

Elaboration of capacity building in Agroecology

TATIN G^a Rakotondramanana^b, Enjalric F^c. Raharison T.^b, Rasolomanjaka J^b.

Affiliations :

^aGilles TATIN, Ministère en charge de l'agriculture, Délégué Régional Ingénierie de Formation, Animateur national réseau des DRIF, DRAAF Centre, Cité administrative Coligny, 131 rue du Faubourg Bannier, 45 042 Orléans, France, gilles.tatin@educagri.fr;

^bGSDM, BP 6039 Ambanidia, Lot VA 26 Y, Ambatoroka, route d'Ambohipo,

^cCIRAD UPR AIDA, Avenue Agropolis, F-34398 Montpellier Cedex 5, France

Abstract:

In Madagascar as in many other countries, Agriculture has to face big challenges regarding soil degradation, climate change, food security, coupled with high rate of population growth. There is a real need to better produce and to change the paradigm of agricultural practices and training.

Conservation agriculture, based on ecosystem services provided by biodiversity, could be considered as an ecological modernization of agricultural systems. It corresponds to a paradigm shift due to the complexity in designing and implementing it.

For these reasons, top level staff, technicians and farmers need to be trained in the innovative techniques to comply with this change of paradigm. In the early 2000 many projects were starting the dissemination of Climate Smart Agriculture (CSA) and Conservation Agriculture (CA) in many parts of Madagascar. Monitoring and evaluation of these projects revealed the lack of skillful technicians and general knowledge on CA and CSA. The symposium on CA held in 2010 on behalf of GSDM confirmed this lack of CA based training courses. From 2011, GSDM started to elaborate a reference manual for the training on CSA and CA intended for trainees with a good background in agronomy and extension. The main objective is to have a bulk of technicians holding a specialized diploma in CSA and CA.

The elaboration of this reference training manual was a participative approach involving government institutions and private sectors involved in agricultural training. The method implemented by GSDM took in account the agricultural practices, the different jobs opportunities and the needed skills by the stakeholders of rural development. The referential document was approved by the rural development actors and governmental agencies involved in agricultural training. This diploma will be presented for accreditation at the appropriate Ministries. In terms of schedule, the training of trainers will be completed early 2015 and the training itself will start in 2015.

Introduction

In Madagascar as in many other countries, Agriculture has to face big challenges regarding soil degradation, climate change, food security, coupled with high rate of population growth. The Malagasy people are one of the first consumers of rice with a consumption of 138 kg per capita per annum in rural area and 118 kg per capita in the cities (UPDR/FAO, 2001). Eighty per cent of the population are living in rural area and 85% grow rice (Dabat *et al*, 2005). The agricultural sector is contributing for 26% of national GDP, employing 78% of the labor force.

There is a real need to better produce and to change the paradigm of agricultural practices and training. Conservation agriculture (CA) and Climate Smart Agriculture (CSA) have been introduced in the main agro-ecological zones of Madagascar. These innovative technologies have proven (i) to manage soil fertility and sustainable cropping systems, ii) to increase smallholder farmers' income and (iii) to protect natural resources (RAHARISON T. *et al*, 2012). In the early 2000 many projects were starting the dissemination of Climate Smart Agriculture (CSA) and Conservation Agriculture (CA) in many parts of Madagascar, but they are facing lack of qualified technicians. A symposium on CA in December 2010 confirmed this lack of qualified technicians. Thanks for his long experiences and stock taking on CA and CSA, GSDM started to elaborate a reference manual in 2011 targeting trainees with a good background in agronomy and extension. The main objective is to have a bulk of technicians holding a specialized diploma in CSA and CA. The elaboration of this reference training manual was a participative approach involving government institutions and private sectors involved in agricultural training.

1. Objective of the project and expected outcome

The main objective is to have a bulk of technicians holding a specialized diploma in CSA and CA. The project outcome would be that CA and CSA more widely supported and implemented in MADAGASCAR by qualified technicians.

2. Methodology of writing of the reference Manual

The first step was a full survey of job opportunities for CA and CSA technicians as summarized in table 1. The results of this survey have facilitated the writing of the reference manual taking into consideration the capacities required for the job opportunities. The capacities as identified have determined the requirements for the certificate. The elaboration process of the Specialized Certificate in CA and in Agroecology took 3 years using a participative approach involving human resources from the Ministry of Agriculture, members of GSDM (AGRISUD, BRL, GRET, FIFAMANOR), projects engaged in Agroecology (PLAE, BVPI-SEHP), confessional training network (BIMTT), Training institutions (EASTA, EPSA Bevalala, FERT) and with backstopping by consultants.

Total duration of the training is estimated to be 830 hours including 360 hours in on-the job practical training in a farm adopting CA and/or Agroecology (table 2).

3. Training of trainers

Training of trainers started with the presentation of the reference manual in the existing training institutions. Four institutions responded positively to engage their professors in the training: two public institutions (EASTA Tana and EASTA Iboaka, IST Ambositra) and one private institution (CEFFEL Antsirabe). The expected result of this training of trainers is to

have a significant number of trainers in these institutions, to provide them with tools and methodology for their future job and that the Ministries give recognition for this training. GSDM had to recruit lecturers for some specific modules for the training of trainers especially in the field of integration with livestock and integrated pest management. Lecturers from the University, researchers from FOFIFA, professionals from the Plant Protection Service, from private institutions responded positively to this request, mainly in the fields of integrated Pest management, integration with Livestock and economic analysis of farm income. The training of Trainers was officially opened by the Minister of Agriculture on the 25th of September 2014 and attended by officials from the Government and by international institutions. This ceremony was recognition of CA and CSA by government institutions and will be used as an advocacy for public Policy on Agroecology.

Conclusions

The writing of this reference manual was a long process involving all stakeholders in CA and CSA and therefore it is expected to be a performing tool for trainers and government institutions. Thanks to more than ten years of stock taking by GSDM and his partners, it was possible to elaborate the architecture of this manual.

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Table 1 : Elaboration process of a Specialized Certificate in Conservation Agriculture and Agroecology

| Capacities Reference | Certification References (diploma references) | Capacity building references |
|--|--|--|
| <ul style="list-style-type: none"> - Context and Economic background - Jobs targeted by the Certificate - Activities description files - Key on-the job situations | <ul style="list-style-type: none"> - List of activities certified by the diploma - Evaluation methods for the capacity | <ul style="list-style-type: none"> - Architecture of the capacity building - Objective of the training modules - Expected result of the capacity building |
| Capacity files | Implementation conditions | Recommendations regarding the tools and training documentations to be used |
| 2012 | 2013 | 2014 |

Table 2 : Requirements for a Specialized Certificate in Conservation Agriculture and Agroecology

| <i>Pre-requirement: Technicians with a good background in Agronomy (diploma issued by the EASTA's or equivalent i.e. 3 full years of training in general agronomy)</i> | Duration at the Training Center (hours) | |
|---|--|--|
| | Lectures | Practical trainings, working groups, exchanges visits |
| Types of modules | | |
| MFT 1 : Agroecology and Sustainable Agriculture | 30 | 20 |
| MFT 2 : Agrosystems in Conservation Agriculture and in Agroecology | 48 | 24 |
| MFT 3 : Economic Analysis of farming systems in Agroecology | 40 | 20 |
| MFT 4 : Professional communication | 32 | 40 |
| MFP 1 : How to propose CA systems in response to farmers's constraints | 48 | 48 |
| MFP 2 : Integration of CA systems with Livestock | 36 | 24 |
| MFP 3 : Integrated Pest Management in Agroecology | 36 | 24 |
| TOTAL | 270 | 200 |
| Duration at the Traing Center <i>6 hours per day, 5 days per week</i> | <i>470 hours (16 weeks)</i> | |
| On- Farm Practical training in Agroecology <i>6 hours per day, 5 days per week</i> | <i>360 hours (12 weeks)</i> | |
| Total requirement for the diploma | <i>830 hours (28 weeks)</i> | |