience to the *Kere* consist of enhancing regional lifelines, provision of material resources and others. It contains twelve

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<sup>10</sup> An approach to Inform, Educate and Communicate

<sup>11</sup> An approach to Communication for Development

themes which are: Water Resolution, Provision of Seeds, Environment, Provision of Resources, Scalable Intervention, Overlapping Interventions, Modernize Farming, Cooking Energy, Local Market for Local Products, Reforestation, and Roads. Addressing these enabling parameters is critical to improving the Region's livelihood and pivotal to achieving resilience.

### **2.2.2 FINANCIAL RESOURCES**

This plan does not contain the financial cost associated with the *Kere* resilience building projects and program interventions. This plan acts as a mobilizing metaphor and exhibits strategic and operational activities required to bring about practical and sustainable solutions to future/novel *Kere*. Because of the complex nature of the *Kere* and the intersectoral implications, each program intervention and project would be associated with a specific cost that the anti-*Kere* task force and/or program leadership must aggregate and calculate according to specific needs, time and context.

## 2.2.3 INSTITUTIONAL & PROCEDURAL ENABLERS

Table 4 - Atsimo-Andrefana Anti-Kere Strategic Action Plan

Intervention	Purpose	Activities	Sector Involved
<b>Anti-Kere Institution</b>	To eradicate the <i>Kere</i>	Creation of anti- <i>Kere</i> structure at regional governorate of Atsimo-Andrefana	Regional Governorate, elected officials, Chief Districts
Step 1	Building a Resilience capability in Atsimo-Andrefana Region	Political and Legal lobbying	Congress people, civil servants
	Governance Risk Reduction	the opening of a regional office of the BIANCO (anti-corruption agency) to deal with regional corruption;	
	Forming the EM & DRR capabilities in Atsimo-Andrefana region	Policies support to emergency management, risk reduction	Ministry of home affairs, CPGU, BNGRC, Technical and financial Partners (PTFs)
		Formation of regional Task Force	To be determined
		Resources prospection: money, humans, materials	BNGRC, CPGU, PTFs
<b>Approval and launching</b>			
Step 2	The Dina (Traditional Customary Law)	Legal adaptation of the Dina	Chief Districts, Justice Office, and Community Associations
		Utilize the Dina as an efficient risk reduction tool	
	The BNGRC & CPGU	Joint coordination, technical support, transfer of competence	BNGRC, CPGU
		Promote close collaboration with exogenous and local actors	CRIC, Cluster, PTFs
		Valorisation of local human resources (recruitment)	Inter-government, Regional Governorate

Intervention	Purpose	Activities	Sector Involved
	Connect to Fokontany	Creation of communes, Fokontany based the mutual-aid systems	Chief Districts, BNGRC, Mayors, Chief Fokontany
	Mitigation of mandate war between gov. Agencies	Collaborate with all government agencies	Inter-government, Regional Governorate, chief districts
		Establishment of MoU	
		Establish the right policy, unified strategy	
	Connect response intervention to <i>Kere</i> reality	Proximity management of <i>Kere</i> with localize structure	Chief Districts, mayors, the BNGRC, chef Fokontany
		Establish problem base interventions	
	Coordination CRIC & Cluster involved in <i>Kere</i>	Update of the BNGRC, NGO monitoring system the 3W	The BNGRC, CRIC
		elaborate the adequate legal and policy	
	Capacity Building	Design of a need-based intuitional capacity building	Inter-government, Regional Governorate
		Cross-sectoral technical training	



## 2.2.4 SOCIAL ENABLERS

Enhancing Community Capitals	Projects	Activities	Tool
Step 2	Solving the <i>Dahalo</i> /Insecurity Issue	Legalization, vulgarisation and amelioration of the Dina (Community Pact) to tackle lawlessness, corruption and insecurity;	Regional governorate, chief districts, community organizations, notable, justice, gendarmerie
		Formation of <i>Dina</i> committees	
		Social Reintegration	
		Implication of the gendarmerie and justice	
	<b>Community Organization</b>	<b>Utilization of the approach IEC and C4D</b>	<b>Mobilization of Mayors, Notables, <i>Mpisoro</i></b>
Step 2		Re-invigoration of the Citizen Participatory System (SLC), e.g. <i>Tanamaro</i> , voluntarism;	
		Formation of the FTTF or the “ <i>Fanadiovana Tanteraka Tarihin ’ny Fokonolo</i> ” (e.d. community-based cleaning initiative)	
		Formation the <i>GeLose</i> (Localised Community Management)	
		Advocate for a school rejuvenation	Min. Education
		Addressing hygiene and sanitation issues	
		Improve the village granary system	
	<b>Social Cohesion</b>	<b>Utilization of the approach IEC and C4D</b>	<b>Mobilization of Mayors, Notables, <i>mpisoro</i></b>
Step 2		Bridging, Bounding, Linking	
		Initiation to Civic Education	

Enhancing Community Capitals	Projects	Activities	Tool
	<b>Social Mutual-Aid</b>	<b>Utilization of the approach IEC and C4D</b>	<b>Mobilization of Mayors, Notables, <i>mpisoro</i></b>
Step 3		Re-invigoration community emergency response system to local/regional disaster management structures;	
		Provision of the right training to local emergency volunteer	The BNGRC
		Promotion of endogenous self-help	
		Community credits	
		Community food banks	
	<b>Break Psychological Barriers</b>	<b>Utilization of the approach IEC and C4D</b>	<b>Mobilization of Mayors, Notables, <i>mpisoro</i></b>
Step 3		Promotion of change of mentality toward a self-reliant and self-sustain community members, e.g. entrepreneurship, waste of incomes;	
		Re-invigoration of the culture of forest preservation, e.g. the belief on taboo land, use of renewable cooking energy ( <i>fatamitsitsy</i> , compost-made coal), vulgarization of the concept of green community;	Ministry of Population, Ministry of Environment
		Promoting the implication of Dina to deforestation	
		household Resource management	
	<b>The Taboo Issue</b>	<b>Utilization of the approach IEC and C4D</b>	<b>Mobilization of Mayors, Notables, <i>mpisoro</i></b>
Step 3		Over reliance to shamanism and traditional healers	
		Gender taboo	
		hygiene and sanitation taboo e.g. open sky defecation	

Enhancing Community Capitals	Projects	Activities	Tool
		Over attachment to tradition taboo	
		To end the Over-expenditure e.g. <i>avoria</i> and funerals	
		Food taboo	
	<b>Sustainable Interventions</b>	<b>Utilization of the approach IEC and C4D</b>	<b>NGOs, Community Organizations</b>
step 3		promote introduction new crop	
		Promote function shift to fishery and transformative agro-industry	
		Promote introduction of new species of zebu-cattle, goats	
		Promote Phyto treatment of crop insect pests	
		Promote crop conservation technique	
		Promote mobile veterinary	
	<b>Health</b>	<b>Establishing an MoU</b>	<b>anti-Kere Institution, Chief Districts, Min. Health., ONN,</b>
Step 3		Promote the formation of a mobile medical team	
		Vulgarization of nutritional education projects, e.g. National Office of nutrition approach;	
		Amelioration of the health services via community health agents, public health mobile team, and promotion of universal health approach and community health posts;	
		promote closer coordination between health and nutrition agency	

## 2.2.5 PHYSICAL ENABLERS

Projects	Activities	Tool
<b>Reforestation</b>	<b>A massive trees plantation to cover hundreds of acres of land Smart Trees Project</b>	<b>Min. Environment, NGOs</b>
Step 3	family-based reforestation that is each family that chops down trees must plant trees	
	Sustainable cactus replantation	
<b>Modern Farming</b>	<b>Introduction of an adapted-innovative farming technique</b>	<b>Min. Agriculture, FAO, NGOs</b>
Continual	Vulgarization of climate smart farming concept	
	Training of trainers to agricultural technical agents	
	Promote biological treatment of crop insects' pests e.g. phytosanitary brigades	
	Promote industrial crops transformation	
	vulgarisation of farmer based veterinary agents	
	Introduction of livestock species	
<b>Agriculture</b>	<b>Re-invigoration and adapted-innovative solution to water problem,</b>	<b>Min. Agriculture, NGOs, Min. Environnement, ANGAP</b>
Continual	Creation of artificial lakes, aqueducts, water retention system e.g. impluvium	
	Agriculture exploitation of the Lake <i>Tongobory</i> , <i>Manakara-vavy</i> , and <i>Tsimanapetsotsa</i>	
<b>Local Market</b>	<b>Construction of intercommunal market places</b>	<b>Mayors, Chief Districts, FID, PTF's</b>
Continual	Measure to revamping the local micro-economy	
<b>Road</b>	<b>Aggressive advocate for the construction of the road RN10</b>	<b>Mayors, Congress people, Chief Districts, FID, PTF's, Min Public Works</b>
Continual	economic opening-up of the deep-south for greater flow of goods and services	

Projects	Activities	Tool
<b>Cooking Energy</b>	<b>Promotion of the use of renewable energy, e.g. solar panel, composted charcoal and <i>Fatana Mitsitsy</i>;</b>	<b>Min. Environment, FID, PTF's</b>
Continual	Application of forest protection law and Dina	Community Organization, Min. Environment
<b>Overlapping Interventions</b>	<b>A more reality informed IPC to guide response intervention</b>	<b>The BNGRC, CRIC, UN, USAID</b>
Continual	Contribute to the accurate early warning information e.g. IPC, FEWS NET	
	Health and nutrition Recovery centers	Min. Health, ONN
<b>Scalable Intervention</b>	<b>Risks reduction and emergency prevention logistics</b>	<b>The BNGRC, FID, CRIC, UN Agencies, USAID</b>
Step 3	School Feeding/canteen	WFP, ONN, Min Health
	Eco-friendly mining	Min. of Mining
	<i>Fiavota</i> project	
	Livestock project of ADRA Zina (improve cattle race)	
	Shift to sea fishing	
	Small seeds oil transformative (castor, prickly pears)	
<b>Provision of resources</b>	<b>Valorisation of local human resources in employment, e.g. native of the deep-south should be the priority-hire on regional jobs;</b>	<b>Chief Districts, Regional Governorate</b>
Step 3	Provision of strategic storage	
	Advocate for a better IT service	
	Necessary resources (logistics and money) to regional BNGRC office	
<b>Environment</b>	<b>Implication of the Dina in the forest conservation efforts</b>	<b>Min. Environment</b>
Step 3	Push for a better interagency communication	Min. Environment, Min. Health, <i>Valala</i> Agency

Projects	Activities	Tool
<b>Provision of Seeds</b>	<b>Promote provision of climate smart seeds</b>	<b>Min. Agriculture, NGOs</b>
Continual	Seeds support Recovery	
<b>Water Resolution</b>	<b>Provision of enough water delivery tankers to the AES emergency response</b>	<b>Water Agency, GIZ, JICA, FID</b>
Continual	Advocate for innovative water retention systems in sensitive villages: impluvium, artificial lake	
	Innovative Water Desalination plants	
	Monitoring of Technical Standards and norms of water structures ( <i>kalitao manara-penitra</i> )	
	Advocate for artificial rains	Mayors, Chief Districts, PTF's

## 2.2.6 THEORY OF CHANGE

The Theory of Change (ToC) is a pragmatic framework that describes how planned intervention affects change (De Silva et al., 2014). It is crafted from the ConOp and displays a strategic pathway that circumvents the foresighted *Kere* scenarios. It illustrates critical steps toward achieving the plan's purpose which is the building of resilience of the districts of Ampanihy and Betioky to the *Kere*. It shows that resilience of the subregion to future/novel *Kere* can only be attained if the people's livelihood is improved. The ToC's goals present key features of the state of being resilient, whereby the O'ndaty have the capacity to absorb and cope with *Kere* shocks and stresses or, to adapt and recover from them and to transform if the situation is untenable. Furthermore, it exhibits critical paths and transitional points involving chains of activities (inputs, outputs, outcomes) initiated to bring positive subregional adaptive transformation. Because the *Kere* is a multifarious phenomenon induced by a dynamic interaction of socioecological factors, building a subregional resilience to it is a multidisciplinary undertaking. Key sectors involved include, but are not limited to, public works, agriculture, emergency management, environment, public security and health.

The ToC begins with political intervention to discuss resistance to change (Figure 10). Resistance to change is likely inevitable but must be addressed and moved past for the sake of the greater community. Finally, building resilience is a continual process within the continual cycle of adaptive development efforts. Simply put, the ToC chalks out the architecture of undertakings requisite to building the resilience of the Atsimo-Andrefana region to future/novel *Kere*.

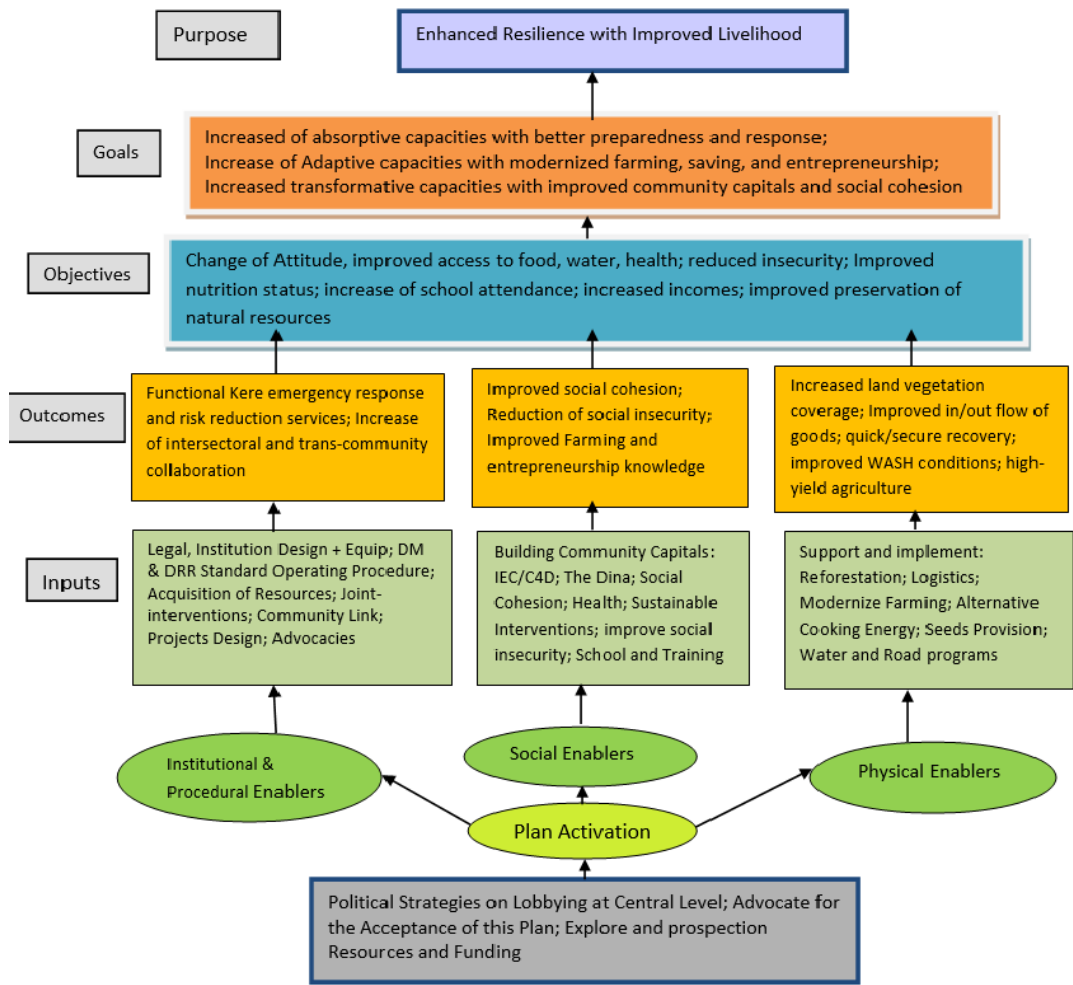


Figure 10 - The TOC for the Atsimo-Andrefana Kere Resilience Plan

**2.2.7 PLAN REVIEW AND PROGRAM EVALUATION**

The Atsimo-Andrefana *Kere* resilience plan is a live document. The feedback-loops of the ToC require a complete review of the plan and the evaluation of programs that it carries. The plan can be reviewed and periodically re-examined, e.g. every year. The periodicity of the review is best left to the discretion of regional *Kere* authorities. They should decide when and under what circumstances the plan shall be reviewed or amended. It is recommended that the Plan be reviewed when its underlying assumptions are no longer valid or some of its provisions no longer reflect *Kere*-affected districts, or new circumstances within the Ampanihy and Betioky regions.

Because the plan comprises multiple programs, each program requires a specific set of technical evaluations. For instance, road infrastructure projects should be assessed in



accordance with the Ministry of Public Work terms of reference. The overall assessment reports of each *Kere* resilience intervention would then inform the general resilience capacity of the Atsimo-Andrefana. There are many ways to carry out an ex-post general resilience capacity assessment. Because this plan emerged from an empirical PSP, the scenario planning framework of assessment proposed by Goodspeed (2020:162) is recommended. In addition, it fits with this plan’s conceptual framework. It must be noted that this framework for assessment is only a guiding reference; the anti-*Kere* authorities may chose other methods if necessary.

*Table 5 - The transformative Resilience Project Evaluation Framework*

	Scale	Absorptive Change	Adaptive Change	Transformative Change
Normative Learning (Social Enablers)	Behavioural change at Individual, household, group, districts, regional			
Institutional Change (Institutional/Procedural Enablers)	Policies, plan, laws at fokontany, Commune, district, regional			
System Change (Physical Enablers)	Fokontany, commune, district, regional			
The regional Kere Resilience Capacity Inferences				

Utilizing indicators from sectoral project evaluations, the assessment matrix examines:

- Normative Learning (Social Enablers): induced behavioural change as a result of the projects and interventions at individual, group, district, and regional levels, and assay how they empower/hinder absorptive, adaptive, and transformative changes.
- Institutional Change (Institutional/Procedural Enablers): observed and noticed transformational change as a result of implemented anti-*Kere* policies, laws, Dina at fokontany, district, and regional levels, and assay how they empower/hinder absorptive, adaptive, and transformative changes.

- System Change (Physical Enablers): observable and noticed transformational changes as a result of implemented infrastructures and other physical projects and assay how they empower/hinder absorptive, adaptive, and transformative changes.

Resilience of the Atsimo-Andrefana region to the *Kere* emerges from the successful completion of the absorptive, adaptive and transformative capacities. Because the *Kere* resilience is a processual behaviour, sustaining regional resilience to such a complex phenomenon is “continual work”.

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