



**DEVELOPPEMENT D'UN SYSTEME DE GESTION INTEGREE DE
LUTTE CONTRE LES RAVAGEURS ET LES MALADIES DES
CULTURES (IPM)**

RWA0604811
ANNUAL REPORT

2009

Table of contents

1	Project sheet	6
2	Brief factual overview	6
3	Overview of activity planning	8
	3.1 Activity overview	9
	3.2 Analysis of activity planning (1 page)	10
4	Financial overview	11
	4.1 Overview of expenditure versus financial planning	11
	4.2 Analysis of financial planning (1 page)	12
5	Monitoring of the indicators	14
	5.1 Specific objective	14
	5.2 Results	15
	5.3 Indicator evolution (chart).....	<i>Error! Bookmark not defined.</i>
6	Assessment of monitoring criteria	19
	6.1 Efficiency.....	19
	6.2 Effectiveness.....	20
	6.3 Sustainability.....	20
7	Measures and recommendations	22
	7.1 Overview of the assessment criteria	22
	7.2 Recommendations	22
8	Planning for the upcoming year (Year N+1)	25
	8.1 Activity planning year N+1.....	25
	8.2 Financial planning year N+1	28
9	Conclusions	31
	9.1 Activities and Finance.....	31
	9.2 Monitoring criteria	31
	9.2.1 Efficiency	31
	9.2.2 Effectiveness	31
	9.2.3 Sustainability.....	31
	9.3 Advice of the JLCB on the recommendations	32
	9.3.1 Recommendations on activity planning.....	32
	9.3.2 Recommendations on financial planning.....	32
	9.3.3 Recommendations on Logical Framework	32
	9.3.4 Other recommendations	32

10	Annexes	33
	<i>10.1 Tracking Gantt view / Activities.....</i>	<i>33</i>
	<i>10.2 Baseline report / Activities (AdeptTracker).....</i>	<i>33</i>
	<i>10.3 Measuring indicators.....</i>	<i>33</i>
	<i>10.4 Checklist efficiency</i>	<i>33</i>
	<i>10.5 Checklist effectiveness</i>	<i>33</i>
	<i>10.6 Checklist sustainability.....</i>	<i>33</i>
	<i>10.7 Input in PIT.....</i>	<i>33</i>
	<i>10.8 Logical framework year.....</i>	<i>33</i>
	<i>10.9 Overview public contracts</i>	<i>33</i>

1 PROJECT SHEET

Overall data

Country: Rwanda

Title: Développement d'un système de gestion intégrée de lutte contre les ravageurs et les maladies des cultures (IPM) [Development of an integrated management system to control pests and diseases of crops in Rwanda (IPM)]

Donor : DGD : Direction Générale de la Coopération au Développement

Code bailleur : NN 3003104

Article : art. 5

Allocation de base : bilatérale directe [BA54105402]

Contrat de gestion : contrat de gestion 2

Secteur : 311150 – Produits à usage agricole

Description :

This project was developed in a context of high damages caused by various biotic constraints (pests and diseases) which affect crops in Rwanda since the recent years. Constraints like the '**cassava mosaic disease (CMD)**', the '**Banana Xanthomonas wilt (BXW)**', the **Panama disease of bananas**, the '**passion fruit woodiness disease (PWD)**' can be given as examples of this situation. To control these particular constraints, it is necessary to implement most appropriate strategies ensuring a great efficacy and sustainability. In these conditions, IPM (Integrated Pest Management) seems to be the most suitable control strategy as leading to the highest sustainability while reducing the protection costs and improving protection of natural resources, health of workers and consumers and finally increasing the crop productivity. As the large scale use of IPM (integrated pest management) in Rwanda is new, it was considered that training activities aiming at increasing skills of farmers in the area of IPM use should be one of the main components of the present project. To achieve the implementation of the project, extension based on the Farmer Field Schools (FFS) approach was adopted. Practically, the field setting up is to be performed with a series of six crops including (1) Irish potato, (2) maize, (3) banana, (4) tomato, (5) cassava and (6) passion fruit.

Objectives

- **General objective:** To contribute in a sustainable way to the rural poverty decrease and to the economic growth through an increase of the productivity of production factors and the diversification of income opportunities.
- **Specific objective:** To contribute to the improvement of agricultural productivity and to the environment protection by setting up an integrated management system to control diseases and pests of crops in Rwanda.

Finances

Budget (Régie): 415200 €

Budget (Cogestion): 2.434.800 €

Total budget: 2.850.000 €

Chronology

Phase: EXE

Starting date: 01/06/2008 Estimated duration: 36 months Estimated end: 13/12/2010

Starting Specific agreement: 14/12/2006 End of specific agreement: 13/12/2010

2 BRIEF FACTUAL OVERVIEW

To improve pest and disease control measures throughout Rwanda, the use of IPM (integrated pest management) was proposed to be adopted at a large scale in the country. This orientation was strictly followed during the different phases leading to development of this project (identification and formulation phases). For that, the project is organised around activities which can be classified in three main categories:

- (1) Achieving training relative to the IPM technology,
- (2) Deploying the different IPM components through an integrated manner at the level of farmers' fields,
- (3) Developing a communication strategy to highlight the beneficial consequences of the IPM at the national level.

The IPM components whose integrated utilisation was proposed to be promoted through this project are the following:

- (i) Utilisation of healthy planting materials,
- (ii) Adoption of sustainable cropping practices which are appropriated for control of pests and diseases,
- (iii) Taking into account knowledge relative to development cycles of pests and diseases to durably combat them,
- (iv) Durable management of the use of resistant varieties/variety diversity.

The practical use of IPM technology is based on a suitable integration of the different IPM components. One of the various results of using the IPM technology to control pests and diseases would be a significant decrease of pesticide utilisation while crop production and preservation of natural resources would be improved. During 2009, the activities of the project were organised mainly around the crops of Irish potato, maize and banana. Training activities carried out during this year can be subdivided into two main types: (1) training of trainers (ToT) and (2) training of farmers. The training of trainers aimed at creating national skills by having qualified facilitators able to ensure practical training of farmers. On the other side, training of farmers was organised around the different crops to improve the technical as well as organisational skills of farmers.

At the field level, the following actions were achieved for each crop to be treated through the project (Irish potato, maize and banana):

- 1) Identification of farmers' associations (cooperatives) involved in crop production operation,
- 2) Participatory assessment of the problems faced by farmers at the field level,
- 3) Definition of criteria leading to selection of participants to the training of trainers (ToT) in view of becoming facilitators,
- 4) Selection of participants to the ToT by farmers' associations,
- 5) Selection of the ToT (training of trainers) location,
- 6) Identification of the sites for ToT plot's implementation,
- 7) Formation of farmers' groups by facilitators,
- 8) Identification of FFS plot sites,
- 9) Field implementation of the project activities in ToT plots (for facilitators) and in FFS plots (for farmers).

3 OVERVIEW OF ACTIVITY PLANNING

3.1 Activity overview (P: planed, R:realized)

Activities		J	F	M	A	M	J	J	A	S	O	N	D	Remarks and observations
Develop a training curriculum adapted to Rwandan conditions	P													Progressive adaptation curricula during the training session
	R													
Localise, mobilise and recruit the expertise in measure to training of farmers	P													Master trainers stayed in place for all the training activities
	R													
Favour learning and adoption of each of the IPM components	P													Specialists of some specific topics are invited during the training sessions
	R													
Ensure training of trainers	P													The training started at the expected time and was achieved with high success for the different
	R													
Facilitate all the steps of farmers' training	P													The first farmers were trained after the training of facilitators
	R													
Sensitise about the importance plant quarantine	P													Seminar on molecular diagnostic and study tour in KEPHIS (Kenya)
	R													
Realise an inventory of traditional cropping practices	P													Only one mission was performed. It was difficult to find competent companies to do the study
	R													
Localise, mobilise and recruit the expertise in measure to ensure training by taking into account the knowledge relative to development cycles of pests and diseases	P													Although the call was published by 2 times, this activity was not realised because of the difficulty to find a consultancy company presenting a the required experience.
	R													
Ensure the publication of documents relative to development cycles of pests and diseases	P													As the consultancy wasn't achieved, there was no publication of the study
	R													
Localise, mobilise and recruit the expertise in measure to ensure training about the sustainable management resistant varieties	P													Difficulty to find consultants with the required experience;the call has to be relaunched for the second time
	R													
Setting up the knowledge relative to sustainable management of resistant varieties	P													Even the consulatncy was not performed on due time, strategy of sustainable management of resistance is constanlty achieved during the training courses and applied at the field level
	R													
Develop and set up a communication strategy	P													Different activities relative to communication were undertaken: information meetings, agrishow, radio spots, labelling the different plots of the project
	R													

3.2 Analysis of activity planning (1 page)

Globally, the majority of activities programmed to be achieved for the year 2009 were effectively realized. Mainly, the activities were achieved through the field implementation of the project which consisted in practical training of facilitators (for the Irish potato, maize and banana crops) and field training of farmers (mainly for the training around the potato crop). However, some activities were realized on a period of time which was different of that initially expected. These differences concerned activities like:

1. Develop a training curriculum adapted to Rwanda conditions; for this activity initially expected to be achieved during 2 months (April and May, it was essential to progressively adapt the training curricula by taking into account the facts recorded at the field. In fact, when a training is started and if practical training is undertaken at the level of farmers' fields, it was observed that problems faced by farmers are variable according to factors like the farmers' plots, the cropping practices used by farmers, the quality and quantity of inputs used by farmers etc... In these conditions it is impossible to keep the training curriculum without any changes if the training aims at helping farmers to solve the real problems they are dealing with.

2. Realize an inventory of traditional cropping practices; the activity was initially proposed to determine the cropping practices used during 3 different cropping seasons (A, B and C). However, given the difficulties to find a national consultancy company to realize the 3 studies, only one mission was realized in June and July 2009). To overcome limitations which would result from this situation, it is now proposed to realize 3 supplementary studies relative to tamarillo, tomato and cassava. They will be completed by works of students at the end of their university studies.

3. Localize, mobilize and recruit the expertise in measure to ensure training by taking into account the knowledge relative to development cycles of pests and diseases; it was impossible to have the qualified consultants after the first call. A second tour of call was necessary and an experienced team of consultants was already selected and a contract is under negotiation. Consequently, the activity relative to publication of documents relative to development cycles of pests and diseases wasn't achieved.

4. Localize, mobilize and recruit the expertise in measure to ensure training about sustainable management of resistant varieties; for this activity, it was also difficult to find a well qualified consultancy company to realize the study. A second call was launched to try finding the company which can efficiently realize the study. However, as shown on the previous table, the training sessions currently performed in a way allowing the trained people to learn about the strategies to use for a sustainable management of the resistant varieties.

Conclusion:

As mentioned, the majority of planned activities were achieved in due time in comparison to the initial programming. However, some of the activities were delayed because of the difficulties to identify and contract specialized consultants to realize the studies. The project undertook to minimize the risks which should result from these difficulties. For that, during the different training sessions which are organized, there is a specific attention to integrate the topics like (i) considering the disease development cycles when developing control strategies, (ii) proceeding to participatory identification of the predominant cropping practices at the beginning of training session and (iii) integrating the strategies of sustainable management of resistant varieties to control pests and diseases.

4 FINANCIAL OVERVIEW

4.1 Overview of expenditure versus financial planning

N°	Results	Management mode	Total budget	Balance end of 2008	Planned for 2009	Expenditures					Execution (%) for (2009)	Balance of the total budget
						Q1-2009	Q2-2009	Q3-2009	Q4-2009	Total 2009		
1	Concept, methodology and mechanisms of setting up IPM	Cogestion	143.000 €	121.537 €	40.530 €	371 €	18.550 €	886 €	25.000 €	44.808 €	111	76.729 €
2	Training the trainers (facilitators)	Cogestion	572.400 €	572.400 €	135.020 €	244 €	59.323 €	24.316 €	41.386 €	125.240 €	93	447.160 €
3	Training of farmers	Cogestion	326.000 €	326.000 €	5.490 €	0 €	0 €	0 €	35.437 €	35.437 €	645	290.563 €
4	Availability of quality planting materials (foundation, basic ...)	Cogestion	360.000 €	360.000 €	5.530 €	0 €	2.459 €	1.197 €	1.826 €	5.483 €	99	354.517 €
5	Promoting cropping practices aiming at reducing sources of pests and diseases	Cogestion	133.500 €	133.500 €	4.560 €	0 €	0 €	714 €	4.27€	5.163 €	113	128.337 €
6	Knowledge relative to development cycles of pests and diseases acquired by actors involved in control of pests and diseases	Cogestion	94.500 €	94.500 €	400 €	0 €	179 €	196 €	0 €	375 €	94	94.125 €
7	Use of resistant/tolerant varieties adopted by actors involved in production of the main crops	Cogestion	84.000 €	84.000 €	200 €	0 €	0 €	176 €	190 €	366 €	183	83.634 €
8	Communication strategy	Cogestion	172.000 €	172.000 €	56.790 €	0 €	2.000 €	27.89€	1.196 €	31.092 €	55	140.908 €
	General means	Cogestion	549.400 €	528.659 €	86.480 €	18.650 €	25.509 €	22.247 €	35.969 €	102.374 €	118	426.285 €
	General means	Régie	415.200 €	397.514 €	148.350 €	25.435 €	45.978 €	32.678 €	42.752 €	146.843 €	99	250.671 €
	General total		2.850.000 €	2.790.110 €	483.350 €	44.701 €	154.000 €	110.806 €	188.033 €	497.180 €	103	2.292.930 €

4.2 Analysis of financial planning (1 page)

Globally, the IPM project registered a high budget execution for the year of 2009. In fact, if all the budget lines are taken together, the financial planning for the year had been fixed at a global amount of **483.350 Euros** for the year 2009. The amount effectively expensed during the year to realize the project activities including also the general means was of **497.180 Euros**, allowing thus to reach a **budget execution of 103%** for the year 2009 as shown in the previous table.

More interestingly, it is important to notice that for each of the 8 results of the IPM project, different related activities were undertaken although their execution rate is variable. In the same frame, it is useful to carry out a more detailed analysis for the different results where a high difference is observed in comparison to the planned situation.

For that, the following comments can be done for the different categories of expenditures:

1. Concept, methodology and mechanisms of setting up IPM:

The budget execution was of 111% for this category of expenses. The main reason for this high rate of budget execution is that some expenses were done in this category to cover payment of invoices relative to activities realized in 2008 (a consultancy mission relative to development of a training curriculum was achieved in 2008 but payment of the invoice was done in 2009).

2. Training of the trainers: An execution rate of 93% was registered for this category of expenditures. It was not possible to get 100% of execution because training of the MINAGRI staff was not possible due to the unavailability of these latter. In the future, it is planned to organize training sessions for agronomist agents of districts and/sector to allow them being well trained about the different activities that the project is performing in the different zones.

3. Training of farmers:

For the year 2009 which was the first one for IPM project field activities, it was not expected to undertake at a large scale training of farmers. For that, an amount of only **5490 €** was planned for the year. However, after the end of facilitators' training, it was possible to undertake immediately training of farmers and this led to expenses of **35437 €** which corresponds to an execution rate of **645%**. This situation puts in evidence a rapid realization of the objective of the project because increasing the farmers' skills is the ultimate step of field implementation of the project.

4. Use of resistant/tolerant varieties adopted by actors involved in production of the main crops: It was expected to organize a consultancy in this area but qualified experts were not found after the first call. The project is now in the process of recruiting once again a consultancy office to realize the study. However, the use of resistant varieties is already followed for the field activities of the project.

5. Communication strategy: The execution rate for this result is of 55%. This low rate is explained by the fact that different documents relative to illustration of extension materials (leaflets, booklets) were not produced in 2009 although they were planned. Moreover, it was expected to produce a documentary movie. The production process of this one was undertaken

in 2009 but the payment is not yet performed as the project waits to have the final version of the movie before proceeding to final payment.

6. General means: The use of general means was of 118 % (congestion) and 99% (Régie). For the congestion part, the rate higher than 100% is explained by the fact that different training activities throughout the country were undertaken in 2009 leading to a high level of use of the general means.

Conclusion: The different differences observed between the financial planning and expenditures were explained in the previous sections. The reasons for these differences were clearly identified and correction actions are now undertaken in the new planning (financial and operational) relative to 2010 year.

5 MONITORING OF THE INDICATORS

5.1 Specific objective

The specific objective of the project is the following: ‘Contribuer à l’amélioration de la productivité agricole et à la protection de l’environnement par la mise en place d’un système de gestion intégrée de lutte contre les maladies et ravageurs des cultures’ which can be translated as ‘To contribute to the improvement of agricultural productivity and to the environment protection by setting up an integrated management system to control diseases and pests of crops’. Globally, there was no real baseline study. However, when it is time to start project activities on a given commodity, there is an important step consisting in identifying the previously prevailing situation. This preliminary step, specific for each commodity in the different regions involved in its production, allows identifying the different problems affecting the crops including inappropriate cropping practices. Continuously, there is a progressive collection of data prevailing in the various rural areas where the project performs the field activities. In that way, it can be considered that implementation of the project activities at the field level allows generating information which make possible elaboration of the specific objective indicators.

Specific objective	IOV	Before the IPM project	At the end of 2009
Improvement of agricultural productivity and environment protection by setting up an integrated management system to control pests and diseases of crops.	Number of trained facilitators (and co-facilitators) about IPM	0 for potato	31 facilitators for potato 15 co-facilitators for potato
		0 for banana	50 facilitators for banana
		0 for maize	28 facilitators for maize
	Number of trained farmers on IPM techniques	0 for potato	2405 farmers (for IPM project) for potato 90 farmers (collaboration IPM and PAPSTA project) for potato
		0 for maize	155 farmers for maize
		0 for banana	1361 farmers for banana
	Number of crops on which IPM techniques are used	0 before the project	3 crops (potato, maize and maize)

	List of phytosanitary constraints addressed using IPM techniques through the project	0 before the IPM project	<ul style="list-style-type: none"> -Potato late blight - Potato bacterial wilt - Potato viruses - Banana xanthomonas wilt - Banana Sigatoka leaf spot diseases - Banana virus diseases -Banana weevil - banana nematodes - Maize streak disease - Maize helminthosporium disease
--	--------------------------------------------------------------------------------------	--------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

5.2 Results

The indicators relative to the results achieved by the project are presented in the following table. Each result is considered separately and indicators reached during the year 2009 are described. It is important to notice that this was the first year of IPM project activities. This means that it is not possible to elaborate a chart of indicator evolution based on the available data. For that, we are giving only the table describing the available indicators.

N°	Results	IOV	Before the IPM project	At the end of 2009
1	Concept, methodology and mechanisms of setting up IPM	List of IPM achievements in the country	No available list	List available
		List of recommendations	No available list	List available
		Level of consultation of the concerned institutes	No consultation	All the concerned institutes consulted for IPM implementation
		Usefulness of the training curriculum	There was no training curriculum	Progressively adapted according to the crops (maize, banana and potato) at the end of 2009
2	Training the trainers (facilitators)	Recruitment and establishment of master trainers	No master trainers recruited	Master trainers recruited and established (varying according to the crops): contract with FFS foundation
		Recruitment of specialised consultants	No specialised consultant recruited	Short missions for specialists (5 for potato, 3 for banana and 1 for maize)
		Achievement of training sessions	No ToT organised	1 ToT for potato, 1 ToT for maize, 1 ToT for banana, and 1 training of co-facilitators for potato
		Number of trained facilitators	0 before the project	31 facilitators for potato, 15 co-facilitators for potato and 50 facilitators for banana
		Impact of training sessions on the performance of the facilitators	No knowledge about facilitation of IPM and FFS	The trained facilitators animated 3 radio emissions during their training sessions
3	Training of farmers	Recruitment and mobilisation of facilitators	No facilitator recruited before the project	30 facilitators for potato, 15 co-facilitators (under collaboration with PAPSTA), 28 facilitators for maize and 50 facilitators for banana
		Achievement of farmers' training sessions	No training session of farmers	Training sessions of farmers in 83 sites for potato, 5 sites for maize and 154 sites for banana
		Level of monitoring/facilitation by the team of project	There was no training curriculum	The team of IPM project supervised the different farmers' training sessions
		Number of trained farmers	No trained farmer	2405 farmers for potato, 90 farmers for potato (collaboration with PAPSTA), 155 farmers for maize and 1061 farmers for banana
4	Availability of quality planting materials (foundation, basic ...)	Number of training relative to plant quarantine	No session	1 session dealing with sensitive detection of plant pathogens; 1 visit to the Kenya Plant Quarantine Institute
		Impact of the trainings on improvement of practices relative	Not taken into account before	All the undertaken training (ToT and farmers' training) are organised around using planting quality materials
		Number of support actions to production of quality planting materials	Not performed before	3 missions of support to ISAR to support production of healthy planting banana materials

N°	Results	IOV	Before the IPM project	At the end of 2009
5	Promoting cropping practices aiming at reducing sources of pests and diseases	List of sustainable cropping practices proposed and tested	No tried before	Use of well decomposed organic; Appropriate preparation of the plot (land preparation); Cropping following rotations; Crop rehabilitation for perennial crops; Respecting the recommended planting density; Use of healthy planting materials; Erosion control; Elimination of diseased materials;
		Number of trials realised and level of participation	No trial was undertaken before	89 sites of potato trials, 6 sites for maize and 156 sites for banana (these includes ToT and FFS experiences)
		Number of farmers having adopted the proposed cropping practices	No farmer was using the proposed package of cropping practices	2405 farmers for potato, 90 farmers for potato (collaboration with PAPSTA), 155 farmers for maize and 1061 farmers for banana
		Impact of the improved cropping practices promoted during the training	Not performed before	The use of these practices reduced the number of pesticide application from 12-15 to 2-3 per cropping season (case of potato)
6	Knowledge relative to development cycles of pests and diseases acquired by actors involved in control of pests and diseases	Number of pests/diseases for which a better knowledge of development cycles allowed of improving control	There was no knowledge at the level of farmers and of facilitators	10 pests/diseases (see indicator of specific objective)
		Number of farmers having adopted practices based on the development cycles	No farmer considered the development cycles before	2405 farmers for potato, 90 farmers for potato (collaboration with PAPSTA), 155 farmers for maize and 1061 farmers for banana
		Number of trials realised and level of participation	No trial was undertaken before	89 sites of potato trials, 6 sites for maize and 156 sites for banana (these includes ToT and FFS experiences)
		Impact of participatory trials on the quality of training	Unknown before	For potato, all the farmers discovered the positive impact of the proposed methods and their neighbours request to have similar training; the different sites of FFS experiments selected the most adapted potato varieties
7	Use of resistant/tolerant varieties adopted by actors involved in production of the main crops	Number of practical situations for which a better knowledge of resistance characteristics allowed improving the control techniques	Resistance characteristics not evaluated by farmers/facilitators	89 sites of potato trials about potato, 6 sites for maize and 156 sites for banana where resistance characteristics was performed and the resistance profile considered for control of pests and diseases
		Number of farmers having adopted cropping practices taking into account knowledge acquired in relation with the variety resistance	Resistance profile of varieties not well known by farmers	2405 farmers for potato have followed a complete cropping practices and took into account the resistance profile of varieties to control pests and diseases
		Data relative to variety diversity for each crop	No data relative to variety diversity	Farmers have had access to a list of 9 varieties of potato, 4 varieties of maize and 4 varieties of banana
		Impact of the specialised training in management of variety resistance on realisation of the result	There was no training relative to use of variety resistance	Evaluation of resistance by participant farmers allowed reducing the number of pesticide application 12-15 to 2-3 per cropping season (case of potato)
8	Communication strategy	Number, quality, diversity and impact of diverse publications and communication through media	No action undertaken before the project	1 meeting for the development projects, 1 meeting for the IPM project partners (farmers cooperatives), 3 radio communications at local (province) radios 2 radio communications at the national radio of Rwanda 1 participation at agrishow event (national event)
		Number of persons/associations sensitised	No association was sensitised	30 associations for potato and maize 14 associations for bananas

6 ASSESSMENT OF MONITORING CRITERIA

6.1 Efficiency

After the first year of very intensive activities of the IPM project aiming at improving the conditions de pests and diseases control at the level of farmers using the integrated management system, it is now possible to evaluate the efficiency of the project. In fact, during this year, financial means of the project were used to achieve different activities and thus to generate results. A first mission relative to development of a global training curriculum and describing the concept, methodology and mechanisms of setting up the IPM technology in Rwanda was achieved prior to realization of the project activities. This general training curriculum was progressively adapted to develop training modules specific to the different crops treated until now (potato, maize and banana). Various activities of training were thus undertaken to train trainers throughout the country. The training sessions were commodity based and presently groups of trainers (facilitators) are already trained around the crops of maize, potato and banana. Total numbers of trained facilitators are the following: 46 facilitators and co-facilitators for potato, 40 facilitators for banana, 28 facilitators for maize.

Following this training of trainers (facilitators), activities relative to training of farmers were performed around the different crops. Presently, 2495 farmers are already trained in the use of IPM to control pests and diseases affecting potato. In addition to these numbers, 155 farmers are already trained in the IPM technology for the maize crop while 1361 farmers are already trained for banana.

Finally, for all these training carried out, results relative to availability of quality planting materials, to use of knowledge relative to pests and diseases development cycles, to the use of appropriate cropping practices and to the sustainable use of resistant varieties are generated through the project activities. By the same occasion, progressive production of results is also used to develop the communication strategy by elaborating documents whose objective is to make the public (farmers, authorities and other projects) informed about the positive impact of the project implementation and thus in order of sharing experiences.

In conclusion, the project is producing the expected results through the intensive training activities organized. This production of expected results is a sign of efficiency as all the means of the project used are automatically transformed in generation of the expected results.

6.2 Effectiveness

As the project started to realize its activities in view of producing the expected results, it is time to evaluate its effectiveness by assessing if the produced results are contributing to reaching the specific objective. Globally, the different results are contributing to developing skills at different levels (institutional, facilitators, individual farmers and farmers' organizations) in order of using integrated pest management technology for the production of different crops.

The use of IPM technology constituted an entry point for the training activities and technology implementation which resulted definitely in the concept of ICM (Integrated Crop Management). Globally, participating communities are generating high level of production for their crops (example of potato) while by the same occasion they are using less inputs (quantities of seeds and pesticides). By this structure, the productivity of their agricultural production initiatives is increased while their investment is reduced. Moreover, the reduction of quantities of pesticides used is beneficial at different points of view like (i) the decrease of pesticide residues (lower pollution of environment), (ii) better quality of the production (less content of pesticides residues), low investment in buying pesticides.

Finally, in the different zones (regions of Rwanda) where the project has implemented its activities (training and establishment of plots using IPM to control pests and diseases), farmers are also progressing in solving a recurrent problem of access to seeds. For that, the communities of farmers participating in the FFS activities are acquiring the skills to use IPM to control pests and diseases but also the seed production knowledge; these basic communities are thus becoming autonomous for the matter of access to seeds. This is a direct fact generated by the project itself in its zones of implementation.

In conclusion, the project is generating effectiveness as there is a significant increase of productivity and an increase of environment protection by the use of IPM to control pest and diseases.

6.3 Sustainability

Sustainability of the project is guaranteed by the fact that the project is building capacities (skills) at different levels by:

- 1° Training of staff from RADA about the concept of IPM and FFS,
- 2° Training of facilitators (trainers) who are acquiring technical , methodological and organizational skills to carry out FFS and IPM at the level of the country and that on various crops,

3° Training of farmers who are becoming technically strong in the production process of their commodity of interest,

4° Creating conditions which are favorable for individual farmers to work in associations (organized groups) when addressing the different production problems including pests and diseases control,

5° Performing activities in different areas in the country (for 2009: 9 districts for potato, 13 districts for banana, 2 districts for maize); this number is going to increase with adoption of new crops to deal with in the frame of the present project,

This implementation of project activities throughout different areas in the country and at the attention of various actors including a main component of capacity building is of the highest importance as even after the end of project funding period, the acquired knowledge and know how by farmers and the different other levels of beneficiaries will continue to use them in a sustainable way. This is guaranteed by the fact that beneficiaries are progressively discovering the various advantages of the IPM-FFS system leading to IICM (integrated crop production) which generates an optimal exploitation of the production resources.

7 MEASURES AND RECOMMENDATIONS

7.1 Overview of the assessment criteria

In 2009, the IPM project started its practical field activities based mainly on developing a suitable extension approach to use for the dissemination of the IPM technology throughout the country. The first experiences of FFS in Rwanda were carried out through the project on the Irish potato crop which was followed by the maize crop used under a rotation system with potato.

Training of facilitators (trainers) was achieved successfully and was immediately followed by the training of farmers. Realization of the project activities at the basic level ensures production of the project expected results where the **efficiency** is guaranteed.

Moreover, these results are progressively contributing to realization of the specific objective as the production levels and productivity of the concerned commodities is effectively increasing in the farmers' plots. By the same occasion, there is a significant decrease of the frequency of pesticide application, which results in a progressive environment protection. Considering these facts, it becomes obvious that the project is being achieved with a high **effectiveness** as the specific objective of the project is being reached with the combination of the different results' production.

Finally, the various advantages created through the project realization are of a nature allowing their maintenance even after the end of the funding period. In fact, the increase of skills allowed by the project realization at the different level will make possible to continue achieving the production operations by following the technologies presently brought by the project. In that way, the project can be considered as being creating conditions ensuring **sustainability** in Rwanda.

7.2 Recommendations

Since the beginning of the project, it was established a list of crops on which the technology of IPM-FFS was used. Until now, 3 crops were already treated.

Given the various problems affecting production of the different crops under the conditions prevailing in Rwanda, and more particularly those related to pests and diseases, it is essential to continue working on these crops of interest (potato, maize, banana, tomato, cassava and passion fruit).

As the first training sessions (facilitators and farmers) were organized for the crops of potato, bananas and maize, there are different groups performing production operations by using the appropriate cropping practices and controlling in a sustainable way the various pest and diseases affecting the crops in question. As farmers living in the proximity of the various FFS sites are discovering the advantages related to the system, they are progressively expressing demand to have the same training services.

Three main recommendations are suggested:

- (1) Increasing the number of trained farmers,
- (2) Undertaking activities with the remaining crops,
- (3) Strengthening collaboration with the national extension system through the coordination and harmonization of FFS.

1. Increasing the number of trained farmers.

In view of satisfying the coming demand expressed by farmers, it is recommended to progressively organize short training sessions supervised by the already qualified facilitators to train other participants serving as **co-facilitators**. This system was always tested by the IPM project and seems to be very successful. In fact, the people finishing their training of co-facilitators receive the different inputs and didactic materials to start new FFS in their respective living areas. Training of co-facilitators should be increased according to the demand coming from the farming communities throughout the country. This is only possible because the IPM project has preliminarily proceeded to season long training of trainers (facilitators).

In addition to this training of co-facilitators, it is also recommended to continue organizing new activities of FFS throughout the country. By that process, it means that organization of new FFS sessions must be undertaken when the cropping season starts; this is particularly true for the Irish potato commodity for which a first complete season of FFS has to terminate in January 2010. A new season of FFS is thus to be undertaken since March-April 2010 to try reaching more participant farmers.

2. Undertaking the activities relative to the remaining crops.

As mentioned previously, the remaining crops are (1) tomato, (2) cassava and (3) passion fruit.

For all of these crops, it is essential to organize ToT before any activity of FFS at the level of farmers.

2.a. The training of trainers for tomato is to be undertaken since March-April-May 2010 including different steps like (1) participatory identification of the problems affecting tomato production in Rwanda, (2) training need assessment, (3) selection of participants to the ToT, identification of the area of training and (4) practical organization of the ToT.

By proceeding in that way, it is expected that the first trained trainers will be operational as facilitators at the field level during the planting season starting in September 2010. At that moment (September-October 2010), the trainees will start **FFS activities** with the IPM project support in their respective farmers' communities.

2.b. The training of trainers for cassava and passion fruit will start in September-October 2010; these crops being perennial ones, the corresponding training activities will be for an intensive short period of 2-3 months which will be organized in parallel with implementation of the first FFS plots in the different production areas.

3. Strengthening collaboration with the national extension system through the coordination and harmonization of FFS

A national coordinator of FFS in Rwanda is already recruited through the IPM project. As the FFS approach is new in Rwanda, it was important to harmonize and coordinate the different initiatives using this extension approach. Moreover, the first year of FFS experiences in the country revealed its high efficiency in Rwanda as allowing solving various problems met by farmers under diverse agro-ecological conditions, it is recommended to give a high consideration to this extension approach and to progressively create strong links with the development of national extension presently developed in Rwanda.

For that, it is important strong relationships with the PASNVA project established to facilitate that the different structures previously developed by PASNVA like the district platforms can use the skills created by the IPM project through the different training activities of farmers and facilitators throughout the country.

8 PLANNING FOR THE UPCOMING YEAR (YEAR N+1)

8.1 Activity planning year N+1

Code FIT	Activités			Q1-2010			Q2-2010			Q3-2010			Q4-2010		
				Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec
A0101	Developing a training curriculum adapted to	Coordinator	Recruitment												
		Training curriculum	nouvelles cultures												
		Study tours	For staff												
			For facilitators												
A0201	Localise, mobilise and recruit the expertise in	Master Trainers	Consultancy												
A0202	Favouring learning and adoption of each of the different IPM components	Thematic consultancy (International or national)	Realization												
A0203	Ensuring training of trainers	Training sessions	Trainind of trainers/facilitators												
			Staff of MINAGRI/MINALOC												
A0301	Facilitate all the steps of training of farmers	Agreements of training	Financing the agreements												
		Tarainin g materials	Acquiring												
		Monitoring/evaluation of the training activities	Publication of tender for international consultancy												
			Realization												

Code FIT	Activités			Q1-2010			Q2-2010			Q3-2010			Q4-2010			
				Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	
A0401	Increase the public awareness of the importance of plant quarantine	Sensibilisation	Workshop													
		Training	Foreign training (3 people)													
A0402	Promote and strengthen setting up of plant quarantine protocols	Investments	Greenhouses													
			Laboratory equipments and analyses													
A0501	Realise an inventory of the traditional cropping practices	Inventory on tomato	Publication of tender													
			Execution of the mission													
			Receiving the report													
		Inventory on passion fruit and tamarillo	Execution of the mission													
			Receiving the report													
		Inventory on cassava	Execution of the mission													
Receiving the report																
A0502	Setting up the knowledge relative to appropriate and sustainable cropping practices	see A0203 and A0301														
A0601	Localise, mobilise and recruit the expertise in measure to ensure training by taking into account the knowledge relative to development cycles of pests and diseases	International consultancy	Publication of tender													
			Execution of the mission													
			Receiving the report													
A0602	Ensure publication of the documents relative to development cycles of pests and diseases	Publication	Elaboration of the document													
			Publication of the documents (seminar)													
A0603	Funding specialised training in entomology and epidemiology	Long duration training	Identifications of needs and candidates (RADA and ISAR)													
			Achieving training programme													
A0604	Setting up the knowledge relative to development cycles of pests and diseases	see A0203 and A0301														

Code FIT	Activités			Q1-2010			Q2-2010			Q3-2010			Q4-2010			
				Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	
A0701	Localise, mobilise and recruit the expertise in measure to disseminate the knowledge relative to sustainable management of resistant varieties	International consultancy	Publication of tender													
			Execution of the mission													
			Receiving the report													
A0702	Funding specialised training in variety resistance	Long duration training	Selection of candidates (ISAR)													
			Achieving the training													
A0703	Setting up the knowledge relative to management of resistant varieties	see A0203 and A0301														
A0801	Development and setting up of a communication strategy	Documentary movie	Realisation on IPM/FFS													
		Field visit														
		Agri show														
		Workshop	assessment/information													
		Rural radio	Chronical emission for sensation													
		Booklets	Extension manual													
	Poster/leaflets	Leaflets of sensation														
A0802	Contribute to revising the national strategy for pesticide management		Consulatncy mission													
			Support to RHESI													
			Sensation													

8.2 Financial planning year N+1

COGESTION

Code FIT	Libellé	Budget	Balance end 2008	Balance end 2009	Financial planning 2010				Total 2010	Theor balance. end Q4-2010
					Q1-2010	Q2-2010	Q3-2010	Q4-2010		
A0101	Developing a training curriculum adapted to Rwandese conditions	143.000,00	121.536,89	76.729	17.073	69.512	14.634	14.634	115.854	-39.124
A0201	Localise, mobilise and recruit the expertise in measure to ensure training of trainers	161.000,00	161.000,00	128.949	16.463	16.463	16.463	16.463	65.854	63.096
A0202	Favouring learning and adoption of each of the different IPM components	137.000,00	137.000,00	135.466	549	1.098	1.098	1.585	4.329	131.136
A0203	Ensuring training of trainers	274.400,00	274.400,00	182.745	86.585	36.585	70.732	78.049	271.951	-89.206
A0301	Facilitate all the steps of training of farmers	326.000,00	326.000,00	290.563	9.756	54.878	18.293	9.146	92.073	198.490
A0401	Increase the public awareness of the importance of plant quarantine	35.000,00	35.000,00	29.517	0	13.415	6.098	14.634	34.146	-4.629
A0402	Promote and strengthen setting up of plant quarantine protocols	325.000,00	325.000,00	325.000	0	109.756	128.049	42.683	280.488	44.512
A0501	Realise an inventory of the traditional cropping practices	73.500,00	73.500,00	68.337	8.244	19.512	488	976	29.220	39.118
A0502	Setting up the knowledge relative to appropriate and sustainable cropping practices	60.000,00	60.000,00	60.000	0	0	0	0	0	60.000
A0601	Localise, mobilise and recruit the expertise in measure to ensure training by taking into account the knowledge relative to development cycles of pests and diseases	24.500,00	24.500,00	24.125	18.293	24.390	0	0	42.683	-18.558
A0602	Ensure publication of the documents relative to development cycles of pests and diseases	15.000,00	15.000,00	15.000	0	12.195	2.439	0	14.634	366
A0603	Funding specialised training in entomology and epidemiology	0,00	0,00	0	0	0	0	0	0	0
A0604	Setting up the knowledge relative to development cycles of pests and diseases	55.000,00	55.000,00	55.000	0	0	0	0	0	55.000
A0701	Localise, mobilise and recruit the expertise in measure to disseminate the knowledge relative to sustainable management of resistant varieties	29.000,00	29.000,00	28.824	9.756	19.512	0	0	29.268	-445
A0702	Funding specialised training in variety resistance	0,00	0,00	0	0	0	0	0	0	0
A0703	Setting up the knowledge relative to management of resistant varieties	55.000,00	55.000,00	54.810	0	2.439	2.439	0	4.878	49.932
A0801	Development and setting up of a communication strategy	54.000,00	54.000,00	46.511	12.988	18.476	20.793	10.915	63.171	-16.660
A0802	Contribute to revising the national strategy for pesticide management	118.000,00	118.000,00	94.397	23.171	0	45.122	2.439	70.732	23.665
Y0101	Budget stock-Cogestion	80.000,00	80.000,00	80.000	0	0	0	0	0	80.000
Z0102	Staff fees - Directeur d'intervention	12.500,00	10.297,09	6.943	640	640	640	640	2.561	4.382
Z0103	Staff fees - Team finance and administration	59.000,00	58.553,96	51.392	1.683	1.683	1.683	1.683	6.732	44.661
Z0104	Staff fees - Technical team	62.000,00	61.156,53	50.348	7.207	9.695	9.695	9.695	36.293	14.055
Z0202	Office equipments	2.500,00	-1.846,01	-2.197	3.415	0	0	0	3.415	-5.612
Z0203	IT Equipment	15.000,00	12.441,00	5.396	341	4.512	0	0	4.854	542
Z0204	Office rehabilitation	10.500,00	4.227,73	2.543	0	0	0	0	0	2.543
Z0302	Services and maintenance fees	7.500,00	7.500,00	7.470	91	91	91	91	366	7.104
Z0304	Fees of cars' functioning	178.000,00	177.011,15	154.936	7.073	8.049	8.049	8.049	31.220	123.717
Z0305	Telecommunications	12.000,00	11.772,89	7.842	1.152	1.372	1.372	1.372	5.268	2.574
Z0306	Offices furnitures	10.000,00	9.535,34	5.750	549	549	549	549	2.195	3.555
Z0307	Missions	63.400,00	63.400,00	34.105	9.756	10.976	10.976	10.976	42.683	-8.577
Z0308	Representation and external communication fees	5.000,00	5.000,00	4.152	0	0	0	0	0	4.152
Z0309	Training	12.000,00	12.000,00	12.000	0	0	0	0	0	12.000
Z0310	Consultancy	20.000,00	20.000,00	20.000	0	0	0	0	0	20.000
Z0311	Financial fees	0,00	-111,90	-524	0	0	0	0	0	-524
Z0312	VAT fees	0,00	-2.278,07	-13.737	0	0	0	0	0	-13.737
Z0313	Other functioning fees	0,00	0,00	0	0	0	0	0	0	0
		2.434.800	2.392.597	2.042.396	234.787	435.799	359.701	224.579	1.254.866	787.530

REGIE

Code FIT	Libellé	Budget	Balance end 2008	Balance end 2009	Planification 2010				Total 2010	Theor balance (end Q4-2010)
					Q1-2010	Q2-2010	Q3-2010	Q4-2010		
Z0101	Technical assistant	300.000,00	299.690,00	159.644	32.927	32.927	32.927	42.683	141.463	18.181
Z0105	Other fees for staff	4.000,00	4.000,00	2.090	549	549	549	549	2.195	-105
Z0201	Cars	20.000,00	3.800,00	3.800	0	0	0	0	0	3.800
Z0303	Functioning fees for cars	8.200,00	7.043,39	2.725	976	976	976	1.951	4.878	-2.153
A0314	Financial fees	0,00	-19,40	-27	0	0	0	0	0	-27
Z0315	VAT fees	0,00	0,00	-562	0	0	0	0	0	-562
Z0401	Fees of monitoring/evaluation	50.000,00	50.000,00	50.000	0	21.951	0	0	21.951	28.049
Z0402	Audit	22.000,00	22.000,00	22.000	0	9.756	0	0	9.756	12.244
Y0102	Budget stock Régie	11.000,00	11.000,00	11.000	0	0	0	0	0	11.000
		415.200	397.514	250.671	34.451	66.159	34.451	45.183	180.244	70.427
TOTAUX		2.850.000	2.790.111	2.293.066	269.238	501.957	394.152	269.762	1.435.110	857.956

9 CONCLUSIONS

9.1 Activities and Finance

Activities of the project started at the field level with participation of farmers as well as with that of pioneer facilitators using the FFS approach as the extension strategy. The crop of Irish potato was selected to be the first one to be treated in the frame of the project. The generated results with a significant impact in terms of the decrease of pesticide application in potato production and the possibility for farmers to contribute in production of health seeds using the FFS approach are considered to be highly beneficial. In these conditions, the volume of activities planned for this second year of project is amplified to allow the project treating the other crops but also to extend the activities around the already treated crops to other farmers' groups.

During this year, training of farmers will be of the highest importance as facilitators with the required skills to ensure training of farmers are already in place. Moreover, with the project experience, it was proved that there is a possibility to train co-facilitators through short training sessions supervised in part by the trained facilitators who can significantly increase the number of farmers following training courses at the field level through the concept of learning by doing in the farmers' fields. The project is going to use this type of alternative in view of extending activities of the project in more zones through Rwanda and thus finally to reach a maximum number of farmers in the country.

9.2 Monitoring criteria

9.2.1 Efficiency

Globally, the first year of the project activities revealed that the adopted strategy is very powerful as allowing generating rapidly the required skills to produce the expected results. In a period of only one year, it was possible to address problems affecting different commodities (Irish potato, maize and banana) and to develop skills by training facilitators and farmers who contribute to solve the various problems at the field level. In summary, the project is efficient as the means allocated to the project are converted in results by achievement of the project activities. The same strategy of FFS involving high participation of farmers is going to be extended to other crops and/or in other areas.

9.2.2 Effectiveness

As shown previously, the results produced through achievement of the project activities are progressively contributing to the specific objective of the project constituting thus a project with a high effectiveness. In fact, by using the appropriate practices, the farmers (and their facilitators) trained by the IPM project observe an increased productivity of their agricultural actions. Moreover, the quality of environment is preserved as there is a more sustainable control of pests and diseases leading to a significant decrease of the pesticides used to control these biotic constraints affecting crops in Rwanda.

9.2.3 Sustainability

The activities of the project are contributing to increasing the skills of farmers and those of facilitators. As the beneficial effects are already observed by participant farmers, they

will continue to use the appropriate cropping practices as well as all the other components of IPM even after the end of the funding period. Based on this consideration, it can be concluded that the project is sustainable under conditions prevailing in Rwanda. Moreover, as the number of beneficiaries accessing to the positive effects of the approach increases rapidly, adoption of the innovations allowed by the project will continue to increase throughout the country as farmers have their own experience about the benefit of the technological package related to IPM and to its extension approach (FFS).

9.3 Advice of the JLCB on the recommendations

9.3.1 Recommendations on activity planning

9.3.2 Recommendations on financial planning

9.3.3 Recommendations on Logical Framework

9.3.4 Other recommendations

10 ANNEXES

- 10.1 Tracking Gantt view / Activities
- 10.2 Baseline report / Activities (AdeptTracker)
- 10.3 Measuring indicators
- 10.4 Checklist efficiency
- 10.5 Checklist effectiveness
- 10.6 Checklist sustainability
- 10.7 Input in PIT
- 10.8 Logical framework year
- 10.9 Overview public contracts