Report on Conference:

Transfer of Technology and Market
Introduction of Affordable Water Supply Systems to Smallholders

Prepared for: Arrakis
Prepared by: W. Rijssenbeek, RRE
Date: 14/11/07

The Conference is funded by Partners for Water from The Netherlands
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1 Introduction

The conference took place on 13/11/07 and some 25 people participated. The people invited were from the Government, from farmers associations, NGO’s, International agencies and the micro finance organizations. Although not all invitees could come, there was a sufficient representation of the stakeholders and interest groups the project intended to reach.

2 Development of the conference

Mr. Anton Veldt, Vice director of EPF, explained to the participants the settings of the project. He gave an introduction on the EPF school and highlighted the relation with the project. The ADPP in fact provided services to the project and hosts the conference and the office to the project staff.

Mr. Jan de Jongh, of Arrakis, the project coordinator gave an explanation of the project. In this he elaborated on the technologies the project intended to introduce and the experiences to date. Also he showed a movie of a farmers group that uses the same rope pump technology.

Excursion
Then after a coffee break, an excursion on foot to the field of EPF was held to demonstrate the technologies that the project implemented. First the conference was visited. The technicians of the project demonstrated the functioning of the rope pump, how it was made, and how much it costs and how the water is conducted to the field using different technologies (drip irrigation fast/slow, satellite tanks). Useful questions were asked. The costs of such system that can cover the irrigation needs for 0.4 ha are approx USD 600. It includes the pump, its installation (incl excavation and well lining or casing), the main and satellite tanks and the watering cans.

A next stop was made at the neighboring school “Formigas do Futuro”, were a wind pump (8 feet diameter) was shown. The wind pump allows for a larger extension to be irrigated. Depending on the wind exposure of the site, one ha can be irrigated with it. The wind pump is low costs. The wind pump itself is costing USD 800, which includes wind rotor tower, pump and installation, but not the excavation or water storage tanks. The pump was operating when the wind took on. It was said to be a perfect reserve system for the school that is connected to the electricity grid.

At the same time close to the site the invitees were explained on the purpose and functioning of the water recharging systems. These are small ponds that are connected to a water gully that conducts the excess surface water to the pond. In the pond bottom a perforation is made to the water bearing layers to that these can receive the excess water.

Manual drilling
Back at the conference hall a short film on manual drilling was presented and explanation on how this technology works was given.

Ms. Jennifer Bailey, head master of AEO Lamego, gave a presentation on the experiences with hand rope pumps for horticulture at the agrarian school. The first year
some familiarization with the system was needed. For 2008 they elaborated a solid program. The presentation is annexed

Mr. Winfried Rijssenbeek, of RR-Energy, NL gave a presentation on the issue of financing: it started with the justification of the project, on the needs on solid agricultural policy, and then on the financial feasibility. It ended with an invitation to open the discussion asking the participants to share their views.

Mr. Jacob Menyani Zulu, Project leader of the PVW project explained about the prospects with the technologies in running Farmers Clubs programmes.

Finally the programme was closed by Mr. Anton Veldt.

Discussion on the micro financing of small holders irrigation

The FAO representative from Manica made a distinction between irrigation and drinking water systems. He claimed that for drinking water people can claim support from the government, whereas irrigation is considered a business venture. Therefore it would not be easy to use the hand pump technology in the first area as it would have to fall within legislation and people would not be prepared to pay for a loan to obtain it. He explained about the Community Development Fund: It is a fund that is given out as a Grant to the community based on their plans and priorities. Problem is that staff is not able to move out sufficiently to fill the fund with proposals. He feels that the PvW technology is attractive to farmers and he mentioned a region (district of Tambara, Nhangafura area) where this project technology could be well applied.

GAPI representative: he explained on the ways the GAPI is working: it has quite high annual interest rates, but is still the lowest. Under a 7 % inflation per year, their lowest agricultural interest rate is 18% annually. He also mentioned to be interested in this technology as a package, including the agri part. Their business is to sustain the business of micro credit and they only apply the credit to groups that take group responsibility. Furthermore he mentioned that they try to be solution based and are flexible: they provided a loan to a mayor chicken farm in the Chimioio area that lent out part of its loan to the farmers to provide good quality of corn for his farms supply. The GAPI supported these farmers. Finally, as GAPI is also supporting the industry, it was said that they could also fund workshops for pumps, knowing that at present there is a (temporary project based) market for the product. GAPI provides both working capital and investment loans.

UCAMA representative: on the question how to promote the irrigation package technology, the lady said that she as an individual would be prepared to apply such system and promote it to neighbors. She could also imagine the farmers clubs to apply for it, but that would last longer before all would agree and get access to a loan.

Mageriro representative was impressed by the output and costs of the technology and said it could be applied in their area, which is the Northern part of Manica Province. The difficulty is the high transport costs for installers that would have to come from ADPP in Chimioio to implement these systems in that area. Out of the consultation that followed, it was proposed to develop training programs that would allow the community and farmer - club or -association leaders in their region to engage in a training of 4 days at ADPP. They seemed to be willing to support such a training program. They also wanted GAPI to be involved as they avail over credit experience with the farmers. He was also impressed by the ceramic filter systems and wanted to know how to obtain them for introduction into their programs.

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The DPA (min of agriculture) representative explained that the DPA was impressed with the technology and be prepared to give it their moral support.

CDS-RN representative mentioned there are some funds pending under MICOA for environmental improvement and climate change. ADPP applied already successfully for this (of the 300 proposals only 3 were approved) He said that this type of project would qualify under this program. It requires solid proposals be written on behalf of the farmers associations. Irrigation systems like promoted by the project thus qualify.

The farmers clubs programme representative was also interested in applying this technology for their national program having 30 farmers clubs per province and 50 members per club. After establishment of these clubs, all of them will have a pump and irrigation system for demonstration.

**Conclusions of the Conference and follow-up**

The GAPI was positive on the feasibility of providing loans for such systems on an association basis. It fits in their portfolio.

The idea emerged that ADPP could give a follow-up to the project by training micro entrepreneurs and farmer leaders in assessing the site, install and maintain the irrigation pumping technology. These trained people would, after having succeeded in their test, receive a certificate for a number of years. Credits could be given for such irrigation systems, when the pumps would be installed by the certified micro entrepreneurs. ADPP demonstrated interest to further such training project proposal.

Magariro would be interested to support such training program for the region where it works and also to support the irrigation scheme in the Northern part of Manica province.

The GAPI would be interested in supporting the manufacturing business, if a market would be there (even if it would be a project market at the start)
Annex 1 Conference Invitation

Conference

Arrakis- Pilot Project Mozambique

Transfer of Technology and Market Introduction of Affordable Water Supply Systems to Smallholders

Manual borehole drilling, wind pumps, hand rope pumps, drip irrigation systems & low cost ceramic water filters

TUESDAY 13th of November 2007
9.00 - 16.30 hrs
ADPP-EPF Chimoio

Introduction

The long term objective of this program is to improve the quality of life of poor small holders in Mozambique through improved access to safe drinking water and water for irrigation.

The aim of this program is to execute a transfer of technology and demonstrate a field test program of proven and affordable hand rope pumps, wind rope pumps (developed in Nicaragua), manual drilling methodology, low-cost drip irrigation systems, and Ceramic water purification filters in the region around Chimoio.

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The project, that started in April 2006, will be concluded end of this year. A number of these technologies have been produced at ADPP-EPF and installed at their premises to serve as demonstration. Results were obtained by field surveys.

The conference wants to invite organisations working in the same sector, to present the results obtained with the introduction of the installed technologies, lessons learned and their potential.

Objectives of the conference

- To explain the results of the introduction of these technologies to organisations, who are seriously interested to use these technologies in their projects;

- To hold a consultation with micro-credit suppliers to subsistent farmer groups, in order to develop viable micro-credit packages for further dissemination of these technologies.

Seminar programme

9.00 hrs Mr. Anton Veldt, Vice director of EPF. Introduction to the EPF school and relation with the project,

9.30 hrs Mr. Jan de Jongh, Arrakis, Explanation of the project

10.00 hrs Excursion on foot to the field of EPF to inspect the technologies.

12.00 hrs Mr. Armando Chuva, head of EPC Josina Machel, Experience with the Hand Rope Pump placed and future plans and needs.

12.30 hrs – 13.30 Lunch


14.30 – 16.00 hrs Consultation round about micro credit schemes for the technologies, presided by Mr. Winfried Rijssenbeek, of RR-Energy, NL

16.00 – 16.30 Mr. Jacob Menyani Zulu, Project leader: Short term prospects with the technologies in running Farmers Clubs programmes.

16.30-16.45 Mr. Anton Veldt, Closing of the program.

Organization:
The conference is organized by ADPP-APF Chimoio, in cooperation with Arrakis NL (see www.arrakis.nl)

Fee:
There is no fee for attendance to the Conference.

Contact:
EPF Chimoio (Escola de formação de professores),
ADPP, tel 82 5220494
Mr. Jacob Zulu  zulumenyani@yahoo.com

The Conference is funded by Partners for Water from The Netherlands
## Annex 2 Participant list

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<tr>
<th>Nr.</th>
<th>Name</th>
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<td>1</td>
<td>Aleque Zangado</td>
<td>ADPP-EPF</td>
<td>Chimoio</td>
<td>82538573 <a href="mailto:jacobzulu@gmail.com">jacobzulu@gmail.com</a></td>
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<td>2</td>
<td>Jacob Zulu</td>
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<td>824278961 <a href="mailto:janeiro.avelino@gmail.com">janeiro.avelino@gmail.com</a></td>
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<td>3</td>
<td>Janeiro Avelino</td>
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<td>GAPI</td>
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<td>5</td>
<td>Joao Maunze</td>
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<td>Jose Carlos Grande</td>
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<td>251 22 747 <a href="mailto:juliao.cds@teledata.moz">juliao.cds@teledata.moz</a></td>
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ADPP-EPF          Ajude Desinvolvimento de povo a Povo-Escuela Professores da Futuro
FCO-Mocambique   Farmers Clubs Office?? Mozambique
ISPM             Name of NGO
GAPI             Department of Agriculture
Magario          Food and Agriculture Organisation
CDS-RN           ADPP- Escola de Artes e Officias
DPA-Manica       UCAMA
Annex 3 Presentations:

Presentations of: Jan de Jongh, Winfried Rijssenbeek, Jenny Bailey, Jacob Zulu
Arrakis- Pilot Project

Transfer of Technology and Market Introduction of affordable water supply systems to smallholders in Mozambique

Jan de Jongh, director Arrakis
www.arrakis.nl
13 Nov. 2007

Justification of the Project

- Existing needs in rural Mozambique:
  - Water for drinking;
  - Water for irrigation;

- Estimated number of hand pumps required: 30,000

- “Over the last 10 – 15 years the average rain fall has decreased from 600 to 400 mm.
- Agriculture in Moz. is only possible with irrigation!”
- “Mr. Mohammed Vala, DPA, Xai Xai, March 2005”
Goal of the project

- Demonstrate affordable low cost technologies for small rural farmers/households;
- Develop micro-credit schemes for this;
- To train EPF workshop to produce these technologies

Transfer of Technology

- Manual borehole drilling,
- wind pumps,
- hand rope pumps,
- irrigation systems & tanks
- Recharge systems
- low cost ceramic water filters
Manual drilling, Baptist method

- Sand, clay, sandstone, soft (weathered) rock
- 1-90 m deep
- Cost: US$ 2-6 per meter (incl. drilling, casing and PVC pump)
- 20,000 wells drilled in Latin-America

Baptist drilling Bolivia/Chimoio
Wind pumps

- 20 years ago, a Dutch NGO introduced the 9’ diameter windpump in Mozambique, Limpopo valley.
- No longer manufactured.

Rope Wind Pump H-10
300 installed in Nicaragua
Wind rope pump H-8
Introduced in July 2007
in PvW project

Comparison of wind pumps

- Classical wind pump:
  - Costs: US$ 10,000 +
  - Imported from South Africa

- H-8 Wind rope pump:
  - Costs: US$ 1000 –
  - Produced at EPF Chimoio
Hand rope pumps

- **Different models:**
  - Pole Pump (lowest cost) for productive use, on Poco or furo.
  - AH, steel frame, on Hand dug well (poco), drinking water
  - AT, steel frame, on tube well (furo)

P-Pumps

- Pole pump on hand dug well
- Pole Pump on 2º furo
AH & AT Model HRP

- Left: AH Model Zambia
- Right: AT model Tanzania

Cost Comparison Hand pumps

- **AFRIDEV**
  - Pump: $1200
  - Installation: $800
  - Furo: $3000
  - Total: $5000

- **Pole Hand Rope Pump**
  - Pump: $150
  - Installation: $100
  - Hand dug well: $150
  - (including lining out
  - With bricks+cement)
  - Total: $400
Low cost irrigation
Pepsi Drip (India)

- Increasing need for irrigation
  Irregular rains, smaller plots...
- Saved crop of thousands of small farmers in India
- Cost $ 60 / ha

Other options (Nicaragua)

- Easy drip (US$ 200-400/ ha)
- Nica drip (US$ 300-600/ha)
Micro tube (India) Applied in PvW Chimoio

- Lay-flat hoses, main hose and lateral hoses +
- Micro tubes ca 1 mm opening
- Imported from India, $1200/ha in Chimoio
- Requires much guidance

Satellite tank irrigation system

P-Pump
Tank nearby (2 m3)
Tank 20-50m away
Hose to connect tanks
Persons with cans watering from both tanks
Costs: ca $ 200/ha (excl. HRP)
Picture: Zambia 2005
Low cost tanks

- Bricks
- Steel wires
- 2 bags of cement
- Bottom 3 – 4 cm cement
- Costs of 2 m³ tank,
- Ca: $ 50

Recharge systems

- When ground is impermeable, drill tubes up to permeable layer, and remove the valve after sedimentation of 1 day, water disappears into aquifer.
Ceramic Syphon water filter

- Cost per filter ca: US$ 7
- Guaranteed for 0.5 to 1 year
- Results: high quality drinking water---→ less sicknesses

Syphon filter
“Mr. Mohammed Vala, DPA, Xai Xai, March 2005”

- Tomatoes is a much better crop then rice:
- Production 8 years ago 8-10 ton/ha
- Now 35 ton/ha, with drip irrigation.
- Last year (2004) in Chokwe, in total 70,000 tons of tomato’s were produced.
- 150,000 tons is needed in order to stop the import from South Africa, Tomato’s can easily be marketed in Maputo.

Project Organization

- Arrakis: project owner & responsible (Dutch)
  - Mr. Jan de Jongh
  - Mr. Henk Holtlag
- RR-Energy: Dutch partner,
  - Mr. Winfried Rijssenbeek
- EPF/ADPP Chimoio, Moz. Partner,
  1. Mr. Anton Veldt
- GAIA-Movement: Local represent. partner:
  - Mr. Jacob Zulu, project leader of PvW project.
- Funding: Partners for Water, Netherlands
Follow Up

- Pilot Credit schemes
- Commercialisation of the EPF workshop

Thanks for your attention!
Agricultural Savings and Credit for Project Partners for Water Mozambique

By Winfried Rijssenbeek, RRE
For Project Workshop,
13/11/07

Presentation Contents

- Introduction
- Problem Description and Statement
- Micro credit Experiences and Lessons Learned
- Feasibility of Irrigation
- Conclusions
- Tasks for the workshop
Problem Description and Statement

- In Agriculture: subsistence farming = no development of a village or rural area = poverty = loss of youngsters = no sustainable social service
- In Health and Economic Development: no quality drinking water and sanitation = disease = less work = more health expenditures

Project aims to break vicious circle:
- with higher yields through irrigation: extra’s sold and social infrastructure will be provided
- with good quality drinking water: less disease, less costs, higher work force.

Problem Description and Statement

- The trias in agricultural development
  1. Government price policy for Agriculture (produce input/output boards)
  2. Farmer technical assistance and extension service
  3. Farmers savings and credit

  (Examples: EU, Asia, Zimbabwe)

- Project works in 2 and 3:
- We now face no 3
Micro-credit Experiences and Lessons Learnt

- As of 1989, Mozambique started in this sector;
- Impulse by GTZ to assist regresados (unification Germany);
- World Relief village banks idea: good and positive response;
- IRAM (French consultant) Caixas Comun. de Credito y Poupanca (CCCP);
- Shifting focus toward urban areas as of 1995;
- Community based initiatives (CARE) ASCA's;
- International NGO's declining portfolio as of beginning 2000 (World vision, MEDA CARE moving in Banco Opporrt Mozaambique);
- Growth of national NGO’s in the sector (Ophavela);
- Legal reforms (4 type of constructs);
- Some players becoming bigger: SOCREMO, TCHUMA, NOVOBANCO;
- 35 operators in the sector; more than 100,000 clients;
- Good cooperation between actors: government, donors and sector;

Lessons learnt

- Good cooperation between actors is essential
- Most clients have been urban and characterise as:
  - market traders,
  - informal read stands and shops
  - Informal traders
  - bars and restaurant,
- Clients receiving credits to use this for business: not for consumption;
- Savings are as important an aspect of micro credit;
- Clients can also receive inputs (but also risk of being sold);
Feasibility of Irrigation

- Rainfed agriculture: two examples:
  - Mais
  - Tomatos

- Irrigated agriculture: one example:
  - Tomatos

Source: Alexue Zangado sixpence, teacher ADDP; Jacob Zalu, project leader farmers clubs; RRG and Arrakis
### Tomatoes: rainfed

#### 3 people grow one ha

#### 3 people family can grow

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### Tomatoes: irrigated

#### 3 people can grow one ha

#### May to November

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</tr>
<tr>
<td>Manure</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td>Subtotal</td>
<td>Metro</td>
<td>3800</td>
</tr>
<tr>
<td>Irrigation system investment</td>
<td>Metro</td>
<td>3750</td>
</tr>
<tr>
<td>Irrigation system investment</td>
<td>years</td>
<td>3</td>
</tr>
<tr>
<td>Subtotal</td>
<td>Annual cost</td>
<td>1250</td>
</tr>
<tr>
<td>Total costs</td>
<td>USD</td>
<td>3720</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>kg/ha</td>
<td>6000</td>
</tr>
<tr>
<td>Price off farm</td>
<td>Metro/kg</td>
<td>18.0</td>
</tr>
<tr>
<td>Total benefits</td>
<td>Metro/kg</td>
<td>80000</td>
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</table>

#### Net return

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td>Metro/kg</td>
<td>-4000</td>
</tr>
<tr>
<td>USD</td>
<td></td>
<td>1870</td>
</tr>
</tbody>
</table>

#### Net return excluding labor costs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD</td>
<td></td>
<td>6350</td>
</tr>
</tbody>
</table>

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The Conference is funded by Partners for Water from The Netherlands 28
Conclusions

- Agricultural development needs min prices, boards, extension and saving and credits: proven in EU Asia and Zimbabwe;
- Micro credit/or farmers credit proven successful in Moz. Experienced parties exist, CCCP? GAPI?;
- For farmers irrigation is highly attractive currently tomatoes rain-fed and tomatoes irrigated net income of 6850 and 63350 MTN’s respectively;
- Feasibility: one pump can do 1/3 ha (10 m H);
- Low cost technologies adapted to Mozambique conditions;
- How to proceed?

Tasks for the workshop

- Discuss with the participants:
  - the main conclusions given above;
  - the feasibility figures irrigated agriculture and conditions under which;
  - the need for credit and savings systems;
  - the best loan structure (best practice) and loan terms for irrigation farmers;
  - the risks involved in such program (mentioning risks and mitigation);
  - need for a pilot program;
Escola de Artes e Oficios
Nhamatanda

Experiences with hand rope pumps, raising horticultural products

O Programa do ensino tecnico na EAO: 4 especialidades

- Agro-Pecuaria 73 estudantes
- Comercio 14 estudantes
- Instrutores Comunitarios 38 estudantes
- Construcao 9 estudantes

- TOTAL 134 Estudantes
A Machamba da escola

- Acerca de 40m da escola
- Profundidade da bomba: 13.5m
- Em 2007, serviu para:
  - Regar 1ha da horticultura
  - Agua de beber e tomar banho para mais ou menos 420 pessoas por dia
  - Usado para a construcao do novo dormitorios e a producao dos blocos
Resultados

- A bomba funcionou Abril até Setembro
- Rendimento: 1500Mts (cerca de 60USD)
- A venda:
  - Alface
  - Tomate
  - Cenoura
  - Cebola
  - Alho
  - Pimento
  - Couve
Dificuldades

- Falta de regadores
- Falta de sementes
- Roubo
- Problemas internos da escola:
  - O responsável das práticas de Agricultura ficou doente quasi todo o ano.
  - Falta de professores = falta das pessoas para organizar e controlar alunos na machamba
Utilização da bomba na horticultura em 2007

3 equipas de estudantes (aprox. 25 pessoas cada equipa) a trabalhar 3 dias por semana, 2,5 horas por dia.

Prospectivos 2008

- 2 época:
  - Feijao manteiga
  - Aface
  - Tomate
  - Cebola
  - Aho
  - Cencura
  - Bird’s Eye Chilis
  - Bata reino
  - Couve
  - Repolho
  - Pipino
  - Pimento

- Abrir 2,4ha
  - 1 época:
    - Milho
    - Amendoim
    - Feijao Nhemba
    - Abobara
    - Pipino
Prospectivos 2008 cont.

- Material suficiente (sementes, regadores)
- Construção de dois tanques
- 2 estudantes responsável pelo 4 canteiros, organizado pelo chefe de Agricultura
  - Rega duas vezes por dia
  - Controle de roubo de produtos da horta
  - Controlar a quantidade de produtos durante a colheita.
Prospectivos 2008 cont.

- Ver tabela
- Rendimento de 2,4ha com HRP:
  - Aprox 8 toneladas da hortícola
  - Aprox 68.000,00Mt = $2.650,00 USD
USDA (Departamento de Agricultura em Estados Unidos) em parceria com ADPP Moçambique no âmbito do programa Comida pelo progresso

ADPP Clube de Farmeiros Moçambique está implementando programas sub linhadas com MDG No 1

Que são:-

- Eradicar pobresa absoluta.
- Reduzindo a metade proporção de pessoas que vivem a baixo de um dollar por dia;
- O programa está complementar esforços do governo garantindo que existam melhoramentos de segurança alimentar nas pequenas propriedades da farma.
Os objectivos

Os objectivos são de aumentar os rendimentos da produção dos farmeiros e melhorar as suas riquezas; melhorando assim o sistema de conservação dos alimentos para as suas famílias;

1. O farmeiro aumenta a sua riqueza;
2. O farmeiro terá comida suficiente e nutricional para a sua família;
3. O farmeiro trabalha na sua machamba, melhorando o solo;
4. O farmeiro terá acesso de água numa extensão de 500 metros;
5. O farmeiro e a sua família estarão em bom estado de saúde;
6. A comunidade estará organizada para trabalhar em comum, comprando e vendendo seus próprios produtos.

Introdução de Clube dos Farmeiros

» A ideia de ADPP clubes de farmeiros e de organizar os pequenos farmeiros para unir as forças e recursos; para juntos adicionar a produção para melhorar as suas condições do nível de vida.

» O programa tem a base de organizar os farmeiros em grupos para aprenderem os métodos modernos de agricultura.
Localizaçao dos Programas

1. O programa está implementando em sete Província de Moçambique; Sofala, Maputo, Niassa, Manica, Zambézia, Nampula e Cabo Delegado.

Meta do Programa

A meta do programa é de assegurar que pequenos farmeiros no programa estejam saudáveis e tenham a segurança alimentar.
As exigências do programa de ADPP Clube dos Farmeiros

- A Participação voluntária: Tendo vontade de participar;
- Motivação: Tendo a vontade de se orientar;
- Dedicação: Desejo de ser comprometida.

Organização

- Os Clubes de Farmeiros estão organizados em 50 membros. Em cada clube existe um comité eleito pelos farmeiros para assegurarem a liderança e serem companheiros da administração individual;
- O clube dos Farmeiro são governado pela constituição que assegura a existência da disciplina em volta dos farmeiros;
- Lá existe Extensionista que trabalha com 10 Clubes composto por 500 membros farmeiros;
ADPP Clube dos Farmeiros

Tem 3 elementos no Programa

1. TREINAMENTO DOS FARMEIROS
   - Conhecimentos sobre agro-Pecuária;
   - Hortícolas e Fruteiras;
   - Planificações e gestão das machambas;
   - Melhoramento do solo;
   - Preservação da água para irrigação e a sua conservação;
   - Registo das suas farmas e assunto de meio ambiente.

2. Farmas e economia Familiar
   - Orçamento, Contabilidade e Registo;
   - Planificação de negócio e aplicação de Subsídio;
   - Emprestimo e financiamento.
3. Saúde, Higiene e Educação dentro da Comunidade

- Melhoramento das casas, Nutrição, Saúde e Cuidado as crianças.
- Acções na Comunidade para o melhoramento de meio ambiente.

Actividades do Programa

- Treinar os Farmeiros na diversificação e promoção das culturas de maior rendimento;
- Intensificar a fertilidade do solo e sustentabilidade da gestão de recurso naturais, incluindo a gestão de água e agro-florestal através dos treinamentos básicos;
1. Machamba moderna que se implementa a Agricultura de conservação em Malawi

Programa do treinamento dos farmeiros

Farma moderna

Farma moderna para servir de machamba de conservação em cada clube deve ter machamba de demonstração de Agricultura de conservação.
Algumas exemplos de onde o programa já iniciou

A horta Comunitário produz com sistema moderno.

Programa do treinamento de montagem de bombas a corda

Sistema de irrigação à baixo custo

Uso de bombas de corda
Programa do treinamento dos farmeiros

Vertiver nursery production Exp from other farmers club

Vertiver planted in fields as contours
Programa de acção comum

- Algumas exemplos de onde o programa já iniciou

Tree Planting is a priority.

Programme for farmer training

- Visitas de troca de experiências entre clubes

Exchange visits, builds in exchanging experiences