

CA Adoption, Case Study Madagascar



Conservation Agriculture Adoption Among Smallholder Farmers Case Study of Madagascar

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Plan

Introduction (who and where)

Objective of the action (what)

Implementation process (how)

Key points of success

Conclusions and lessons learned

Introduction

- **Agricultural economy, rice based**
- **Livestock is dominated by extensive cattle breeding**
- **Environment problems : erosion, soil fertility, drastic effects of climate**
- **Many agro-ecologic zones**

Four major agro ecological zones represent the whole situations:

- Tropical climate areas with altitudes higher than 1,200 m
- Mid altitude areas (600 to 1100 m) with a long dry season
- Humid tropical areas of the East coast, lower than 500 m altitude;
- Semi arid areas of the South West and the Androy (300 to 600 mm rainfall).

Introduction

- **Donors for CA development at an early stage**



- . **AFD: French Agency for Rural Development: Watershed projects**
- **MAE (Ministry of Foreign Affairs, France) : (Across countries programmes PAMPA, PTA)**
- . **WB + AFD (as part of Environnement I Programme)**
- **Malagasy Government**

Introduction

- **Donors at at a later stage**



- German Bank KfW (PLAE project: watershed and erosion project)
- GEF
- EU Food Security Projects (PACA, FASARA/PSASA...)
- IFAD (AD2M, IRACC....)
- USAID (SALOH)
- Malagasy Government

Objectives of CA diffusion


- Increasing and securing farmer's income;
- Conserving natural resources in watersheds and securing the investment downstream, and;
- Supporting farmer's organizations with a view to providing their autonomy in managing their development.

Implementation

GSDM

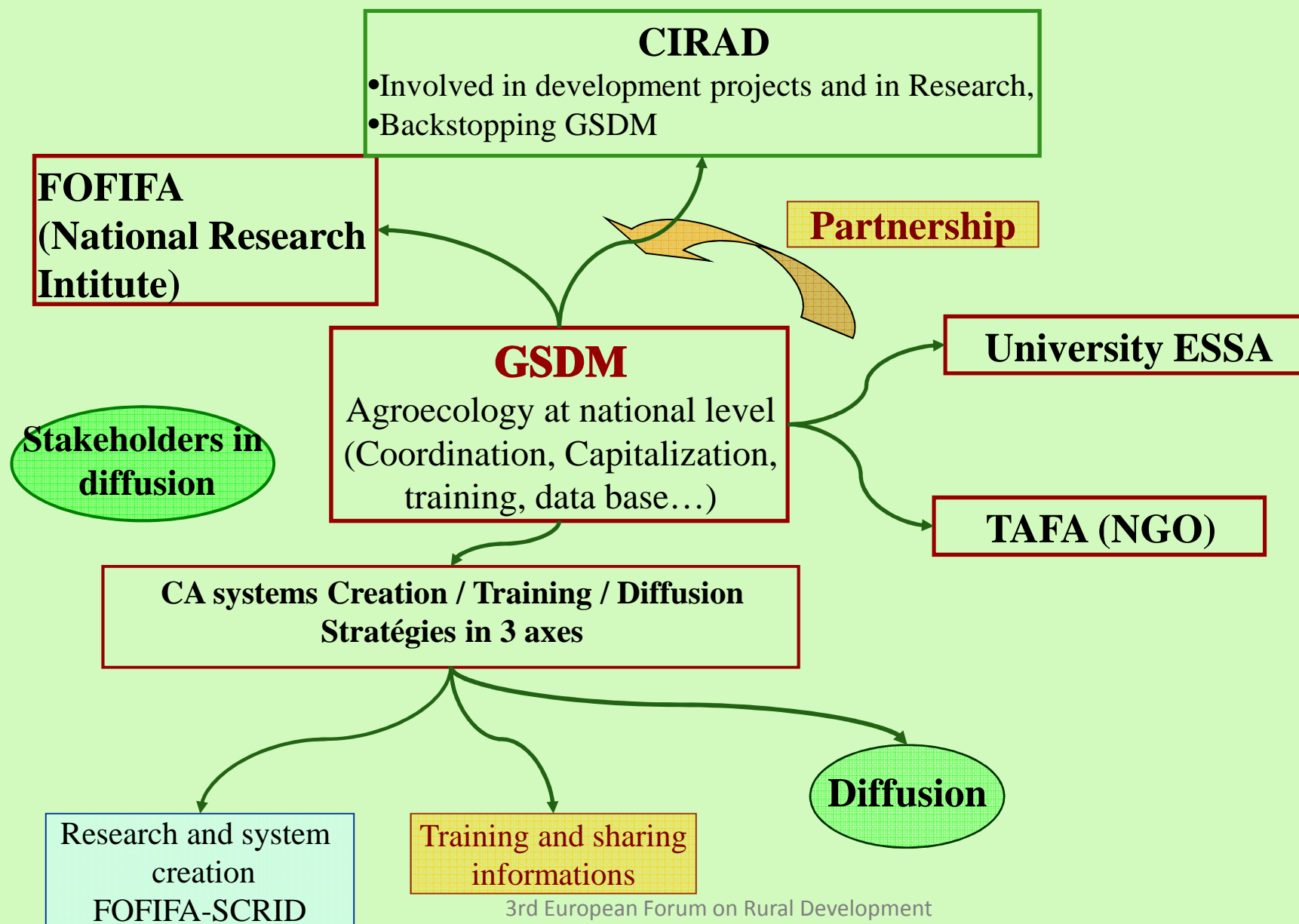
GSDM, a private organization, is acting on behalf of the Ministry of Agriculture in coordinating CA development



 **GSDM : Groupement Semis Direct de Madagascar (e.g. No till Club):**

GSDM, a non profit association established in 2000, a national coordination structure which groups all the stakeholders in conservation agriculture with, in total, 15 organizations involved in research and diffusion of conservation agriculture

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Implementation

Networks



- NCATF: National CA Task Force : established in 2009, focal organization GSDM, supported by FAO
- CARWG: CA Regional Working Group is a grouping of NCATF of countries of SADC and COMESA
- RADOI: Network of Islands in the Indian Ocean (still to be implemented)

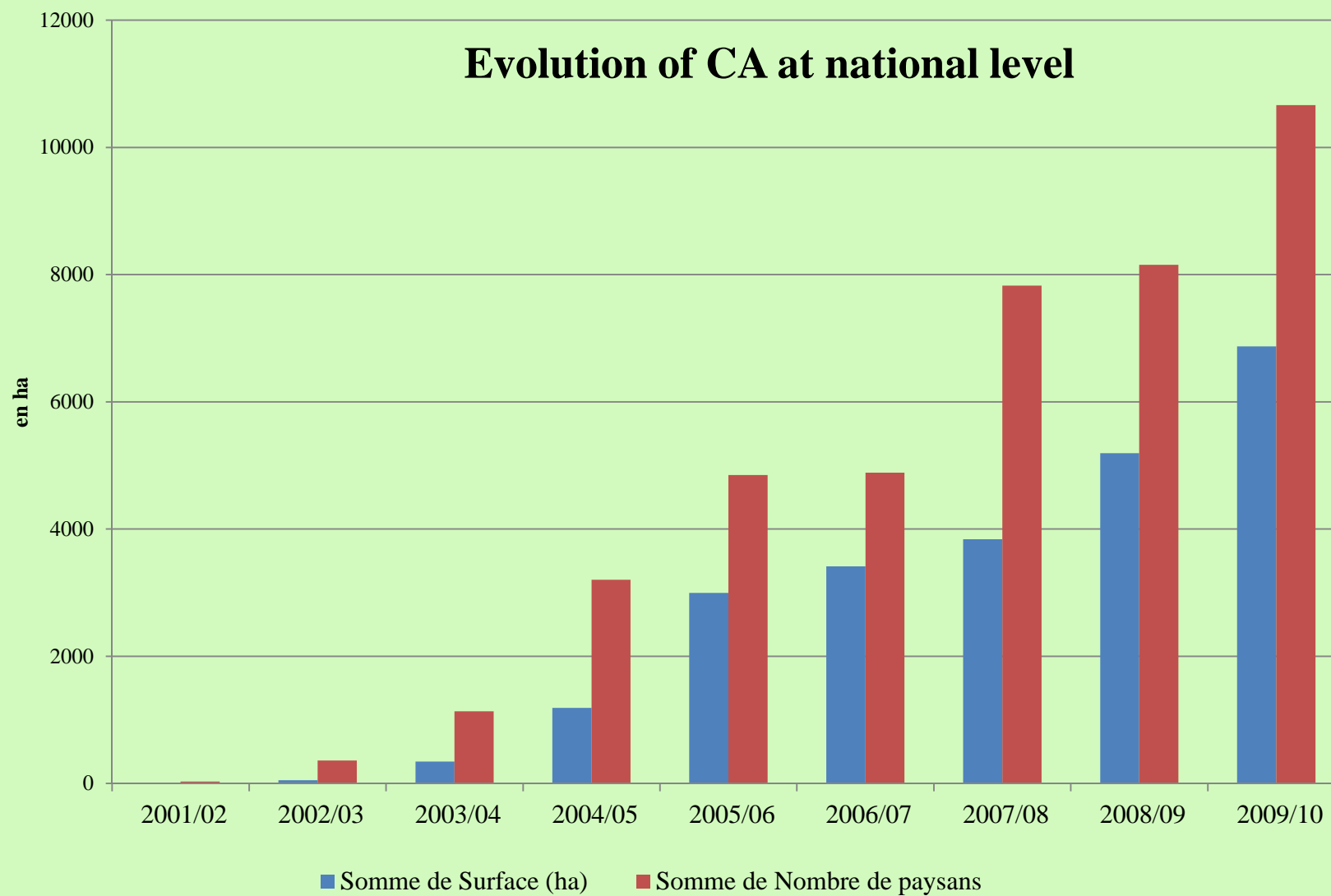
Key points of success

- CA provides opportunity to grow upland rice;
- CA allows restoration of low fertility soils (which have been abandoned by farmers);
- *Striga asiatica* is decreasing with well managed CA systems allowing to grow rice and maize on soils previously infested;
- Yield and profitability is increasing with the number of year under CA ;
- CA using fodder crops are well accepted where livestock is important

Key points of success

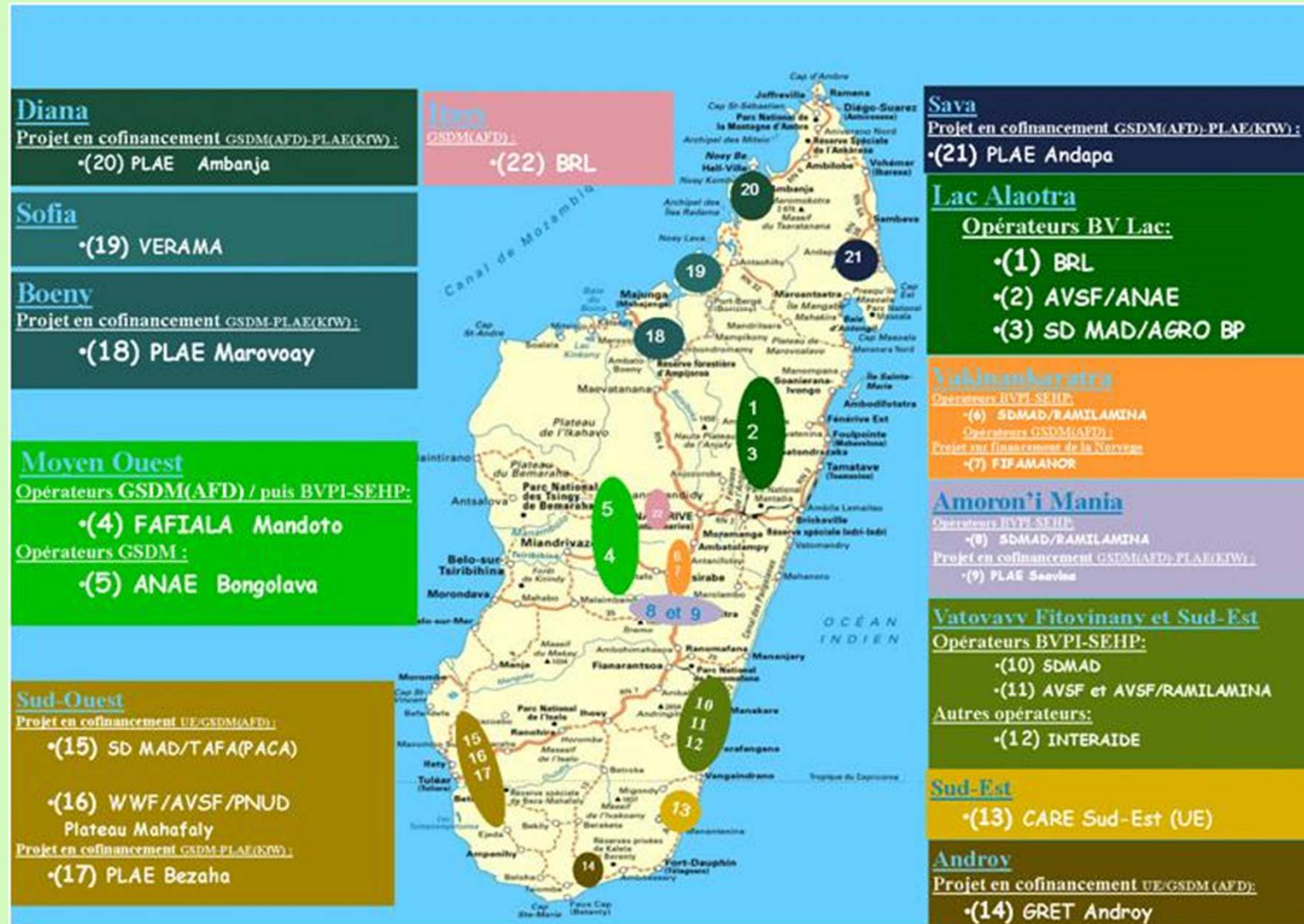
- Farm approach to meet farmer's needs
- Farmer's training, a learning by doing, is a key point

Key points of success



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CA Pilot diffusion: distribution and stakeholders



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Yield and Gross Margin return on labor as a function of the number of year under CA

| Crop management | Number of observations | Avg yields (kg/ha) | Minimum Yields (kg/ha) | Maximum Yields (kg/ha) | Std deviation (kg/ha) | C.V. (%) | Gross margin Return to farmer's labor (Ariary /day) |
|-------------------------|------------------------|--------------------|------------------------|------------------------|-----------------------|-----------|---|
| Tillage | 304 | 2884 | 160 | 4850 | 977 | 34 | 13 247 |
| Y ₁ under CA | 30 | 3166 | 488 | 5200 | 1042 | 33 | 16 702 |
| Y ₂ under CA | 21 | 3312 | 2350 | 4314 | 508 | 15 | 14 359 |
| Y ₃ under CA | 7 | 3096 | 2500 | 3782 | 505 | 16 | 13 081 |
| Y ₄ under CA | 5 | 4268 | 2731 | 6000 | 1545 | 36 | 26 001 |
| Total | 367 | 2982 | 160 | 11200 | 1065 | 36 | 13906 |

Source: BRL data base 2009

Main constraints

- Lack of trained fields extensionists to assist farmers
- High prices of inputs at farm gate (especially the last 2 years), therefore farmers unable to use fertilizers and therefore
- Low biomass and weed problem
- CA needs 3 to 4 years to show significant advantage over conventional tillage and therefore high rate of abandons are observed at an early stage of adoption

Upland Rice, one of CA drivers





Upland Rice on High Biomass of *Stylosanthes guianensis*

Mid West of Madagascar : Striga Prone Areas, now under Upland Rice thanks to CA



Striga asiatica

Wind Erosion in the dry Areas of the South





**Pigeon Pea in Low Rainfall Areas
(Androy)**

26 3 2008

Conclusions and Lessons learned

- Minimum timeframe of 5 years for CA project
- Training is essential: priority for farmers and technicians, then at all levels
- CA should be streamlined in national Policy and Policy makers sensitized on CA
- High price of inputs and low price of product at farm gate make it difficult to implement CA with low income small scale farmers.

Conclusions and Lessons learned

- CA is one of mitigation of climate change and should benefit from Environment Payments.
- CA play essential role by providing good practices for small scale farmers around national parks.

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Thank you for your attention

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