

## Jatropha Stakeholder Workshop

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### Workshop Summary

*Prepared by*

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*Between February and May 2008 the University of Utrecht (based in The Netherlands) in collaboration with SNV conducted a feasibility study on *Jatropha curcus* L. with a focus on livelihood impacts and value chain developments. On Wednesday, the 7<sup>th</sup> of May 2008, SNV hosted a Jatropha Stakeholder Workshop in Arusha, Tanzania. The goal of this workshop was to share the feasibility study findings, bring together different stakeholders, identify important issues and discuss the way forward. The following is a summary of the Jatropha Stakeholder Workshop.*

### Agenda

- 09:00 Opening - Peter Bos, SNV Advisor
- 09:15 Round of Introductions
- 09:30 Stakeholder Presentations - Enil Kiwia, Diligent; Mr. Livinus Manyanga, KAKUTE; Mr. Ismael Manang, Farmer/Diligent; Mr. Ramadhani S. Kidunda, Kikuletwa Farm
- 10:30 Coffee Break
- 10:45 Presentation/Validation SNV Feasibility Study - Lode & Lauren
- 11:15 Plenary Discussion
- 13:00 Lunch
- 14:00 Group Work Sessions
- 15:00 Group Work Presentations & Discussion
- 15:30 Way Forward
- 16:00 Closing Remarks - Joel Kalagho, SNV Portfolio Coordinator

## I. Presentations

### ***Ms. Enil Kiwia, Diligent***

Diligent sees the value chain approach the best way to address the constraints and opportunities in the developing biofuel sector and especially so for *Jatropha Curcus L.* (JCL) For Diligent the value chain involves the cultivation of JCL, provision of inputs, setting of collection centers, transportation (seed collection to factory processing) and commercial marketing/processing. Characteristics of JCL identified and promoted include its indigenoussness, drought resistance, low maintenance, perennial nature, 40+ year productive lifespan, < 35% oil seed content and 3 year waiting period for first yield.

They are currently producing SVO oil and small quantities of *Jatropha* biodiesel (JME). The seedcake can be used for fertilizer, biogas, charcoal and briquettes. However, charcoal and briquettes sill produce too much smoke to be in use yet but research in alleviating this problem is underway. They have a 60m3 biogas plant to provide the staff kitchen with gas in which they use their seedcake. Currently they are running 2 company cars on SVO.

Diligent's inputs are creating awareness, planting promotion, market guarantee, field officer cultivation assistance, cultivation testing, research (biogas, oil extraction efficiency and engine modification). They have gained a lot of experience and continuously researching and testing (they have a laboratory onsite for oil quality tests and other research).

Diligent uses an out-grower system / contract farming to obtain their JCL seeds. They guarantee a market for their out-growers with a minimum price for contracted farmers of TZS 100. They provide field officers, free seeds, free knowledge and free training for their farmers. They encourage the growing of *jatropha*-fences and intercropping to avoid competition with food crops. It is important for them to develop close contacts with their farmers, to guarantee the market. Cost however is the large amount of time involved in creating awareness. Their challenges include convincing farmers to grow a perennial crop, realistic seed prices, seed buyer competition, market distortions, transport, guarantee of sustainability and unclear government policies and taxation.

They acknowledge the necessity of farmer cultivation training, the need for continued research on high yielding varieties and seedcake usage and the usefulness in grower awareness assistance. They want uniformity in price to avoid farmer disappointment when prices fall to appropriate levels after the hype has lessened and acknowledge the need to take into account sustainability issues.

### ***Mr. Livinus Manyanga, KAKUTE***

Mr. Manyanga discussed the role of Public Private Partnerships (PPP) in addressing the lack of dynamism, security, sustainability and growth in the micro and small enterprise (MSE) sector. He presented PPP as a model of development cooperation focusing on the joint activity of the public and private sectors and civil society organizations. The mutual benefits from the pooling of financial and human resources and expertise to promote and implement social and economic development projects were discussed. KAKUTE Ltd. calls for a meeting to create and strengthen

an enterprise culture which favors initiatives, productivity, environmental consciousness, quality, good labor and industrial relations and adequate, equitable social practices.

Below are the main points from Mr. Manyanga's presentation:

- PPP should be initiated because of the shared goals between actors and partnership can allow all to extend their reach and achieve better results through the sharing of their resources, skills and knowledge.
- One of the goals for PPP in regard to JCL projects should be to create partnerships aimed at promotion and the production of biofuel raw materials for social and economic development in rural areas.
- The importance of PPP for governments is an access to new resources (financial, technical, research, knowledge), for civil society an access to increase funding, in-kind support and technical expertise, and from the private sector an access to market community development knowledge and contract compliance.
- There are three steps to PPP formation: needs assessment, stakeholder analysis and public private dialogue. The process is an ongoing one and should be followed by the formation of stakeholder partnerships.
- Some of the main challenges are inconsistent approaches, exaggerated expectations, lack of knowledge and wrong and/or misleading cultivation information. Questions needed to be answered:
  - How to make JCL a low risk venture?
  - How to help attract private investors in JCL cultivation for biofuel?
  - How to promote endeavors to be technical capacities of rural entrepreneurs?
  - How to create new work opportunities in JCL cultivation?
  - How to highlight environmental and social integration of JCL cultivation systems in rural communities?

***Mr. Ismael Manang, Farmer/Diligent***

Mr. Manang has an 80 acre farm in the Bunduni area passing through Madji a chai. To establish the farm he had to slash the former bush vegetation, cut trees and remove the trunks and stones. The first planting was done on 3 acres without plowing - holes were dug and seedlings and cuttings planted. The resulting crop was a disappointment due to hindered root penetration upon which he decided to till the rest of the area with a tractor and plant 3 month old seedlings and cuttings. 3m x 3m spacing was used.

**Observations & Recommendations**

- If seeds are sown directly two seeds per spot should be used to ensure germination of at least one plant at each spot
- Cuttings yield earlier than seeds but perform less well when it is very dry due to missing taproot

- After 3 months thinning takes place and the removal of excess plants at each spot is done
- Plants need to be pruned to 2 or 3 feet (60 - 90 cm) to develop more branches which influences the yield
- Intercropping with maize and/or beans is only possible during the first two years because after that the *Jatropha* trees shade the soil

***Mr. Ramadhani S. Kidunda, Kikuletwa Farm***

Mr. Kidunda has been working with *Jatropha* since 2005 when he joined Kikuletwa Farm in Moshi. He is focusing mainly on research to improve yield and selling seeds to those planting in the meantime. They sell seeds for TZS 2000/kg which they find necessary to cover their costs and which is only possible with their customer base of onetime buyers.

They have a 20 acre plot with some acres intercropped by local farmers with beans and vegetables. This is important because the farmers irrigate the fields and the *Jatropha* gets irrigated as well. Kikuletwa Farm has a mean temperature between 32 - 33°C. There is generally not much rain but sometimes they experience floods. His plot is fertile and does not need a fertilizer however he does use Polyfeed (type of fertilizer) which has a positive effect on the flowering system. They harvest brown (dry) and yellow fruits however the yellow fruits are still fleshy and need drying.

In 2007 he experimented with different pruning heights: 30, 40, 60, and 70cm. While it is already visible that pruning results in more branches (which will most probably result in more flowers and more fruits) the effect of the different heights on yield is not yet clear.

**Observations & Recommendations**

- Growth depends a lot on climate
- It is impossible to establish JCL without sufficient water
- Irrigation has a positive influence on yield
- Water demand: 750 - 1500mm y-1 or irrigation
- Cuttings yield after 9 months
- Plants propagated by seeds after 1.5 years
- Drained soils are needed as *Jatropha* does not support water logging conditions
- Yield = ½ kg annually per tree with 1-3 harvesting cycles per year
- Several pests (beetles, scales, termites, worms, etc.) were present and pesticides used
- When soil is too wet fungus develops on leaves and branches which has to be treated with fungicide
- Their spacing of 2.5m x 2.5m (1600 trees ha-1) is too close
- Recommends 3m x 3m spacing
- Controlling weeds is more effective with the application of a herbicide (vs. manually)
- A different variety of *Jatropha* from South America did not perform well possibly due to a lack of water
- Some of his trees shed leaves due to flooding which caused water logging
- He observed many fruits after spraying with pesticide to combat beetle attacks

Livelihoods – General Trends

- Gathering from hedges is the most common Jatropha activity
- Harvesting is a side activity mostly done by women and children
- Indiscriminant hedge gathering has been the norm however this is changing
- Growers generally have 3 or more sources of income of which 1 is non-farm
- Growers keeping current amount or slightly expanding plots w/ increases from .25 acre to 1.5 acres
- Gathering and growing income used for small domestic items
- Collectors usually have some other form of business in the village center(s)
- Households now starting to grow based decision on income generation from gathering (*case of Engaruka Juu*)

Value Chain – Conclusions

- More national than international or global
- Seed prices range from TZS 120 to TZS 9,445
- Disturbed market
- Little or no governance
- More cooperation between actors possible
- Lack of information and technology

*See accompanying Workshop PowerPoint presentation for further information on the SNV Feasibility Study Presentation given by Lauren & Lode (SNV Interns/MSc Students Utrecht University)*

## **II. Comments & Suggestions**

- There is market disturbance by people who are buying seeds for planting and are therefore willing to pay a high price. (*Diligent*)
- Village government leaders have to play a supportive role rather than always interfering with their own personnel interests. There is a big discrepancy between the role village governments should theoretically play and their actual behavior. (*DOSI*)
- Village government should play a role and create an investment friendly environment and promote the planting of Jatropha. (*SNV*)
- Workers from the field should have the possibility to pose research questions to researchers. (*Farmer/Diligent*)
- The government needs to be incorporated into the discussion and the process to address this and other problems. (*Farmer/Diligent*)

- Contracted farmers do not respect their agreements. The government which is actually promoting contracted farming should tackle this problem to ensure investment. (SNV)
- Example from one village of negative government interference instead of supporting. Village Executive Officer refuses to support Diligent's activities despite high abundance of hedges in the village. The Executive Officer had bad experiences with aloe vera and therefore does not wish any further interference and discourages people from collecting from hedges. Diligent was not able to set up a collection point in this village and considers it a misuse of power. (Diligent)
- Government needs to be incorporated into the discussion and the whole process to address village government interference and other problems. (Farmer/Diligent)
- Are people aware of where they are going? What are the real needs to achieve poverty alleviation? Those targeted should have a say. How can poverty alleviation be achieved in regard to all the critical points raised during the presentations? Problems with knowledge dissemination because there is little knowledge and prices are uncertain. (Ilaramatak)
- (Referring to the gaps mentioned by Lauren and Lode in their presentation). There is a huge lack of data. It is understandable that private companies do not share all their data to protect their business. How much important information can/should be shared? We should call on national research institutions to fill the gaps (KAKUTE)
- Let us think of areas where jatropha exists already and/or where there is no land scarcity for where to grow Jatropha (JPTL)
- Participants could be asked to provide contacts to media people they know
- Need for a strategic orientation for the future. How will be the seed price in 5 years? He assumes a lower price than now because some current prices are far too high due to hyping. Can TZS 30 be achieved (breakeven point of InfEnergy Ltd.)? (SNV)
- Little knowledge of politicians must be addressed to avoid too high expectations from the politicians itself but also the farmers listening to them
- Jatropha should be planted where there are no or less income alternatives however the government is going a different way. It focuses on good farmland in the coastal area where other more profitable crops (food) can be grown more profitable. (SNV)
- Mr. Manang will observe the evolvement of his plantation a bit longer. When the venture is profitable he will definitely expand, if not he will uproot because it's all about profit. He depends on Diligent as his only buyer. (Farmer/Diligent)
- Contracted farmers do not respect agreement. The government which is actually promoting contracted farming should tackle this problem to ensure investment. (SNV)

- The diesel price should not set the price for Jatropha oil. Buyers should be informed of the superior quality of SJO/JME so that they are willing to pay more (*DOSI*)
- Jatropha cannot compete with coffee and tea in areas where they can also be grown and seems only to be competitive where there are fewer alternatives. (*DOSI*)
- Government needs to be brought on board. (*Ilaramatak*)
- We need ambitious long-term goals to achieve and further research but also to go ahead ourselves at the same time (cannot wait for development, things have to be done now). There is potential in remote Maasai areas. Who controls the strong market forces? (*Ilaramatak*)
- Field officers only convince farmers to grow JCL and have the least experience with the crop itself and are therefore not capable to advise the farmer.
- Companies should admit and reveal their lack of knowledge in agronomic practices to farmers. (*Farmer/Diligent*)
- Difficult to convince farmers to grow JCL because of 3 year waiting period for first harvest (*Diligent*)
- A press statement summarizing the main points should be written
- Has an Environmental Impact Assessment already been undertaken for Tanzania? What are the positive and negatives of JCL seed and JME production? (*Ilaramatak*)

### III. Group Work Sessions – The Main Issues

Some of the stakeholder difficulties raised include difficult price predictability, lack of cultivation knowledge and unknown production costs and inputs. Below are the main reoccurring issues mentioned during the workshop:

- Prices
- Market Distortion
- Who determines the market?
- Production cost (in) vs. Profit (out)
- Convincing farmers
- Production for local or export market?

- Technical capacities of rural entrepreneurs
- Yields
- Spacing
- Pruning
- 3 year waiting time for initial harvest

- Local government involvement
- Non-existent government policy

- Environmental impact
- Land use
- Food shortage
- Jatropha as a fuel crop

2 groups were formed (see below) and participants divided themselves according to their interest. Each group was instructed to discuss the issues as well as a way forward. A short presentation detailing the issue, activities and (if possible) assigned stakeholders and deadlines was given by each group.

#### **Group 1: Market & Prices**

- Farmers need to be assisted in calculating their production costs
- Create awareness with existing and incoming farmers about the highly instable market so they are aware of the risks
- Transporting oil instead of seeds. Encourage farmers to press, e.g. in farmer groups

WHO: Whoever is promoting Jatropha should first help the farmers calculate the costs and benefits compared to other crops and make them aware of the risks.

#### *Comments*

There are pros and cons concerning local seed pressing. The pros include reduced transportation costs and local availability of seed cake. The cons are the difficulty in establishing and maintaining a quality oil standard (water content, filter, etc.) and a lower extraction rate. The extraction rate depends on the technology and experience available and on the quality/oil content of the seeds.

**Group 2: A. Government Policy & Local Government Involvement**

- Create/start round-table discussions with the objective to identify joint stakeholder ideas in which with to address the Biofuels Taskforce
- Invite local government from the district level (with the ultimate target aimed at the village level) from the below districts
  1. Meru
  2. Monduli
  3. Siha
  4. Hai

WHO: KAKUTE will organize the round-table discussions / Timeframe: 1 Month

**B. Environmental Impact**

- It is a large scale issue
- Educate extension officers to better inform farmers on environmental pros/cons concerning Jatropha
- There is a role for NGOs & CBOs to advocate land rights & use regarding large-scale plantations

WHO: Job de Graaf will approach relevant NGOs & CBOs / Timeframe: 1 Month

*Comments*

The little knowledge of politicians must be addressed to avoid too high expectations of politicians and also those farmers listening to them.

**IV. The Way Forward**

Continued and further open dialogue amongst stakeholders and relevant government bodies about the obstacles and possibilities of JCL is the way forward. Mr. Manang and Mr. Kidunda both emphasized their wiliness to share their experiences and knowledge with others as JCL farmers and offer open invitations for visits to their farms. Diligent also welcomes all to their offices for visits and further information about their work.

The areas in need of the most attention are the market/prices, knowledge/technology and government policy/involvement. A focus on farmer assistance in cultivation and production cost calculations and increased risk awareness are the first steps toward a more sound JCL market. Despite some obstacles (capacity, efficiency, etc.), looking into the possibility of rural oil extraction and transportation instead of seed transport might offer more rural opportunities such as further income generation and energy alternatives.

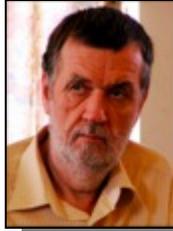
The planning of more round-table discussions to include district level government (and in the future, village level government) in the formation of joint stakeholder ideas/initiatives will help identify and address stakeholder obstacles and opportunities within the value chain and prospective poverty alleviation potential. Extending interaction to include environmental and rights based NGOs and CBOs to ensure sustainable action and policy geared toward small scale rural farmers is central to moving the JCL value chain on a forward and sustainable track.

## V. Workshop Participants

*Listed alphabetically*



Mr. Peter Bos  
*Biogas Advisor, SNV*



Mr. Job de Graaf  
*Ungano, Moshi*



Mr. Kessy  
*Staff Member, CAMARTEC*



Mr. Ramadhani S. Kidunda  
*Farm Manager, Kikuletwa Farm*



Ms. Enil Kiwia  
*Public Relations Manager, Diligent*



Mr. Godfrey Lelya  
*Programme Officer, Ilaramatak*



Ms. Salama J. Lema  
*Chairperson, GGWG*



Ms. Glory Mamkwe  
*Group Secretary, GGWG*



Mr. Ismael Manang  
*Farm Manager, Arusha Agroflora Farm*



Mr. Livinus Manyanga  
*Managing Director, KAKUTE*



Mr. Lode Messemaker  
*MSc Student Utrecht University  
SNV Intern*



Mr. John Mlay  
*Business Development Services Advisor  
SNV*



Mr. Albert S. Mshanga  
*Operation Manager, JPTL*



Ms. Lauren Parker  
*MSc Student Utrecht University  
SNV Intern*



Mr. Herman van Slooten  
*General Director, DOSI*



Mr. Jan Wahl  
*Intern, ICRAF*

## VI. List of Acronyms

CAMARTEC	Centre for Agricultural Mechanization and Rural Technology
GGWG	Green Garden Women Group
ICRAF	World Agroforestry Center, Nairobi
JCL	<i>Jatropha curcus</i> L.
JME	Jatropha Methyl Ester (Jatropha biodiesel)
JPTL	Jatropha Products Tanzania Limited
KAKUTE	Kampuni ya Kusambaza Teknolojia Limited
MSE	Micro and small enterprise
PPP	Public Private Partnerships
SJO	Straight Jatropha Oil
SVO	Straight Vegetable Oil