

ADPP Narrative Progress report No. 2

1st of November 2007

Jatropha oil for local development in Mozambique

Biofuel for development and Communal Energy Self-Supply



July 2007 – October 2007

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Abbreviations:

EPF	Escola de Professores do Futuro - Teacher Training College
EW	Extension Workers
FC	Farmers Club
FCC	Farmers Club Committee
FEW	Field Extension Worker
IIAM	Instituto de Investigação Agrária de Mozambique. Agricultural Research Institute conducting research on jatropha cultivation issues.
PT	Project Technicians (one water technician and one jatropha technician)
QNP	Quirimbas National Park
TT	Teacher Trainee - implementing community mobilising in rural communities during teaching practice period of 11 months
USDA	United States Department of Agriculture (co-funder)

1 Introduction

The main objective of the 'Jatropha oil for local development in Mozambique' project is to improve the self supply of energy of community members in the Quirimbas National Park (QNP), Cabo Delgado, Mozambique and in doing so, assist their income situation. Currently, farmers within the national park are isolated from many services, are subject to severe difficulties in farming due to conflict with the parks wildlife and have few income generating opportunities. While not much is known about the effects of Jatropha cultivation in Mozambique, the climate and soil appears well suited to its growth. Additionally, its low maintenance characteristics lend itself as an easy alternative source for energy for local subsistence farmers without compromising their primary need to produce food crops.

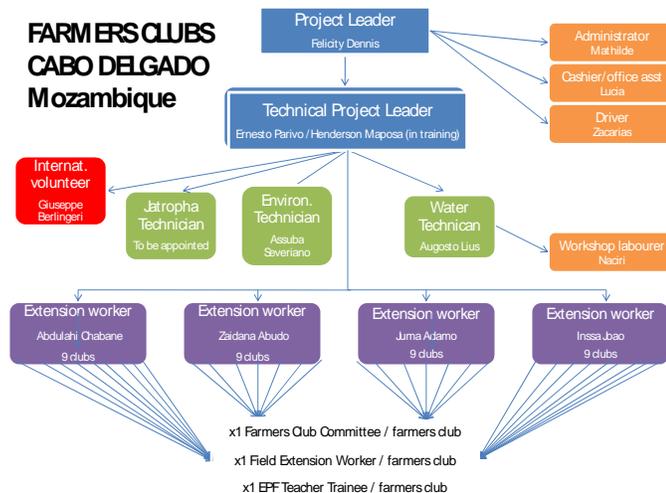
The first stage of the project is aimed at establishing the cultivation of jatropha within 25 communities within QNP. The project is still in its early stages and timing with respect to the agricultural calendar has meant that only few activities have been undertaken to date.

This report overviews the progress of activities outlined for the period July-October 2007, and provides a reassessment of the activity timetable based on practical judgements from the field.

2 Organisation

The 'Jatropha oil for local development in Mozambique' project is being implemented as an independent project - 'Farmers Clubs, Cabo Delgado', which is being co-funded by the 'Food for Progress' project with funds from USDA (US Department of Agriculture).

Figure 1: Organisation of Farmers Clubs, Cabo Delgado



Essentially, the project operates through 25 farmers clubs equally dispersed between the 5 districts of Quirimbas National Park – Meluco, Quissanga, Macomia, Ancuabe and Pemba-Metuge (see Table 1 below for the specific farmers clubs). With 40-60 members on average, approximately 1,250 farmers' club members are directly taking part in the project.

Table 1: *Farmers Clubs located within Quirimbas National Park, Cabo Delgado*

Meluco	Quissanga	Macomia	Ancuabe	Pemba-Metuge
Sitate	(Mahate)	Mujoco	Metoro	Nacuta
Pitholha	Ntessa	Nova Zambezia	Ntutubue	Tratara
Nssemuco	Cagembe	Litamanda	Ngeue	Nanlia
Mbada	Namalico	Xinavane	Nanjua	Miese
1° de Maio	Napuda	Licangano	Sede	Namiteue

Each farmers club was established in the area surrounding a village school, where there were teachers who have graduated from the Bilibiza Escola de Professores do Futuro (EPF). The clubs consists of a Farmers Club Committee (FCC), a Field Extension Worker (FEW) and the members themselves, both men and women, who have voluntarily agreed to be part of the program. To encourage commitment, members of each club have been encouraged to develop their own constitution to provide a framework and guidance for member activities.

Members of the club congregate on every second weekend (situation and seasons permitting), to receive training from the Field Extension Worker and/or the Extension Worker on a number of subjects related to sustainable agriculture within the general FC program. The farmers are also trained in efficient horticulture as well as jatropha cultivation and general environmental issues such as erosion control and the importance of biodiversity. Some of this training is conducted by the teacher trainees from EPF Bilibiza, during their 11 months school practice period at the village schools. All teacher trainees from EPF school have a community development component as part of their education during their school practice period as do the teacher trainees linked to the FACT project. The Field Extension Worker (FEW) appointed for each club is the main point of contact for receiving more specific technical training from ADPP and they in turn pass this knowledge onto farmers within the club and facilitate the process of community planning for use of local resources.

In terms of project staff, the project technician specialises in the cultivation of jatropha and at a later stage also the development of fuel production (training and implementation). This technician will move around freely between the clubs to give training and provide ongoing technical support, advice and guidance to farmers. The four extension workers (EWs), in contrast, are specifically linked to certain farmers clubs and are responsible for overseeing

and monitoring the smooth functioning of their clubs. All EWs are responsible for nine clubs each (roughly 450 farmers). They play a key role as a point of contact, visiting the clubs ideally on a fortnightly basis to provide technical assistance, give training, encourage new ideas, support and monitor the field extension workers and the teacher trainees, support and monitor progress of the farmers, communicate and mobilize both farmers and local leaders and link farmers to markets.

This is the overall structure through which the jatropha project is being organised and implemented.

3 Progress per expected main result

3.1 Expected main results at end of project

Twenty five Mozambican rural communities will produce jatropha seeds sustainably for energy use on at least 250 ha.

3.2 Main activities for year 2007

- 1.1. Select 25 interested farmers clubs (FCs)
- 1.2. Train 25 EPF teacher trainees, 25 field extension workers as community mobilisers on jatropha cultivation and general environmental awareness
- 1.3. Conduct 250 household surveys and establish baseline
- 1.4. Make 50 wells and install rope pumps for irrigation of nurseries
- 1.5. Provide seeds and give training to farmers to start 25 nurseries
- 1.6. Sensitise and train 250 farmers to start cultivation of Jatropha
- 1.7. Plant seedlings and directly seeding plots of 10 - 20 ha at each Farmers Club
- 1.8. Harvest and sell seeds (*Not for 2007*)
- 1.9. Conduct annual field days, planning & review meetings and a participatory end of project evaluation
- 1.10. Prepare and set up 25 on-farm jatropha research plots of 1 ha
- 1.11. Monitor jatropha research plots

Details of the project progress based on these main activities are listed in the following table.

Table 2: ADPP FARMERS CLUB ACTIVITY RESULT ANALYSIS - Biofuel for Development and Communal Energy Self Supply, 2007						
<i>Main activities for whole year 2007</i>	<i>Planned results up to 1 Nov 2007</i>	<i>Actual results up to November 2007</i>	<i>Variation</i>	<i>Explanation of variation, problems encountered. Solutions proposed</i>	<i>New estimate of results per July 1, 2008</i>	
1. 25 Mozambican rural communities producing jatropha seeds sustainably on at least 250 ha for energy use						
1.1	Select 25 interested farmers clubs (FCs)	25 FCs established	25 FC clubs established. One of the clubs, however has been closed because of little interest.	24 functioning clubs	The project will start up a new club to reach the target 25 clubs. The clubs must show interest in running the activities. Outside forces cannot make successful clubs.	25 well functioning clubs
1.2	Train 25 EPF teacher trainees, 25 field extension workers as community mobilisers on jatropha cultivation and general environmental awareness					
	- 25 Teacher trainees (TTs)	TTs in the process of their 2-months training period as community mobiliser	TTs started their 2-months training period as community mobiliser in Oct. 07			
	- 25 Field extension workers (FEW)	Training of FEW conducted as joint courses at Bilibiza and as on the spot training by technicians and Extension Workers	A comprehensive training course on jatropha cultivation conducted at Bilibiza for 24 FEWs, project EWs and PTs. 24 clubs have received training on the spot by EWs and PTs.			New experiences gained from FACT, GAIA, IIAM and elsewhere transferred to FEWs. Environmental awareness raised through training by TTs.
1.3	Conduct 250 household surveys and establish baseline	250 HH Surveys conducted	220 HH surveys have been conducted and will be processed during Nov-Dec 07.	Less 30 HH	30 surveys were not filled out properly. The project will use the remaining 220 to establish the baseline.	None (No new surveys planned for 2008. The next ones will be made start of 2009.)

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1.4	Make 50 wells and install rope pumps for irrigation of nurseries	Wells have been built and pumps installed in the majority of the 25 clubs.	3 old wells have been rehabilitated by digging them deeper. 11 of the FCs have dug wells and installed well rings. 5 more are in the process. This work must be done at the end of the dry season (Oct/Nov), when water levels are lowest. 5 clubs use river water for their nurseries this year. 5 pumps have been installed and are used to irrigate vegetable gardens as well as the jatropha nursery.	16 new wells and 3 old wells will be reached. Less pumps installed than planned. The project has found that the technicians needed more training before producing and installing all the pumps.	The water technician was trained in pump production and other water technologies in 2006 and during 2 weeks in Tanzania (August) this year. During the FACT visit (Oct) it was found that still more training was needed. A new welder and an International Volunteer have now also been trained.	All 25 FCs have wells with rope pumps for production of jatropha seedlings and vegetables. The project will install 25 pumps, corresponding to the number of nurseries.
1.5	Provide seeds and give training to farmers to start 25 nurseries					
	- Set-up nursery at EPF	Established jatropha nursery at EPF.	The jatropha Project Technician has established a well-functioning nursery for production of jatropha and other useful plants.			The nursery multiplies a number of jatropha varieties for distribution to FCs.
	- EWs & FEWs trained on-farm and through joint training sessions	EWs and 25 FC members trained in establishing jatropha nurseries.	A comprehensive training course on jatropha cultivation conducted at Bilibiza for 24 FEWs, EWs and PTs. 22 clubs have received training on the spot by EWs and PTs.			New experiences gained from FACT, GAIA, IIAM and elsewhere transferred to FEWs.
	- Acquire seeds, preferably of different varieties	Sufficient seeds acquired to distribute 2,000 seeds to each FC - corresponding to 25,000 plants at a 50% survival rate.	Sufficient seeds have been acquired locally (presumably same variety) to supply 2,000 seeds to each FC. Flemming from IIAM will supply an additional 200 kg (3-400,000 seeds) from Chimoio (presumably a different variety) at start of Nov.		The project has decided to calculate 1 ha as 1,000 plants (e.g. a spacing of 4 x 2.5), and primarily promote jatropha for fencing. With 2 plants/m this corresponds to 500m	Sufficient seeds to plant the remaining 250 ha acquired (125 km of jatropha fencing)

Main activities for whole year 2007		Planned results up to 1 Nov 2007	Actual results up to November 2007	Variation	Explanation of variation, problems encountered. Solutions proposed	New estimate of results per July 1, 2008
	- Seeds distributed & nurseries established	25 nurseries have been established and have planted 2,000 jatropha seeds.	22 FC nurseries have been established and 10 of them have planted the seeds. The remaining FCs have at the start of November received polybags and seeds for planting. The seeds coming from Chimoio will be planted directly in seed beds, for bare-root transplanting.	3 nurseries will not be set up. These locations have problems with access to water and elephants!	The plan has been slightly delayed due to difficulty in finding seeds, and in some cases because specially made well rings needed to be made in order to enable well digging in the sandy soil. The planned 2,000 seeds per nursery will, however, be reached before December.	25 nurseries producing part of the seedlings for 125 km of jatropha fencing. The remaining fencing will be planted by direct seeding.
1.6	Sensitise and train 250 farmers to start cultivation of Jatropha	Ongoing process of training farmers club members about jatropha.	Activities conducted in the FCs by EWs and PTs in connection with establishing the nurseries. The 30 FEWs and FCC members, who have been trained in jatropha cultivation will further promote jatropha cultivation.			Specific training sessions in jatropha cultivation held in all FCs and jatropha promoted at field days and community events.
1.7	Plant seedlings and directly seeding plots of 10 - 20 ha at each Farmers Club	No planting in the dry period. Monitoring of the 103,000 seeds planted directly at the start of 2007.	Selected areas have been monitored to assess the growth of the 103,000 seeds planted directly at the start of 2007. Jatropha does well in most areas, and has few problems with pests. Some examples of damage by elephants and baboons, but on a small scale.		A more systematic assessment of different varieties and treatments (e.g. pruning) will be carried out in connection with establishing the trial plots. The farmers are happy with the growth of their jatropha.	12.5 km of new jatropha fencing established (2 plants per meter). Existing fencing filled up by planting cuttings.
1.8	Harvest and sell seeds	Not planned for 2007	Some of the FCs have, because of the project, found that they had jatropha fences in their communities. 122 kg of seeds have for example been purchased in Litamanda.			An estimated 500 kg of seeds purchased from FC member communities.
1.9	Conduct annual field days, planning & review meetings	Bi-monthly planning meetings held with Project Leaders, Technicians and EWs	Planning and review meetings have been held since August with Project Leaders, Technicians, EWs and the International Volunteer			Bi-monthly planning/review meetings held. Field Days held in all FCs.

<i>Main activities for whole year 2007</i>		<i>Planned results up to 1 Nov 2007</i>	<i>Actual results up to November 2007</i>	<i>Variation</i>	<i>Explanation of variation, problems encountered. Solutions proposed</i>	<i>New estimate of results per July 1, 2008</i>
1.10	Prepare and set up 25 on-farm jatropha research plots of 1 ha	Prepare and train 5 farmers, one from each district, to set up trial plots of 1 ha	The seeds of different varieties came too late (in May 2007) to enable planting (rainy season ended).	No systematic trial plots have been established until now.	5 trial plots will be established as 500 m fencing instead of 1 ha fields. Besides testing the different varieties, the trials will over the years test various pruning methods.	5 x 500 m established as trial fencing to assess various varieties (if possible), cultivation and pruning methods.
	- Train EWs, technician and 5 FEWs to set up trial plots	Train EWs, technician and 5 FEWs to set up trial plots	5 FEWs have been trained in basic jatropha cultivation.	The 5 FEWs will receive the final training from the Project Leaders (PL)	The technician and PL will, together with Flemming Nielsen (IIAM) and Christian Fenger (GAIA) set up guidelines for the trial fences.	5 FEWs managing their trial fences successfully
	- Acquire different varieties	5 jatropha varieties being assessed in fencing trials.	Small quantities of seeds have been provided from Tanzania and Guatemala, but these have not been used in systematic trials.	Sufficient quantities of only two varieties.	Fencing trials will be made with local seeds, from Chimoio and (if possible) Tanzania and Zambia	Fencing trials testing at least 3 jatropha varieties
1.11	Monitor jatropha research plots	Research plots being monitored on ongoing basis.	No research plots to monitor yet.	(see above)	The jatropha technician and the PL will be in charge of collecting data before July 2008.	Data on growth and (later) yields and pruning registered.
6. Other expenses not directly related to project activities						
	- annual audits	None	None			2007 accounts audited
	- motorbikes and bicycles	3 Motorbikes purchased	3 Motorbikes purchased			3 Motorbikes functioning
	- office equipment, 2 laptops 2 digital cameras	2 laptops and 2 digital cameras purchased	1 laptop and 2 digital cameras are at ADPP in Maputo and will soon come to the project. A solar panel, inverter and battery now allows the office to be independent of the main generator.	Some equipment not reached Bilibiza yet.		Laptops, cameras and PV system functioning
8. Setting up of Bio-fuel Training Center on bio-fuels in Central Mozambique						
Improving existing school building into centre and mechanical workshop						
	- Improvement of dormitories	Further improvements made	Doors, locks and windows repaired/changed			Dormitories up to standard

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	- Construction of new toilet and bathroom facilities	Plans submitted to authorities	A detailed design has been made of the toilet/bathroom building and is ready to be submitted to the authorities.	No plans submitted	The project has given priority to more urgent tasks. Only few courses have been held.	A building with toilet and bathroom facilities in use.
	- Construction of workshop for water pump production	Workshop for pump production constructed	Detailed designs have been made of the building and are ready to be submitted to the authorities. Henderson (new PL from Malawi) has just started instructing workers in production of kiln fired bricks (not known in the project area).	Not constructed.	The project has given priority to more urgent tasks. Guisepppe, the International Volunteer, has improved the drawings and will supervise the construction.	Workshop for pump production constructed.
	- Construction of jatropa oil production unit	None	Will be part of the building with the pump workshop (see above).	Not constructed.	Oil production is no priority now, and the project has given priority to more urgent tasks.	A building constructed where future oil production can take place.
	- Centre generator	Generator acquired for the Centre.	A company has been found in the country, which can supply a Chinese generator run by an Indirect Injection engine (best suited for adapting to run on plant oil).		The Chinese generator (15 KVA) will be purchased before the end of 2007.	A generator running the workshop and as back-up for the school centre.
	Purchasing and installation of equipment, such as: oil press, bio-diesel production unit, cab-truck, etc.	Cab-truck purchased	1.5 T cab-truck purchased			The cab-truck functioning well.

4 Conclusion

The FACT Farmers Club Project has greatly picked up speed during this period. First of all the Farmers Clubs are beginning to function as clubs. This is the basis on which all the other activities depend totally.

Many NGOs are operating or have been operating in the project area. A number of them are using systems where tools, seeds and equipment are given out to the farmers. This is a very unhealthy way, which stops people from using initiative.

The Farmers Club Project also gives something to the farmers – knowledge. And this is only possible to give to those farmers who show interest and initiative. The project has therefore decided that the main priority during 2008 is to get the Farmers Clubs functioning and to concentrate on the members and the clubs that show initiative. Some of the clubs do not yet have 50 members, but the important thing is that the clubs have started, and that some of the members get the experience that they themselves are the ones who can change their future. When other community members see this, they will also want to be members and copy the systems.

The jatropha will also be planted, but this is a secondary activity. Without well organised Farmers Clubs, very few members will be able to solve the various issues and get an income from the production.

Most of the FCs have nurseries in place and are producing seedlings. The Field Extension Workers show great enthusiasm and look forward to receiving many more jatropha seeds. Most of the wells are in place, and they will all have rope pumps so that the gardens can produce both jatrophas and vegetables for income generation after the rainy season. The quality problems related to production of the rope pumps have been solved, and the Project is confident that good quality pumps will be produced in the metal workshop at Bilibiza. Lastly, working conditions in Bilibiza have improved greatly, particularly with the arrival of means of transport and the acquisition of new staff, which should help to improve many aspects of the project, particularly quality.