Ndërtimi për rekuperimin e Lagunës Kune-Vaini nëpërmjet Adaptimin e Ekosistemit (EbA).

Inception Workshop

8 September 2016

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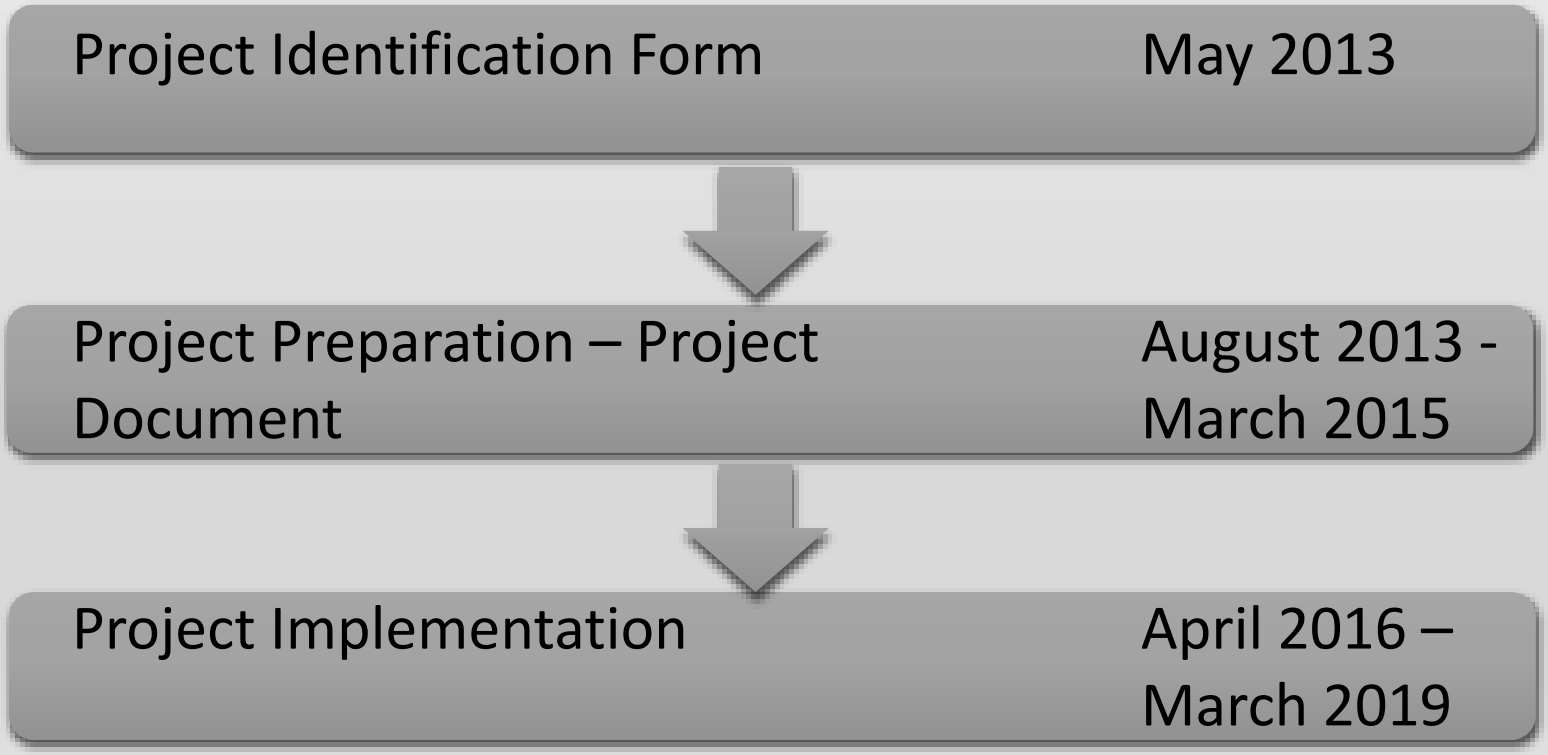
Presentation Structure

1. Background to the Kune-Vaini SCCF project
2. Introduction to Ecosystem-based Adaptaton (EbA)
3. EbA case study
4. Overview of the project design

Global Environmental Facility (GEF)

- Special Climate Change Fund
- Project Cycle:



Project Rationale

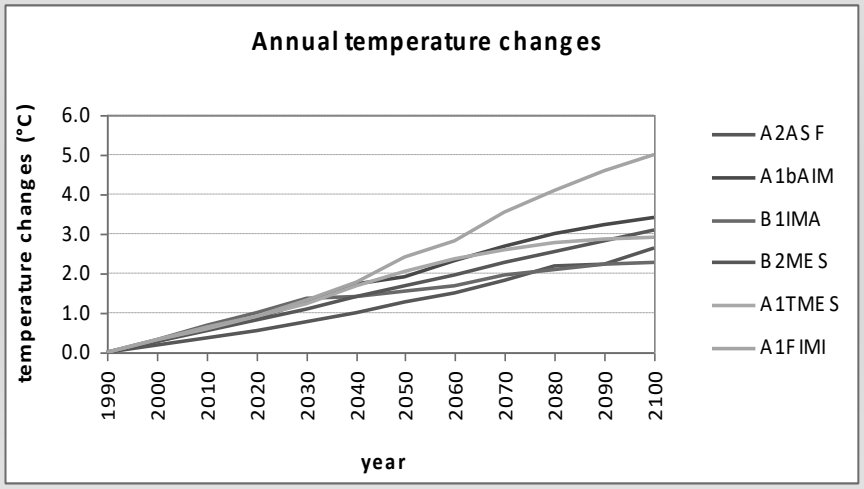
- Kune-Vaini Lagoon provides a range of important ecosystem goods and services
  - Water purification
  - Flood mitigation
  - Food provision – fishing
  - Biodiversity conservation, etc.

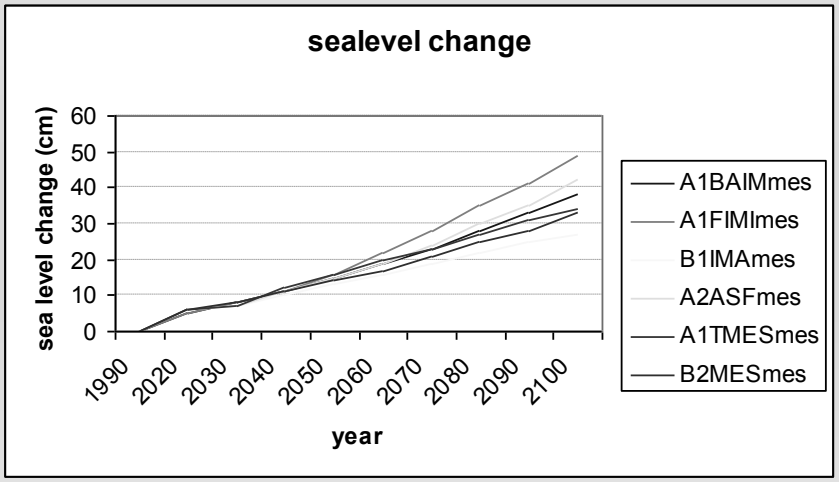
Project Rationale

- The Kune-Vaini Lagoon is threatened by human influences
  - Urban expansion
  - Pollution
  - Erosion, etc.

Project Rationale

- Climate change exacerbates the threats to the Kune-Vaini Lagoon
  - Increasing temperature – increased evaporation – increased salinity
  - Sea-level rise – increased erosion
  - Increasing variable rainfall – increased flooding





Identification and Implementation of Adaptation Response Measures in the Drini Mati River Delta (DMRD)

Identifikimi dhe zbatimi i masave per adaptim ne derdhjet e lumenjve Drin e Mat

Projekt propozimet

bazuar ne masat prioritare për përshtatje ndaj ndryshimeve klimatike

(tav. donatoreve 23 prill 2013)

1. Menaxhimi i erozionit bregdetar (EbA+engineering)
2. Menaxhimi i ujrave të ëmbla në DLDM
3. Menaxhimi i ekosistemeve pyjore në zonene bregdetare (EbA)
4. Menaxhimi i grykës së lagunës së Cekës (Enginineering)
5. Menaxhimi i kanaleve komunikuese në Ishullin e Kunës
6. a. Përmirsimi i komunikimit ujor midis lagunës së Zajës e lumit Drin Enginineering, b. Përmirsimi i komunikimit ujor midis lagunës së Cekës e Zajës (Enginineering)
7. 7.Mirmbajtja e bankinave në Kune –Vain dhe Ishull Shëngjin (CbA).
8. Mirmbajtja e bankinave në zonën e Tales. (CbA)
9. Trajtimi i ujrave të zeza në zonën e DLDM. (CbA).
10. Mirembajtja e kanaleve kulluese ne zonen e DLDM. (CbA)
11. Pergatitja e studimit të fizibilitetit për të gjithë zonën e DLDM (CbA)

Project Problem

- Human activities are **reducing** the ability Kune-Vaini Lagoon to provide valuable **ecosystem goods and services** required by local communities. The observed and predicted effects of **climate change** further exacerbate this.

Project Solution

- to increase the capacity of government and local communities living nearby the KVLS to adapt to the adverse effects of climate change using **ecosystem based approaches to adaptation**.

Definition of EbA

'the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change'

'sustainable management, conservation and restoration of ecosystems, as part of an overall adaptation strategy that takes into account the multiple social, economic and cultural co-benefits for local communities'.

What are the benefits?

The benefits speak for themselves

Goods:

- Timber
- Fish
- Meat
- Fruit
- Fibre
- Fodder
- Thatch
- Cultural items

Plus

-Pilots exist
-Cost effective
-Low/no regret
-Disaster risk reduction

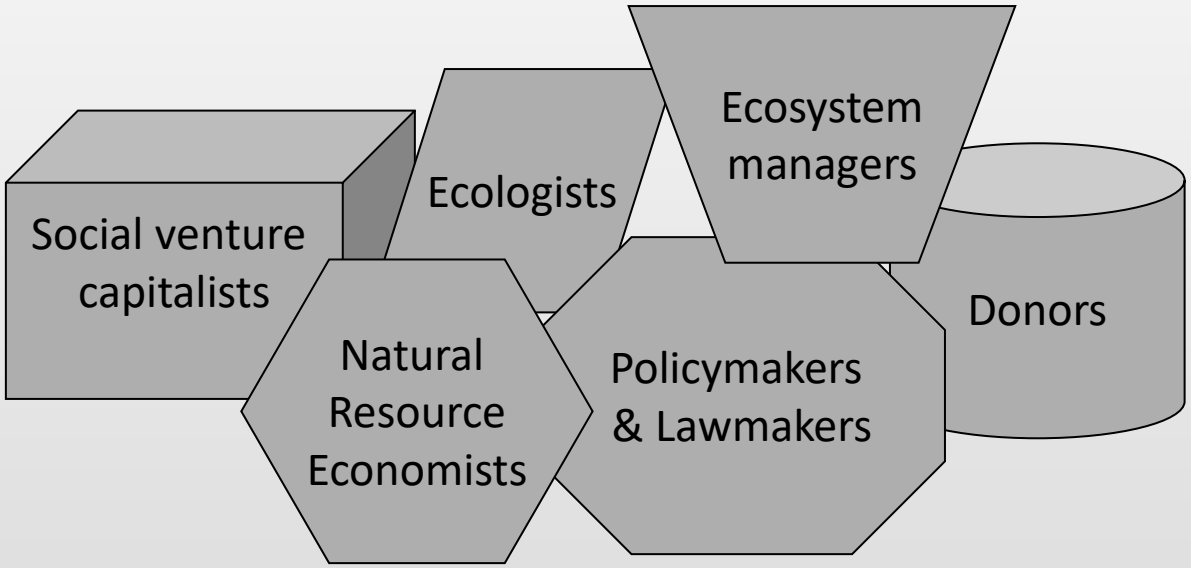
Services:

- Water flows
- Pollination
- Carbon sequestration
- Pollution control
- Flood & storm surge protection

Why does this not happen more often?

- Benefits take time to accrue
- Limited awareness – mindset change
- Needs to take place over a large scale
- Limited finance

Credibility is paramount, but it means different things to different groups.



Long-term research and awareness are important

Examples of EbA

Spekboom into Eastern Cape Thicket

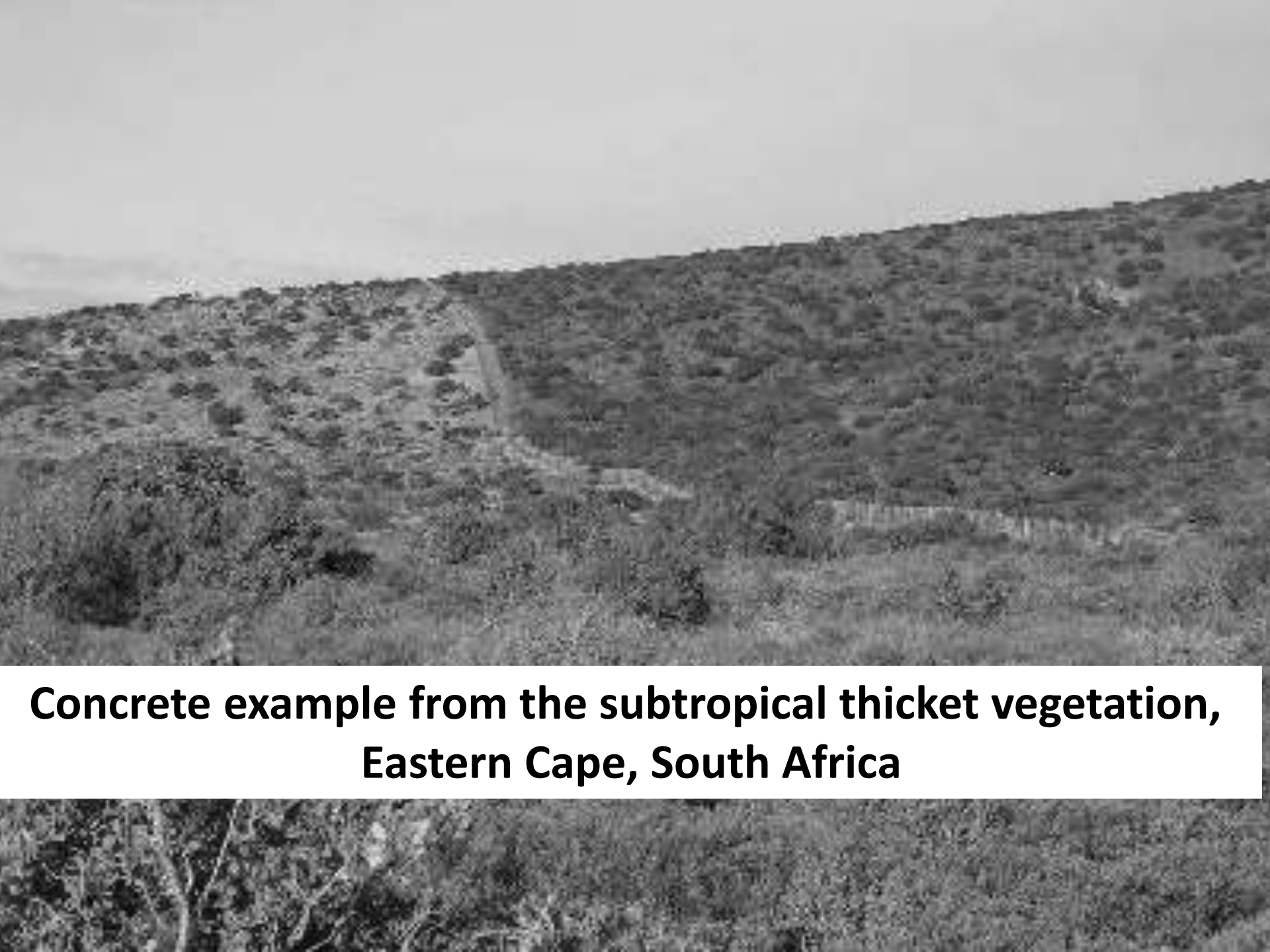
Forests in Cambodia

Mangroves into Djibouti

Rwandan forests

Comoros forests

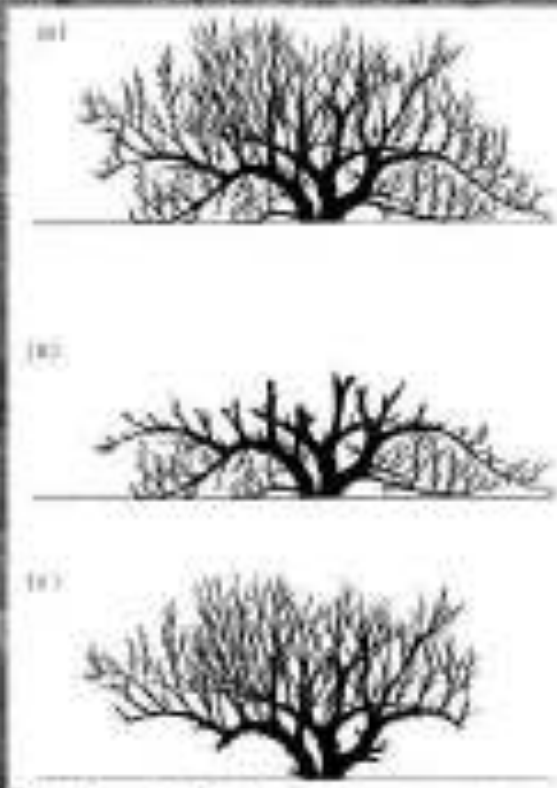
South American forests & Sri Lankan home gardens



Concrete example from the subtropical thicket vegetation, Eastern Cape, South Africa

What Is The Problem?

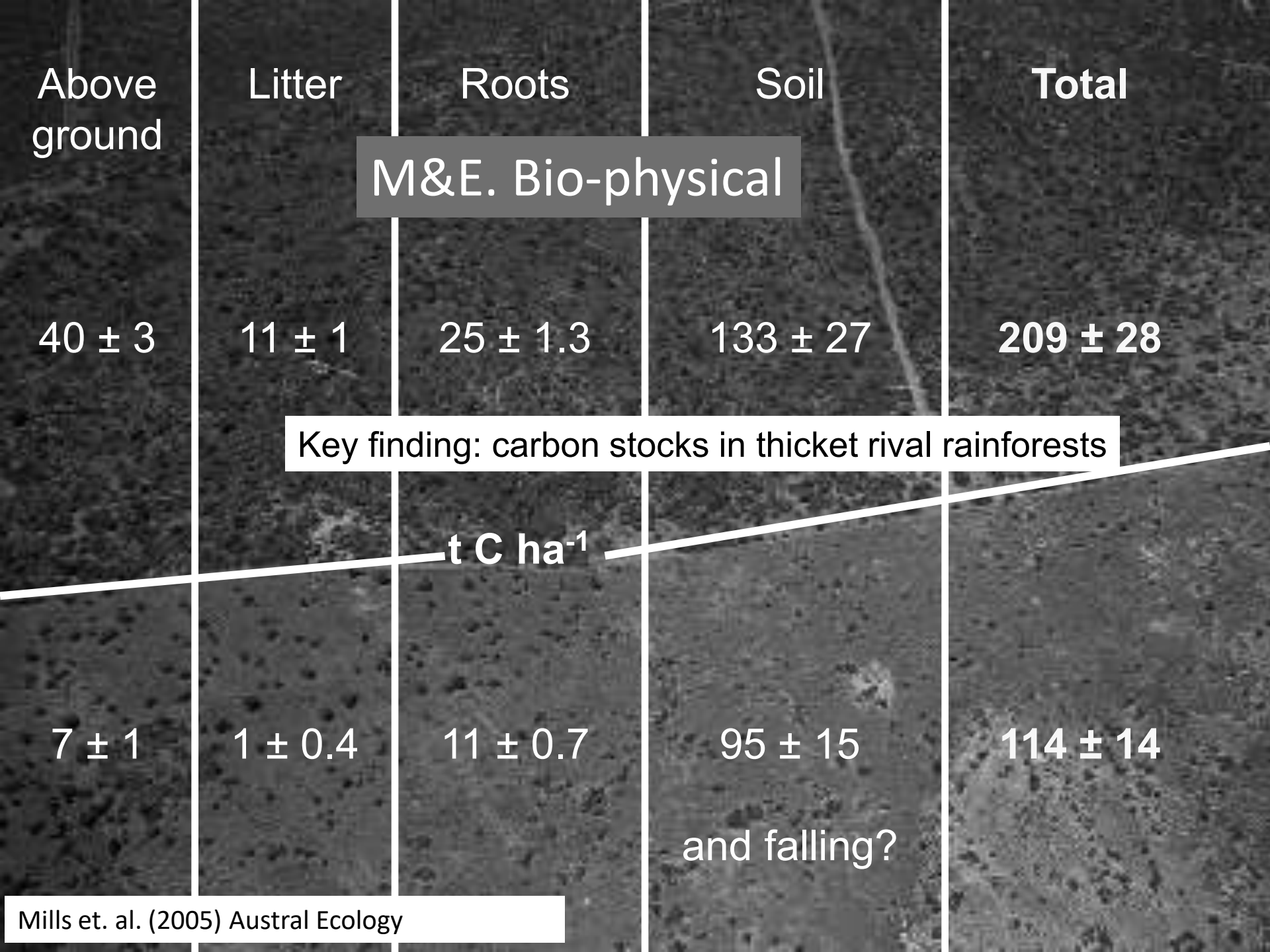
Changing the micro-climate through inappropriate herbivory for meeting economic objectives



Groot Spekboomveld transformation Beervlei Dam Vlok.jpg

Mortality

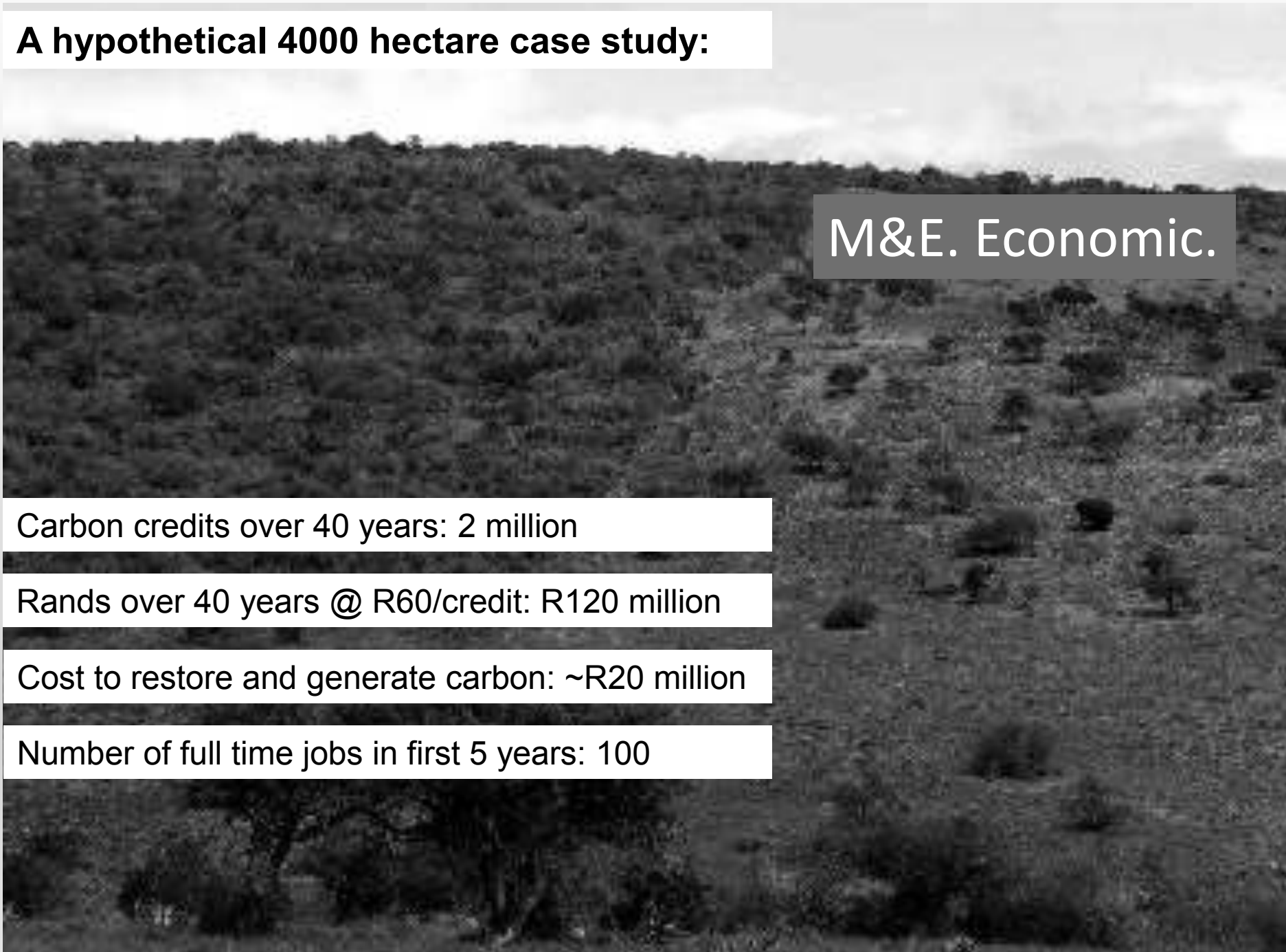
EbA in subtropical thicket


Above ground
Litter
Roots
Soil
Total
M&E. Bio-physical
40 ± 3
11 ± 1
25 ± 1.3
133 ± 27
209 ± 28
Key finding: carbon stocks in thicket rival rainforests
t C ha-1
7 ± 1
1 ± 0.4
11 ± 0.7
95 ± 15
and falling?
114 ± 14
Mills et. al. (2005) Austral Ecology

2008: thicket-wide plots:
300 sites across Eastern Cape

M&E. Social

A hypothetical 4000 hectare case study:



Carbon credits over 40 years: 2 million

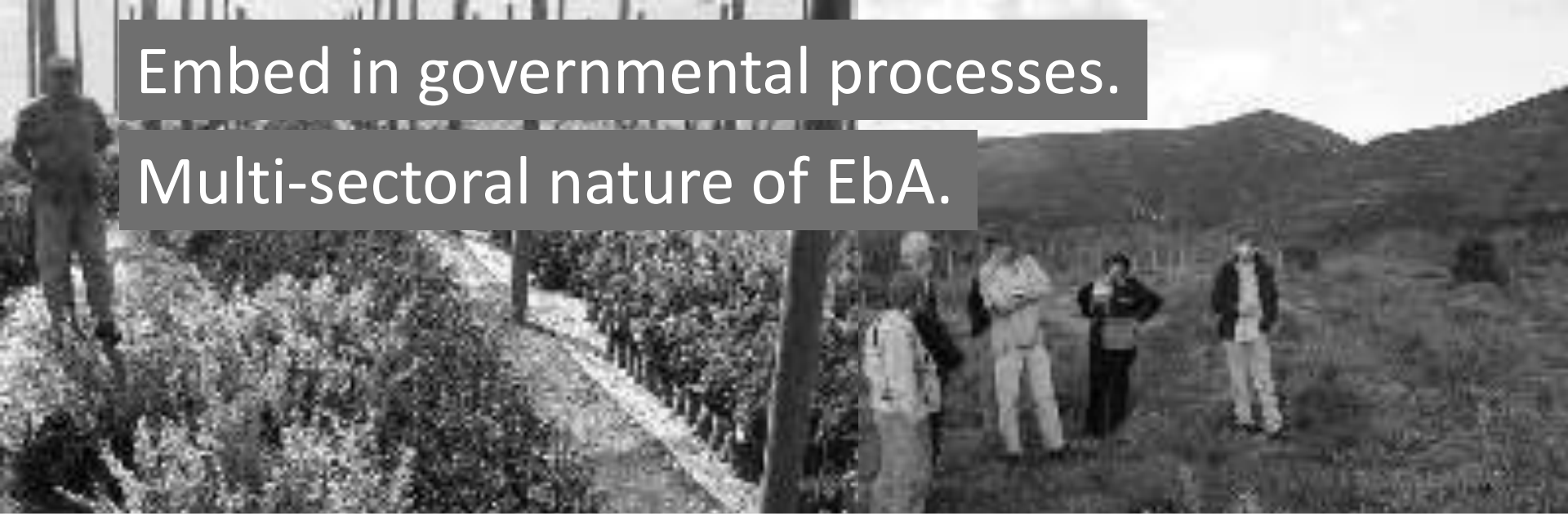
Rands over 40 years @ R60/credit: R120 million

Cost to restore and generate carbon: ~R20 million

Number of full time jobs in first 5 years: 100

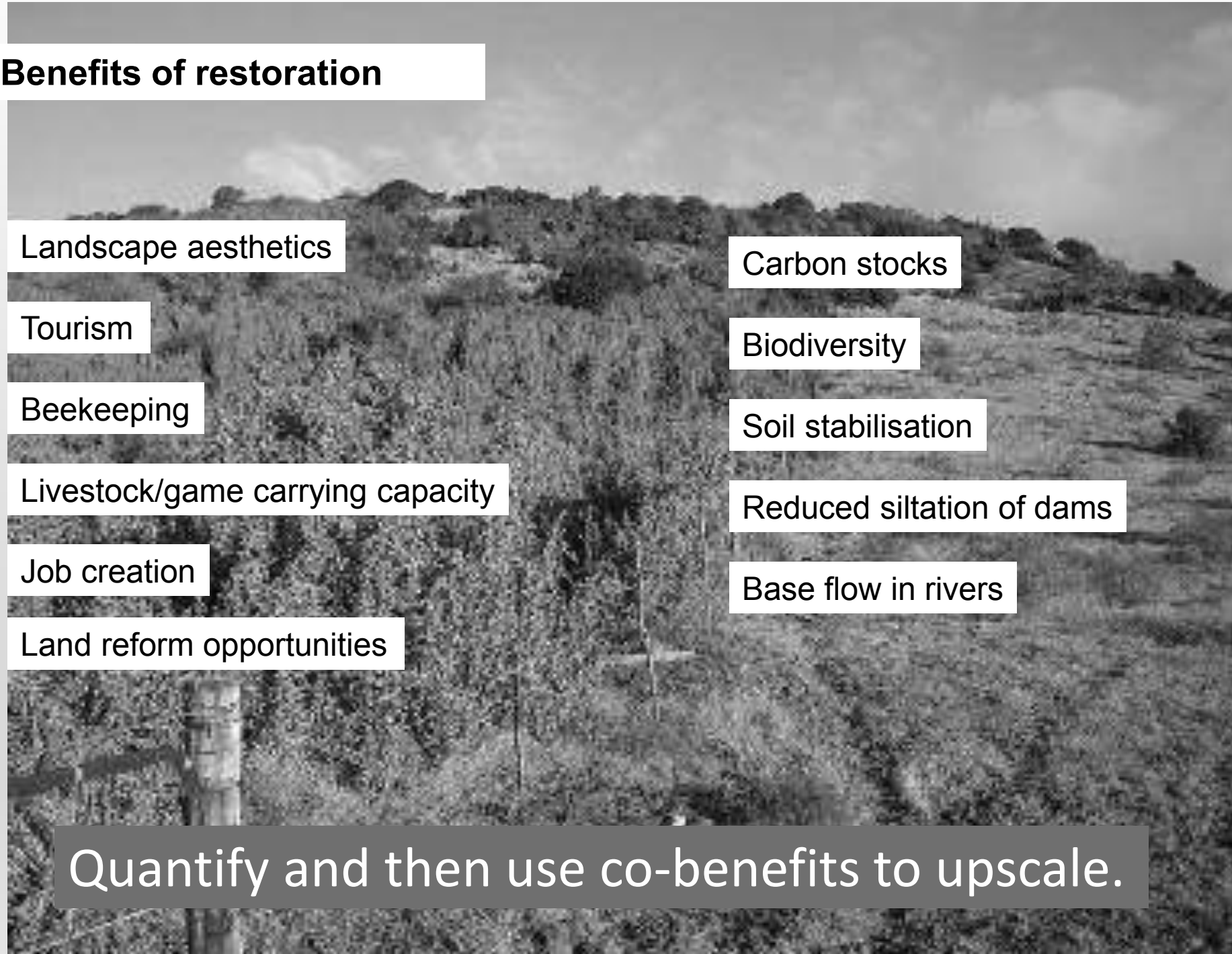
The scientific platform

- **Van der Vyver ML, Cowling RM, Campbell EE and Difford M 2012**. Active restoration of woody canopy dominants in degraded South African semi-arid thicket is neither ecologically nor economically feasible. *Applied Vegetation Science* 15, 26-34.
- **Van der Vyfer, Cowling RM, Mills AJ and Difford M 2012**. Spontaneous return of biodiversity in restored subtropical thicket: *Portulacaria afra* as an ecosystem engineer. *Restoration Ecology* (in press).
- **Mchunu, S.E. 2012**. Distribution and Stability of Soil Carbon in Spekboom Thicket, Eastern Cape, South Africa. MSc. Thesis. University of Stellenbosch, Soil Science Department.
- **Mills, A.J., Cowling, R.M., Steyn, D., Spekreijse, J., Van den Broeck, D., Weel, S., Boogerd, C. 2011**. Portulacaria afra is constrained under extreme soil conditions in the Fish River Reserve, Eastern Cape, South Africa. *South African Journal of Botany*. 77: 782-786.
- **Mills, A.J. & Cowling, R.M. 2010**. Below-ground carbon stocks in intact and transformed subtropical thicket landscapes in semi-arid South Africa. *Journal of Arid Environments*. 74: 93-100.
- **Sigwela, A.M., Kerley, G.I.H., Mills, A.J. and Cowling, R.M. 2009**. *The impact of browsing-induced degradation on the reproduction of subtropical thicket canopy shrubs and trees.* South African Journal of Botany 75, 262-267.
- **Lechmere-Oertel, R.G., Kerley, G.I.H., Mills, A.J. & Cowling, R.M. 2008**. *Litter dynamics across browsing-induced fence line contrasts in succulent thicket, South Africa.* South African Journal of Botany 74: 651-659.
- **Mills, A.J., Turpie, J., Cowling, R.M., Marais, C., Kerley, G.I.H., Lechmere-Oertel, R.G., Sigwela, A.M. and Powell, M. 2007**. *Assessing costs, benefits and feasibility of subtropical thicket restoration in the Eastern Cape, South Africa.* In: J.Aronson, S.J. Milton and J. Blignaut (eds), Restoring natural capital. Science, business and practice. Island Press, Washington DC.
- **Mills, A.J. and Cowling, R.M. 2006**. *Rate of carbon sequestration at two thicket restoration sites in the Eastern Cape, South Africa.* Restoration Ecology 14, 38-49.
- **Lechmere-Oertel, R.G., Kerley, G.I.H. & Cowling, R.M. 2005**. *Patterns and implications of transformation in semi-arid succulent thicket, South Africa.*Journal of Arid Environments 62: 459-474.
- **Lechmere-Oertel, R.G., Kerley, G.I.H. & Cowling, R.M. 2005**. *Landscape dysfunction and reduced spatial heterogeneity in soil resources and fertility in semi-arid succulent thicket, South Africa.* Austral Ecology 30:615-624
- **Mills, A.J., Cowling, R.M., Fey, M.V., Kerley, G.I.H., Lechmere-Oertel, R.G., Sigwela, A., Skowno, A. and Rundel, P.W. 2005.** *Effects of goat pastoralism on ecosystem carbon storage in semi-arid thicket, Eastern Cape, South Africa.* Austral Ecology 30, 807-813.
- **Mills, A.J. and Fey, M.V.2004.** *Soil carbon and nitrogen in five contrasting biomes of South Africa exposed to different land uses.* South African Journal of Soil Science 21, 94-103.
- **Mills, A.J. & Fey, M.V. 2004.** *Transformation of thicket to savanna reduces soil quality in the Eastern Cape, South Africa.* Plant and Soil 265:153-163.
- **Sigwela, A. M. 2004.** *The impacts of landuse on vertebrate diversity and vertebrate- mediated processes in the Thicket Biome, Eastern Cape.* Ph.D. thesis. University of Port Elizabeth, Port Elizabeth, South Africa.
- **Lechmere-Oertel, R.G. 2003.** *The effects of goat browsing on ecosystem patterns and processes in succulent thicket, South Africa.* PhD thesis, University of Port Elizabeth, Port Elizabeth, South Africa.
- **Mills, A.J. and Fey, M.V. 2003**. *Declining soil quality in South Africa: effects of land use on soil organic matter and surface crusting.* South African Journal of Science 99, 429-436.



2004: Department of Environment Affairs thicket restoration project.
Budget today: $1-2 million per annum.
Aim: catalyse large-scale restoration in private sector.

Benefits of restoration



Quantify and then use co-benefits to upscale.

Project Design

Objective: to increase the capacity of government and local communities living nearby the KVLS to adapt to climate change using an integrated suite of adaptation interventions, including EbA.

Outcomes:

1: Increased national/local technical and institutional capacity to address climate change risks in coastal areas through adaptation interventions including EbA.

2: Reduced vulnerability of communities living nearby the Kune Vaini lagoon system to climate change-induced extreme events through pilot adaptation interventions including EbA.

3: Increased awareness of local and national stakeholders to climate change risks and the potential of EbA to increase the resilience of local communities to climate change.

Kune-Vaini Project Design

Component	Budget
Component 1: Technical and institutional capacity to address climate change risks through EbA	300,000
Component 2: Climate resilience through demonstration of best practice and concrete EbA and other adaptation interventions in the Kune-Vaini lagoon system.	1,083,300
Component 3: Awareness and knowledge on effective EbA.	239,000
Project Management	172,500
Monitoring and Evaluation	108,000
TOTAL	**1,903,000**

Project Design

Component 1: Technical and institutional capacity to address climate change risks through EbA

Outputs:

Output 1.1. Training conducted for national and local government representatives on EbA.

Output 1.2. Technical guidelines produced on implementation of climate change adaptation actions using EbA, and training conducted on the application of these guidelines.

Output 1.3. A technical working group on climate change and EbA established to facilitate national dialogue on coastal adaptation through EbA and mobilise funds for the implementation of EbA at the national level.

Output 1.4. Technical support provided for the development of a strategy to upscale, sustain and replicate climate-resilient development using EbA.

Project Design

Component 2: Climate resilience through demonstration of best practice and concrete EbA and other adaptation interventions in the Kune-Vaini lagoon system.

Outputs:

Output 2.1. An integrated suite of adaptation interventions including EbA implemented in the Kune-Vaini lagoon system.

Output 2.2. Long term strategy for: i) monitoring EbA interventions developed; and ii) technical reports produced.

Output 2.3. Training of local communities on EbA and additional livelihoods including ecotourism.

Project Design

Component 3: Awareness and knowledge on effective EbA.

Outputs:

Output 3.1. Knowledge management plan developed to capture and share information on climate change impacts and lessons learned to inform future EbA interventions.

Output 3.2. Awareness-raising campaign conducted on the advantages of EbA to increase resilience to climate change impacts.

Output 3.3. Scientific reports produced on the performance of implemented EbA interventions and research projects underway.

Output 3.4. A web-based platform established to share information and provide access to project products.

Thank you

Forest restoration in Cambodia

Approach A: Extensive EBA interventions

Grow: climate-resilient home garden tree species.

Result: High-value , multi-use & climate-resilient forests.

Benefits: NTFPS (e.g. fruit, fibre, rattan, resin, medicines, forest meat, fodder), timber, soil protection, pollination & water infiltration/flow.

Resin

Fruits

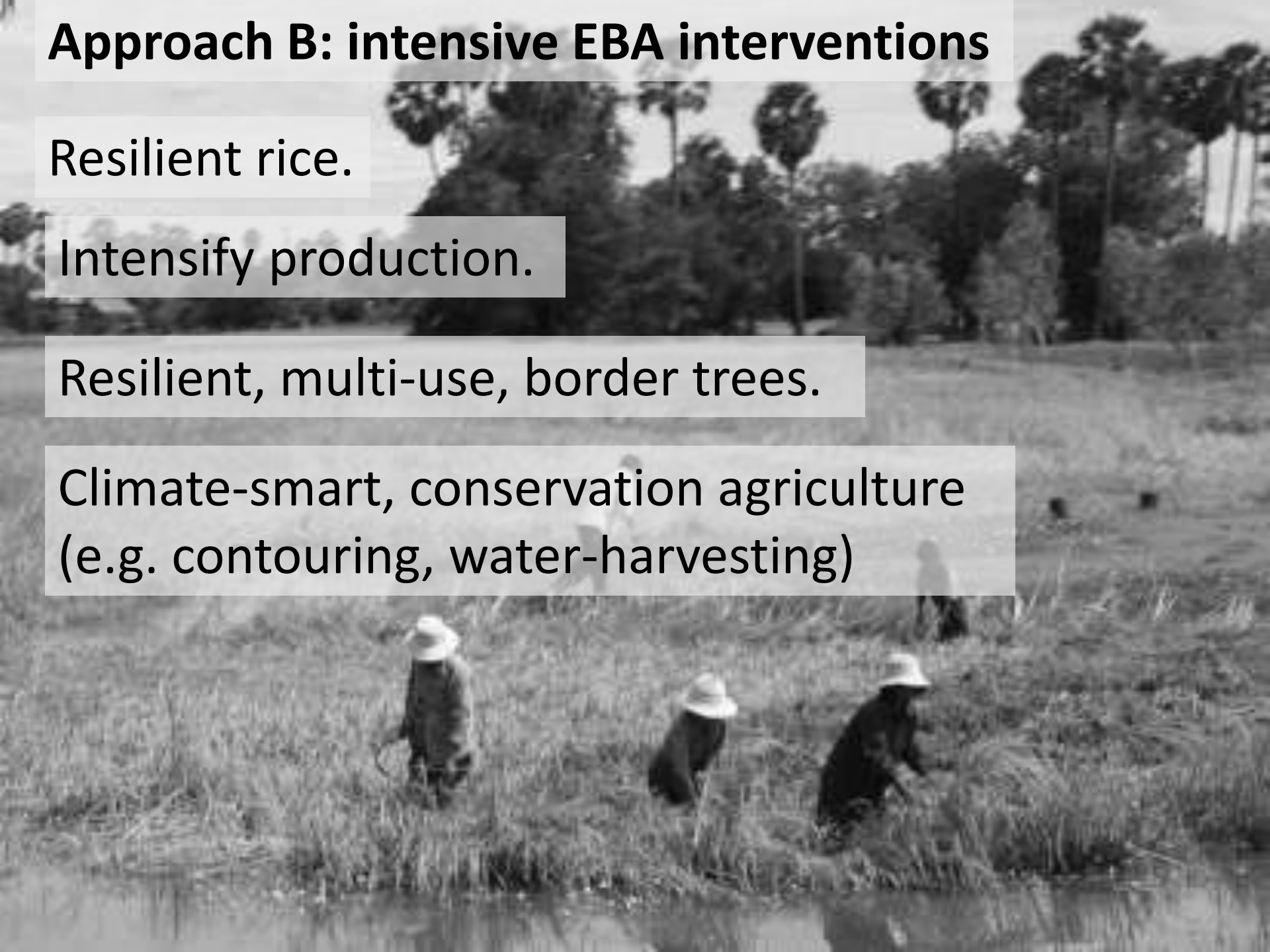
Fibre

Livelihoods can be climate-proofed on trees.

Timber

Appropriate selection, propagation and establishment of selected tree species (**detailed protocols**).

Medicines



Approach B: intensive EBA interventions

Resilient rice.

Intensify production.

Resilient, multi-use, border trees.

Climate-smart, conservation agriculture (e.g. contouring, water-harvesting)