

**“Self-assessing local good practices and scaling-up strategies  
of sustainable agriculture”**

Eotulelo Farmer Field School Group

Likamba Village, Arumeru

Arusha Region, Tanzania

Soil and water Conservation to Conservation Agriculture Practices  
**{experiences and lessons from the efforts Eotulelo Farmer Field  
School – a community based organisation}**

January 2005

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# **“Self-assessing local good practices and scaling-up strategies of sustainable agriculture”**

## **A) Introduction**

Eutolelo FFS Group has been in existence since 2001 as a self-help community based group. Most of the original members were also involved with the RELMA soil and water conservation activities started in 1997 in the neighbouring Ngorobob Village.

From the very beginning a key motivation for the group and individual households was to find means to deal with the deteriorating natural resource base. Due to the fragile nature of the soil and land formation, the area is highly vulnerable to erosion with main fields converted into gullies. Therefore, starting with RELMA through to other Project interventions (including the SCAPA Project, Farm-Africa, and now the CA-SARD, the group have perfected and adapted what is proving to be feasible and viable sustainable agriculture practices.

A key element is the thrust of the group was they agreement to come together and address their common needs as a group. The farmers and specifically members of the group note this as a very important decision that has even made undertakings into conservation agriculture possible.

It was decided to focus the self-assessment on two interrelated elements of the group's success. These are:

- i. the technological practices on viable at the same time providing for sustainable natural resource management, i.e. the conservation agriculture practices, and
- ii. the group's self organization, management and capacity building/empowerment.

The two elements are highly interlinked as the two sides of the same coin, in the understanding the success, achievement and failures, difficulties and challenges and how the group addressed them.

Through farmer-to-farmer efforts the group has been instrumental in stimulating scaling up/out efforts in neighbouring villages and essentially one key lesson has been the combination of strong good group organization with common purpose of membership and the understanding and application of the conservation agriculture practices.

The closest the group has come to systematic monitoring and evaluation of its activities and conservation agricultural adaptation process has been through the FFS approach in the CA-SARD Project. Therefore, this Sustained self-assessment process is seen as further empowerment on the tools and process for self-learning.

## **B) Profile of the organisation/project**

The original motivation to start the now Eotulelo Farmer Field School Group (Eotulelo FFS Group) in Likamba Village was from experiences in the next village (Ngorbob Village) where the Regional Land Management Unit (RELMA) had in 1997 started working with the community on soil and water conservation. RELMA had at the very start facilitated a problem analysis exercise through which the villages prioritised contours and agroforestry as the key action points. This was to enable the village respond to problems, which the villages listed as the:

- alarming rate of destruction of the environment by soil erosion. The area's soils are fragile and highly susceptible to both wind and water erosion.
- poor farming practices, which the community noted as contributing to environmental destruction more than giving them yield rewards.

At the centre of these issues was the raising poverty, which the community noted was critically worsening with increasing difficulties to meet own food needs through the year and the general inability to pay for social services such as school fees and medicines.

The RELMA initiative in Ngorbob Village involved 30 to 35 households some of who came from neighbouring villages including Likamba village. However, efforts to apply the learnt practices, i.e. contours and planting of agroforestry trees, were continually frustrated as the contours or tress got destroyed by deliberately by neighbours (planted trees were up- rooted by unknown farmers to discourage their efforts) or livestock (usually grazing at night). In response, to this problem, the involved villages from Likamba village decided to form they own new group.

The Eotulelo Farmer Field School of the Likamba Village started in 2001 as a self-help community based organization. It was at the time a local initiative by a small number of villages coming together to explore ways they can collectively take up to address some problems, which affected them as a village, including an immediate one being destruction of the tree and contours efforts. The main local authority that could help deal with this problem was the Village Government, hence the need to organize themselves at village level.

The new Likamba group started with 20 household members. Their initial objectives were:

- Involve themselves in collective activities including soil erosion control, protection of environment (reduction of gullies), perform other income generating activities hence increase their income.
- To improve traditional agriculture so as to increase yield per unit area.

In 2002 the group was expanding and interacting with other external organizations on development issues. In this year, i.e. 2002, the group was also formally registered with the Government Registrar of Societies.

In 2004 the group from interactions with the Selian Agriculture Research Institute (SARI) got involved with the German-FAO supported Conservation Agriculture for Sustainable Agriculture and Rural Development and reorganised itself into the Eotulelo FFS Group.

## **C) Process of the self-assessment**

Through the linkages between the CA-SARD Project and the Sustainet-Africa component both of which are being implemented in Kenya and Tanzania, Eotulelo FFS Group got involved in the sustainet self assessment process towards the end of 2004.

As the group was not involved from the beginning, i.e. had no advantage of the training conducted for and with other partner organisations, Sustainet-Africa personnel had to spend time to explain to the Group leaders and CA-SARD group Facilitator what this Self-assessment was and the process involved.

The main part of the assessment was done by discussions of group members collectively and in smaller groups and also by visits to the fields. The team also discussed specific elements with village key informants such as the Village Government Chairperson and some local traders.

The assessment process was facilitated by Sustainet-Africa personnel (Martin Bwalya) and the group CA-SARD facilitators (Ms. Mariam Isreal) and National CA-SARD Project Coordinators (Ms. Marietha Owenya).

## **D) Results of the self-assessment**

### **PART I – FRAME CONDITIONS**

#### **1. PROJECT APPROACH AND INSTRUMENTS TO ENABLE SUSTAINABLE AGRICULTURE**

##### ***1.1. Selection of project areas and beneficiaries***

The Group, one of the most active groups in the CA-SARD project in Arumeru district, had presented interesting case of having evolved from a self-help community group into a vibrant self organized group and interacting with various government and NGOs on development issues. The CA-SARD project identified this group for the CA-FFS intervention, as one of the main and original thrust of the group has been sustainable natural resource management.

In this setting the Projects have also been directly targeting smallholder farming communities. The people of Likamba village are originally of the Masai culture, mainly as nomadic pastoralists. However, this group had settled in this location some 4-5 decades ago and have since heavily incorporated systematic crop production. Currently, a typical household is involved in livestock (cattle and other small livestock) keeping as much as in arable cropping. Land pressure limiting extensive livestock grazing is one other factor that have compelled more shift into arable cropping.

##### ***1.2. Identification of problems and solutions***

From its establishment, the group had continued with the RELMA efforts from the neighbouring village, which at this time were focusing on farmer training to grow trees, construct soil and water conservation structures, fodder planting including guatemala on contours as livestock feed and stabilization of contours. They also received training on how to construct improved cattle and goat shed, raising and caring tree nurseries, rain harvesting techniques, bee keeping, horticultural activities and slab making.

The RELMA Project selected three farmers (2 from Ngorbob and 1 from Likamba village, i.e. from the new group (Thomas Loronyo) to put up and manage demonstration trial plots. The following five treatments were involved in the initial set up of the demonstrations.

1. Ripper + Maize + Lablab
2. Pitting + Maize + Lablab (no ploughing)
3. Maize + Pitting + Mulch
4. Pitting + Maize (+ ploughing) ?
5. Farmer practice

At the end of the on-farm trials, farmers selected two crop production treatments out of the five as the most feasible and best performing. These were (i) ripping + Maize + Lablab and (ii) Pitting + Maize + Lablab (no ploughing).

Other reasons selecting these options was said as the advantage of doing main part of the field preparations (including ripping or pitting and manure application) during dry season. Pitting +Maize + Mulch - was not preferred because mulch was not readily available, and Pitting + Maize treatment was not preferred because it lacked an advantage of additional intercropped crop like lablab or beans.

Legume intercropping, especially of sweet beans and lablab (which was a new thing for the farmers) was highly desired as it provided a very profitable and easy to sell (high demand) cash crop.

With the CA-FFS interventions from the CA-SARD Project, the group have been able to even further refine their farming practices with regard to improving on the effectiveness and feasibility and viability of their sustainable natural resources management. From the initial focus on surface water control with contours, etc... The group has now intensified with within the field sustainable cropping practices including more understanding and application of soil cover options and rotations.

Additionally, the community have learnt to use lablab as:

- i) Food:
  - Green vegetable (young leaves)
  - Green/dried lablab beans (use as beans)
  - Food called Loshoro (mixture of pounded maize + milk and lablab)
  - Food called Makande (a mixture of pounded maize and dried/green lablab)
- ii) Livestock feed: - green fodder
- iii) Medicine:
  - Used by lactating mothers (enables them produce more milk)
  - Sick people (various sicknesses)
  - Used by pregnant mothers, believed to help avoid losing the pregnancies during early months.

### ***1.3. Awareness building and mobilisation***

As mentioned earlier, the initial awareness and mobilization efforts were linked to the RELMA soil and water conservation Project that was started in the area in 1997. The Project had employed public participatory approaches that allowed the community a critical analysis and hence awareness of what was at stake.

However, when the Eotulelo Group was being established in 2001, the local Village Government was used as the main drive in drawing consensus and mobilizations of energies into the setting up of the group as a collective self-help effort.

All village undertakings such as village meetings (for what ever purpose) were used to inform and educate the community on the need and the undertakings of the group.

The group had also included in its functions the element of collective social responsibilities. This was also an attraction as community members saw the advantages of more deliberate community support in difficult times. The members also engaged in some income generating activities such as vegetable gardens, local chickens. The group was also making and selling pit latrine slabs. These were the other factors that proved attractive to more members and a general positive attitude from the community towards the group's efforts.

### ***1.4. Project planning, implementation and follow-up***

The CA-SARD Project intervention support on conservation agriculture and farmer field school approach came essentially as part of the plan by SARI to strengthen and streamline support in the adaptation of NRM practices for the Eutolole group as a case example in Arumeru district.

With the Project itself planned at national and regional level, there was no direct input from the local communities. The local communities, including in this case the Eotulelo Group, had chance to input at the stage of putting the plans into action. The groups input was instrumental in (i) refinement of the trials options, with regard to ensuring local appropriateness and feasibility and in

(ii) target communities and households.

In almost all cases the farmer groups that took to implement the Project had already existed in one form or the other even before the Project. Some were heavily on agricultural and rural development, while others, especially the women groups were social efforts for mainly individual and collective social needs.

The Project arrangement was formally channelled through the local Agricultural Extension Office. This linking and involvement of the local/village agricultural extension offices has proved useful in ensuring local extension support and follow-up which is arranged and provided by the area agricultural extension officer who is also the group's facilitator.

In this way, the Project has in place a mechanism for Project implementation and provision of the needed backstopping and follow-up support. This runs from the local group facilitator through the district facilitator to national level coordinators. This systems also function in identifying and bringing external specialists.

### **1.5. Local documentation**

Additional to the standard Project recoding keeping and reporting system, which includes monthly submission of the district reports to the National Coordinators who compile a quarterly Report for the Regional Office.

The farmers at group level have two avenues through which they directly participate in the documentation of (their) experiences. These are:

- i) The CA-FFS intervention has an integrated Monitoring and Evaluation process, which also allows on-going self-evaluation and learning. This process enables the group to capture and document experiences (what is being done and the effects/results of the action) from the applications of CA both in the group plots and in their own private plots.
- ii) The FFS approach also requires farmers in their groups to undertake what is referred to as the EASA. This process also enables the group record performance/responses of the crop and the environment. One limitation currently is the EASA process is that the mechanism to synthesis the EASA record and feed this information back in the learning process are weak.

### **1.6. Capacity building of local institutions**

It is important to first realize that the FFS approach is about "schools" and not necessary "groups". The practice has, obviously, been that farmers pick up the learning elements (as a school) within they existing group or get organized as a group to allow themselves take advantage and function as an FFS school. Also the elements of a "farmer school" are practically realized by building and strengthening farmers groups. The characteristics of a good and functioning farmer groups are equally essential in a farmer field school.

It is for this reason that the CA-SARD Project places some effort on ensuring strong and positive group dynamics in a farmer field school.

Logistically, the CA-SARD Project facilitated the groups to register with the Government Registrar of Societies, hence existing in their own right as a formal entity. The groups, i.e. including the Eutolelu Group (focus of this assessment) have also received support and information/knowledge guidance in establishing a bank account, ensuring popularly elected leadership, transparent and collective decision making process and other elements that allow mutual interaction and learning as a group. The initial FFS grant given to the group was for most of them utilized as initial deposit for opening of a group bank account.

The Project continue to organize for the groups and its leaders training in various aspects of group organization and management, including aspects such as Project formulation, monitoring and evaluation, report preparation, etc...

### **1.7. Overall project expenditures**

### **1.8. Exit strategy**

The Eutolelo FFS Group is at the moment being supported (technically and/or financial loans/grants) in various aspects by different Organizations/Projects. The exits strategy is here discussed only with reference to the CA-SARD Project intervention.

With two key components of the CA-SARD Project intervention, i.e. CA technologies and the FFS learning approach, the intervention is inherently expected to run only for a specific period to allow completion of the set CA curriculum. From then the group is expected to run by itself with regard to further self-learning but also in stimulating and undertaking training of other (new) farmers.

The intervention have some elements which are critical to an exist strategies that allows and ensures dynamism and sustainability in the groups abilities and efforts to management the processes and activities. These include:

- the learning materials grant
- local facilitator

Key post-project sustainability questions arise with regard to the grant which unless the group or other groups can innovate other collective income sources for the group it will be difficult for the groups to sustain the self-learning as been facilitated during the Project support phase.

A local facilitator has been noted as an essential component in enabling the group (or other FFS groups) relevant technical and logistical backstopping some of which is highly critical especially in the group's initial stages. The facilitators remain useful in linking up the group to other organizations or initiatives including source for technical and logistical information. The positive element in the Project implementation with regard to a positive exist strategy has been to allow the farmer groups to pay (from the Project grants) the facilitator. In this case the group employees the facilitator and is able to link the payment to the tasks/value that he/she is giving them. Without Project grants, the group is aware that it has to mobilize own resources if it has to utilize the services of a facilitator.

### **1.9. Fostering and hampering factors**

The Village, like make others in the area, had been used to development efforts driven by external efforts through Projects with a lot of incentives for the locals to participate. Though probably not the first time such an approach has been used in the area, many community members had been reluctant to participate because they was no seed, fertilizer or food to be distributed to those getting involved. This has been one factor hampering wider participation as those not participating were also actively discouraging those willing to participate.

For those willing and generally for the whole village, growing problems of food insecurity and poverty with many of them having their fields (contours, tree nurseries) destroyed by free range grazing, compelled some to be interested as they were already actively looking for solutions to especially problems of food insecurity. So, one can note that the problem existed with the community aware of it made many households to join as only hope for some to get solutions.

## Summary

## **2. LOCAL CONDITIONS RELEVANT TO AGRICULTURE**

### **2.1. Natural conditions**

Arumeru district is in Arusha region in the northeastern part of Tanzania. Arumeru district has been experiencing frequent crop failure due to erratic rainfall, poor rainfall distribution. Limitations in rain water harvesting techniques and inadequate crop diversification has made the impact of poor rainfall distribution even more severe. About 60-70% of farming in Arusha region is mechanized with usage of tractor drawn disc ploughs and mould board ploughs and animal drawn implements. The remaining portion is done using hand hoes. Therefore farming results to heavy destruction of soil structure, depletion of soil fauna and loss of soil moisture.

The vast majority of rural households depend to a large extent on crop and livestock production. Agriculture does not only provide food for consumption, it also provides income, shelter and energy to households. Small scale farmers are obliged to cultivate their land as often as possible in order to assure their subsistence. Overgrazing, deforestation and intensive agricultural use are the major factors for soil destruction in Arumeru districts.

Rainfall in the area is strongly seasonal, falling in two main periods, the "long rains" from March to May and the short rains in October-November. There are considerable fluctuations in monthly totals. The annual rainfall is estimated at an average 750 mm. The alternating wet and dry seasons have considerable importance with regard to erosion development. The long dry season (may to October) allows soil to dry out thoroughly and formation of deep cracks. In addition the vegetative cover dies off exposing bare soil. Soil is further exposed and even loosened by livestock grazing and tramping. Created are excellent conditions for soil erosion either by wind (which in towards the end of the dry seasons could increase up to 250 km/hr) and rainwater erosion when the rain starts.

The soils in and around the village are characterised by uniform profile, the formation of deep cracks during the dry season and the presence of calcium carbonate concretions throughout the profile. These features, together with the high clay content (>60%) suggest they could be classified as vertisols (Buringh, 1968).

### **2.2. Socio-economic, cultural and institutional conditions**

Once a typical Masai clan, the community of Likamba Village have over the years radically transformed into settled agro-pastoralists. In the 1950, for 80% of the time and resources, one would describe them as pastoralists. This was the main preoccupation and source of livelihood. Day-to-day living was also very much tuned to the tasks of looking after their livestock – mainly cattle. This made them nomadic as well following pastures for their livestock.

Currently, crop produced in permanent settlements has become more prominent. Among the factors that compelled the change included the reduction in grazing land as populations increased. Livestock keeping is now more-or-less a reserve activity to provide for difficult times or in emergencies such as funeral. Crop production is seen and undertaken as the main source for livelihood (food and income). Now a typical household own an average 2 cows and a few work oxen while previously one household would have at least a herd of 100 cattle.

Plot size have greatly and rapidly declined as land is subdivided to cater for adult children (adult male children once coming off age have to get a allocation of land from their parents for them to start own life – marry, etc...). A typical household now has an average 3 acre plot for cropping activities. Between a few households, usually with extended relationship, they would be another 1 to 3 acres collectively used for livestock grazing.

Maize is the main crop grown in many cases in mono-crop systems from year to year. In the last 10-5 years, there is growing cases of intercropping and rotations with crops such as cowpeas, sweet beans becoming popular field crops.

Family size range from 5 to 8 members; on the upper size, a family with 15 members is not uncommon. The district has a population of over 321, 835 and a density of 109 persons/km<sup>2</sup> (1995 estimates). Settlement is in nuclear family units, though there are a lot of extended connections from household to household. However, the nuclear family is the normal production and consumption unit; that also means that resource ownership and use is normally restricted to the nuclear (father-mother-children) unit unless or otherwise.

The village is organized around a village government, which is an elected committee. The village government concept originates from the then not so popular government socialists Ujaama philosophy that was implemented in Tanzania in the 1970s. Unlike in other societies where a structure like the Village Government would be clan-based and passed on through generations, the leadership/membership on the Village Government is not restricted to any clan/family. The village members are all free to aspire for this responsibility. The community start by nominating some community members who are then subjected to an election. Someone can be re-elected on this committee for as many times as they are willing. Women are also free to stand for any position in the Village Government and its sub-committees. The main village Government is divided into smaller sub-committees with various functions, e.g. security, welfare, etc...

Summary

## PART II - GOOD PRACTICES OF SUSTAINABLE AGRICULTURE

### 1. CHANGES IN AGRICULTURE PRACTICES AND THEIR TECHNICAL APPROPRIATENESS

#### 1.1. *Adoption of sustainable agricultural practices*

Various components in the conservation agriculture practices could be identified and also classified between those done in the beginning (usually adopted at the started), then the second level of transition practices and the final stage practices.

Whiles adoption of conservation agriculture is noted in all the main household categories, closer look at these trends have indicated that though all are adopting, they do so for different reasons. Some of these reasons are underlined by the socio-economic and traditional category and disposition of the household. This highlights an important factor in understanding adoption or none adoption decisions.

Whiles for the poorer households it would be survival strategies with higher risks, but also given in to fate with a feeling of “nothing to lose”, for the more financially able it would be adventurism or simply demonstrating that financial or social might.

This also goes to explain why the poorer households expected to be at margins of survival appear to go ahead in adoption. This may also relate to the fact that the poorer households who are also aware of their difficulties have one of the key benchmarks in starting to look for a solution – noting and accepting that there is a problem. Some development efforts have passed very unsuccessfully because after noting a critical problem in a community (which may well exist) have gone on to provide solutions without taking time to ensure that the local community felt the same about the issue as a priority problem that needed solutions.

Conservation Agriculture (CA) is being understood as a system of farming that conserves, improves and makes more efficient use of natural resources through integrated management of available soil water and biological resources. The fundamental principle underlining CA practices is to achieve sustainable soil-water productivity through crop rotation, reduced disturbance to the soil structure, protection of the soil from direct climatic impacts such as solar radiation, rain and wind, enhance water infiltration and build-up of soil organic matter and soil organisms.

In Likamba Village with relatively narrow range of differences in socio-economic and financial abilities across households, access to relevant knowledge also played a critical role in who adopted most and faster. Distinction can also be made here as to what information a particular community category had most access to – distinguishing between men and women, young and old and the children.

Aspect of local champions was another factor noted in the adoption process and trends in Likamba Village. This has often been persons/households with a combination of “knowledge and resource power”. An interesting element here is that those with only political power have always come behind and not as champions or innovators unless their political power is combined with resource and/or knowledge power. However, what is also true is that those with political power have been very effective (either deliberately or by simply not being interested) in hampering positive progress or even the coming up of those local champions/innovators.

Table 6 indicates the key components on the CA practices with discussion on extent of adoption and by what categories of households.

Table 6: Key components on the CA practices with discussion on extent of adoption and by what categories of households

| Key CA components (options) |  | Key requirements /challenges for adoption   | Extent of adoption in Likamba village  | Main categories of h/holds adopting  |
|-----------------------------|--|---|--|--|
| Initial options             | Controlled grazing                                       | <ul style="list-style-type: none"> <li>- social acceptance and collective agreement by the whole community</li> <li>- Herding labour</li> <li>- Availability or access to fodder and other supplementary feeds</li> </ul>                                     | <ul style="list-style-type: none"> <li>- Widely adopted even by those h/holds not (yet) applying CA</li> <li>- Village has also put in place by-laws to enforce and punish offending h/holds in restricting general grazing. Grazing is only allowed in designated lands.</li> </ul>                                 | - This is for livestock keeping h/holds, which in Likamba is almost all h/holds. These with cattle and larger herds are usually more financially able.   |
|                             | Controlled fires   | <ul style="list-style-type: none"> <li>- Just like grazing was noted as a community problem which required community agreement and code of conduct.</li> </ul>  | <ul style="list-style-type: none"> <li>- Same as above. The control of bush fires is also part of the village by-laws</li> </ul>   | - All village. Usually the culprits are the children and their parents suffer the consequences   |
|                             | Basins or ripping for land preparation (reduced tillage) | <ul style="list-style-type: none"> <li>- social attitude/myth that field should be plough for crop production</li> <li>- adequate knowledge and confidence on the new practice</li> <li>- Basins (pitting) was regarded as highly labour intensive</li> </ul> | <ul style="list-style-type: none"> <li>- All the members of the FFS group have at least 75% of their land on basins or ripping (this adoption goes with use of manure)</li> <li>- Others, non-members in the village and in neighbouring villages are increasingly getting interested and many trying out</li> </ul> | - All categories are getting interested and trying out. However, the poorer h/holds seem to have less difficulty making the decision to adopt as it appears they have less to lose                                   |
|                             | Contours + storm drains                                  | <ul style="list-style-type: none"> <li>- knowledge to locate and construct the contours</li> <li>- energy and time required in construction of the contours – which often was regarded as too demanding</li> </ul>  | <ul style="list-style-type: none"> <li>- This was the starting point for most h/holds as it appeared to directly address the problem at hand – erosion. Almost all h/holds in the village adopted. However, over half have not been able to maintain them</li> </ul>   | The very poor h/holds have had great problems in maintaining the contours both in terms of providing the required time and energy, but also as a factor of access to relevant knowledge and maintenance requirements |
|                             | Planting of trees and fodder crops on the contours       | <ul style="list-style-type: none"> <li>- Less than half of those who started with the contour have gone on to use the contour space to grow trees or fodder crops partly as a way to stabilise the contour.</li> </ul>  |  |  |
|                             | Trees – reforestation                                    | <ul style="list-style-type: none"> <li>- Up-rooting by less interested community members, children and livestock</li> <li>- Availability of valuable multi-purpose tree species</li> <li>- Meeting the tree water needs during the long dry season</li> </ul> | <ul style="list-style-type: none"> <li>- Very few even among the FFS group members have managed to sustain building of small forests on their plots. In successful cases this has provided for bee keeping and as wind breakers, among others uses</li> </ul>  |  |

| Key CA components (options) |                              | Key requirements /challenges for adoption   | Extent of adoption in Likamba village   | Main categories of h/holds adopting                               |
|-----------------------------|------------------------------|---|---|---|
| Transition options          | Rotations and intercropping  | <ul style="list-style-type: none"> <li>- Identification of other crops that could be planted</li> <li>- Value (additional) of those extra crops</li> </ul>  | Widely adopted as been inclusion of legumes (beans) in the cropping sequence. Women take more responsibility for this as the beans often relate to direct home consumption needs  |   |
|                             | Soil cover – Crop residue    | - The grazing and bush fire issues dealt with above are the main challenges in this regard  | This is now noted on many fields. Even those not applying CA have more crop residue left in the field. The main limitation and extent of cover remains as a factor of the total biomass (still low in most situations)  |   |
|                             | Micro-dams                   | - Was a big challenge for Likamba village, as the exercise is had to be done manually at the time when hunger was at its peak in the village. So, sometimes mobilisation of the community for the project was difficult as many had food related priorities | - In Likamba village 20 micro dams have been constructed. Not all of them have performed as well. Either poor sitting or deep percolation problems.   | - Was executed as community project in central locations          |
| Refinement options          | Soil cover – live cover crop |   | The main crop being adopted for soil cover is lablab. This crop has existed in the area, but usually planted in backyard garden in very small quantities for usually medicinal use. The growing realisation and acceptance of other uses has made it grow in popularity and become a field crop intercropped in maize. There is also a growing (external) market for lablab seed with a good price. | All, but those more exposed and innovators have been going first. |

An important and interest point to note here is that in the process of adaptation and adoption of these conservation agriculture practices, the farmers collectively and individually have been involved in various other activities which mostly provided them with immediate cash income. These activities were made possible by the fact that the farmers had come together in group on the interest of conservation agriculture/NRM but took the opportunity to do other communal activities such as making toilet (pit latrine) slabs, local chicken and vegetable garden.

The importance of these activities is that the income from such activities helped at group and household level to mitigate the investment (time and money) required in the adoption of conservation agriculture practices. Many households will more willing and able to allocate they time, energy, land and some inputs to trying out a CA option, because the other side activity/enterprise had given them some form of security for at least the food needs.

## 1.2. Changes in inter-farm linkages

| The Factor   | Noted changes in inter-farm linkages induced by the practice   | Reasons for these changes  |
|--|--|--|
| Farm labour and labour use   | Households involved with CA have indicated a wider spreading of labour requirements through the year, i.e. over a longer period. As members of the groups, it has also become possible that the group spend time working in one member's field. This way, especially the very old and disadvantaged have had the work done and done in time.   | Members of the group seeing and taking more collectively responsibility and with the application of CA all have some time they can spare for such collective activities.   |
| Perception and attitude on communal resources such as communal grazing land, roads, water points and streams | Group members and the community in general are coming from a background where community development and care/ownership for all community resources was a responsibility of government. The CA-FFS approach has made many community members take ownership and responsibility for community property, including this like public roads.   | Community was becoming aware that the degradation in their field could not be controlled unless the effort was collective and done even in neighbouring fields.  |
| sharing of knowledge   | Members of the group now sit and opening share ideas and experiences on their farming. In the past this was equal to helping or giving knowledge to a competitor.<br><br>Many of the Eutolelo group members have also gone as resource persons (informal) to other villages and willingly explained CA   |  |
| Livestock ownership and grazing patterns   | Very significant changes have happen in this regard:<br><ul style="list-style-type: none"> <li>- Village now has widely accepted by-laws governing communal livestock issues. It is now easy to deal with cases of livestock damaging other people's crop.</li> <li>- To avoid problems livestock owner (almost everybody) have made sure that there is good care for the livestock. Have done this by reducing the number, growing of fodder for supplementary feeding, etc...</li> <li>- Moved the livestock to far away holding plains</li> </ul> | <ul style="list-style-type: none"> <li>- Heavy punishment (usually fines, and if its trees the own of the animal has to plant a new tree and take care of it until it's the size of the one destroyed) for offenders</li> <li>- General positive appreciation for restricted livestock movements</li> <li>- Farmers/community aware of the benefits of letting trees grow and soil not disturbed.</li> </ul> |
| Finances and household access to   | There is increase in disposable income in an average household; but even more important has been the stability in this income source and   |  |

| The Factor                             | Noted changes in inter-farm linkages induced by the practice   | Reasons for these changes  |
|--|--|--|
| finances                               | the fact that to a certain extent one is more sure of that income.<br><br>Through group savings (never possible before) a household also has access to possible finances they can use (borrow) for investment or in difficulty times.  |  |
| Richer-poor relationships and linkages | The group have allowed everyone regardless of social status and this has improved relationship across social classes. Even though for different reasons, all seem to be well adjusting in adoption of CA. There is also more positive support for those unable, e.g. old couples – positive in the sense that its not any more like getting ride of excess but human desire to help. |  |
| Physical changes                       | Reduced erosion has been seen and felt across the fields and plots. Gullies, which were running from field to field and across footpaths and road are being converted into productive land.  | More soil cover and increased rainwater harvested into locations it is falling hence reduced flow. |

### **1.3. Local ownership**

The application of conservation agriculture has been noted as in many aspects very well within local beliefs and practices.

It is generally believed in the area that use of inorganic fertilizers eventually makes the soil infertile and that there will be no yield from that field unless the fertilize (inorganic) is used. The local people believe fertilizer is organic (kraal or composite) manure. This is compatible with conservation agriculture, which while not discouraging use of inorganic fertilizers acknowledges that organic fertilizer is essential in sustaining both the physical and chemical fertility of the soil. What Conservation agriculture has done is to explain some things farmers have been aware of such as declining productivity in a case of extension use of mineral fertilizers and no organic fertilizer.

Only making planting holes and place seed was an acceptable practice once upon a time. However until the advent of conservation agriculture such a practice came to be regarded as unacceptable and only for poor households. It was also a sign of disorganized household unable to plan and do the ploughing in time – it was only done when you have failed to plough. Conservation agriculture has brought credibility to this practice meaning that even those without much labour could work and crop sizable portions of cropland.

Conservation agriculture has not introduced any typically new crop but allowed new uses and more production for crops that could have been grown only as backyard garden crops.

The fact that farmers have been able to select and start from different aspects of CA has enabled them see CA as “friendly” and adaptable. Some farmers start with reduced tillage, i.e. basins or ripping while others start rotations and intercropping. In almost all cases, farmers have started adoption on a smaller portion of their land and expanding year after year.

With regard to inputs, one critical input/item required that is sometimes a constraint is appropriate equipment for those using draft animals, let alone tractors (Note: there are a few tractors in the village, but used more for transportation than cropping field work). Access to appropriate conservation agriculture equipment is usually a big problem. Some of these equipment cannot even be found in shops even in big centres like Dar-es-salaam.

## 1.4. Comprehensibility, maintenance and repair

### Summary

Conservation agriculture is a good (feasible and viable) way to farm. It requires radical change in the people's (farmers and all other involves including the extension staff) mindset. This requires patience and concerted effort from all involves from development NGOs, government and the private sector. Farmers require sufficient motivation and help in mitigating possible risks and disruptions in day-to-day life activities.

## **2. ENVIRONMENTAL FRIENDLINESS**

### **2.1. Soils**

Putting literally, the farmers applying CA were quoted as say, “now we have soil”. This is in reference to the fact that in conventional practices cropping fields are cleared bare of all the top soil – remaining exposed is the hard, rocky infertile sub-soil. With conservation agriculture – both water and soil held within the field, both kraal manure and crop residue going towards organic matter replenishment farmers have observed rebuilding of soil including some life activity (worms and microorganisms) in the soil. With increased soil activity, especially water retained and available for plant use on a much longer period, farmers are also able to grow more and even in terms of the resulting total biomass (weeds included).

Though with training and awareness and access to external inputs some households are getting to also use some mineral fertilizers, some good yield (in quantity and in stability) has been observed even with manure use only.

### **2.2. Water quality and quantity**

Let alone quality, the application of conservation agriculture has simply made water much easily available in many households – both for domestic use such as washing clothes and utensils and for their livestock. Normally one had to walk long distances up to 8 km to fetch water.

This impact on water availability has gone beyond just the practicing households, as even non-practicing neighbouring households are able to utilize the water from the collecting ponds.

### **2.5. Fostering and hampering factors**

Initially many farmers were not able to cope with the challenges of adopting conservation agriculture. Reasons included mere reluctance to change/take up the risks, rainfall uncertainties and social problems such as destruction of trees, live cover crop and contours by animals. Lack of implements was another key limitation for many households. The matter was worse and more complicated in cases when the local agriculture extension staff were themselves not knowledgeable or unconvinced about conservation agriculture.

Other key challenges that at some instances discouraged or hindered adoption included:

- Weed management which appeared to be more demanding with reduced soil disturbance,
- Availability of seed and other planting materials for new crops especially cover crop seed.
- Appreciating the long term implication in CA adoption, farmers were unwilling to apply the same on borrowed land.
- Farmers with very small portions of land (an acre or less) had difficulty introducing rotations

Summary

### 3. ECONOMIC AND FINANCIAL VIABILITY

#### 3.1. Contributions to the local economy

The group income generating activities with conservation agriculture based field work have regenerated the cash economy in the village. When I was existed, it was moved by the selling of livestock to the urban markets.

Crop production is now said to provide more viable business and significantly higher in terms amount of money brought in. Whiles livestock would provide manure (an average household have 1 cow, 5 goats and/or sheep, 5 chickens and 1 donkey) and security for quick cash money needs, CA based crop production is said to be growing in reliability and in amount of cash realised. For example, a Maize + lablab intercrop would provide food for the household (both maize and lablab) and cash. There is also animal fodder and medicinal/herb both of which can also be converted into cash.

In an average season, a household would harvest 15 to 20 bags of 100 Kg maize grain from one acre. A family with 3 acres will harvest at least 45 x 100 kg maize grain and would sell about 40% of this harvest.

The same family would harvest and sell upto 2-5 bags (120 kg per bag) of lablab beans. The yields of lablab differ from upper Likamba (2 bags) and lower Likamba (5 bags). Three tines (3 x 20 kg) of lablab are left for home consumption and seed and the rest is sold.

Farmers reported that black lablab is highly marketable as compared to others. Comparison between legumes showed that lablab ranked first.

In terms actual cash realized, it also matters at what stage in the year the crop is sold. Table 10 presents maize and lablab prices at different times.

*Table 10: Price for maize and lablab at different times of the year*

| Crop   | Selling Price                       |                            |
|--------|-------------------------------------|----------------------------|
|        | During harvesting time              | Towards planting season    |
| Maize  | TSh. 10,000 – 12,000 per 100 kg bag | TSh. 18,000 per 100 kg bag |
| Lablab | TSh. 40,000-50,000 per 120kg bag    | TSh. 100,000 per 120kg bag |

Farmers reported that lablab is drought tolerant crop as compared to maize and beans, in case of serious drought maize and beans will vanish while lablab will remain. Two types of lablab were mentioned; indeterminate and determinate varieties. Farmers prefer determinate type because it is not affected by too much rains/moisture and matures uniformly. The indeterminate type grows more vegetatively and matures in phases (not uniformly), therefore require more labour during harvesting.

On the other hand, prices (i.e. possible income) for livestock is one cow would be sold for between TSh. 150,000 and 200,000. An adult ox can go for 200,000, while a young one can be sold for around TSh. 100,000. Goats sell at between TSh. 17,000 and 20,000 depending on the health status of the animal.

#### 3.2. Financial viability

Compared to costs the family has to incur, the system comes out as highly profitable even when a cost is put on the family labour (which is usually not charged). Main costs incurred are on seed and fertilise and sometimes and in some cases on hired labour. This is also because the systems have been adapted on intensive use of locally available resources whose main cost is the time and

energy (family or hired labour) used in collecting, transporting and applying/using.

Therefore, simple calculation (i.e. without complicated considerations for current and future values, economic costs, etc....) a household would retain upto 60-70 % profitability. It should also be noted that these households are using very little if at all of inorganic fertilizers.

### ***3.3. Fostering and hampering factors***

Summary

## 4. SOCIAL AND CULTURAL ACCEPTANCE

### 4.1. *Respect to local traditions and belief systems*

Part of the main challenges to the adoption of conservation agriculture has been compatibility with socially accepted and widely practiced norms. This is also the area that the group could be noted as achieved greatest non-technical impact - Impact just as important as the technical conservation agriculture application.

The main social challenges can be distinguished as:

- i. self organization into groups that takes collectively responsibility for community development
- ii. accepted livestock keeping practices also noting that the community is coming from a once nomadic 100% pastoralists tradition
- iii. others (see below)

The community, though with a lot of extended family connections and an accepted political village government in place, the village still had great difficulties in managing issues that went beyond the household. A case closer to this subject matter was the management of livestock which everyone agreed the solution had to be at community level but could not get round to any workable mechanism.

With all the attributes of owning livestock in a household, the village was aware of the consequent destruct impacts from main the free loaming and uncontrolled grazing livestock keeping patterns. The livestock destroyed contours, were damaging the trees and the trampling was only loosening the soil for easy erosion.

The village government, expected to be an authority on community matters in the village, reacted very slowly to reports of one household's livestock destroying another's crop or contours, etc... And when the action came it was often no more that a weak advise to restrict ones animals.

With the build up and appreciation of group approaches, the village has been able to come together and agree on communally respected norms and standards for livestock management. The community has even gone further to put in place mechanism for punishing the offenders – mainly based on providing compensation to the offended. The offending also pays a fee to the village government, which goes into the community bank account.

Other related social, cultural and traditional norms include burning of crop residue widely practiced and accepted as part of land preparation. This is significantly changing both in attitude and in practice – apart from penalties given to household originating a bush fire, the change could also be attributed to the fact that the community is seeing the immediate positive impact with regard to reduced dust (wind erosion), less water erosion.

Application of conservation agriculture also demanded more open and direct interaction between women and men at community level and husband and wife in a household. To an extent this also implied cutting across accepted gender classification in duties and responsibilities. Instead of women taking responsibility for household food crop production and men responsible for the cash field crop, CA demands integration of the two compelling more women-men interaction with both men and women jointly taking up the once gender classified tasks such as land preparation (for men) and weeding (for women). Likamba village, despite being of the culturally strong Masai community has well adjusted to this. It would be interesting to investigate further how this has come about. Women members in the community indicated that the problem is usually with men refusing or pretending to refuse to accept the changes and that this is at the moment an individual's attitude problem.

## 4.2. Perceptions of different social groups

Though the rationale may vary, both richer and the poor/disadvantaged households have much the same regard for conservation agriculture. The poor/disadvantaged are more emotional about the subject as for them it's much closer to survival concerns. The poorer households just want to do it because they have seen it works, while the richer, often more exposed and able to read and write are going out for a little more understanding of the explanation for what is happening or could happen with application of the various conservation agriculture options. Therefore, when the better-off households are adapting and innovating its more from a deeper and wider understanding of the dynamics involved while the poorer are adapting and innovating more to minimize risks and based more on their indigenous experience and understanding of soil-water systems in crop production. The better-off households are also usually the younger to middle aged households.

Through the FFS group dynamics there is a lot of open sharing and respect across different social categories.

## 4.3. Organisation of labour

Eutelulo group members have recorded remarkable shifts in labour use. Land preparation of an acre used to take 4 persons working for 2 to 3 days. With conservation agriculture, i.e. reduced tillage (ripping, only to make planting lines), 1 to 2 persons are able to work an acre or more per day. Previously or even now in conventional farming practices, land preparation (ploughing) is regarded as a heavy and difficult work and is hence only done by men. Women were/are only involved by making sure the working men are getting their supplies of food, water and sometimes drink.

In conservation agriculture systems, land preparation (ripping) and planting can be done by either men and /or women. Construction of contours is still done by men; women stay at home and do other activities/things.

Monthly general (farming and other activities) labour demand over a year was analysed by farmers and results are as indicated Table 7.

Table 7a: Ten years ago:

| Month     | Labour demand |       | Reasons   |
|-----------|---------------|-------|---|
|           | Men           | Women |   |
| January   | 3             | 3     | Too much work, need enough labour for planting (whole family)       |
| February  | 2             | 3     | Weeding and re-filling of maize and beans (mostly is done by women. |
| March     | 2             | 3     | Weeding and completion of re- filling                               |
| April     | 3             | 3     | Planting of beans is done by both men and women                     |
| May       | 1             | 3     | Observation of the field, no much work                              |
| June      | 2             | 2     | Average work; observation of the field                              |
| July      | 3             | 3     | Harvesting of maize starts  |
| August    | 3             | 3     | Too much work; peak of maize harvesting                             |
| September | 3             | 3     | Harvesting of maize   |
| October   | 1             | 2     | Threshing of maize, beans   |
| November  | 1             | 1     | Resting time  |
| December  | 3             | 1     | Land preparations   |

Table 7b: Current situation

| Month     | Labour demand |       | Reasons                             |
|-----------|---------------|-------|-------------------------------------|
|           | Men           | Women |                                     |
| January   | 3             | 1     | Land preparation mostly done by men |
| February  | 3             | 1     | Land preparation continues          |
| March     | 3             | 3     |                                     |
| April     | 3             | 3     |                                     |
| May       | 2             | 3     | Weeding mostly done by women        |
| June      | 1             | 3     | Women mostly do harvesting.         |
| July      | 2             | 2     | Harvesting of maize starts          |
| August    | 3             | 3     | Peak of maize harvesting            |
| September | 3             | 3     | Harvesting of maize                 |
| October   | 3             | 3     | Completing harvesting               |
| November  | 2             | 1     | Average work for both men and women |
| December  | 3             | 1     | Land prep, ripping                  |

**Key:**

Labour workload; 1= light work; 2 = Average work; 3= Too much work

Table 8a:

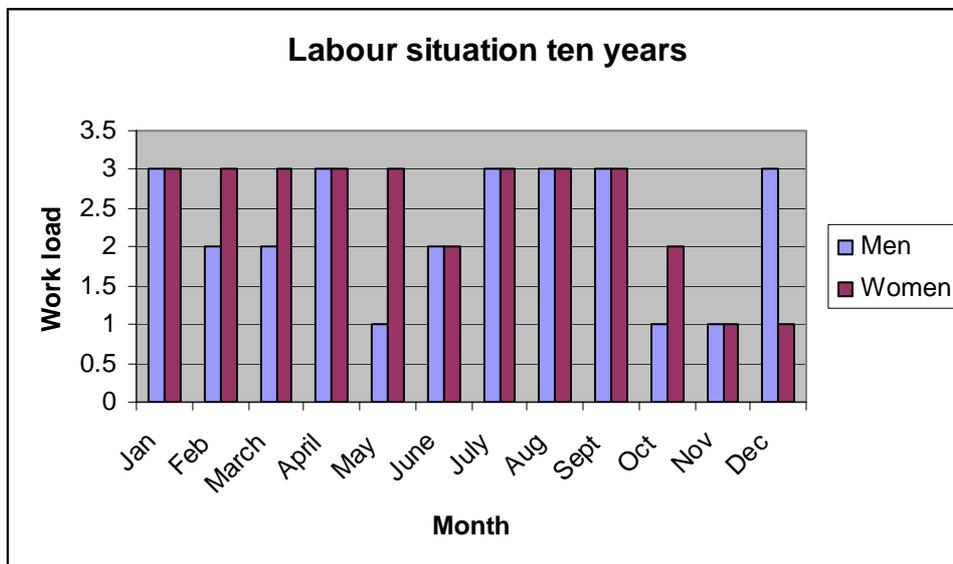
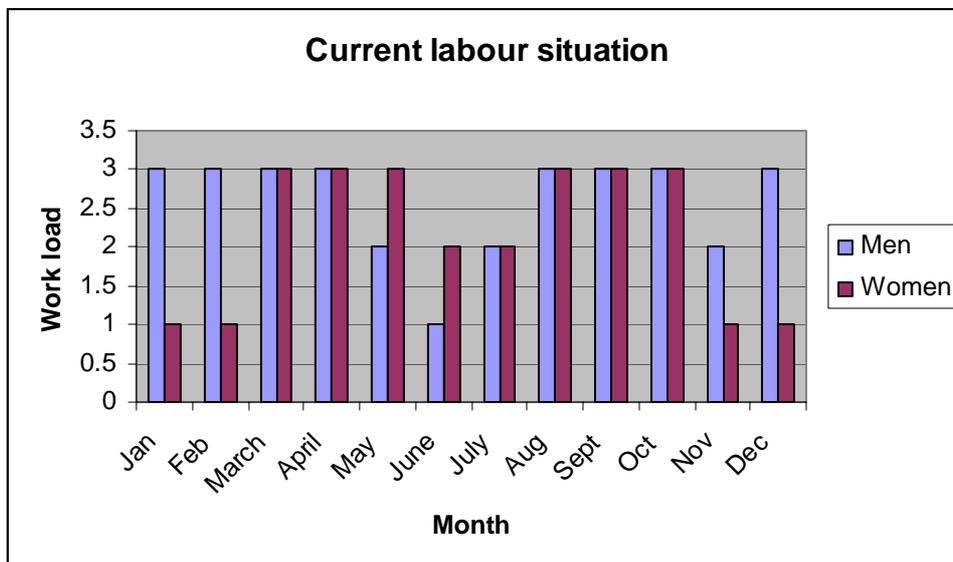


Table 8b:



Over a longer period and taking into account all the tasks to be done in a typical households, men have found themselves with more work in CA systems (Table 8). Both men and women were quick to qualify that this may be negative when reward are not forthcoming and usually, people have only complained before they start. After getting involved, they appear to realize the results are worth the labour put in. It also brings the men that status of a busy working head of household. This is probably the aspect were one can find the explanation why households that have not attempted (yet) always say its labour intensive while those practicing say labour demand is manageable.

Hiring of labour also increases with the households practicing conservation agriculture. This is usually because of the expanded areas that have to be worked and not intensive demand over a short period. The hiring of labour is also sometimes only about expressing the ability to do so – gives the household a certain standing in the community.

#### **4.4 *Fostering and hampering factors***

With growing urbanization in and around Arusha town (about 30 minutes drive from Likamba) some people, especially the younger ones still prefer to go and look for work or simply buying and sell of merchandise in Arusha town than staying and farming in Likamba. This sometimes put critical limitations on labour availability during cropping season. However, on the other hand when such family members have been able to bring some money home, the negative elements were eliminated.

Summary

## 5. VIABILITY OF LOCAL INSTITUTIONS

### 5.1. Objectives and visions

Two primary institutions could be considered here with regard to the development and application of Conservation Agriculture. These are:

- i) the village government, and
- ii) the Eotulelu Group (Farmer Field School)

The Village Government is a concept that is Tanzanian (i.e. not just in this community) with its original in the Socialist Ujaama philosophy aggressively promoted by the then President of Tanzania, Mwalimu Julius Nyerere in the late 1960 and the 1970s. Though the establishment is again getting some credibility with Central government recognising input from the Village Government on development matters, the Village Government have been generally very weak establishment with little or no authority on many community issues. Though the committee members are openly elected for a defined period of time, the committee, Village Government unit, does not exist as an independent legal unit. Its powers are usually out of good will of the people and usually and very much influenced by the respect the village have for the individuals in the Committee.

With the “right people” in the village government, this unit becomes quite critical and influential in moving development matters in the village.

The other institution immediate to the development and promotion of sustainable agriculture in Likamba Village is the Eotulelo Farmer Group.

The Eotulelo Farmer Group started in 2001 as a community based voluntary organisation with initially 20 households. The start of the group was primarily driven by the frustration of some community members in failing to deal with destruction to the trees/tree nurseries and contours by livestock. Many of the households in this community were at the time members of a farmer group in the next village where they were learning about soil-water conservation practices. Attempts to apply conservation agriculture measures (mainly erosion control measures) were being frustrated by livestock and other people up-rooting the trees and damaging the contours.

Therefore, driven by this need that group agreed ultimately to work for the very objectives they joined the farmer group in Ngorbob village. This was (as objectives of the group)

- to control soil erosion and land degradation to enhance agriculture productivity as a way to earn themselves a means to improved livelihoods and food security.

The group agreed to individually and collectively uphold the aims and objectives of the group for the betterment of the community. Among the key issues the group worked on was to develop by-laws on the community management of livestock. The group also managed to get the support of the village government on this livestock control and management by-laws and these by-laws are now widely respected and used in the village by the whole community whether member of the group or not.

One key element in the group’s by-laws has been measures for self-governance, which are strong on transparency, participatory and collective responsibility. This have allowed poorer or women members of the groups to have just as much say and responsibilities and can even rise to position of leadership.

The group is legally registered as a society and is able to negotiate agreements in its own right. The group is currently discussing with Farm-Africa (a rural development NGO) on support for procurement of CA implements. Apart from increase in number within the group to 35 households,

the group has facilitated start of another group in the next village. The new “baby” group with over 30 members is known as Upendo FFS Group. The Eotulelo Group is continuing to provide backstopping and training to Upendo group in CA technical and group mobilisation/administration matters. Eotulelo Group is also supporting many other individuals and groups from surrounding villages who are invited to field days or come to the village in farmer exchange visits. Members of the Eotulelo Group are often called out as resource persons by other groups in the locality.

Apart from working together on sustainable agriculture (conservation agriculture) ventures the group is engaged in many other enterprises, e.g. selling of groceries, to raise money for the group. This money is used for various group activities or loaned to members for investment purposes or when a member is in need. The group has also continued to make and sell toilet slabs.

Some community members are still reluctant to join the group or adopt conservation agriculture practices with the reasoning that activities such as making planting basins or construction and maintenance of contour are cumbersome, time consuming and expensive tasks.

Members of the group are revolved to continue with the adaptation of conservation agriculture practices. They are aware that improvements are still possible in yield and viability of the system. Due to the conviction that some benefits will only be well realised and sustained from widespread adoption of conservation agriculture – only all the households along a gully play they part will it be possible to rehabilitate that land and sustain the rehabilitation. They, hence, plan to continue with they extension activities to bring awareness and conviction to other farmers.

## Summary

## 6. IMPACT

### 6.1. Quantity and quality of the diet

The group members were very emphatic on the benefits of conservation agriculture with regard to food security. Key factors mentioned were stability and some relative guarantee of a crop harvest, something, which was never the case previously and is still not so for farmers using conventional cropping practices. The group has also allowed them other income generating activities giving them additional income. This allows procurement of other foods, improving the quality of the diet and would also serve as a reserve in difficult times.

A gender balanced group analysed food situation for the past ten (10) years and current years. Results are indicated in the table below. The analysis considered meal situation experienced by adults and children.

*Table 9a: Food situation (number of meals per day) in an household ten years ago*

| Month     | Meals per day |          | Reasons   |
|-----------|---------------|----------|---|
|           | Adult         | Children |   |
| January   | 1             | 2        | There is no food in the fields because farmers have already sold. . It is land prep period therefore cash is needed to facilitate the work.                               |
| February  | 1             | 2        | No more food left in the houses, there is also a need of cash for school fees and uniforms, therefore no cash to purchase food.   |
| March     | 1             | 2        | It is a seeding period, seeds are to be purchased, school fees for sec school students, and therefore there is a problem of food because there is no cash to purchase it. |
| April     | 1             | 2        | This period is tough, there is too much work in the field, which need cash e.g., planting, weeding operations etc therefore no enough cash to purchase food.              |
| May       | 1             | 2        | Weeding continuing, no cash to purchase food and beans are not yet ready to be harvested  |
| June      | 2             | 3        | Start harvesting green beans  |
| July      | 3             | 3        | Farmers start harvesting maize  |
| August    | 3             | 3        | Complete drying of Maize, lablab and beans; peak of harvesting- plenty of food  |
| September | 3             | 3        | Plenty of food because farmers have not started selling them.   |
| October   | 3             | 3        | Farmers have started selling their crop; however some are left for home consumption.  |
| November  | 2             | 3        | Majority of crop have been sold for cash, which is needed for other HH needs.   |
| December  | 1             | 2        | Farmers sell all crops to facilitate end of the year festivals.   |

*Table 9b: Food situation (number of meals per day) in an household - Current situation*

| Month    | Meals per day |          | Reasons  |
|----------|---------------|----------|--|
|          | Adult         | Children |  |
| January  | 1             | 2        | There is no food in the fields because farmers have already sold. It is land prep period therefore cash is needed to facilitate this activity                          |
| February | 1             | 2        | No more food left in the house, there is also a need of cash for school fees and uniforms, therefore no cash to purchase food.   |
| March    | 1             | 2        | It is a seeding period, seeds are to be purchased, school fees for sec school students, therefore, there is a problem of food because there is no cash to purchase it. |
| April    | 1             | 2        | This period is tough, there is too much work in the field, which need cash e.g. planting, weeding operations etc therefore no enough cash to purchase food.            |
| May      | 1             | 2        | Weeding time, no cash to purchase food and beans are not yet ready to be harvested   |
| June     | 2             | 3        | Beans and early maturing variety of maize can be harvested (while green)   |

|           |   |   |   |
|-----------|---|---|---|
| July      | 3 | 3 | Early drying of maize – Farmers start harvesting maize  |
| August    | 3 | 3 | Complete drying of Maize, lablab and beans peak of harvesting- plenty of food                       |
| September | 3 | 3 | Plenty of food because farmers have not started selling them. And the prices in the market are low. |
| October   | 3 | 3 | Some food crops are left for home consumption.  |
| November  | 3 | 3 | Some food crops are left for home consumption.  |
| December  | 2 | 3 | Farmers sold some of their crops to facilitate communion/ confirmation and x-mass festivals         |

Key: Food 1= one meal; 2= two meals; 3 = three meals

Ten (10) years back, the food situation was not good because they were getting low yields many times due to water stress which was getting worse with increased land degradation – top soil eroded with the remaining soil infertile and too hard to allow proper infiltration of rainwater.

One meal per day especially for children is a difficult situation, but it also got to the extent were a family would have one meal in two days. Two meals in a day is sort of acceptable situation with three meals seen as only possible for the well-to-do. The CA farmers are now afford three meals with a lot of beatings in between.

## 6.2. Access, distribution and control over resources

What is out-richtly clear is the increase and stability of income for the participating farmers. They exhibit a clear ability, which is only possible when there is extra disposal income – extra disposal income implying what is left over after all essential needs from food to schools are taken care of.

Women are just as happy. However, it's also true that cases of women being deprived of access to money in an household often happens when money is critically short in that household.

At community level, the poorer households have through association with this group been accorded opportunity to improve own ability to derive an income, which also bring dignity to that household.

## 6.3. Fostering and hampering factors

In the area of natural factors, prolonged drought is always one critical fear the community have in sustaining the gains from sustainable agriculture on food security and income generation.

## Summary

## **7. SPONTANEOUS REPLICATION**

Spontaneous replication was first few years of starting when other households not members in the group were deciding to try out the practices on their own with no direct links to the group's work except that they had had or seen of the successes of the group's efforts on conservation agriculture.

Most of those adopting spontaneously now are from other villages. Practices such as contours and tree planting/strip cropping have been popular as initial advances to address erosion. Lablab is commonly picked up for soil cover and also its market demand and value. Adoption of ripping is generally hampered by lack of equipment while those with no draft animal talk about high labour demand in using hand-hoe planting basins.

# **PART III - SCALING-UP**

## **1. SCALING-UP STRATEGIES AND ACTIVITIES OF LOCAL INSTITUTIONS**

### ***1.1. Scaling-up strategies and activities***

**Project Thrust:** The Project is design that after two seasons that farmers involved will “graduate” and the process starts all over again with new sets of farmer group. Eutelulo, like all other groups in the Project currently will be graduating at the end of 2006. The Project uses and has been using lead farmers as facilitators in introducing the practices to other farmers. Therefore, Project facilitated training for these lead farmers is also meant to enable them build competence as trainers and facilitators.

**Eutelulo Group Thrust:** The group since starting its Farmer Field School has actively encouraged other village members to try out the application of conservation agriculture. The Eutelulo group members have used any possible opportunities, from an informal gathering in a market place to church and funeral gathering to “preach” conservation agriculture.

Eutelulo FFS group is the only one with a record of having facilitated the start of another FFS group in the neighbouring village. The Upendo Nyuki group was established in 1996 and operated on various aspects including sustainable natural resource management. As from early 2005, with backstopping from Eutelulo FFS group members, the Upendo Nyuki started its own FFS. All its 24 members (10 male and 14 female) are now following the FFS process and building on their knowledge and skills on conservation agriculture. The Upendo Nyuki group have also convinced their village government to put in place and implement by-laws on livestock management similar to those in Likamba village.

The new group has expressed commitment to CA and indicated that they will continue to finish the whole process. As the group does not belong to FAO FFS groups, they plan to purchase their seed (maize and lablab) earlier, so that they can seed on time. The group also plan to continue to create awareness to those who are not yet aware of CA, so that they can realize the benefits of CA at the same time create awareness to livestock keepers regarding incompatibility of CA and free grazing.

### ***1.2. Fostering and hampering factors***

Practical demonstration of success through good yield is an essential factor in stimulating increased adoption. Also important is improvements/changes in the standard of living of those already adopting. A successful adopt building a new house or even repairing an old one captures a lot of attention from the neighbours and many will “publicly” or “secretly” try the practices to also gain the benefits. By secretly, here it means adopting without acknowledging that they efforts have been induced by the success of the neighbour.

Summary

## **2. SCALING-UP STRATEGIES AND ACTIVITIES OF THE ORGANISATION**

### ***2.1. Scaling-up strategies and activities***

Scaling up is a key feature in the CA-SARD Project. This is also compelled by the fact that wide spread adoption of CA would be necessary to reach a critical mass for desired impact in some elements.

The current CA-SARD Project phase ends in June 2004. While there are plans for an extension/second phase, which will focus more on intensification, the Project has put in energy and resource to train more farmers and empower them/build their capability to function as facilitators. This is linked to the concept of farmer facilitated FFS groups. This has gone on with little or no financial input from the Project. Usually the new group has paid for the cost of the farmer facilitators to come to their meeting and help in training.

Therefore, self-motivated farmer managed and facilitated groups would be a strong and feasible option for continuing with the scaling up/out activities even after the Project is finished.

The Eutolelo FFS group is already very active in this regard with many of its members serving as resource persons in neighbouring villages and communities. The Upendo Nyuki FFS group is a typical example of an FFS group that has been "born" from the effort and input of Likamba FFS group members.

Likamba FFS group has also gone further to interest development support from other organisations in the promotion of conservation agriculture. With financial support (grant) Farm Africa (an NGO promoting natural resource management and marketing of agriculture commodities), Eutolelo FFS groups have planned intensification in the application of CA by procuring more CA implements and organising training for its members on more specialised subjects in the adaptation – adoption of conservation agriculture and in general sustainable natural resource management.

### ***2.2. Fostering and hampering factors***

### ***2.3. Future plans***

Covered above.

Summary

## **E) Conclusions**

The summary is thought as an eye-catcher and should be therefore presented in a coloured box. Coming back to the overall structure of the report format, the **Conclusions** of the self-assessment should be documented as a last step. Therefore you could have a look at the summaries of each chapter again. Two main aspects should be considered by writing this chapter: First of all, what are the “lessons-learnt” of the self-assessment by your organisation, and what are consequences and future plans to incorporate the lessons-learnt?

The second aspect takes up the inter-organisational sharing of experience within Sustainet: What are your recommendations for the other members? How would you like to share the experience within Sustainet?

## **Annex: Glossary**