

## **Summary Mission Report,**

### **Project Jatropha for local development in Mozambique**

**Jan de Jongh , 8 Oct 2009**

#### **Mission of Jan de Jongh from 6 Sept-7 Oct 2009, Maputo, Bilibiza, Chimoio;**

Practically the same time, **Flemming Nielsen** joined for the seminar, the training course on Jatropha cultivation, R&D follow up and presentation in Cape Town.

During the last weeks, **Niels Ansoe** came to Bilibiza to get the generator set working and modify the diesel engine plus assisted in improving the BBC workshop. We went together to Chimoio to built a small biogas system and improve the diesel modification at Evretz (Brendon Evans farm).

**Jacob Zulu** came to Bilibiza to work with Henderson +Bachir on Business plan, organising market surveys, amongst others.

#### **Spearpoints of attention during mission:**

- Participation in a Seminar on Biocombustiveis in Maputo.
- For the Project: Development of Business Center, training centers, with first training course, and market creation

**0 Participation in a Scientific Seminar on Biocombustivels in Maputo.** The University Eduardo Mondlane, together with WUR organized this seminar that was attended by some 40 participants from various countries, besides from Mozambique included Brazil, Portugal, Netherlands. A paper “ Sustainability of Jatropha “ written by Flemming Nielsen & Jan de Jongh was presented by Flemming. It deals with sustainability criteria of the the FACT pilot project in Mozambique, which is useful in general for all small scale jatropha projects. CD was handed with presentations.

#### **1 Adaptation Workplan, general approach**

The general approach was discussed with Erik Schurmann& Jacob Zulu at the start in Maputo (12 Sept) and later again with Erik and on 5 Oct in Maputo with Jacob, Birgit Holm (director of ADPP) and Anne Fisker. Erik states that he cannot be the main project leader; that should be Henderson.

The project will further focus on the main issues to be able to continue after 2010, such as obtaining a business loan for the BBC to become a viable business.

Secondly, focusing on the technical part, getting the diesel engines properly modified plus secure the quality of the PPO for fuel.

## 2 Development Business Center

### The ongoing equipment of the BBC workshop

AT BBC, results of the mission are:

Equipment in pump production workshop was repaired plus electric cabling completed and improved. The generator set was properly installed and adjusted by Niels Ansø to run on 50Hz. Moreover it was modified to be able to run on PPO. As demonstration for the course participants and to have own power to be able to use welding and other equipment, cooking oil was bought and used for several hours for some days. Welding etc is done now by own generator supply on PPO from cooking oil (mixed oil, probably including palm oil)

The first Double Elephant press was connected and a start was made by pressing Jatropha seeds. The second press Sayari, still needs to be properly connected to a driving motor.

Together with Francisco, a design for improving the workshop was made.

Aiming at being able to press and purify the first 5 tons of Jatropha, which is estimated to be in stock with the farmers clubs now,

In the coming months the control of quality of the PPO needs to be tackled and solved. Thereupon the lay-out can be expanded to handle larger amounts of seeds.

In the second week the newly bought Isuzu truck of 3.5 tons load capacity arrived. It was practically new.



*The new 3.5 ton Isuzu truck*



*The modified generator set, now running on cooking oil.*

The development of the business plan for the high quality pure plant oil (PPO) production unit "BBC" was discussed various times and an improved ToR with budget was made by Jan. The work will be divided between ADPP and FACT, to bridge the short period until the end of the year when the delivery of the report is planned. Jacob is also going to work on the business plan, mainly with the Market investigation.

Various market options were discussed with Henderson and Jacob in Bilibiza. Plus a start was made with a method of investigation., by means of surveys.. Discussed that an addendum will be provided by FACT for this work, in addition to the existing project.

Parts on Techno-economics from Jan, Financial from FACT + HQ. Discussed with Birgit, Jacob and Anne Fisker, that ADPP will get a new addendum for developing the business plan, based on a detailed plan of activities and budget. The budget was made by Jan in consultation with Jacob. Feed back was asked from Birgit in Machave. Other partners preparing parts of the business plan are : FACT & Flemming Nielsen

After finishing the business plan, Birgit will decide who will go to apply with fund suppliers. Jan could help during next mission in first half of 2010

See : ToR Business plan + budget



*Niels explaining and demonstrating the modified generator set that is now able to run on plant oil to the course participants.*

### 3 Developing Training Centers

#### For Jatropha cultivation in Bilibiza and for Technical part (oil conversion and rope pumps) in Chimoio

The training center in Blibiza is well underway. From 14-26 Sept. the first training course on Jatropha cultivation, with 7 participants from various provinces, was successfully held and it was positively evaluated by the participants. Jan & Flemming developed and gave presentations and exercises. Next year the course will be repeated at the same time.



Regarding the role of ADPP in the training centre in Chimoio, Birgit is hesitant, mainly because of over occupation of the present man in charge of the pump production Bobby Williamson, who also is mainly involved in the EPF school. Only if continuation of FC's is established after mid 2010 (aiming at more USDA funding) , The ADPP dependence office of FC's in Chimoio can take over from Bobby. Therewith the production unit for the AT's becomes independent from the EPF school, and even the AT workshop (hand rope pumps, tanks and manual drilling) can be relocated as well. The conference center of EPF can still be hired for accommodation and in class lectures of the participants.

The first technical training course was discussed with Brendon, it is planned for the first week of Oct next year.

The 5<sup>th</sup> Seminar on Jatropha in Chimoio for stakeholders in general, is planned just before or just after this course.

## Market Creation, Technical Team

### In Bilibiza at BBC:

Problem encountered: Power supply from EPF school generator to the project office is insufficient and very irregular.

Proposed Solution: Henderson's idea is to bring a cable from the Gen set of BBC to the office and become independent from EPF power.

#### Technical team activities:

The Feidong of the Gen set will be monitored on an endurance test, from Sept 2009 to June 2010. A data logger will accumulate both exhaust temp plus running hours.

The Diesel Gen set was prepared and modified to PPO by Niels and is running now.

The diesel of the Maize Mill has not been modified, since there is no business done any more with this, and the engine was stuck as well

#### Problems encountered:

The maize mill is no longer used, Engine not maintained (no load ) We have no thrust as a place to do experiments. There is also no business done any more with the carpentry

It was suggested to HQ (Erik + Birgit) that BBC takes over both the Moageira plus the carpentry from EPF an supply power from own Gen set

### In Chimoio

#### At Evretz farm of Brendon Evans:

The main result of the mission to Chimoio was that a 1000 l biogas system has been built. Plus Feidong diesel engine modification (by Ger) has been improved.



*The 1 m3 biogas system, installed in 2 days. The left feeding pipe still to be shortened, when the concrete at the bottom will have been hardened*



*The Feidong, modified by Ger, with heat exchange in exhaust, equipped with new rubber fuel hoses and filters placed parallel, instead of in line.*

Problem encountered: Feidong Test had been halted, because of non availability of load. Plus Cotton PPO tested in Germany, showed too high acidity value. New samples of crude pressed oil, and of treated oil (by caustic soda) were taken by Niels and will be tested again in Germany.

Niels and FACT will look for solutions of the acidity and the effect of caustic soda in the cotton oil.

Brendon sells the cotton oil as an edible product. The oil is by product. The main product is the cake which is used as fodder for his 300+ cows.

Solution: Brendon will connect an alternator to the Feidong, instead of the waterpump and supply electricity to one unit of his cheese factory (GoudaGold), which will give a nearly continuous high load. He can start on cooking oil, until the quality issue of the cotton oil has been solved. Brendon to acquire acidity measurement equipment, as well as for BBC..

Budget for biogas unit is from ADPP 2010. Arrakis will prepay this year expenses.

Planning: Building up a small bio-diesel demo system at Evretz, by Ger Groeneveld. Ger has not yet returned signed contract. Planning in Nov 2009 (Brendon away weekend of 14 Nov)

### **General Issues**

Plan: Investigate securing supply chain Feidong diesel engines, plus gen sets plus spare parts presses, ect

Result: Delivery by traders of Feidong diesels is more than 50% cheaper than official way, thus Not possible to compete and build up a supply line by BBC with fully modified diesel engines to be used in Maize mills, or gen sets.

For import of Double elephant presses, the potential ways via South Africa, Zimbabwe (ATA) (ATA Tete has been closed.) or direct from China needs further to be investigated.

Investigation which cars (2) could be modified (in 2010) and run on PPO (cotton or jatropha)

According Niels the project car (Nissan) is very suitable to be converted on PPO.(planning 2010)

### **4 Progress report Nov. 2009 and Workplan Rev. D**

The ADPP part to be made in November by the PL's

### **5 2008 Financial Audited report**

Activity based financial rep 2008 was received from Anne Fisker. On my request an inventory list of the whole project will be made. Inputs from Jacob and Jan. Discussed some points of the KPMG audit with Anne.

## **6 Expansion to other projects**

With Anna Lerner of ProBEC Discussed 12 Sept. Gorongoza study has been finished already. Surveys done by Sandra Bos.

For SADC Taskforce on bio-fuels a study needs to be made of small rural devt projects, like in Bilibiza, Nhambita and Zambia (CF). Maybe we can be involved.

Discussed interest of CARE Denmark with Flemming. Care is interested to cooperate and ideas need to be further developed.

Christian came with a new ACP-EU program, well fitting continuation and expanding of the program. Jan discussed with Jacob which elements could be brought into extended and or new projects. Monday 5 Oct, these ideas and experiences from the project were discussed with Helen Hallsstrøm (proposal writer) and Anne Fisker. See Annex: Lessons learned etc.

Inputs from Janio Jaramillo Flechas (DI from Colombia) and own observations led to writing 2 page proposal (by Jan) to tackle the unsustainability of Quirimbas National Park. Jacob to follow up on that. Also Janio is already following up on own initiative.

He also made a very nice slide program of the FC project and he wants to come to NL to present his findings. FACT is asked to help to find interested groups to present his findings.