Improving Decision-Making Processes for Improved Adaptive Capacity to Climate Change in the Bunyala Flood Plains

A Workshop Report on Climate Change & Development in the Bunyala Flood Plain- Budalangi

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1. Introduction

There is a need to embed climate change intervention in to existing developmental strategies and decision making. Further more adaptation to climate change mechanisms cannot be tailored without appreciating how local livelihood will generate their income to provide for their households. This workshop held in Bunyala Catholic church grounds on the 21 and 22 of January 2010 was aimed at communicating the importance of the above link. It involved thinking along with the participants how to reduce the negative impact associated with climate change through enhanced adaptive capacity. Rice husbandry is commonly practiced in Bunyala as a cash crop. During previous visit and investigations in to Bunyala and especially the rice fields. It was acknowledged that the potential for improved rice husbandry and marketing was there and as such their was a need to bring farmers together to communicate the key findings related to this study as well as appreciating the opinion and suggestion of the local participants.

Through the leadership of Munaka out growers, 50 participants (all farmers representing their small units) were invited to the workshop and 16 other non-farmer guests were also invited. The guests included the Ministry of agriculture, the National Irrigation Board, the local administrative leaders, and other ministry like ministry of Water, environment and health. The workshop was facilitated by Mr. Harco Jellema and Mr. Moses S. Matui.

The set up of the workshop was to have plenary discussions whereby participants were engaged through questions and contributions. Group work sessions were also conducted whereby each group was mixed by gender, profession and where possible age. To ensure such representativeness group members were selected randomly by having the participant take a number between 1-7 in sequences and later all the farmers who had similar number i.e. 3 formed one group. Democratic processes and equal participation was encouraged. The product of such group discussion were either pinned on the wall and two members from each group appointed to explain the groups outcome to the other members in the so called 'information markets forum (IMF)' . In the IMF set up, the audience moves in a clockwise manner from one presentation to the other in an interval of 5-7 minutes while a group member of each specific group market their findings to the other groups in sequence until all groups have visited each market. Alternative to the IMF was a plenary presentation. Here, a lady or a man from each group was nominated by the rest of the group to make the presentation on their behalf to the entire audience.

The theoretical background of the workshop involved employment of participatory approach and design. This includes ideas on group formation, sitting arrangement and appropriate workshop assignments. The following books were useful for this purpose, participatory learning and action by Pretty et. Al (1995) and Participatory Rural Appraisal: Principles, Methods and Application by Narayanasamy, N. (2008). Background publication on climate change and market oriented development were also consulted, for marketing the following publication were key to the preparation of the workshop, a guide to collective marketing for smallholder producer by Robbins et. Al, (_ _), Making value chains work better for the poor by M4P, 2008). On climate change the publication on adaptation to climate change in developing countries by Mertz et. al, (2009) was consulted.

The main materials used during the workshop included;

a. Audio –visual
b. Flip Charts
c. Oral presentation
d. Field observations
e. Discussions and debates

The key observation from the workshop was that farmers were already aware of their production loses as well as knowledgeable on matters relating to climate change. This was evident from their presentation and visual material produced. It was also found that, Leadership and stepwise actions towards collective marketing could be improved. This workshop provided some valuable ideas through which the above suggested improvements could be achieved. In order for this to be achieved, the local population in Bunyala will need to increase their self confidence towards non-traditional approaches. There is also a need for stakeholders to increase their collaboration to ensure increased yields and value creation.

2. Objectives , Activities and Justification

The main objective of the workshop was as follows

a. To ensure that the farmers are capable to comprehend the interaction between Development and climate change.

Based on the objective above, three themes were derived and constructed in to sub- objectives. This themes are a) Production losses b) collective marketing c) awareness to climate change. This three themes formed the framework of the workshop. And each will be described separately below.

3. Theme 1: Production losses

The baseline study conducted in November 2009 identified that one way the rice farmers in Bunyala could improve their resilience and build their adaptive capacity to climate change was to engage in value adding. But first before value adding the farmers had also production losses along the production chain. A corrective action to their production losses was thought to be a prerequisite to value creation. Based on that, the following sub-objective was identified:

> *Engage the farmers in indentifying their own production losses, illuminating on the monetary magnitude of such production losses ,causes, stakeholder involvement and suggesting achievable possible solutions for the future*

3.1 Activities

The following activities accompanied this sub-objective

a) A presentation on rice farming in Bunyala and the cultural practices adopted by the farmers in several stages in rice production. This was presented by Moses Matui. In this presentation other

issues captured by the baseline study were also presented. i.e. a snapshot on food security situation in Kenya outlining the position of rice in the Kenya's agriculture sector.

b) Estimating production loss

c) Field group activities for identifying and quantifying production losses in several stages or rice growth according to the paddy currently on the field

d) Group presentation on their findings and each providing recommendation on reduction stratragies

e) A plenary session debating the farmers' findings, discussing them in to Bunyala's context and incorporating key stakeholder involvement

f) A short exercise on production loss estimates by the farmers after the field visit

3.2 Justification of the choice of activities above

Each justification (a- f below), corresponds with the activities just outlined above)

a. From our Baseline report conducted in November 2009, we found out that the production potential is there in Bunyala but some cultural practices were resulting to big production losses. There were complex issues like value added marketing which the farmers could not find permanent solution immediately.
b. If the farmer can estimate production loss then he/she could be able to be conscious in his activities to reduce any possible loss. Calculation also makes the farmer to quantify the loss and give it a monetary value.
c. The field group activity is intended to connect the theoretical knowledge taught in the workshop to what is really happening in the field of the farmers. Here the farmers will work across their own field evaluating production losses at several stages of rice production and their causes and what can be done to reduce such losses.
d. Communicating change starts with the farmer being able to correctly scout for strengths and weakness of their colleagues and being able to communicate to each other through their existing knowledge framework . This is likely to improve group problem solving especially where individuals share the similar predicaments.
e. Interactive communication will give the farmers the confidence they will later need to boast their negotiation skills especially when winning over value added markets for their products. These assignments give the presenters the opportunity to be challenged and while attempting to come up with evidence for their findings. In such a set-up the presenters and the audience are subjected to co-learning whereby good recommendations and suggestions may as well come forth from such an interaction.

3.3 Results from the workshop

The first presentation according to the workshop program was made by Harco Jellema on climate change. His presentation will be discussed on the result of the third theme below but its background is important for this section.

3.3.1 Rice situation in Bunyala and production loss

The activities for this theme were done after Harco Jellema made is presentation on climate change projection for the area. In his presentation Mr. Jellema revealed that Bunyala had the best soils in the country. In addition Bunyala also enjoys good climatic conditions suitable for rice, sufficient infrastructure and technical support. Mr. Matui who made the second presentation on rice situation in Bunyala builds upon the presentation by Mr. Jellema while emphasizing the demand for quality rice in Kenya. Currently such demand is filled by imported rice from Asia i.e. Vietnam and other places like India and Pakistan. A copy of Moses Presentation is contained in the bundle of the ACCCA Bunyala study. An introduction to production losses in Bunyala was also made and this was translated to monetary terms to the farmers. Many farmers admitted that most of their traditional production practices were resulting to production losses and were keen to learn more. A few accusations were made to the extension officers from the ministry of agriculture and also to the NIB officials. To avoid it being a blame game the participants soon agreed that all the stakeholders had a role in reducing production losses and thus there was a need for better communication and understanding between all the responsible stake holders. There was not so much time to allow exhaustive talks on stakeholder collaboration and communication. Future workshops should target to address this issues, as it was raised to be one of the main problems in the area.

3.3.2 Estimating production losses

Three methods of estimating production loss were introduced to the farmers. i) guess work method ii) the square method iii) the systematic selection method.

With the guess work method the participants were shown two nursery beds , a well maintained and a poorly maintained one. They were asked to estimate how much loss the two farmers had incurred on this production stage alone. Each farmer gave his/her judgment based on his estimation and the result was recorded on a board. With this method there was a lot of variance between one farmer and the other. But all the farmers understood that even the better farmer of the two had some amount of production loss which cost him/her money.

The two photos presented in method one was once again projected to the farmers this time round, a square mesh was introduced as shown below. When the square mesh was fitted in to each photo. It was easier to count production loss per one square box and the farmers were able to make a more informed estimation. With this method, the estimate of different farmers was not that much. The two methods and especially the second are limited to visual displays like the photos below. As a result, a third method (the systematic selection method) was introduced.

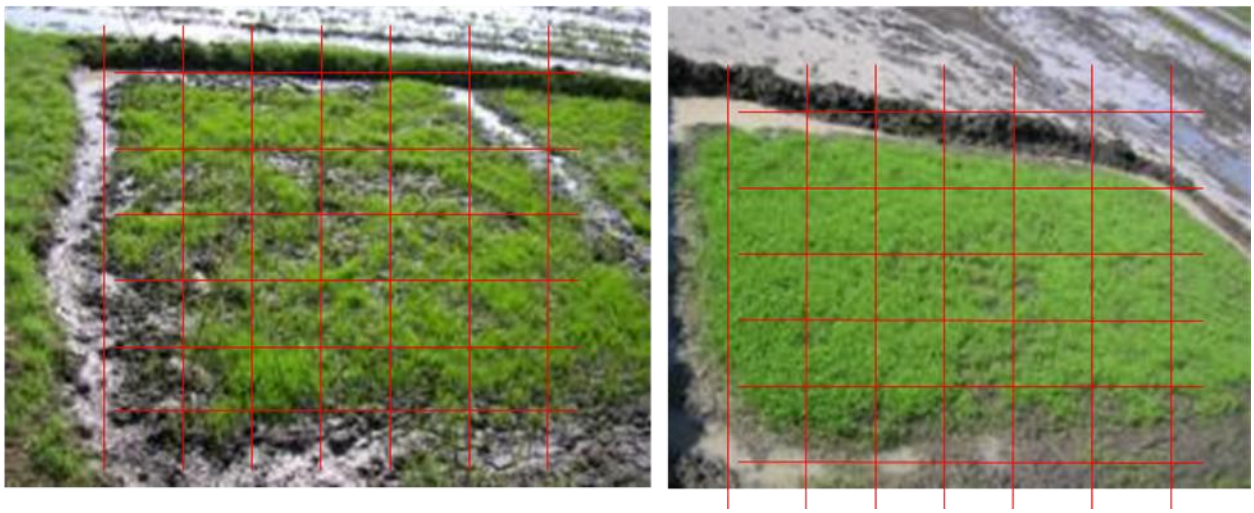


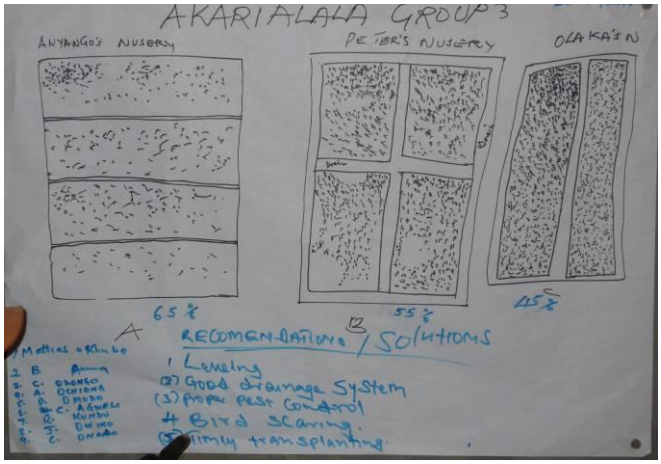
Photo 1 and 2: the square method of estimating production loss

The systematic selection method is more reliable compared to the two other methods mentioned above. It is also most suitable to be performed in the field and also in any stage of crop production. As a result, farmers were grouped in to three production stages each consisting of two separate groups. The three production stages were i) nursery bed preparation and transplanting ii) field or the rice growing stage iii) post harvest stage.

With the systematic selection method, each group first identifies the causes of production losses available on a specific field of their choice. After that they estimated the loss brought about by each of the causes. By summing up the different losses and weighing the result based on their overall observation of the field, they were able to give a more in-depth assessment of production losses in each of the three stages mentioned above.

Photo 3-6: Field work on identification of production loss and estimates in progress

The results of the six groups who performed systematic selection on the three production stages mentioned above are illustrated below.



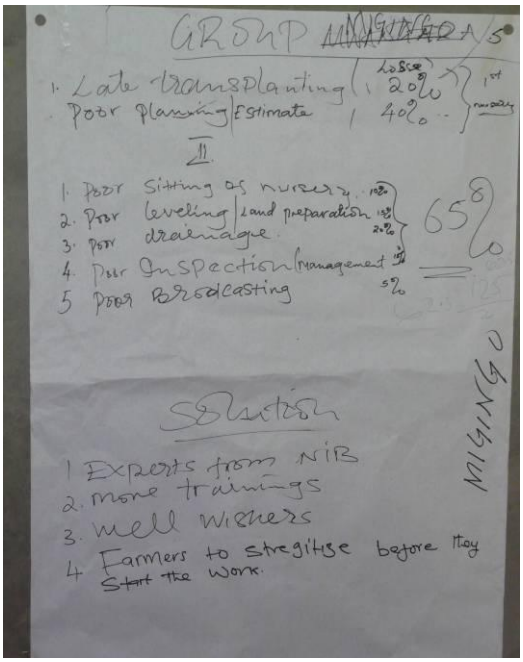


Photo 7 &8: Presentations on nursery bed preparation and management

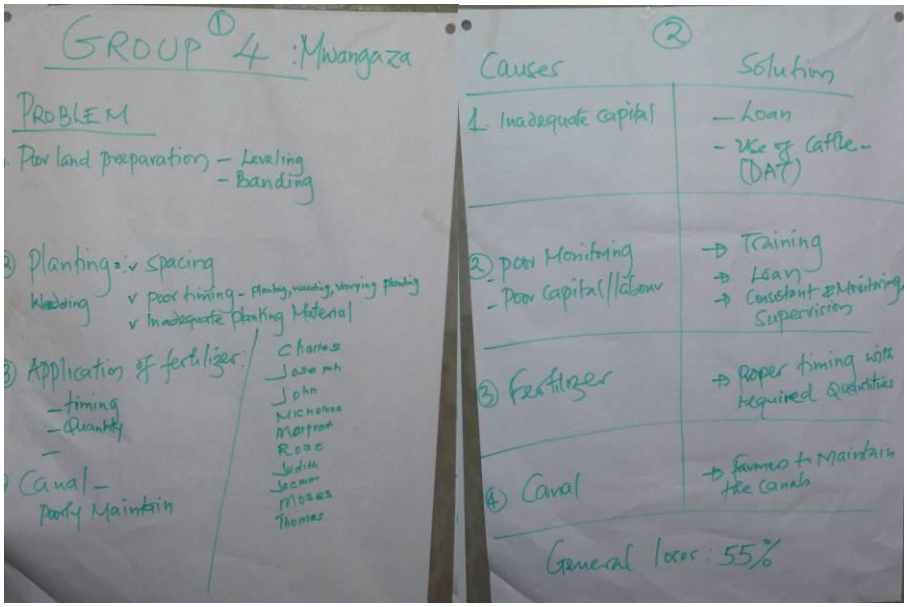


Photo 9&10: Presentations on field management and good husbandry

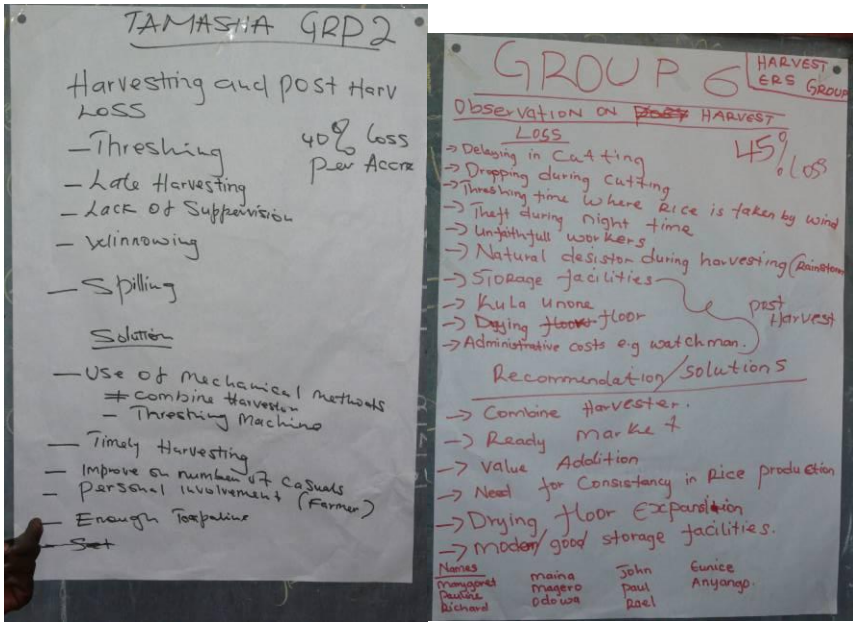


Photo 11-12: Presentations on harvest and post harvest losses

While it was interesting for the farmers to be able to perform the estimates, there was a moment of reflection whenever such losses were translated in to monetary terms. The monetary translation of the loss was a fraction of the average production in Bunyala. The average production was chosen as it was the wish of all the farmers to increase their yield and they deliberately chose the average production as their first target. The average rice production in Bunyala is 2,800 kg/acre.

The farmer who had the better of the two nursery bed in the example above was identified and he was asked to share his strategies to the rest of the participants. He was convinced that the secret to good rice husbandry was taking time to prepare the nursery bed and maintaining it. More to this he believed that before transplanting good land preparation and leveling needed to be performed. By so doing, he believed that you could reduce the average losses in Bunyala by a half and thus being able to easily meet the average production estimate. The farmers were very interested in his presentation and were asking very practical questions based on their mistakes. Other well informed farmers also joined in the answering of such questions. This sub-section was very important given that due to the current expansion on rice production in Bunyala, some farmers were now producing rice for the first or second time. Such farmers lacked sufficient experience in rice farming and were eager to learn.

With the current situation there was very little that the farmers felt they could do to control much of post harvest losses because most of the activities in this stage were performed by the NIB. Munaka self help group lacked facilities to undertake this operations by itself. Some farmers felt disappointed that much of their effort to produce quality grain was cut short when their harvested rice was rained-at on the NIB compound due to lack of storage and drying places.

3.3.4 The IMF presentation

The findings of the systematic production loss contacted in the field and the NIB compound (for post harvest losses) was presented to the participants using the information market forum (IMF) approach. With this approach, each of the six group had two members explaining their findings to the rest of the participants in sequence. All the six groups pinned their visual display a distant from each of the other and participants visited each for information and enquiry. The photos below illustrations the IMF on progress.


Photo 13&14: The IMF on progress

Just before the conclusion of the workshop, the participants had time to discuss and to debate about their rice production practices in the context of the lesson learned during the workshop. Some farmers expressed fears that they did not have enough money and influence to control much of the causes of production losses in their fields. i.e. according to the farmers, the NIB is supposed to repair broken or weak banks (the walls allowing flooded rice farming). If this is not done on time the farmers complained that they could not do that by their own since the exercise was too costly. Some of their colleagues were quick to correct them that even the farmers with nice banks had a lot of production losses to reduce. At the end it was decided that the first step towards controlling or reducing production losses began with the farmer. It was also agreed that all other stakeholders should intervene on time to help the farmers and complement him/her where he lacks the resources and the power. It was a pity that out of the 16 non-farmers stakeholders invited, only about a quarter turned up for the workshop.

3.4 Sub-conclusion on production losses

Reducing production losses and creating value will need proper communication between all the relevant stakeholders. There seems to be a clear divisions of specialization each with specific sub-objectives which together don't add up to a single objective. Proper communication, leadership and respect among different stakeholders will need to be improved. Farmers are also enthusiastic for change but seem to lack the clear guidelines on how. One way the workshop suggested to the farmers was through collective marketing. In order for this collective marketing to be successive, pre-planting decisions and field operations will first need to be done correctly and needless to say, proper coordination and governance will likewise need to be ensured.

4.0 Theme 2: Collective Marketing

This section was highly motivated by a guide to collective marketing for smallholder producers (a manual by rural agro-enterprise development) written by Robbins et al (_ _). Though there are many models of farmers' collectivism Robbins' approach seemed to emphasis democratic processes and collective participation whereby the most vocal and the most reserved are given an equal opportunity to air their opinion. In the collective marketing model farmers are free to join in the collectivism or stay independent depending on the opportunities that comes by teaming up together or being independent. Lastly, and one of the most relevant points to farmers in Bunyala, a group is not merely a gathering of 2 or more people who have undergone through a formal process to obtain a certificate. A group if far more defined on the activities shared and the strategies decided to combat a common aim. With the above theoretical rooting, the following sub-objective was formulated to aid in the facilitation on the topic of collective marketing.

> *Introducing the concept of collective marketing, its key ingredients, its benefits and applicability in Bunyala*

4.1. Activities

Based on the above objective, the following activities were decided upon for the workshop.

a) A presentation on the rationale of collective marketing and its content

b) Group activity to identify the stage in collective marketing where Munaka might be at the moment . The group should also list; the justifying achievements, constraints, immediate future needs for continuity and success and be able to determine different group moods as the group execute its activities while understanding the importance of trust.

c) A open question answer session whereby the farmers are able to answer each other, exchange different opinions and feedback whiles the facilitator plays a moderator role. This activity is planned to be concluded with a vote for/against collective marketing.

4.2 Justification for the choice of activity and a short description

Each justification (a- c below) corresponds with the activities just outlined above)

a) In the 1980's cooperative societies were seen as a tool for gathering farmers together to increase their economics of scale. Though initially the cooperative societies worked for cash crops such as coffee, later on the cooperative approach created a rift between the cooperative members (farmers) and the supervisory team of the cooperative (management). As a result trust on anything carrying the name co-operative was shunned by many farmers in the country.

Collective marketing is yet another model that attempts to learn from past mistakes and integrate new findings from the field of institutional organization. During the presentation on collective marketing by

Mr. Matui, attempt was made to explain benefit and the working of collective marketing in an attempt to clear prior prejudice.

b) This Question will attempt to make the farmers able to evaluate their progress and motivate their outcomes while learning how to work with indicators in a time series (being able to understand today's position and making strategies for the future). With mixed gender groups and mix education levels, 9 groups were formed which documented their outcomes on a flip chart. This was presented to the rest of the farmers where each group was subjected to questions and discussed by the other workshop participants.

c) One major aspect of collective marketing is encouraging democratic processes whereby each member (or participant) has a choice to air his or her opinions. Voting is one way of encouraging such development. This will be done by giving the farmers an A5 sheet of paper. With three squares inside, each square will be coloured differently Red= I don't support collective marketing, Black= I am not yet decided and Green= I vote for collective marketing. Underneath the squares will be a space to motivate their vote (voluntary). This voting arrangement was planned but due to lack of material, voting was done by show of hands; nonetheless the card method is an important evaluation tool.

4.3 Results from the workshop

Collective marketing was defined to the participants in the workshop as a product of farmers working together over many years adjusting to each others strength and weakness. It was further stated that their strength comes from reasoning together the best way forward through constructive criticism and allowing two way learning in a democratic process. The rationale why farmers should embrace collective marketing, the key ingredients to collective marketing, the constrains and the benefits of collective marketing was presented to the participants in a presentation by Mr. Matui.

Farmers had time to clarify the issues presented in the presentation at the end of the presentation. This was followed by a group activity which required the group to identify where Munaka CBO was in the stages of collective marketing presented in presentation. They were also required to discuss issues that needed to be improved and come up with suggestions for improvement.

After the group activity the participants had time to discuss freely how they viewed the collective marketing approach and whether they thought it was applicable to their farms. Many of the suggestions by the farmers were pro collective marketing but once again they seemed to have doubts on leadership. They argued that their leadership was leader-based and the notion of co-sharing of ideas, execution and strategy was not very practical for them. Therefore collective marketing was acceptable to the participants but not immediately applicable to their immediate situation. During this sub-section they requested more technical back-up to affect it but still the issue of productive loss was their immediate responsibility. Some farmers argued that the issue of marketing was complex because of dependence on the NIB for post harvesting and as such they request Harco Jellema if he could help them secure for them drying, value adding machinery and storage facility. Mr. Jellema promised to try his best. The

photo below shows bags of harvested rice stored in open ground due to shortage of space.

Photo 15: drying and storage of harvested rice in Bunyala

4.4 Sub-conclusion on Collective marketing

Judging from the reaction of the farmers in the open question answer session, it was clear that the participants felt that the issue of marketing was to some extend beyond their potential and as such either the NIB or an external intervention was needed for them to market their produce. This was logical given that a lot was needed to check production losses which are very high in most of the farms. Production loss is a problem because there is no system in place to regulate uniformity and coordinate the activities of individual farmers. This is one of the benefit associated with collective marketing since its conception is in the design process even before production is attempted. For such education to make practical sense to farmers, more effort is needed to compliment this introductory lecture on collective marketing.

5. Theme 3: Awareness on climate change

The following sub-objective was suggested for this theme.

Making the participants aware of their future climatic trends and how this affects their community and future cropping decisions

5.1 Activities

a) A questionnaire on climate change adaptation and the perception by small holder farmers in Bunyala

b) A presentation by Harco Jellema on the future water study.

c) A discussion with participants on how Climate change has affected their community. The groups should summarize 2-3 key points of agreement and this should be link to Harco's presentation.

5.2 Justification for the choice of activity and a short description

Each numbering (a- c below) corresponds with the activities just outlined above

a) Building adaptive response to climate change involves understanding how farmers conceptualize the debate on climate change and also to know how it is transmitted to them and by whom. This questionnaires contains 20 questions on Climate change and a few questions on production aspects. The product of this questionnaire exercise is presented in a separate document.

b) There is a need for technical backing when we address the issues of climate change.

Using weather station data from the western Kenya region and subjecting it to different models we found out that the Bunyala catchment areas is not likely to be faced with a major water shortage problem. With that information our aim is to let the farmers know of the possibilities there is for them to maximize their production while many parts in Kenya are experiencing lesser precipitation compared with 30 years ago. This presentation from Harco was a product of a DVD collection made by the consultant group future waters. It contains a PowerPoint presentation, a slide show and a quiz to the farmers.

c) The participants should be able to indentify the vulnerabilities and the adaptive capacities they employ. They should also be able to judge this knowledge in connection to the visual display made in Harco's presentation. This way we can also evaluate their understanding on technical data on climate change.

5.3 Results from the workshop

The very first assignment in the workshop schedule was for the farmer to fill in the 20 questions questionnaire on climate change perception and knowledge. The farmers had to fill the questionnaire by their own and the illiterate farmers were assisted by the management of Munaka CBO. Many farmers found the questions difficult and it took some explaining and clarification. This exercise which was supposed to take 30 min took more than double the time. In future, Munaka CBO thought that simpler questionnaires were advisable. The questionnaire also had general questions on rice production which many farmers could not answer easily since they had been newly incorporated in to rice farming and thereby lacked experience in rice growing.

Though the presentation by Mr. Jellema was technical and thereby difficult to communicate to the farmers; the interpreter to Mr. Jellema (a secondary school teacher) was also knowledgeable on issues related to climate change in Bunyala and therefore was very skilled in breaking complex information to a language which the participant could related. He did this using the local language. Some of the content of this presentation was also aired on Bulala FM (the local radio station); Munaka had invited a reporter from the radio station to the workshop and by so doing information from the workshop was disseminated to a wider audience.

Following Mr. Jellema's presentation was a group activity in which the participant were expected to visualize on a flipchart what climate change meant to them and how they viewed themselves in the midst of such vulnerabilities. The result of this group activity is presented below. During the plenary presentation of the group work, the groups were supposed to present two points of agreement within

the group which explain what climate change means to them. Most answers were as follows; loss livelihood, disruptions especially disrupted schooling, migration. Some groups also managed to capture some opportunities that relate to floods like increased fish catch. Almost all the groups thought that the dyke should be replaced with a new one since the old one had outlived its lifespan.

Photo gallery 16: presentation on climate change awareness

5.4 Sub-conclusion on climate change awareness

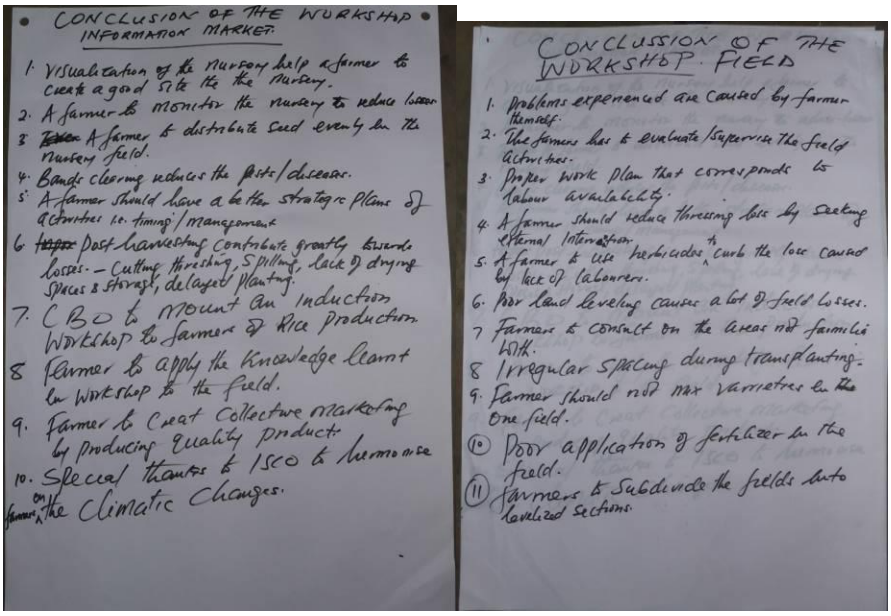
Too many participants, the activities in this theme were difficult but effort was made to break complex information to a language the farmers could relate to. Nonetheless the presentations by the participants showed to a great extend that they understood Mr. Jellema's presentation especially on the issues of increase water in the area in the next 50 years.

Photo 17: Group discussion on progress

Photo 18: Workshop participants filling in the questionnaires

6. General Conclusion

As the workshop was concluding, the participants were asked to mention the lessons that they had learned from the workshop and also from the field activities they were involved in. Below is their response which acts as their conclusion from the workshop.



CONCLUSION OF THE WORKSHOP
INFORMATION MARKET

1. Visualization of the nursery help a farmer to create a good site the the nursery.
2. A farmer to monitor the nursery to reduce losses.
3. A farmer to distribute seed evenly in the nursery field.
4. Bunds clearing reduces the pests/diseases.
5. A farmer should have a better strategic plans of activities i.e. timing/management
6. Post-harvesting contribute greatly towards losses. – Cutting, threshing, Spilling, lack of drying spaces & storage, delayed planting.
7. CBO to mount an induction Workshop to farmers of Rice production.
8. Farmer to apply the knowledge learnt in Workshop to the field.
9. Farmer to creat Collective marketing by producing quality product.
10. Special thanks to ISCO to harmonise on the Climatic Changes.

CONCLUSION OF THE WORKSHOP. FIELD

1. Problems experienced are caused by farmers themself.
2. The farmers has to evaluate/supervise the field activities.
3. Proper work plan that corresponds to labour availability.
4. A farmer should reduce threshing loss by seeking external intervention.
5. A farmer to use herbicides to curb the loss caused by lack of labourers.
6. Poor land leveling causes a lot of field losses.
7. Farmers to consult on the areas not familiar with.
8. Irregular spacing during transplanting.
9. Farmer should not mix varrietres in the one field.
10. Poor application of fertilizer in the field.
11. Farmers to Subdivide the fields into levelled sections.

Based on the activities from the workshop, we conclude that the workshop was successful in many ways and an eye opener to the participant. The main goal of the workshop was to attempt to link climate change to everyday development in Bunyala. This could not be better achieved than using the only cash crop in the area which is rice. Rice is in the heart and minds of many farmers and development experts in the area and more so the government is investing in its expansion and growth. For the Bunyalas to benefit from such an opportunity production losses will need to be reduced and ways to add value to the crop investigated. This is a collective responsibility of all the stakeholders involved. In addition to this, stakeholders in this sector will need to work together towards one vision and interests will need to be well managed to avoid frictions. Modern technologies and machinery on value adding are indeed needful but a system to improve coordination, leadership and governance of the farmers will need to be put in place. Farmers are already aware of climate change and how it affects them; one additional thing which might be promoted is on how to take advantage of the opportunities arising and how to factor climate change in their production design in order to minimize avoidable discouragements.

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