

**Ecological Restoration in and around
Protected Area provides climate change
adaptation benefit to ecosystems, wildlife
and local communities in Kenya**



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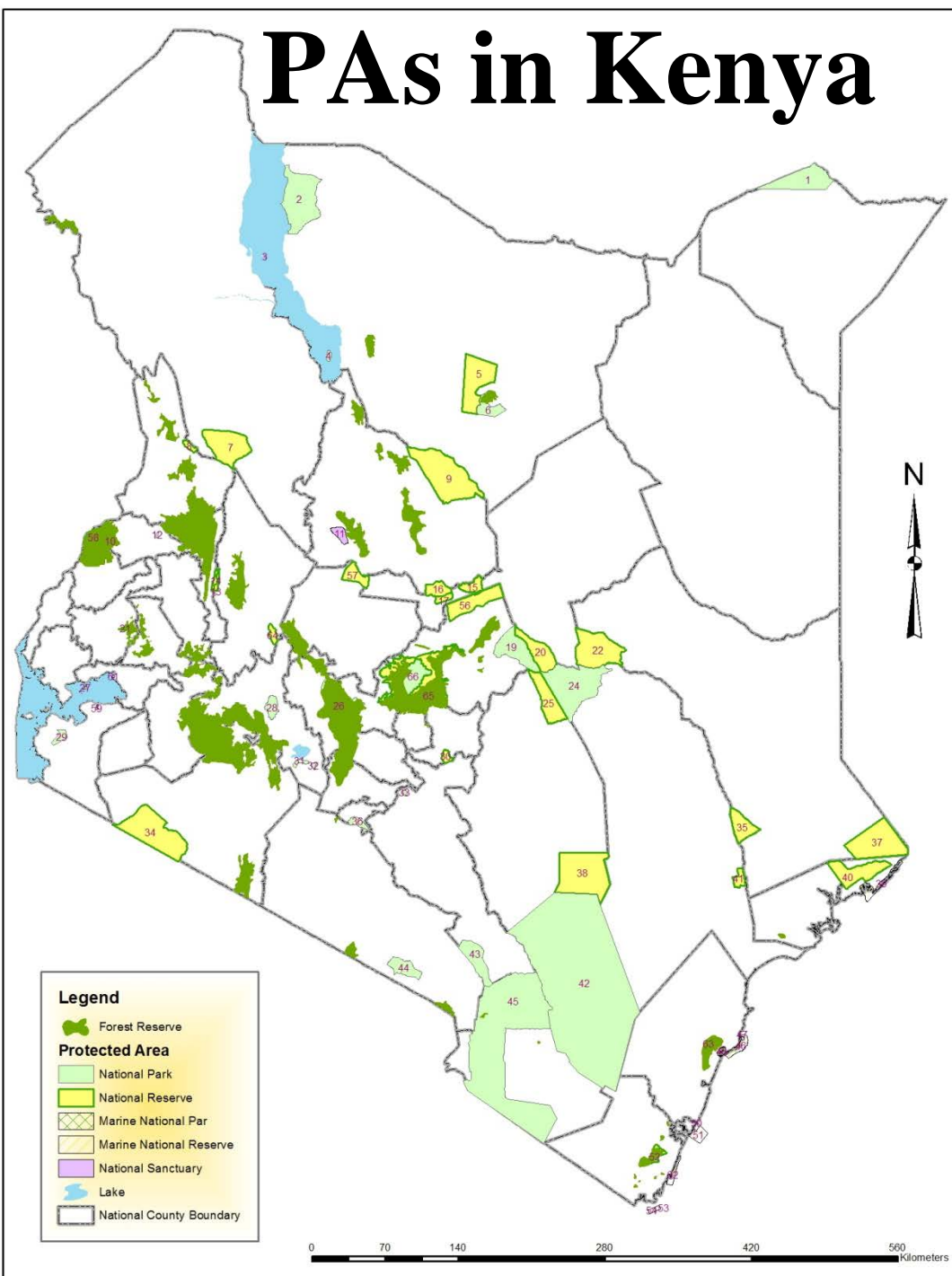
RATIONALE

- i. Well-functioning, well-connected networks of PA are increasingly being recognized as an essential part of the global response to climate change.
- ii. PA's enhance ecological, social, & economic resilience to climate change, protect natural carbon reservoirs, & respond to national & local development needs such as water resources, disaster risk reduction, and coastal zone management.
- iii. Ecological restoration is essential for maintaining and/or restoring these important functions.

PAs in Kenya

24 National Parks
27 National Reserves
203 Forest Reserves
4 Marine NP
6 Marine NR
4 Sanctuaries

- ✓ About **12%** area
- ✓ Several PAs listed as:
 - World Heritage Sites;**
 - RAMSAR Sites, and**
 - Biosphere Reserves**



- The regulating services of Kenya's PA ecosystems are important production factors to **the agriculture, forest and fishing sectors, the electricity and water sectors, tourism** (hotels and accommodation sector), **and households**.
- These sectors, together, contributes **between 30-40% to the National GDP**.
- In addition, these sectors have a **significant multiplier effect** on the rest of the economy's GDP.

WATER IS OUR COMMON DENOMINATOR FOR EbA

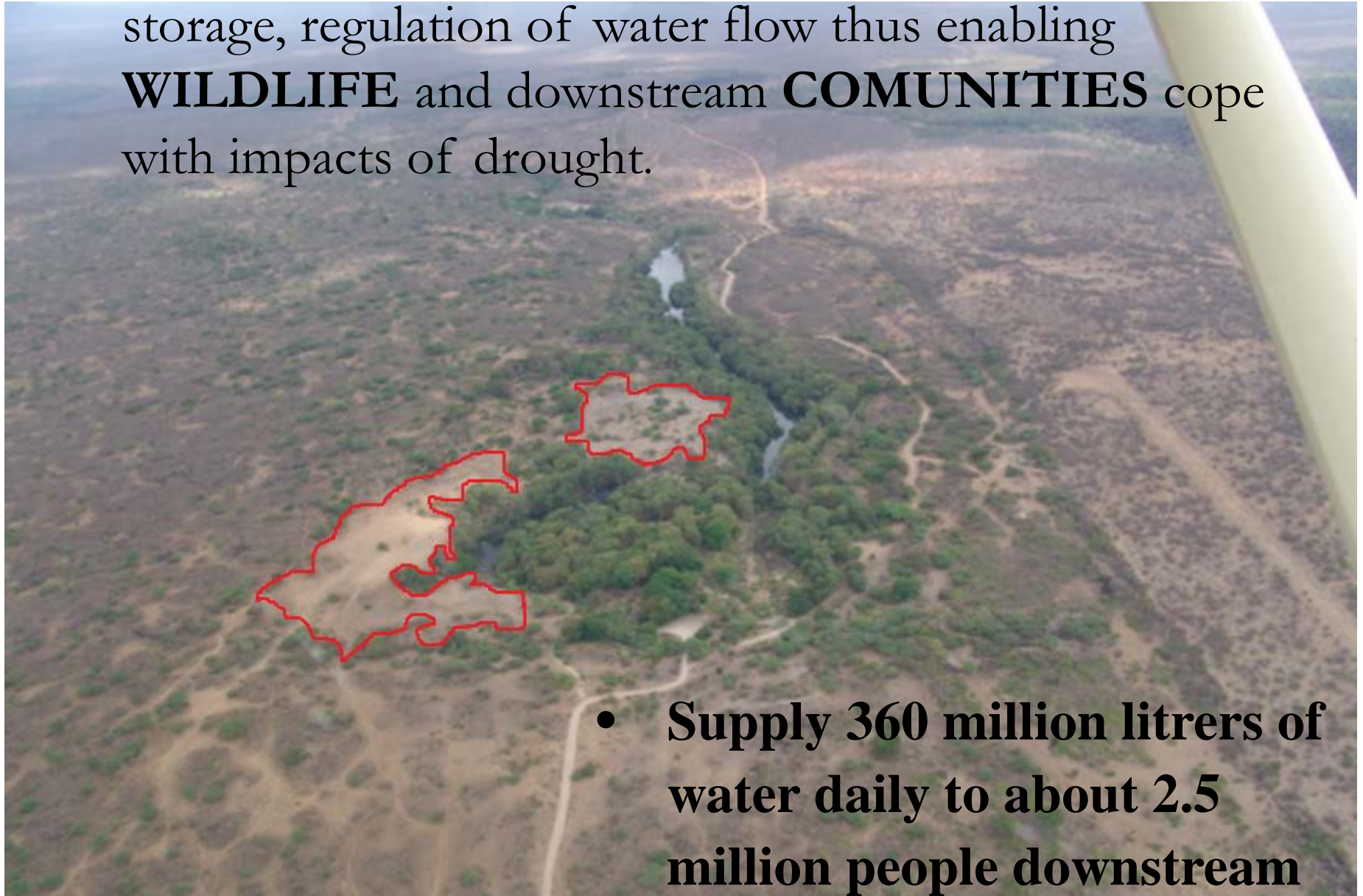
- ✓ Water shapes ecosystems and livelihoods
- ✓ Most climate impacts are felt through the water cycle
- ✓ Water management determines our ability to cope.



- 1. Conservation Actions**
- 2. Visitor Experience**
- 3. Public Education and Awareness**

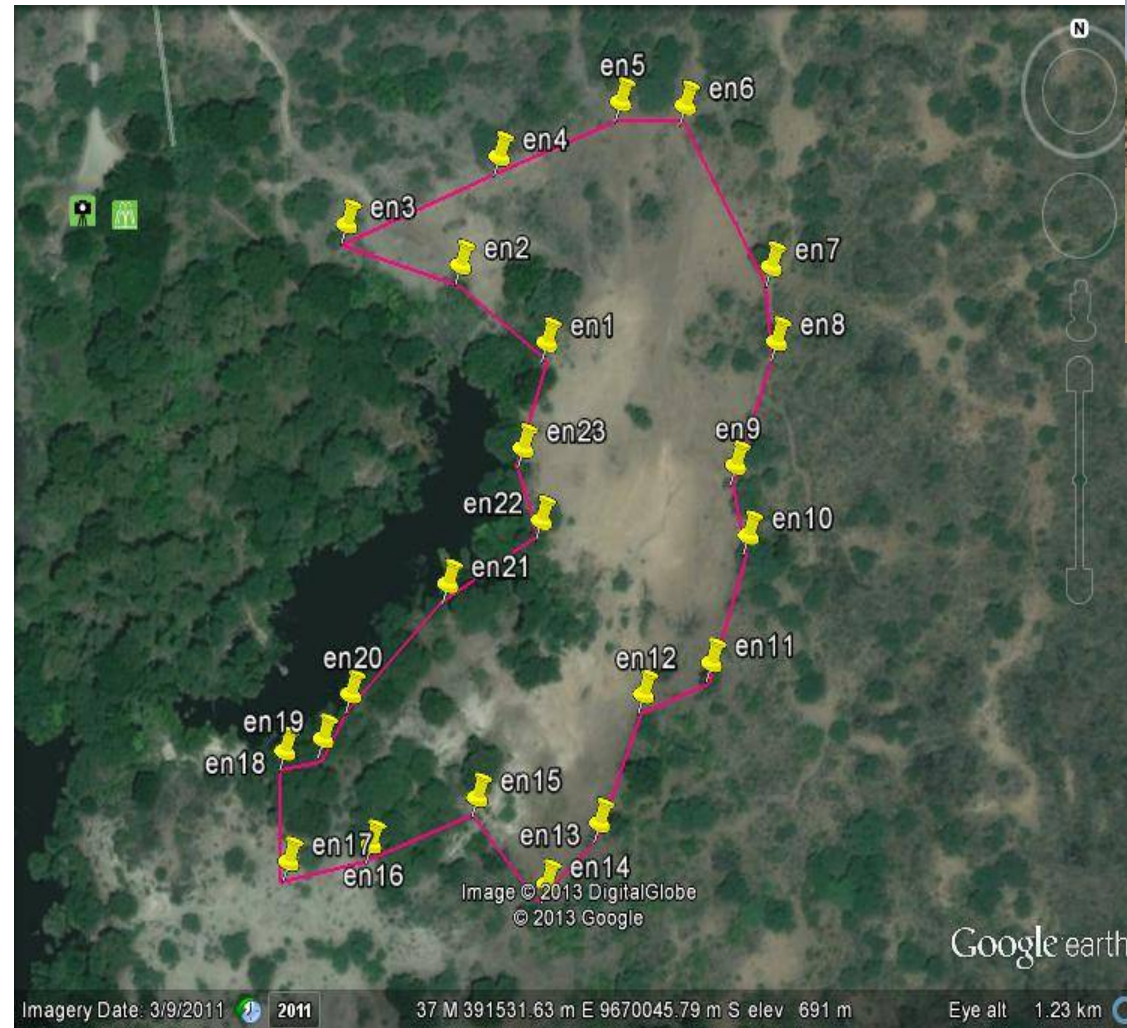
1. Rehabilitation and Restoration of degraded natural areas (wetlands, forests, savannah).
2. Enhance water storage capacity for wildlife and communities
3. Enhancing PA connectivity through corridors
4. Protecting and restoring natural infrastructure
5. Management and Control of invasive species in PAs

1. **Rehabilitation degraded natural areas** to enhance critical ecosystem services, as water recharge and storage, regulation of water flow thus enabling **WILDLIFE** and downstream **COMUNITIES** cope with impacts of drought.



- **Supply 360 million litres of water daily to about 2.5 million people downstream**

CONSERVATIONS ACTION



1. Mapping out the degraded area.
2. Construction a wildlife ex-closure to protect degraded area.
3. Construction of watering point equipped with a solar pump to provide alternative water to wildlife.

RESULTS AT MZIMA SPRINGS



1. Electric fence around the Spring



2. Pump house, complete with solar power



3. Alternative Watering point for wildlife

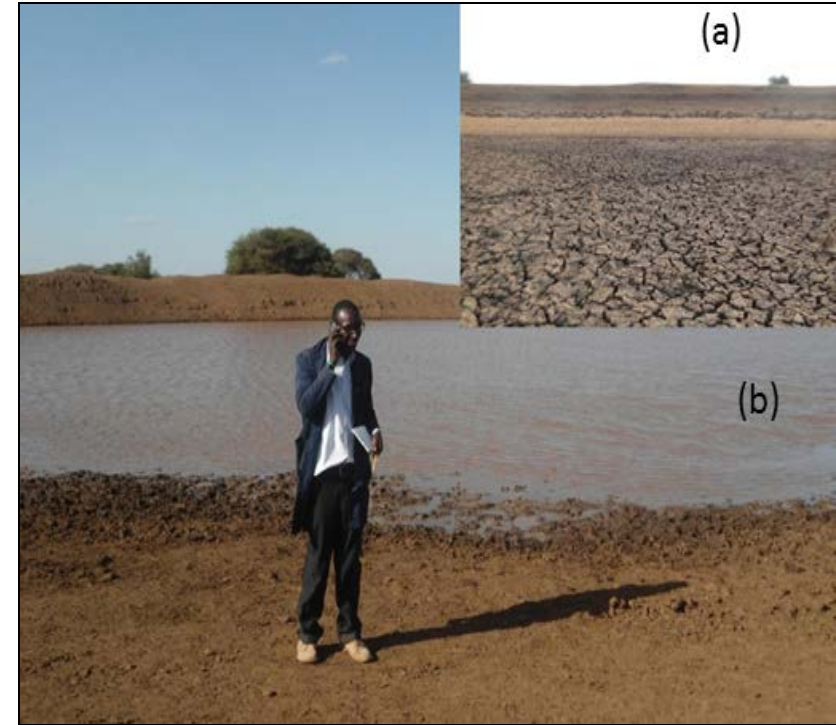
RESULTS TSAVO AND AMBOSELI



Restored enclosure (in about 1 year)

- ✓ **Habitat Restored to protect springs and enhance forage.**

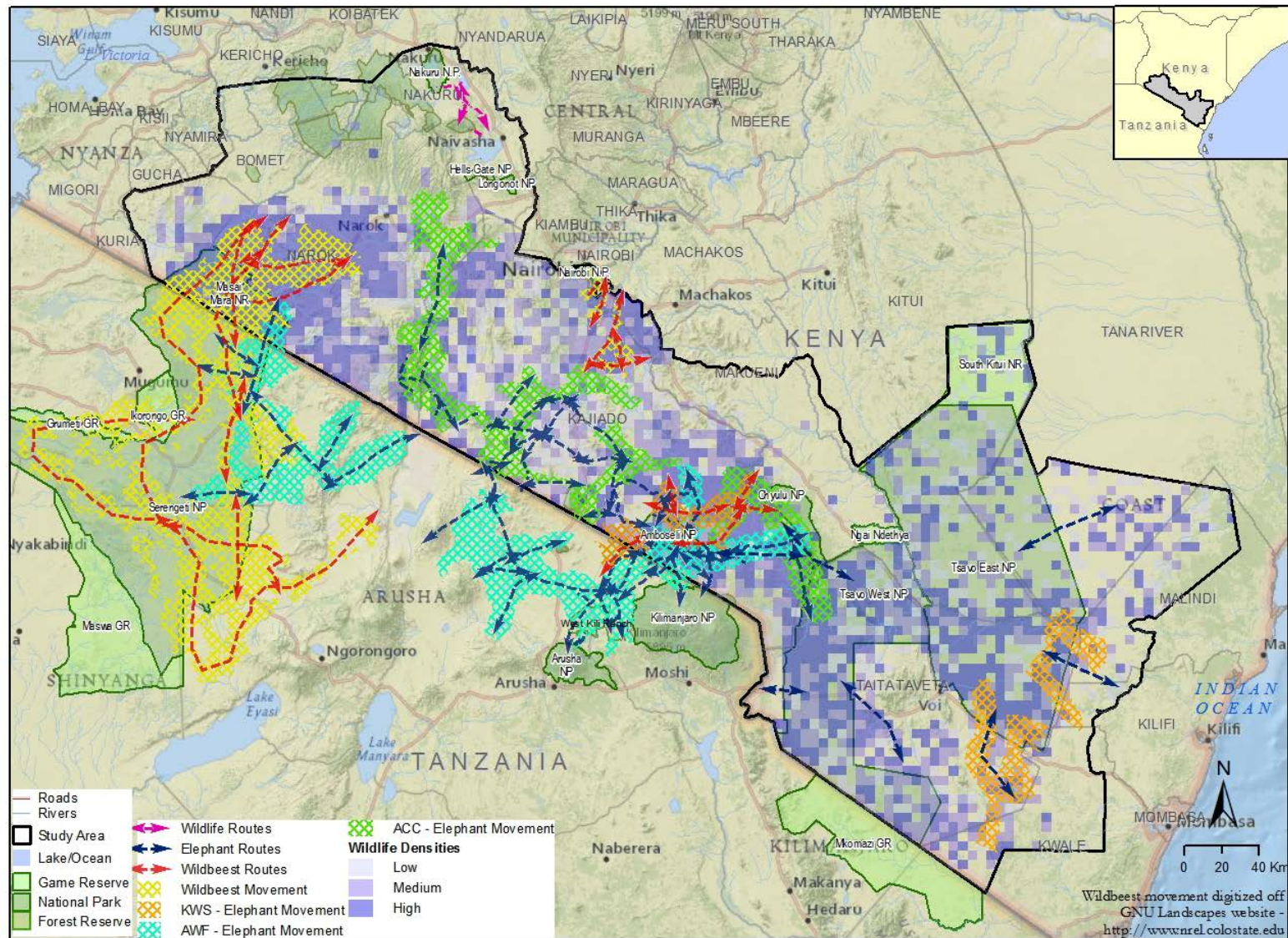
2. Enhance water storage capacity for wildlife and communities



✓ Provision of water harvesting pan and dams for wildlife and communities

**Nkiito dam (a) before and (b) after de-silting in Amboseli ecosystem:
The water pan is holding water from one month before de-silting to 4 months after de-silting.**

3. Connecting different ecosystems and habitats to enable people and biodiversity to access resources and move to more viable habitats as the climate changes.

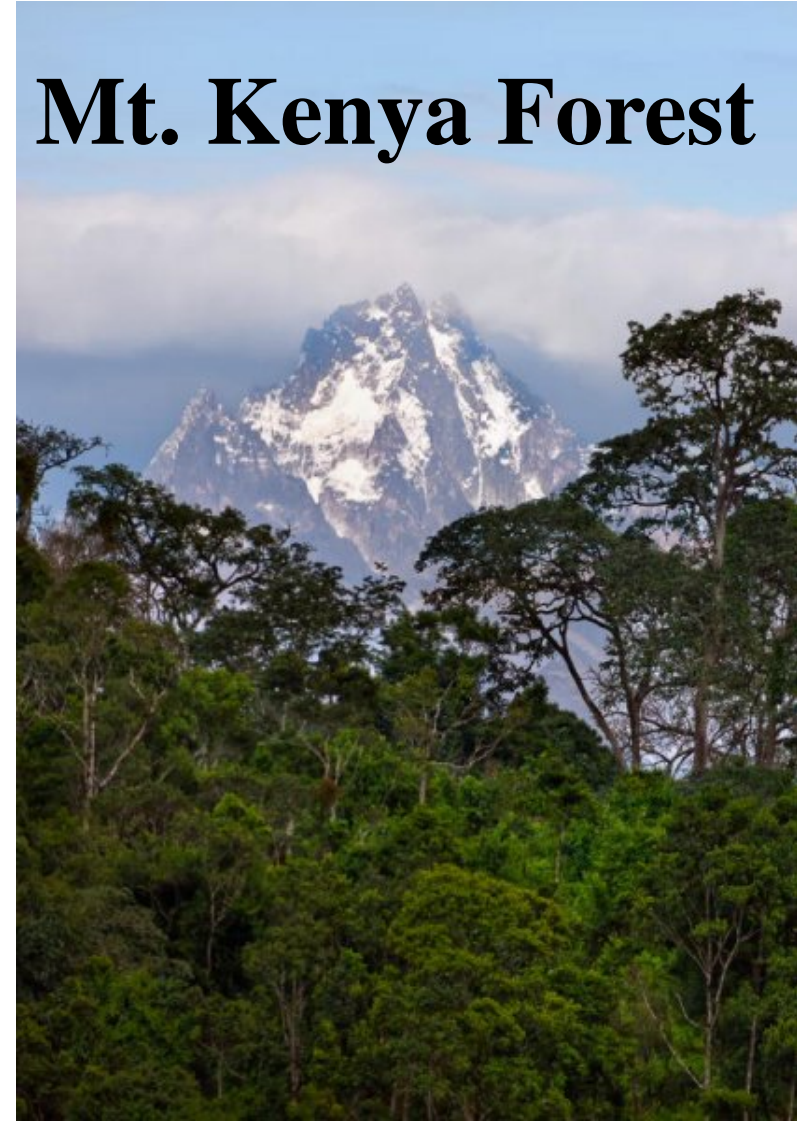




Wildlife underpass and over pass, Mt. Kenya and wider Laikipia

4. **Protecting and restoring natural infrastructure** such as mangroves and forests to buffer human communities from natural hazards, erosion and/or flooding.

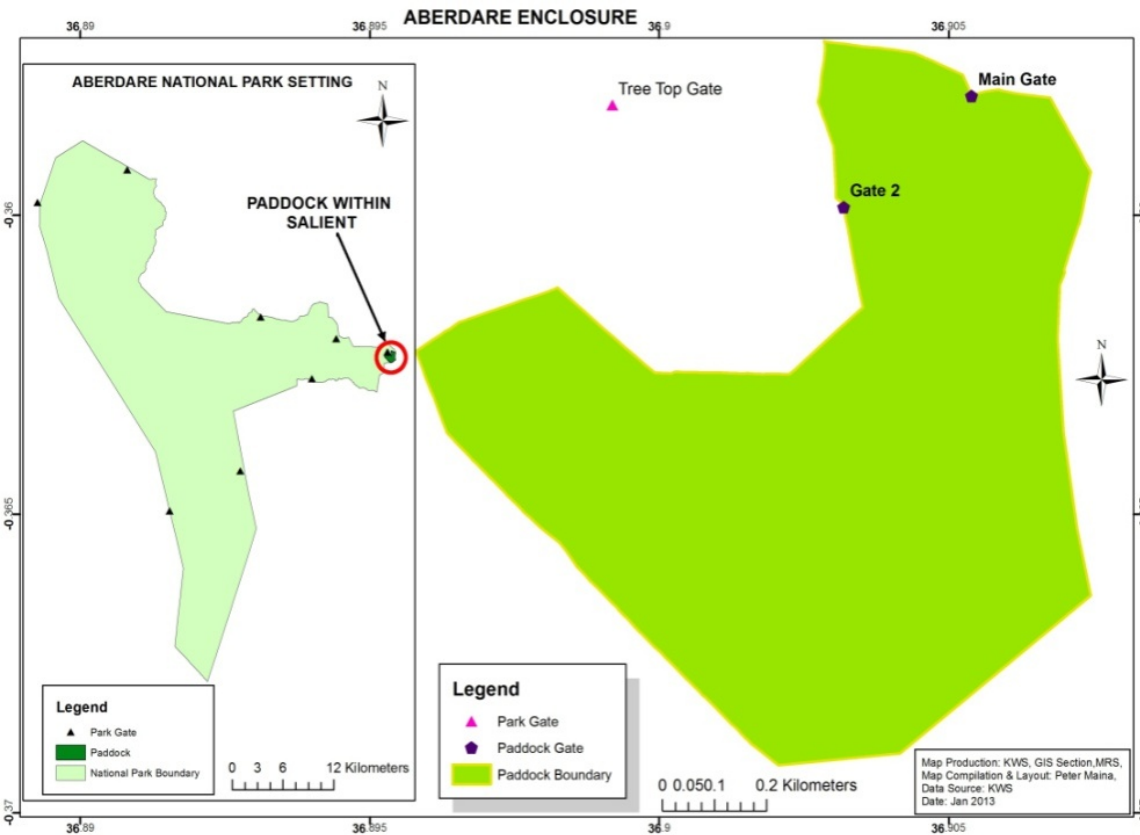
Mt. Kenya Forest



Aberdares Range Forest



Reforestation/Restorations



1. Mapping out the degraded area
2. Construction reforestation enclosure to protect degraded area
3. Establishment of modern tree nurseries, including some for communities
4. Training of community members



✓ 500,000 seedlings in nurseries and greenhouse

✓ 78% survival rate recorded (**growing not planting**).



✓ Enclosures in Aberdare, Mt. Kenya, Amboseli and Tsavo.



**Training of
Community members
and CFAs in modern
seedling production to
increase efficiency in
production**



Community members



College Students



Community members,
School children and
College student
**Participating in tree
planting**

Pupils



RESULTS AND IMPACTS



Flow of Mara River
after Mau Forest
Restoration

**Healthy systems are more resilient to climate extremes
and provide networks along which wildlife can migrate**

**Annual Wildebeest migrations is assured with
flow of Mara river and stabilized micro-
climate.**



GENERAL RESULTS:

1. Lowered Human-Wildlife Conflicts
2. Improved habitats and range condition in park



5. Management and Control of invasive species in PAs

Implications of IAS:

1. Loss of wildlife habitat
2. Biodiversity degradation
3. Low agricultural and livestock production

Actions

1. Survey and mapping out infested area
2. Carry out eradication
3. Train staff and community members
4. Prepare education materials



Estimating *Solanum incanum* density in each plot



RESULTS AND IMPACTS

- i. More habitat for wildlife won
- ii. Enhanced visitor experience as wildlife become more visible
- iii. Increased awareness on the impacts of invasive species among staff and the local community
- iv. Employment and source of livelihood to local communities



Public Education and Awareness

- ✓ Combination of our Staff, other agencies and community members



1. What are the potential impacts from climate risks in your area?
2. What other non-climatic stresses act in concert with climatic risks identified above?
3. What can be done and what resources are needed?



ENHANCE VISITOR EXPERIENCE



- **Implementation of active PA management strategies (EbA) aimed at maintaining or restoring ecosystem service are necessary, especially now that the extreme Weather events are Frequent and Intense.**



Thank you!