1ST REGIONAL POLICY LEVEL WORKSHOP ON MITIGATING CLIMATE CHANGE IN AFRICA THROUGH SOCIAL FORESTRY

POLICY LEVEL WORKSHOP
28TH SEPTEMBER – 6TH OCTOBER 2010

PROCEEDINGS

JICA

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KENYA FORESTRY RESEARCH INSTITUTE
KEFRI

Proceeding of the 1st Regional Policy Level Workshop on Mitigating Climate Change in Africa through Social Forestry

28th September to 6th October 2010

Building Capacity of KEFRI's Partners

June 2011

1st Regional Policy Level Workshop on

Mitigating Climate Change in Africa through Social Forestry

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List of Abbreviations and Acronyms

BAC	Baraka Agricultural College
BMP	Buteyo Miti Park
CBO	Community Based Organisation
CHEK	Council for Human Ecology Kenya
EASTC	Embu Agricultural Training College
FFS	Farmer Field Schools
JICA	Japan International Cooperation Agency
KADI	Kamurugu Agricultural Development Initiative
KEFRI	Kenya Forestry Research Institute
KenGen	Kenya Electricity Generating Company
KENVO	Kijabe Environmental Volunteers Organization
KFS	Kenya Forest Service
KWS	Kenya Wildlife Service
MFWL	Ministry of Forestry and Wildlife
MoA	Ministry of Agriculture
MoE	Ministry of Energy
NEMA	National Environment Management Authority
PA	Provincial Administration
PFM	Participatory Forest Management
PNRMC	Participatory Natural Resources Management Course
SFTC	Social Forestry Training Centre
TCTP	Third Country Training Programme
TILT	Tree is Life Trust
TIST	The International Small Group and Tree Planting Programme
UCRC	Ugunja Community Resource Centre
UNEP	United Nations Environment Programme

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1.0 Introduction

Africa's forest sector challenges and opportunities are unfolding rapidly, while stakeholders' goals and aspirations are dynamic and increasingly integrated. Presently, climate change is definitely a major challenge to social, economic and environmental development despite Africa's minimal contribution to green house gases compared to developed countries. These have implications on food and energy security, forest conservation, desertification, loss of biodiversity, soil and water resources management, as well as sustainable agriculture and rural development. The complex nature of the emerging challenge implies that no single solution approach would suffice but a multi-dimensional strategy should be used. It is also recognised that the challenges continue to create additional demands for capacity development and the need to work through more comprehensive partnerships. Social forestry still stands out as a multi-dimensional avenue to provide the rural communities in Africa with the means and motivation to invest in their environment.

The importance, urgency and feasibility of adopting and implementing effective and comprehensive solutions to climate change in Africa through forestry and allied natural resource management practices is inevitable. Therefore, rural communities will continue to depend on the commitments of their governments to invest in solutions that can help them to adapt.

Japan International Cooperation Agency (JICA) and the Government of the Republic of Kenya through the Kenya Forestry Research Institute (KEFRI) are already collaborating with 18 countries in eastern, central and southern Africa in a move to exemplify capacity building through a series of regional training courses and a workshop on "Mitigating Climate Change in Africa through Social Forestry" under JICA's Third Country Training Programme (TCTP).

The Regional Training Course on Mitigating Climate Change in Africa through Social Forestry comes after successful implementation of two previous courses, namely: Regional Training Course for the Promotion of Social Forestry in Africa (1995-2002) and the Regional Training Course on Enhancing Adoption of Social Forestry in Africa (2005-2008). A total of 294 participants from 18 countries in eastern, central and southern African were trained during the two phases.

A total of 22 participants have already been trained during the 1st Course on Mitigating Climate Change in Africa through Social Forestry. Four more courses are planned between 2010 and 2013 and a total of 110 participants are expected to be trained by the end of the Phase.

During this current Phase, KEFRI in collaboration with JICA also planned to host two (2) Interactive Regional Workshops on "Mitigating Climate Change in Africa through Social Forestry" to be held after the 1st Course and before the last one in 2012. Its thrust is to have the most diversified, comprehensive and practical training programme.

KEFRI in collaboration with JICA Kenya Office, therefore, hosted the 1st Interactive Regional Policy Level Workshop on "Mitigating Climate Change in Africa through Social Forestry" for policy makers who are the Chief Executive Officers or Heads of organisations from 18 countries where regional training course participants are drawn. The Workshop was held at KEFRI Headquarters in Muguga, Kenya.

1.1 Theme

Interactive workshop on "Mitigating Climate Change in Africa through Social Forestry".

1.2 Title

Regional Policy Workshop on "Mitigating Climate Change in Africa through Social Forestry".

1.3 Purpose

The capacities of participating countries to practically mitigate climate change are enhanced through implementation of participatory social forestry extension methodologies.

1.4 Outputs

- At the end of the Workshop, the CEOs/policy makers were expected to:
- Have enhanced their knowledge on what would be attained by participating in the course and how it would fit into their institutional strategies and objectives on mitigating climate change.
- Improve on the content, scope and content delivery process.
- Be able to ensure that ex-participants are fully engaged and to act on the action plans developed during the course.
- Be able to encourage creativity and to share information on mitigation of climate change through practical networks.

1.5 Duration

The duration of the 1st Regional Workshop was be approximately seven (7) days, of which at least four days were in-house and three days of field visit sessions. It was held from 28th September to 6th October 2010.

1.6 Programme

The programme of the workshop consisted of in-house sessions during which key note papers were presented, country presentations, discussions, group work activities and plenary were held. Field visits to selected sites in the dryland of eastern Kenya and coastal areas were also held. The detailed programme is given in Annex II.

1.7 Participating Countries

At least 20 Policy makers/Chief Executive Officers were invited from the following countries: Angola, Botswana, Burundi, Eritrea, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe. However, only 9 countries (50%) and 19 individuals participated in the workshop.

1.8 Implementation of the Workshop

KEFRI in collaboration with JICA Kenya Office implemented the workshop, while Ms. J. Deloge, a consultant and resource person, moderated the workshop to realize its objectives.

1.9 Participant's expectations of the Workshop

- Acquire new ideas on climate change mitigation and adaptation.
- Gain more knowledge and learn from experiences of other countries on the implementation of Participatory Forest Management (PFM) especially the opportunities and challenges.
- Learn more about the REDD programme.
- Learn issues of climate from experiences of other countries.
- Relevance of RTC course as well as forestry and agricultural trends in other countries and strategies adapted to mitigate challenges in natural resources management.
- How to address cross border issues/challenges and conflicts. Kenya, Uganda and Tanzania to borrow ideas and compare climate change strategies from other countries.
- To learn and get concerns of other countries on climate change issues.

2.0 Official Opening and Closing Speeches

2.1 Opening Ceremony

2.1.1 Opening Remarks by the Director KEFRI, Dr. Ben E.N. Chikamai

The Director welcomed and acknowledged his guest as follows:

The Assistant Minister, Ministry of Forestry and Wildlife, Mr. J. Nanok,
The Chief Representative JICA, His Excellence Mr. Masaaki Kato,
The Chancellor of Mozambique, Mr. Augustine,
The Environmental Secretary, Ministry of Environment and Mineral Resources, Dr. A.A. Kaudia,
The Directors from participating countries,
The Representatives of Directors from the participating countries, and colleagues.

Dr. Chikamai welcomed all the guests and participants from other regions to KEFRI and to Kenya in general.

The Director indicated that this was a Policy Level Workshop with representatives from 10 countries of Eastern, Central and Southern Africa. He appreciated that this was the first Regional Policy Level Workshop under the Third Country Training Programme (TCTP) 2009-2013.

The Director who also doubled up as a participant outlined to the participants what the TCTP entailed and looked forward to getting a feedback on how the knowledge acquired would be used to enrich the on-going Regional Training Course (RTC) is used within respective institutions. He encouraged the participants to share information and knowledge on climate change issues, improve the course scope and ensure relevance of the contents within the region.

2.1.2 Opening Remarks by Mr. Masaaki Kato, Chief Representative JICA Kenya Office on the Occasion of the Opening Ceremony of the Regional Policy Level Workshop on "Mitigating Climate Change through Social Forestry in Africa".

Assistant Minister, Ministry of Forestry and Wildlife, Mr. J. Nanok,
Your Excellencies, Ambassadors and High Commissioners, Counselors of Participating Countries,
Director, KEFRI, Dr. Ben Chikamai,
Course Participants,

Good evening,

I am truly delighted and honored to be here today to join you at this official ceremony of the Policy Level Workshop on Regional Training Course entitled "Mitigating Climate Change in Africa through Social forestry". I am pleased to note that this is the first time such workshop to be held in the 15 years that KEFRI has been implementing Third Country Training Programme with support from JICA, and I am happy that you are here today representing more than two thirds of the 18 participating countries.

Before I continue much further, I would like to first shed some light on the history of JICA's cooperation in the forestry sector.

JICA's assistance to Kenya in the sector dates back to 1985 when the Government of Kenya requested Japan to support social forestry development in the country. This led to the construction of these facilities here at KEFRI headquarters and also subsequently, at the Kitui KEFRI centre from 1986 to 1988. At around the same time, the Social Forestry Training Project implemented by KEFRI, with support from JICA commenced in 1995 and continued up to 1997. This project focused on technology development of tree nurseries for semi-arid areas. Immediately after the project, KEFRI also implemented the Social Forestry Extension Model Project (SOFEM) from 1997 to 2002. Through this project, a model for establishment of farm forests by local residents was developed.

Based upon the result of terminal evaluation of this project, the need for strengthening the extension component for greater impact was recognized. This led to the implementation of Intensified Social Forestry Project (ISFP) from 2004 to 2009 by the Kenya Forest Service supported by KEFRI as the collaborating agency.

Coming now to Third Country Training Programme, in recognition of the fact that over the years KEFRI has adequately developed capacity in the fields of research and training, JICA, began supporting the institution to implement regional training courses for 18 countries in eastern and southern Africa.

This started with "Regional Training Course for Promotion of Social Forestry in Africa" which was implemented from 1995 to 1999 and 2000 to 2004 as the second phase. During this

period, participants were facilitated to get a first-hand understanding of the social forestry concept and usefulness with regard to forest conservation and mitigation of desertification. Their capacity to develop relevant policies, disseminate social forestry techniques to farmers and other stakeholders, and promote information sharing among participants was also enhanced.

Having done that, there was need to move to the next level and further develop social forestry in participating countries. This brought the total number of participants in all three phases to 294.

I am sure that both JICA and KEFRI are very proud of this long rich history of cooperation that is as old as KEFRI itself.

Ladies and gentlemen, let me now address what has brought us here today.

Following the last Training Course conducted in 2008, the Terminal Evaluation was carried out in mid 2008. One of the key findings of the Joint evaluation Team was that, and I quote "Ex participants and their supervisors highly appreciate the course and the number of applicants surpass the number of participants finally selected. However, there is need to sensitize policy makers from participating countries on the benefits of the course so as to enhance support for ex-participants activities".

This recommendation was taken into consideration when designing the fourth phase commenced last year. It was agreed that policy level participants be invited from the participating countries in view of the fact that they are in a position to make decisions in their countries to create an enabling environment for further development of social forestry. This will build a firm foundation for enhancement of participating countries to practically mitigate climate change through implementation of participatory social forestry extension methodologies, which is the purpose of this phase.

Ladies and gentlemen, the United Nations declared 2010 as the International Year of Biodiversity and the 10th meeting of the Conference of Parties to the Convention on Biodiversity (COP 10) is scheduled to be held from 18th to 29th October this year in Nagoya, Japan. During this conference, biodiversity and climate change is one of the issues that is slated for in-depth consideration. In mid-September this year also, African countries met in Gabon and signed the "Libreville Declaration" which is the first pan-continental document on biodiversity. The document notes that while Africa is home to 30-40% of the world's biodiversity, it is now threatened by deforestation, land degradation and alien invasive species, among other issues. This is the first time African countries have adopted such a common strategy.

The year 2010 marks the beginning of a new decade full of challenges to urgently come up with sustainable solutions to conserve biodiversity, eco-systems and society itself, not just for ourselves and our children but for generations to come. We must therefore look inwards

and question ourselves what we as policy makers need to do to address these issues at the national level and how people can be mobilized to act the community and individual levels.

For 15 years now, your fellow countrymen have continuously been trained here and have planted the seeds of social forestry back home. Seedlings and trees have literally grown from their efforts. I trust that your participation in this workshop will likewise be like nutrients to the participants and inspire them further to play an even greater role in mitigating climate change through social forestry in Africa.

Finally, I take this opportunity to wish you a very interesting, informative and interactive workshop and also an enjoyable stay in Kenya. I also look forward to hearing about your experiences and impressions at the end of the workshop.

Thank you.

2.1.3 Speech by the Minister, Ministry of Forestry and Wildlife, Hon. Dr. Noah Wekesa MP., EGH., During the Official Opening of the Regional Policy Level Workshop on Mitigating Climate Change in Africa through Social Forestry. Speech delivered by the Assistant Minister MF&W Hon. J. Nanok

Your Excellencies, the Ambassadors and High Commissioners, from the participating countries,
The Chief Representative, JICA, Mr. Kato Masaaki,
The Director, KEFRI Dr. Ben Chikamai,
Distinguished Participants from the various organizations within our region,
Ladies and Gentlemen,

I am delighted to join you today, to officiate in the opening ceremony of this important workshop for heads of forestry and allied organizations from central, eastern and southern Africa. I am informed this is the first Policy Level Workshop under the theme "Mitigating Climate Change in Africa through Social Forestry" to be held here in Kenya under the Third Country Training Programme. On behalf of the Government of Kenya, and the Ministry for Forestry and Wildlife, I welcome you all to Kenya and to this forum. Your presence here today reflects your individual and collective determination to tackle and contribute to mitigating the effects of climate change through participating in development of a common strategy for Sub-Saharan Africa.

I also take this opportunity to express my ministry's gratitude and appreciation to the people and the Government of Japan through Japan International Cooperation Agency (JICA), for sponsoring and providing the necessary support to this important workshop.

Ladies and Gentlemen, the world today, more than ever is faced with challenges attributed to climate change, which is the number one looming crisis, especially in Africa. Its impacts have effects on social, economic, environmental, and even political stability of many nations. Climate change therefore, presents a significant threat to the achievements of the Millennium Development Goals and other initiatives, especially those related to eliminating poverty and hunger, and promotion of environmental sustainability. Since addressing these challenges is complex, a coordinated effort is required particularly in sub-Sahara Africa.

Ladies and Gentlemen, I am informed that the purpose of this Policy Level Workshop is to articulate and share information, knowledge and skills for building the capacity to mitigate the looming climate change challenge through participatory social forestry extension methodologies, among other approaches. The workshop is also expected to facilitate further regional collaboration in forestry and allied resources by encouraging creativity and information sharing on mitigation of climate change. Thus, the Workshop deliberations will focus on the region's climate change response strategies, while the outcome will be a comprehensive and practical training programme on mitigating climate change for the region.

Ladies and Gentlemen, this Workshop has come at an opportune time when the world is developing strategies to combat the effects of climate change, which if left unchecked will be a great threat to our environment, and to our very existence. The impact of climate change is greatest on environment, agriculture, health, water, infrastructure and energy sectors. The effects of climate change already being experienced in by African include floods, increased frequency and severity of droughts, dust and sand storms, increased incidences of human and livestock diseases, food and water insecurity. It has been projected that agricultural production and food security in many African countries is likely to be severely compromised due to these effects.

Unfortunately, our continent is ill prepared for the impacts of climate change. As a result of poverty and inadequate policies and legal frameworks, we have continued to exert pressure on resources that could have cushioned us from these effects. Since the effects of climate change are often not confined to a within the borders of a country, there is need for partnerships and collaboration among countries in order to address the enormous task of saving the environment and consequently mankind.

Ladies and Gentlemen, to a large extent climate change is man-made. Subsequently, the solutions to deal with the challenge rest on our human response. For instance, Kenya's forest sector climate change response strategy proposes among other; rehabilitation of degraded sites that include water towers such as the Mau forest complex, integrated forest and woodland management while involving communities in the management.

In addition, we have a shared responsibility to minimize the effects of climate change, for example by reducing the amount of greenhouse gases emitted into the atmosphere by our individual countries. As Governments and as individuals, reducing carbon emissions through our policies and daily actions is an obligation that we should meet. As the industrialized countries reduce their greenhouse gas outputs, the developing countries should control their rising fossil fuel use. There are opportunities available for developing countries to gain from shifting to lower-carbon output without compromising development, through the Clean Development Mechanisms.

As I conclude, let me reiterate that we have a climate crisis on our hands and the prospects of climate surprises are high and likely to be very grave for the vulnerable sub-Sahara African countries. We must work together as a team, to develop climate change strategies through social forestry that are action results oriented.

Ladies and Gentlemen, with these remarks, I declare the workshop official opened.

Thank you.

2.2 Closing Ceremony

2.2.1 Closing Remarks by the Director KEFRI, Dr. Ben Chikamai

The PS, Ministry of Forestry and Wildlife, Mr. M.A.W. Wa-Mwachai,
Mr. John Ngugi from JICA, representing the JICA Chief Representative,
Participants,
Colleagues from KEFRI,

The Director indicated that it was an honour for him to grace the closing ceremony of the 1st Policy Level Workshop conducted for policy makers from eastern, central and southern African countries. He appreciated the time taken by particularly the 13 participants drawn from 10 countries, to fully participate in the workshop. He noted with appreciation that the participants were all senior managers in their respective countries and institutions, but they all left their busy schedules to come to Kenya with the sole purpose of coming to appreciate what the regional course participants undergo. The Director assured the participants that the one-week policy level workshop held from 28th August to 6th September 2010 had added great value to the Regional Training Course. They had reviewed the course curriculum, which will greatly improve the course content and delivery process. He commended the participants for providing input to farmers on how to improve crop production as they adapt to climate change.

2.2.2 Closing Speech by the Chief Representative delivered by Mr. John Ngugi

Speech by Mr. Masaaki Kato, Chief Representative JICA Kenya Office on the Occasion of the Closing Ceremony of the Regional Policy Level Workshop on "Mitigating Climate Change in Africa through Social Forestry".

The Permanent Secretary, Ministry of Forestry and Wildlife, Mr. M.A M. Wa-Mwachai,
Your Excellencies, Ambassadors and High Commissioners of Participating Countries,
Chairman, KEFRI Board of Management, Dr. James Onsando,
Director, KEFRI, Dr. Ben Chikamai,
Course Participants,
Distinguished Guests,
Ladies and Gentlemen.

Good evening,
At the opening ceremony for this workshop, I mentioned that during the Terminal evaluation of the previous phase of the Regional Training Course, it was observed that the course was highly appreciated by both the ex-participants and their supervisors. It was noted that the course is very popular since there are more applicants that those who are finally selected. In addition, the needs for sensitize policy makers so that they can support the activities of ex-participants was also identified. I am glad that you, as policy maker recognised this need and made efforts to make time from your busy schedules to attend this most important workshop.

I am informed that your programme was not just confined to indoor discussions but you had an opportunity to visit the field and observe the activities of communities in other parts of the country as well. I trust that this offered you a good chance not to only understand the contents of the course attended by your staff, but also observe participatory social forestry in practice through the innovative forestry farmer field schools in Kitui and participatory forest management in Dida Vitengeni at the coast. Such extension methodologies are key to the success and sustainability of social forestry. Of course what is applicable in one country or region may not be necessarily replicable in another. However, I am sure that these observations enriched your discussions on how the regional training course can be improved anyhow what your participants learn and observe can be practically applied in your countries.

I must emphasize that your participation in this workshop is a milestone in the development of social forestry in Africa and its application to mitigate climate change. Policy is what leads to legislation, plans and strategies. As policy makers, you are the right people who can give direction and meaning to hope your countries approach these issues, and how the trained human resources can be utilized. The integration of participant's action plans into your institutions plans, strategies and activities will be the key to achievement of the course objectives. Of course the need for collaboration with other stakeholders such as research institutions, NGOs and develop among others, can also be ignored. Earlier in your

programme one of our staff members made a presentation on JICAs activities. You may wish to visit the JICA offices in your countries when you go back so as to gather more information and see whether there is room for any form of technical cooperation.

Last but not least, I take this opportunity to appreciate your participation in this workshop and you inputs to the regional training course. I trust that when you return to your countries you will greatly encourage and motivate both previous and future participants to take up this challenge and utilize social forestry as a powerful tool to improve livelihoods, and mitigate climate change in Africa. I believe that KEFRI will once again invite you during this final year of this phase so that you a have a chance to reflect and review what will have been achieved by then.

Finally, I truly hope that you also enjoyed your stay in Kenya and I wish you a safe journey back home.

Thank you.

2.2.3 Official Closing Remarks by the PS, MF and W Mr. M.A.M. Wa-Mwachai

In Kenya, the issues of climate change cannot be overemphasized. The phenomenal is unmistakable as depicted even by floods occurring in dry the season. Recently in Isiolo, we have witnessed large floods sweeping away camps. This was all attributed to climate change. But since we have the knowledge that forest that forests have a great role in mitigating climate change, then we are positive that these negative effects can be tackled by increasing our forest cover in Africa.

The presence of the CEOs in this workshop is greatly appreciated, this only affirms our commitment in Africa of tackling common environmental challenges. The various exercises undertaken have added value to the course. This also is greatly appreciated.

The Regional Training Course hosted here in Kenya is important link between the policy makers and the population, especially the population of rural Africa, who from about 80% of population and who rely extensively on the natural resources. In the new constitution of Kenya, natural resource is a key sector for management and conservation. The constitution is complemented by another government strategic plan Vision 2030, which spells out that the forest cover should be increased to more than 10% by 2030, from the present cover of about 1.7%. To meet this target the government hopes to plant about 7.6 million trees in the next 20 years.

The government has developed various strategies to increase the tree cover. For instance, farmers will be encouraged to have 10% of agriculture land under tree cover. The government does not have enough resources to improve tree cover so farmers/communities need to participate in tree planting in private land and even government land through participatory approaches. Every citizen must therefore participate in tree planting.

Kenya has developed National Climate Change Response Strategy in response to challenges and opportunities posed by climate change. To cushion Kenya against the impact of climate change, this strategy has identified sectoral adaptive and mitigation measures and needs. In the forest sub-sector, massive re-afforestation and forestation which will include rehabilitation and restoration of forests and riverine vegetation. Restoration of water towers which include the Mau complex is paramount importance. This particular complex is of great economic and environmental value, not only to Kenya but other countries within our region For instance, Mau takes water to Nile, so Mau destruction does not only affect Kenya but much of Africa.

The Mau complex has suffered great degradation through settlements and conversion of forest to agricultural lands. The Kenya government aims at reclaiming such lands, rehabilitating it in order to restore the forest to its original function of environmental conversion and as a catchment area. If restored, water scarcity in Kenya, which translates to inadequate food, will by drastically reduced.

In Africa, if we are to use irrigated agriculture we need water, which will come from forests. Power in Kenya is mainly hydro in nature, which also depends on the survival of forestry.

But does the Treasury prioritize forestry? There is need to have more money allocate in forestry and environment, if Africa is to become resilient to climate change.

Thank you

2.2.4 Vote of thanks by Workshop participants delivered by Dr. Wilson Kasolo

Permanent Secretary, Ministry of Forestry and Wildlife, Mr. M.A M. Wa-Mwachai,
The Director, KEFRI, Dr. Ben Chikamai,
Representative from JICA, Mr. John Ngugi,
KEFRI staff,
Fellow participants,

Climate change is mammoth. It means different things to different people. It reads like the story of three blind men who were requested to describe an elephant. The first touched the tail and described it as being too small. The second touched the snout, and described it as having a big mouth. The third touched the tusk described the elephant as having a hard rock. Who then described the elephant properly?

So climate change is like this elephant, which has been given different descriptions. Then how can we be able to manage efficiently and effectively the issues of climate change? When we came to this workshop we were like the three blind men, describing climate change differently due to our different backgrounds and surrounding. Mitigating and adaptations measures were thus defined differently but this training has brought in a common ground and a common understanding.

Having participants from different countries, background, and experiences has given us all chance to share. What Kenya is doing in villages is possible to translate climate change to the lowest level since it is cutting across all levels of financial resources.

Suggestions

- Need to anchor the programme to what is important in our countries.
- KEFRI/Ministry appreciated.
- JICA appreciated for financial and technical support.
- Thanked SFTC Staff/KEFRI and Director KEFRI who was able to get time to intermingle with the participants.
- Participants committed to programme because they all need to own the RTC being implemented by KEFRI.

Thank you.

3.0 Field Reports

3.1 Report of Field Visits to Eastern Region

1. Visit to Kitui Regional Research Centre

Dryland Forestry Activities: A summary of the paper presented
By Dr. James Ndufa

Of the seven Millennium Development Goals (MDGs), KEFRI Kitui Centre focuses on three, namely:
Goal 1: Eradicate extreme poverty and hunger.
Goal 7: Ensure environmental sustainability.
Goal 8: Develop a global partnership for development.

In the drylands of Kenya, there is extreme pressure on natural resources to sustain people's livelihoods. This pressure is acerbated by increase in human population which has led to deforestation, soil and water degradation consequently leading to food shortage and poverty.

Prioritized research activities in drylands are outlined in KEFRI's Strategic Plan 2008-2012. These include:

- Development of forestry products – gums, charcoal and dyes, among others.
- Management and control of *Prosopis juliflora*, an invasive species that has had negative effects on landscaped and wetlands.
- Domestication of indigenous tree species – Melia and Osyris.
- Validation and integration of indigenous technologies on woodlands management.
- Development of drought tolerant trees for adaptation to climate change – Melia and Eucalyptus.
- Development of bio-energy species e.g. *Jatropha carcus* and others.

Major achievements

- Dryland forestry information such as appropriate species, spacing for various species, and management of these tree species has been realised.
- Research in high value dryland species e.g.: *Melia volkensii* (Mukau), *Jatropha carcus*, *Osyris lanceolata.* A lot of work has been done on Melia, a high value indigenous species. Achievement in this species includes overcoming seed dormancy, tree crop interaction, genetic diversity, and wood properties studies.
- Information generated on conservation status and propagation and utilization methods of several indigenous species.
- Developed a model farm forestry extension approach applicable to the drylands of Kenya.
- Conservation of hill-top forests and woodlands.
- Management and utilization of Prosopis.
- Propagation and development of aloe products.

Other research activities:

- Gums and resin research-*Acacia senegal* (grade 1) and *Acacia seyal* (grade 2) yield gum of economic significance.Charcoal production techniques - Better wood to charcoal conversion using improved kilns.
- Use of energy saving stoves (jikos).Rehabilitation techniques.
- Bamboo work for use in river bank stabilization and furniture making.

Dissemination Avenues

As part of its mandate KEFRI undertakes to disseminate research findings to her stakeholders. Strategies adopted include:

- Field days and open days.
- Agricultural shows and exhibitions.
- Existing extension programmes.
- Establishment of demonstration plots.
- National and regional workshops.
- Publications – this includes simple bulletins, manures, leaflets, which are produced for use by farmers and extension agents.

To ensure adoption of technologies in the dryland rural areas, there is need to have an approach that ensures participation and sustainability with the motto "More people, more quickly, more lastingly, more regions". Such an approach will ensure prosperity of a whole village other than a few individuals prospering.

Discussions- Question and Answer Session

Q1. Question from Southern Sudan by James Mindo.

- Can Prosopis be used to rehabilitate watershed areas?
- Like most parts of Africa biomass is the main source of energy in Sudan for cooking and heating. This has resulted into massive tree felling leaving large tracks of bare land. From research work in Kenya, what processes can be used to quickly rehabilitate such areas?

A. Prosopis is good for reclaiming degraded land in suitable conditions. This is because it is fast growing. However, to avoid invasiveness, the species must be managed well. When the species is cut, it produces many coppices. Some management strategies that have been found to be effective include pruning and thinning. Thinning to raise woodland with widely spaced trees allows undergrowth to flourish. Farmers are encourage to graze animals under wide spaced woodlands as this further checks Prosopis new growths, thus avoiding canopy closure.

Around Garissa, Prosopis has been used to reclaim land thus minimizing sand dunes. However, the species is invasive around Tana River delta.

The best methods to promote a species is to establish demonstration plots especially for the indigenous species where farmers have a notion that such species are slow growing and are not very useful as they do not satisfy their immediate needs. KEFRI has established demonstration plots of Melia and Acacia species to allow farmers to experience and learn. To ensure sustainable use of wood from woodlots, use of more efficient kilns is being promoted while farmers are encouraged to have a felling cycle for sustainable charcoal production on-farm. However, to encourage intensification of tree planting on-farm, there is need to provide farmers with many options in terms of species selection, planting niches, end products among others, since the needs, economic ability, and resources differ from farmer to farmer.

Q2. From Ethiopia

- About 80% of Ethiopia is drylands. Therefore, it faces a major challenge in its research activities on development of technologies that are suitable for such conditions given the low rainfall, high salinity and evapotranspiration. Use of irrigation has been muted to solve the low soil moisture since the soils are fertile. Now, does KEFRI have experiences in tree establishment for such scenario?
- In some areas in Ethiopia, *Eucalyptus camaldulensis* had been observed to die after 5 years. Any ideas why this occurred?

A. Salinity is not a major problem in Kitui. Therefore, no data is available on the same. However, shallow soils due to hardpan are a major challenge to tree growing in the region.

For successful afforestation programme, it is best to initially plant indigenous tree species found within the area after which exotic ones could be introduced after they have been screened and found to be suitable for the area. Nevertheless, it would be worthwhile to introduce *Melia volkensii* in Ethiopia, as it is endemic to the eastern African region.

When exotic species were being introduced into Kenya many species were tried in the drylands, however Melia emerged as the best suited species and farmers picked it up for woodlot development. So, even in saline area it is best to test indigenous species alongside exotic species whose introduction should be carried out with a lot of caution. For species ear-marked for introduction, it is advisable to understand their ecological behaviour are they invasive in nature, how they are likely to behave when introduced to the environment. For example, Prosopis background has yet to be well understood if it is to be introduced in other regions such as Sudan or Ethiopia. It is advisable to try other varieties that have not been reported to be invasive e.g. *Prosopis chilensis*.

Q. From Tanzania

- How are fires in the drylands tackled?

- Now that bamboo is being promoted widely in Kenya, is there a possibility of it being invasive?
- How do farmers balance tree and crop growing where land holdings is small?

A. Fire incidences is a challenge, however no major fire has been reported in the KEFRI Tiva forest. The area is equipped with a fire tower that is about 30 m high to monitor any fire outbreak within the forest. Major causes of fire in the dryland emanate from charcoal burning, which is major activity especially in the dry season and when farmers burn grasses just before the onset of rains as a grazing management practice.

Within Kitui zone there is about 1,700 ha of government forest mainly situated on the hills. These forests suffer occasional fires especially in the dry season. Early detection of fires has helped to solve the problem. The main challenge is still fires that occur outside gazetted forests – on-farm woodlots.

On the issues of invasive species several have been reported in Kenya. Some of these species were promoted by NGOs even before research had been concluded. For instance Prosopis was first introduced to reclaim quarries. This was successful and other NGOs took it up for introduction to other areas. Kenya is also witnessing the same trend with other introduction of other species such as *Jatropha carcus*, where NGOs are ahead of research. However if the classical method of species introduction is strictly followed, invasiveness would not be witness as species with potential for invasion would not be selected for introduction.

On tree/crop mixture - In Kitui, due to erratic rainfall farmers in some seasons experience total crop failure, therefore there is need to have trees on farm as a fall back. Work is currently on going to determine the correct spacing for Melia, to maximize tree/crop production in an intercropping system.

Q From Uganda by W. Kasolo

- KEFRI is undertaking both research and extension, which is a good approach but how does it balance the two. In Uganda, the research institutions specialize in research only.
- Is marketing a challenge? For instance when farmers over produce, whom would they sell to?
- Indigenous species have been over exploited in most of our countries, what are the challenges for domesticating such species, and what achievement has KEFRI made so far?

A. On Research-extension linkages in the past, KEFRI carried out only research but there was challenge of getting farmers to know and adopt the new technologies that may were developed. A need was therefore identified to pass information to farmers through dissemination, which in itself is not extension. In Kenya forest extension is

Introduction to Farmer Field Schools (FFS)
By Mr. Morris Wanyiri, Zonal Manager KFS, Kitui

Background

Farmer Field Schools (FFS), which is a participatory and discovery learning technique that has been adopted by Kenya Forest Service (KFS) as an extension methodology to get farmers involved in intensive tree planting. The process of FFS is strictly structured with a timetable that contains timings and content agreed upon by each group, and adhered to all members. Each group also develops by-laws to ensure disciple of the group. Within the schedule a special topic which touches on different field such as health, post harvest storage, pests and diseases management etc are covered as per farmers request.

The FFS cycle runs for at least one year. Farmers plant, monitor and collect relevant data. For agricultural crops, data is collected on a weekly basis, while for trees, data is collected on a monthly basis. In the process of data collection, farmers are able to learn by doing and this helps them own the results.

FFSs run by KFS must have the tree component as the entry point, e.g. tree nurseries. To motivate farmers during an FFS lesson, group dynamics that entail dancing, singing, and drama are entrenched, making the learning more interesting while passing the message through this form of art. Group dynamics also energize the participants, enhance participation, cohesion and held resolve conflicts.

Intensified Social Forestry Project (SOFEM) which ended in March 2009 was very instrumental in running the FFS in Kitui. However, since April 2009 KFS has managed to run 8 FFS with some being facilitated by farmers (farmer run FFS) who had graduated from the previous schools.

Q What is the curriculum for FFS? and how are the achievements for FFS measured?

The FFS curriculum is integrated in nature. FFS is implemented under KFS, the main aim is forest extension but since farmers need a basket of environmental and agricultural technologies, many other activities that include income generating activities (IGAs) are also incorporated. For instance, improved mango and other fruit orchards development are promoted. Though these may not be a forestry crop, they are usually tested during the FFS. In case where the crop is a food crop such as maize, varieties are tested by allowing farmers to set up simple comparative experiments and selection made according to results obtained from such trials. Farmers, therefore, discover by doing.

Q. How do farmers dispose the seedlings raised in their tree nurseries?

A Some seedling are shared among members, others are sold.
For an IGA to be successful in tree nursery activities, the FFS group needs to carry out a market survey to know what species the community requires. For such groups KFS has been giving some seed money to group to start the nurseries.

Impact: Impact assessment is proposed to be carried out during the CRAC during which the FFS which have now been run for 4 years by KFS will be evaluated.

Case study of an FFS group in Kitui

Background

The group was started in 2004 as a farmers group under the ministry of Agriculture. By the end of 2004 KFS came in to train the group on agroforestry activities. The group members were advised to start planting grafted mangoes as opposed to the local variety, which they were then planting. Mango varieties tested included Apple, Van Dyke and Kent. Farmers conducted tree species comparison trials with Melia, Grevillea, and Eucalyptus.

For maize crops farmers tested DHO4 and DHO2 varieties, with and without manure and/or inorganic fertilizers. Maize data was collected weekly while that of mangoes was carried out on a monthly basis. After two years of experimentation, farmers were able to decide which species to adapt.

Farmers prioritized the mango varieties in the following order:- Apple, Kent ,Van Dyke. The main challenge with the mango growing was pest attacks.

Grevillea was the preferred species was doing better than indigenous Melia. The better performance of Grevillea was attributed to higher rainfall received at the experimental site.

Challenge: group was not cohesive after graduation due to lack of funds to continue with new activities.

Impact/achievements

Farmers were able to select mango and maize varieties and tree species suitable to their region.

The experimental site has been used for learning purposes during field days exposing the tests to many more farmers.

The group has also produced facilitators who continue to train upcoming groups.

Q. What motivated farmers to attend the FFS for 1 and ½ years especially when there are other competing farming activities?

A. They felt that the idea of FFS was good, and since they were only meeting once in week, they felt this was not too much time given what they were learning as they realized that they needed the knowledge. To ensure cohesiveness of the group agreements were made, rules and regulation developed. During the session groups dynamics were not only entertaining but also passed new information.

Q. How many of the activities farmers were trained on have been adopted given that there are no more resources being given to the group?

A Every group member has their own activities on their farms. Some farmers have tree nurseries while other have established woodlots. For the food crops farmers are also now applying fertilizers, which was never used before undergoing the training in the FFS.

It has been realized that may PRA prioritize food, water and rank forestry as being of low priority. But there is need to have an entry point for forestry activities. One way is identify and work with a group that is interested in tree farming while applying integrated farming approaches. FFS as an approach attempts to remove the top down approach so that farmers appreciate the efforts as they learn, and discover by themselves and consequently adopt was is suitable for them.

Q. Who owns the land and trees under FFS experimentations?

A. The land and the trees belong to the host farmer. The group sets out rules, regulations and agreements at the start of the activities. Local administration is involved by counter signing the agreements to prevent any party from pulling out before the agreement cycle is completed.

Q. Do farmers gain in the short run under the climate change funds?

A. It is still a challenge in Kenya since REDD pays only for ecological services, but trees grown by many small holder farmers Kenya are used for economic benefits. Large companies may benefit from carbon trade, since they are now buying land and putting it under trees. For smallholder farmer, TIST in eastern Kenya is paying farmers to retain trees on farms.

Q. What plans do farmers have for greater impact?

The host farmers have taken up to practicing what he had learnt during the FFS. Other farmers have tree nurseries and IGAs. This has brought the cost seedling to affordable prices since brokers used to buy seedling at Ksh 30 from KEFRI and sell the same to other farmers at Ksh70.

Farmers are also conscious on the need to add value to products. The farmers have plans to start a mango processing unit where they could process juice. KFS will assist the farmers since the institute has a conservation fund to give credit to farmers to start the processing unit, and woodlot establishment.

Q. Is there real need to have farmers to remain in groups? If not how do they continue networking taking into account that group activities take a lot of time?

A. Farmers are advised to main the groups as they can only be assisted through groups. E.g. the new processing plant can only be funded through a farmer group not individuals.

Visit to a contact farmer Mr. Jonathan Kituku Mung'ala of Kibwezi

Farmer's details

Name	Jonathan Kituku Mung'ala
Age	54 years
District	Kibwezi
Division	Kibwezi
Location	Kikumbulyu
Sub-location	Ngulu
Village	Nyayo

Farm location

Mr. Kituku's farm is located in Ngulu sub-location Kikumbulyu location, Kibwezi Division the mean annual rainfall is 600 mm and mean annual temperature is 25°C.

Environmental conservation initiatives

(i) Establishment of *Melia volkensii* plantation

Melia volkensii was chosen because it is indigenous and exhibits good qualities that have impressed the farmer overtime. These include resistance to termite attack, fast growth rate and ease of establishment.

The second consideration is the many valuable uses. It is commonly used for timber, poles, firewood, fodder, handcraft, pesticide/medicinal and beehives.

Melia tree planting series

The total number of *Melia volkensii* trees planted to date is 10,748 covering an area of approximately 17.2 ha.

Why plant Melia?

Mr. Mutuku is retired officer from KPLC. During his working days he visited many places in Kenya and admired tree farming. But upon retirement he embarked on food crop farming mainly maize which he farmed for 14 years. However, due to the low rainfall experienced in the area, crop farming was not economical. He therefore, started tree farming in 1999 after receiving advice from KEFRI that include tree nursery management. In 2003, the farmer established his own tree nursery. In 2005, the farmers established 418 Melia seedlings, with propagation material being sourced from his nursery and addition given by KEFRI. The farmer formed a partnership with KEFRI and establishes Melia trees annually. By 2006 the farmer started to receive visitors. The visitor learns from him but they also contribute a lot of ideas, which he implements and this has contributed to his success.

Mr. Mutuku has adopted improved farming methods and is able to raise his crop production above the average of the other farmers in the region. His farm has been used as a site for

field days by MoA, Livestock development and provincial administration. Such forums have continued to enlighten him further.

Year of planting	No. planted	Spacing
2005	418	4.5 x 4.5 m
2006	3350	4.0 x 4.0 m
2007	1000	4.0 x 4.0 m
2008	3000	4.0 x 4.0 m
2009	2250	5.0 x 5.0 m
2009	750	various spacing 3.0, 4.0, 5.0 and 6.0
Total number of trees	**10,748**	

(ii) **On-farm mango plantation**

The total number of improved mango trees planted is over 1000 covering an area of approximately 6.4 ha. This was done under mechanized water harvesting structures. The trees started production at the age of two and half years.

The plantation was done in the year 2006 and harvested in 2009.
The farmer harvested a total of 120 pieces of mangoes per tree during that season.

(iii) **Tree nursery operations**

Farmer started establishing his own nursery after developing good working relations with KEFRI's Kibwezi Research Station, where he was issued with his first seedlings free of charge in the year 2003.

The farmer operates a tree nursery where he raises seedlings for sale and for his on farm plantation establishment. He uses this nursery to train other farmers. Over the last three years he has raised the following seedlings.

Year	No. of seedlings
2008	24,000
2009	18,000
2010	10,000

(iv) **A future homestead**

Has established a future homestead (compound planting technology) with various tree species.

Strategy adopted to achieve the above

The strategy adopted to make this afforestation program succeed is to have the farmer equipped with both:

(i) Short term crops – green grams, pigeon peas cowpeas and tree nursery activities (for short term food and income).

(ii) Mid term (improved mangoes) for mid and long term food and income.
(iii) Long term crop – *Melia volkensii.*

Information dissemination

The farm is used for:

- Demonstration to people from different parts of the country.
- Field days are also held in the farm.
- Institutions also learn from this farm.

Farmer's vision

- To establish over 300 ha of *Melia volkensii* and assist the interested surrounding farmers plant at least quarter hectare of *M. volkensii* trees.
- The farmer in future intends to install a small sawmill to convert Melia logs to timber. He also feels that other surrounding farmers will have woodlots/ plantations that would be a source of raw materials for this sawmill.
- The regular yearly planting of at least 1 ha will in future translate to yearly harvesting after maturity. The farmer will therefore be assured of regular income until the end of the cycle.

In the year 2006, the farmer started to encounter lots of changes and received visitors from different parts of the country to learn from his farm.

Challenges

- Neighbours complained of goats interfering with their crops.
- Infection of trees.

Managed challenges

- Discussions with neighbours and other stakeholders.
- Neighbours created interest on his farm.
- Plants his trees mainly in bits.
- Raises *Melia* seedlings seeds and from this he pays his workers.

Q. Are there any plans for the farmer to produce biogas?
A. He had no plans but now that the visitors ask, he has put the proposal in his basket of ideas.

Q. Who helps the farmer to carry out the activities, since the farm is rather large and are there challenges, which he encounters in managing the farm?
A. Challenges - when the trees were young the neighbours' goats used to nipple on them. However, he held discussions with the neighbours while showing them the importance of trees. Many of the neighbours have now taken to tree planting. Mr. Mutuku raises seedlings and sells to them.

The area planted by Mr. Mutuku in each year depends on availability of resources. He hires 3 labourers for the farm and 3 for the nursery.

Q. How does he balance livestock, tree and food crop farming?

A. The enterprises are interrelated. For instance the money from nursery and sale of food crop is used to buy extra land. On average he has been acquiring about 10 acres of land yearly. Agroforestry is also practiced where food crop such as green grams are planted under young Melia trees.
The farmer plans to have a zero grazing unit for cattle in future so that animals do not damage the trees.

Q. Since Melia seed extraction is so laborious and difficult, where does the farmer acquire the seeds for his nursery from?

A. "Something can only be difficult if one has options" the farmer says. He uses the same techniques of seed extraction as taught by KEFRI. However, he has modified equipment to include a log where holes for placing seeds have been scooped. A panga or knife or a hammer is then used to crack the hard seed coat.

Q. What is the long-term goal of the project since he is aging and his children are not living at home?

A. The children are also interested in tree farming. However, when he commenced on the project they were not very keen but currently they all have a lot of passion for tree farming.

Q. The spacing trial at the farm is it useful to the farmer?

A. This is a type II trial which is Research designed and farmers managed. The trees and any crop intercropped belong to the farmer.
The field operations are executed by the farmer. The research team and the farmer are equally involved in development, technical and economical evaluation of the technologies. The farmer conducts all operations and decides on how plots are managed.

Q. For how many years can the trees be intercropped with food crops?

A. This will depend on how long the tree canopy takes to close.

The Melia trees can reach 6-7 m in the wild. However, farmers are managing it at about 5m clear bole. There is therefore need to advice farmers on silviculture management in-order to improve the trees.

Tiva Forest Activities

Nursery activities

Melia volkensii germination

Each nut contains 1-5 seeds. At high temperatures seed extracted seeds germinate within 3-4 days. The seedling are pricked out into polythene bags two (2) days after germination - preferably those open at the bottom to avoid water logging as the species is sensitive to water. Seedlings are also susceptible to cold.

Hardening up of seedlings

- Put the seedling in pots under partial shade.
- Space the seedling regularly to allow for equal receiving of seedlings.
- Water seedling every other day.

Forest activities

Trial was established in 2001 to come up with optimum spacing other silvicultural.
Since Melia require little water for growth trenches were dug to improve drainage.
Early pruning for Melia is mandatory is good quality timber is to be expected from the crop.
Pruning should start after 5 months.

Q. Are the Melia trees in the forest from the same provenance?

A. No. Seeds were collected from different trees and sites. Currently a provenance trial has been established on a trial basis. For this seeds were collected from superior trees both in farm and from the wild. KEFRI hopes to map and even collected seed from Tanzania and up to Somalia border and screen these sources. The superior material will then be selected.

Report of Field Visits to Coastal Region

Ngomongo Villages

The villages were started in the year 1991. Initially, the area was a coral quarry extraction, site which was then it turned into a solid waste dumping site for the hoteliers. The accumulating filth and obnoxious smell consequently started affecting the residents thus raising serious health concerns. The different indigenous trees species planted are now having roots penetrating into t e coral bed rocks making the park to be more rich and stable habitat for other indigenous and exotic species to grow. The first species planted were Casuarina and *Lantana camara* as pioneer species. Eucalyptus was later introduced in the area for it immediate benefits.

It was observed that *Lantana camara* is used by farmers in Ethiopia who compose green manure from cut and decomposed branches for their shambas.

Today, Ngomongo Villages has established about seven different cultural sites of Kenya's tribes namely:

- Kikuyu
- El Molo
- Mijikenda
- Luo
- Kalenjin
- Maasai
- Kamba

Introduced a college later on where he could receive some income to manage the village and also sell different kinds of traditional ornaments and African attires to attract tourists.

Q: Kasolo
Is there any effort to divert the park on climate change and social forestry?

A: Background does not allow the park to be diverted on the above.

Chagala: Efforts to be made to sensitize farmers on initiative to climate change and educate farmers on the importance of the park

Mukolwe: Social forestry change to come on board and take up the drive of change.

Kasolo: Should help the farmer on the perspective of climate change and bring farmers on board.

Chikamai: There are assorted species in the coastal area and at KEFRI Regional Research Centre at Gede, which could be availed to the proprietor to plant in the quarry. He should leave the Eucalyptus to grow for sale and plant the indigenous trees for education and conservation purposes as well as community use.

Marufu: Wanted to know if there was any law by the government to protect the nature reserve.

John: The land is individually owned and therefore it is not easy to declare it as state.

Haller Park

Mining of coral lime in Bamburi started in 1954. In the excavated areas temperatures at times reached as high as 38 °C. In 1971, the company started activities to reverse some of the harsh environmental activities experienced in the area. This was meant to improve the livelihoods of the community living adjacent the quarry area, improve the image of the company and come up with ways to improve community ecological and economic benefits.

After about 3 decades the Bamburi cement company has rehabilitated the quarried once degraded site to a showcase of industrial environmental responsibility from limestone extraction, cement production to rehabilitation processes involving pioneer planting, ecosystem development and management, wetland creation, forest development and wildlife management.

Casuarina was a successful pioneer species- when rehabilitation was started by Dr Haller in 1971 the temperature in the quarried area where about 40-44 °C, water was 90% saline and the water table was very high therefore only very shallow rooted plants adapted to this environment. Casuarina adopted well growing to a root depth of about 4m. The species modified the conditions of the quarry allowing other plant species to now grow in the site. The species fixed nitrogen through *Frankia* when nitrates are released to the sandy soil, the soil fertility was greatly improved. However, the foliage of Casuarina does not decompose fast since they are acidic in nature. Millipedes were therefore introduced to help in their decomposition. Thus an ecological challenge was solved through a natural process.

Currently more Casuarinas are planted with support of the community e.g. during the world environmental day or during open days at Haller Park. The site is now a showcase where industry co-exists with nature both plants and animals. In 1959-1978, the company had a garden department where crops were grown to feed the company staff and secure the reserve land.

Making the quarried green is a way of adapting to climate change. The company hopes to substitute some of the fossil fuel being used by woodfuel.

Q. Since the quarries are still active is there a master plan to rehabilitate the area?
A. There is master plan – the site is quarried to about 3-4 m deep, then tree are planted which are harvested after 3 years. The site is once more quarried and trees planted.

Q. Are there any indigenous tree that currently in the forest?
A. Indigenous species from Africa include *Conocarpus lacifolius* from Somalia. The species is hallow rooted and tolerates salty conditions. Coconut palm is also doing very well in the environment. *Prosopis juliflora*, though a problem in many parts of Kenya, it is doing well at Bamburi. The species contributed a lot in modifying the environment by acting as wind break and soil erosion control. Other species have

been brought in by dispersal organism these include herbs and other medicinal plants, fodder species, palms and other species of aesthetic value. About 400 plant species are currently found within the Park.

Q. What is the long-term plan of the animals introduced in the park as these animals may change behaviour?

A. The main focus of Bamburi is to restore the quarry but the animals were introduced many of which were rescued from other area e.g. the giraffe were initially rescued from the orphanage. This also goes a long way to save guide the gene pool. The giraffes are curled and KWS also removed those beyond the carrying capacity of the park and releases them in the wild. Lafarge ecosystem, which is a subsidiary company of Bamburi cement, is to accommodate the animals and ensure that they are fed and healthy.

Q. Are there any silvicultural management carried out on the trees within the plantations?

A. The bio-fuel plantation is self seeding- has under gone a natural regeneration and was not initially managed through any forestry specifications. However, the plantation being currently established and under a forest officer who has a management plan for the same.

Q. What is the main purpose for establishing the plantations?

A. The main purpose is to better the environment for all stakeholders. The adjacent communities benefit by being employed to manage the plantations, buying fire wood at subsidized rates, and conserve the mangrove forest as communities can now use casuarinas for domestic purpose other than the mangroves.

Q. Has Lafarge applied for CDM in Kenya since cutting trees for bio-fuel will reduce the carbon stored?

A. The company could benefit from carbon trade through reducing fossil fuel use, which is different from CDM strategy. However the company is also planning for the future since coal the main fossil fuel currently used could also be exhausted but the company hopes to have established enough plantations to provide biofuel.

Corporate Social Responsibility - Community allowed to farm in the plantation area through the Shamba system, given free seedling and the company also buys seedling from the community. Communities allowed to collect firewood from the plantations on specified days, occasionally the company collects the firewood and put it at a central place for collection by community members.

Lafarge Ecosystem at Vipingo

The objectives of establishing the plantation by Lafarge was to use the vast available land to reduce carbon footprints emitted during industrial processing of cement. This land also seemed idle and there was need to secure it, as it was a target for grabbing by squatters and

even politicians. This biofuel project, which started in 2007, was also established to provide renewable fuel for the kilns. From these plantations the company hopes to substitute 10% of it fossil fuel (coal) with woodfuel. This will not only reduce carbon emission but reduce cost of energy since coal is not available locally but is imported from Egypt and/or South Africa.

The company is trying *E. camaldulensis, Casuarina equisetifolia* and Albizia at pilot level. Planting is done is compartment and the company hopes to harvest the trees when they are 6 years. The company also proposes to have an out-grower scheme where farmers will be contracted to grow wood fuel trees for the company. Since the project of plantation establishment and management is labour intensive, the company involves the community in these plantations activities. The community also raises seedling for the company who then buys the same to establish own plantations or donates to schools as part of Green school project. The company therefore provides employment, training and small business opportunity for community members.

Q. In areas where Shamba system is practiced how is the quality of the tree crop?

A. The company is only in the 3rd year of Shamba system practice. However, it has been observed that the trees under the system are doing better. This better performance is attributed to weeding of the trees at 6 months as opposed to monoculture area where weeds were controlled by slashing.

Q. Why are trees planted at very low spacing?

A. The project document requires that the trees be thinned after 3 years. And given that this is a pilot/experimental plot data collected will inform future spacing. Advice: It is ok to have trees at low spacing if the sole purpose is for fuel wood production as closely spaced trees may produce more biomass on an area basis as they attain high heights per year.

Q. Does the company monitor establishment and management of plantation by farmers? And is the nature of farmers being targeted for the out-grower scheme? The company is targeting large-scale farmers who will be patient and willing to wait for more than 6 year or till the trees attained desired volumes. Otherwise casuarinas is very marketable for the hotel industry at the coastal Kenya and small scale farmers may not be willing to wait for long since the farmers usually sell the casuarinas when they are about 5 years.

Q. Is the company planning to apply for CDM and how would such a project benefit the government?

A. Examples from other companies included Mumias sugar who have an approved CDM project. The company has put power in the national grid from which the government gets tax. In Tanzania western management has also put electricity in the national grid. 5% of tax from this power is remitted to the government. Since CDM is meant to help developing countries, the developer/company and the government should both benefit from any CDM project.

Q. How much carbon is reduced by substituting coal with bio-fuel and how much carbon is being stored in the trees within the plantations?

A. The carbon values have not been calculated but it would be very important information.

The small out-grower scheme needs to benefit from the carbon trade other than from just the sale of trees to the company. The MENR plans to collate all projects under climate change. The initial step will involve collecting data from the whole country to be managed under the National Climate Change Office. Once this financial mechanism has been put in place farmers and relevant companies could then apply and benefit from CDM.

Q. Why does the company quarry up to the water table level?

A. This is a challenge when quarrying since the water level changes with the tide.

Comments from Director KEFRI

It will be important for KEFRI to work closely with Lafarge especially on the following areas:

-

- Development of optimum tree espacement.
- Tree management.
- Mixed species plantation.
- Tree growth models.
- Ecological interaction of trees.
- Screen other suitable species other than casuarinas and Albizia the latter did not seem to thrive well in the region.
- The actual benefit to the community under the Shamba systems and what would be the advantage of PELIS system (Plantation Establishment Livelihood Scheme).

Visit to Dida PFM

Background

The Dida PFM activities started in 1997 in the southern part of Arabuko Sokoke forest within Malindi/Kilifi districts, in the then Kitengeni Division, which is currently Ngaze District. The PFM was started as a Pilot covering 14 km stretch bordering the forest, 5 km in the community farm area and 3 km into the forest. The piloting covered 3 villages in Dida sub location namely, Kahigoni, Dida and Kafistoni. The community was involved in all aspects of forest management that included protection, conservation and utilization of forest resources in sustainable manner. The technical advice was offered by different governmental and NGO departments.

GOK institutions involved in PFM included Kenya Forestry Research Institute (KEFRI), Kenya Forest Service (KFS) (formerly Forest Department), Kenya Wildlife Service (KWS), National Museums of Kenya (NMK) while strategic partners included Birdlife International and Nature Kenya. Activities were carried out with financial support from the Government of Kenya, the European Union and USAID.

Process of PFM

1. GoK and strategic partners carried out feasibility of the PFM area.
2. Provincial administration and community were also involved in the study.
3. PRA was carried out, benefits and challenges from the forest discussed. Some individuals were selected to attend training on PFM processes. The community also selected a committee to be trained on.
4. Management, knowledge and skills.
5. Protection.
6. Conservation and sustainable utilization of forest.
7. During PRA mapping of the three villages was done. This included social mapping, resource mapping/assessment and zonation of PFM area. Survey was carried out to document what resource was found in the forest, the amount /quantity of resource and the demand for the particular resource.
8. Pilot area was zoned by the whole PFM team.
9. Institutional and organizational structures were put in place.
10. The community has formed a forest management organization known as Dida Forest Adjacent Area Forest Association (DIFAAFA) that has been registered as a Community Forest Association (CFA) under the Societies Act as per the Forests Act, 2005. The Association is able to participate in IGA development, forest protection through community forest guards, holding joint planning meetings with Kenya Forest Service (KFS), etc. All these activities are supported by PFM management guidelines. There is also a board of advisors who advice on the management activities.
11. After data collection and analysis the community and GoK organizations developed a management plan for the Arabuko forest. An operational management plan was also

developed this was directed on how the existing forest resources can be used on a sustainable manner.

12. Management agreements were also developed but these have not yet been signed with KFS.

The main forest based income generating activities (IGAs) by the community include:

- On-farm tree planting.
- Tree nurseries.
- Butterfly farming.
- Bee keeping.
- Herbal medicine.
- *Aloe vera*.
- Sericulture.
- Chile farming.
- Coconut processing mixed with herbs.
- Community ecotourism.

In Dida, the PFM institutions consist of specific product user groups (e.g. beekeeping, butterfly farming, etc) in each of the three villages which together make up the VDFCC (Village Development and Forest Conservation Committees) and the DIFAAFA executive committee, which brings together the three VDFCCs . The decision to locate user groups at village level rather than having one for the whole area was in part determined by administrative boundaries and in part intended to reduce distances individual users had to travel to participate in activities of interest to them. Individuals can register as members of a specific user group in their village. This automatically gives them membership of the village VDFCC and DIFAAFA.

Some IGA products such as honey and butterflies are marketed through the butterfly (Kipepeo) farm established by NMK at the Gede. The demand for butterfly pupae is limited by the markets and the communities usually lack purchasers for their pupae. In 2010, there was low production of butterflies this was attributed to weather changes as there was a lot of rain and strong winds.

Achievements

Arabuko-Sokoke has succeeded in Piloting PFM.

- Dida is a PFM role model that currently is receiving visitors from local and international arena.
- There is change of attitude among stakeholders towards conservation of the forest.
- Succeed in forming more forest associations part from DIFAAFA, there is Jilore Community Forest Association, Gede Arabuko Community Forest Association.
- User groups have been formed, these include conservation communities and forest CFAs.
- Operational management plan and management guideline developed.

- Capacity building for community and government officers.
- On-farm tree planting has reduced pressure on forest.
- Human wildlife conflict had been resolved due to erection of an electric fence.
- Awareness created on forest conservation and environmental issues in general.
- Developed a video with KEFRI covering all PFM activities.
- Number of IGAs has increased.
- PFM activities replicated in the coastal region and other parts of Kenya.
- Joint forest patrols – community scouts and forest guards from KFS and KWS are working together.
- Establishment of eco-tourism-e.g. community bandas.

Challenges

- The management agreement for Arabuko-Sokoke has not been signed yet, though PFM was piloted here.
- A clear government policy for cost sharing had not been development.
- Lack of market for nature based products.
- Lack of incentives to motivate the community forest guards.
- Lack of alternative sources of meat due to ban on game hunting.
- Lack of funds has lowered implementation of PFM.
- Lack of community insurance cover for community guards.
- Frequent transfer of government officers normally affects implementation of PFM.
- Lack of equipments to carry out mapping e.g. GPS.
- Very valuable trees are facing extinction such as Muhuhu (*Brachylaena huillensis*), Mbambakofi, among others.

Recommendations

- Develop an insurance policy for community forest guards.
- Policy on benefit sharing to be developed.
- Introduce more water harvesting techniques for nursery use.
- Capacity building extended to all stakeholders.
- Harmonize sectoral laws e.g. Forests, Wildlife, Water Fisheries and Tourism Acts
- Equal application of Law to all offenders - community and GoK staff.
- Review MoU between KFS and KWS to include the community.
- All NGOs and individual working with Arabuko-Sokoke Forest (ASF) be approved by Arabuko-Sokoke management/Community Forest Association.
- Fund community forest associations to implement and extend PFM activities in collaboration with implementing institutions and other partners.

Q. What is the government doing to ensure that the forest guards have incentives since they carry out joint patrols with KFS officers given the latter have protective clothing and other gear?

Pictorials: In-house and Field Sessions

Group discussion

Group discussion

Fieldwork break at Ngomongo Villages

Group photograph

Visit to Lafarge's biofuel plantations in Vipingo

PFM discussions with the Community at Dida in Kilifi

4.0 Paper Summaries

4.1 KEFRI Record and Development, Achievements and Challenges

Dr. B. Kigomo and Dr. E. Chagala-Odera

Introduction

- Kenya forest cover is about 1.7 – 6%.
- Industrial plantation (120,000 ha).
- Indigenous forest (1 million ha.).
- Forests on farm (9.3 m ha agroforestry).

Broad goals for forestry development in Kenya

- Increase forest and tree core.
- Habitat and biodiversity conservation.
- Alleviation of products.
- Promote nation interest.

Challenges facing forestry sector

- Forest degradation.
- Population increase.
- Demand for forest products.
- Inadequate seed support to reforestation.
- Inadequate disseminate and adoption of research findings.
- Government ban on forest exploitation.
- Depletion of trees on farm.

Strategic objective

- Generate knowledge and technologies.
- Strengthen research and management capacity.
- Seed distribution and production.
- Disseminate forest research finding.
- Strengthen linkages and partnership with stakeholders.

Recent achievements in last 5 years

- Various guidelines on tree establishment and management.
- PFM.
- *Mukau* management methods developed.
- Increased annual seed production.
- Growing bamboo.
- Local community capacity enhancement.
- Clones and eucalyptus.

Challenges

- Low research funding.
- Low salaries for scientists.
- Low appreciation and consumption and research findings.
- Staff migration to universities.

4.2 Japanese Technical Cooperation in Africa

By John Ngugi (**Environment and Water Section – JICA, Kenya Office**)

From the Regional course evaluation carried in 2009, it was realized that JICA activities were not well understood by institution in the sampled evaluated countries. Therefore, the need for this policy level workshop to inform the policy makers in participating institutions.

JICA's activities include:

1) Assistance schemes.
2) Contribution.
3) Adoption to new projects.

Categories ODA – Overseas Development Assistance

Official development assistance.

Multilateral donors – World Bank, etc.

- Loan aid.
- Grant aid.
- Technical assistance.

JICA's approach

- Central government (Channel).
- Project based approach.
- Technology transfer.
- Combination of various schemes.

JICA's Technical Cooperation Scheme

- Assignment of experts.
- Acceptance of trainees.
- Supply of equipment.
- Technical cooperation project – (combination of experts training).
- Equipment etc).
- Development study (master plan, feasibility and studies, etc).
- Promotion of grant aid project.
- Assignments of volunteers.
- Assistance through NGOs / CBOs.

Contribution by Japanese side

- Counterpart personnel.
- Costs of operation (travel allowances, etc).

Required contribution by the recipient side

- Recipient government must be committed.
- Project within national development plan, sector strategies, etc.

Sequence for request for adoption of projects

- Geographical priority – where poverty prevail* (arid / urban poor).
- Where economic growth can be stimulated.
- Which scheme to apply.
- Needs e.g., - acquisition of knowledge.
- Capacity development.
- Preparation of redevelopment.
- Construction of facility.

Target of Grant Aid

- Basic human.
- Infrastructure.
- Environment.

Types of Grant Aid

- Food assistance.
- Cultural grant aid (museum).
- Underprivileged farmers.

General grant aid

- Purpose (economic, social).
- Target areas (health, water, agriculture, infrastructure, etc).
- Scale (billions).

Evaluation point

- Needs.
- Effectiveness.
- Maintenance ability.

4.3 TCTP Achievements and Challenges: 1995 to date

By M. Mukolwe

Introduction

- Realization of challenges in terms of environment, biodiversity and livelihood needs.
- Concerns: Increased environmental degradation.
- Inadequate provision of mechanisms.

Social forestry development process in Kenya

KEFRI, KFS through JICA have been consistent in improving capacity to undertake social forestry development through "Third country Training Programme" (TCTP) 18 countries in sub-Sahara Africa.

What is TCTP?

Fundamental human development programme by JICA
Support extended to developing countries (build capacity of other developing countries)

Purpose of regional training courses

- Promotion of social forestry.
- Enhancing adoption of social forestry.
- Mitigating climate change in Africa through social forestry.

Course objective

Facilitate learning and sharing of knowledge.

Course content

- Introductory concepts.
- Technological development.
- Application.
- Action planning.
- Supporting topics and fields visits.

Course Methodology

- Participatory approach (presentations, discussions, field work etc).
- Field visits to selected relevant sites.

Resource persons

KEFRI, public, private sector, NGOs, interest groups and farmers.

Financing and implementing agencies

JICA.
KEFRI.

Participating countries
Central, eastern and southern Africa.

Conditions for Application

Nominating country/organization (agency)
- Good health.
- 3 years work experience.
- B.Sc. (diploma or equivalent).
- Good command of English.
- Less than 45 years in age.
- Presently engaged in forestry related projects or activities.

Course Evaluation
- Feedback form.
- Impacts of the course.
- Inter-participants assessments questions.
- Reviews (day to day discussions).

Achievements
- 3 phases consecutive and successfully implemented in 15 years.
- Evolved in scope (adoption and promotion) of social forestry.
- 316 out of 310 participants trained from 17 countries.
- 6 social forestry study tours by Japanese students.

Lessons learnt
- Capacity building key to growth.
- How we embrace participation in social forestry.

Challenges and action points
- Increasing demand from countries.
- Ensuring the training remains relevant and interactive.
- Ensuring gender balance.
- Managing time by participants, resource persons and facilitators.
- Full implementation of actions proposed.
- Enhance participation.
- Undertake training need assessment.
- Facilitate a one-day follow-up seminar.
- Diversity content.

Q (Uganda)

1. Is there any possibility of rolling down the courses to other countries with facilitation of KEFRI?
2. What efforts are met to have reflection of regional needs based on course content?

A **J. Ngugi (JICA Kenya Office)**

- Proposal for such a meeting/workshop is needed. It could include training and collaboration with KEFRI.
- It could also be implemented through a JICA Follow-up Scheme or as an In-country Training Programme (ICTP).
- JICA assist in funding seminars or workshops or print material from follow-up of what they learnt.
- Countries can budget for extra participants.
- Cross- border training and technology transfer implemented.

4.4 Science of Climate Change

By Prof .G. Ouma and Prof. Laban Ogallo (KPAC Director)

"Climate Change Science: Opportunities and Challenges".

Introduced

IGAD Climate Prediction and Applications Centre (ICPAC) is a climate prediction and application centre was initially Drought Monitoring Centre (DMCN).

- The Centre is responsible for seven IGAD member states.
- The name was changed to reflect the mandate.
- The vision is to become a Centre of climate prediction.

Products

- The day /monthly/ seasonal climate/weather bulletin.
- Climate water / El Niño updates
- Annual climate summaries.
- Climate change sceneries.

Climate change

- Change is the statistical distribution of weather over a period of time that range from decades to millions of years.
- Cause of climate change is due to interaction in the atmosphere, land surface (geosphere), snow and ice, oceans and other water bodies (cyrosphere) and living things (biosphere).
- Natural causes of climate change (radiation balance of the earth).
- Anthropogenic causes through the burning of fossil fuels, cutting down forests, and overall emission of GHG into the atmosphere.

Stressed on the need for exploring "opportunities" through:

- Detailed understanding of the atmosphere.
- Multidisciplinary approach to research.
- Influence on development (evidence for influencing policy).

The challenges include:

- Collaboration (synergy).
- Resolutions (adaptation, research, networking etc).

Discussions and questions/Answers

- Wilson Kasolo wanted to know the linkages of KPAC with other regional Institutions;

5.0 Guiding the Workgroups

By J. Deloge

- Questions
- Composition of the groups

Questions

1. Pedagogy

1.1 Are the learning modalities effective?

1.2 Are they sufficiently flexible for different audiences (Participants from Different Countries)?

1.3 Are some elements inappropriate?

1.4 Any suggestion of other methods?

1.5 Any other ideas, comments or suggestions?

2. Content

2.1 Are the objectives covered?

2.2 Do the topics flow / make sense?

2.3 Are there any gaps?

2.4 Any other ideas, comments, suggestions?

3. Application

3.1 What have you experienced for which this course would be useful?

3.2 Do you have tools or cases, which would demonstrate the learning objectives of the course?

3.3 Any other ideas, comments, suggestions?

Composition of the groups

Group 1	Group 2
Uganda	Zambia
Eritrea	Ethiopia
Tanzania	Zimbabwe
South Sudan	Sudan
	Kenya

5.1 Recommendations, Commitments and Way Forward

Group Discussion and Response to the Set/given Questions

The discussion was guided by course outline/content, scope, delivery process and action plans.

Group one (1) responses

Q1 On the pedagogy/methodologies of deliveries

Comments /Responses/Suggestions

1.1 In our opinion, the learning modalities indicated in page 5, are effective, and suitable for this type of course, depending on how they are managed and the quality of the resource persons.

1.2 In our opinion, it is difficult to judge the flexibility for various audiences like persons with disabilities (e.g. deaf) and top policy makers.

1.3 As far as the expected participants for this course are concerned we do not see any inappropriateness.

1.4 In our opinion:

- There is a need for country reports to be theme specific.
- They should include case studies from the region.
- To avoid sub-standard country report the participants should be encouraged to consult widely to authenticate these reports.

Q2 Content

2.1 Objectives one and two on page one were achieved at the end of the course. However, it is not possible to judge extent to which objectives 3 and 4 were achieved without a follow-up.

2.2. Although, the flow was very well thought, we think that the general introduction and country reports could follow each other before the climate change science. The climate change science should be followed by other knowledge enhancement topics e.g. managing change, skill development aspects, and then these could be followed with practice and application topics/element/field experiences.

2.3 In our opinion, these are considered as gaps or suggestions

- Social Forestry Scope and Content (What it is, what is involved, who is involved)
- In our opinion we would suggest a separate topic on the science of climate change, and a separate topic on climate change adaptation and mitigation linked to Social forestry.
- Climate change monitoring and information management.

Policy issues in climate change in mitigation and adaptation initiatives.
Socio-economic issues in social forestry.

2.4. Generally, we are saying since this is a regional programme, course design, content, and delivery should as much as possible reflect regional perspectives.

Q3. Application

3.1 In our opinion most of the contents are applicable to our local setting/scenarios
3.2 We do not have tools but we have the following cases which can be used for teaching

- Bududa landslides in Eastern Uganda.
- Receding of the ice cap on Mt. Rwenzori in Western Uganda.
- Flooding in Northern Bahr El Gazal (Aweil) in Southern Sudan.
- Receding of the ice cap on Mount Kilimanjaro in Eastern Tanzania.
- Sub-merged Maziwe Island in Pangani District in Eastern Tanzania.

3.3 None.

Q4 Future training

4.1. Participants should come from, Change agents/Extensionists, lecturers /instructors, development workers, conservationists.
4.2. We are happy with criteria used.
4.3 Questionnaires should be sent to heads of institutions of participants and to participants.
4.4. Mainstreaming climate Change issues in the institutional programme
4.5. None.

Group Two (2) Responses

1. **Pedagogy (Methodology)**The methodology (Discussions, Group work, Field work and individuals) for the training is sufficient since they come from different backgrounds.
   - The curriculum shows that there are no lectures. However, this is an important element to create discussions.
   - Field visits and demonstrations should be theme focused, to enhance understanding and linkage.

Suggestions

- The lecture and activities should be focused on the theme since not all topics can be covered in 5 weeks, which includes field work.
- The Country Reports must have guidelines to ensure that all participants present in a similar pattern.

2. **Content of the Course** Output 3.2 is not relevant, as a result there is need to revise it to reflect that the participants have their capacity **enhanced** and not **acquired.** The term acquire means that the course will train them in facilitation skills and yet the course deals with climate change.

- Output 3.4 indicates that the participants will be able to practically network. However, there is no topic to support this objective. Related topics should be collapsed to reflect relevant and specific themes in a week and can be followed by a field visit for a particular theme.
- Forests and climate change (2 and 3 should be collapsed).
- Regional and International Initiatives.
- There is need to have Resource Persons who come from projects dealing with climate change initiatives. This will enhance understanding by participants.
- A gap is recognised in terms of linking other initiatives related to forestry. For example, use of other wastes (discharge and garbage), energy switch; solar, wind).
- Participants to be updated on climate change negotiations.

3. **Relevance in Countries**With a guided country report **outline,** specific areas relevant to the course and countries will be linked and will lead to exchange of experiences and information. The themes in the Guided Country Report be able to guide
4. **Future Regional Training Programmes**This course should be treated as a training of trainers (middle managers and lectures). This will ensure that knowledge and skills are easily shared.

- There should be a deliberate approach of making in-country follow-ups especially those countries that have attended training before. Workshops and pilot projects (demonstration) can be funded in specific countries. This will enhance capacity development at country level.

Annex I List of invited participants

	Country	Participant	Position	Contacts
1.	Burundi	Mr. Mukama Revocat	Advisor	Directorate of Forest and Environment Tel: +257 79916134 Email: mukamarev@yahoo.fr
2.	Eritrea	Mr. Haileab T. Ghebrezgbhear	Director	Ministry of Agriculture Directorate of Forestry and Wildlife P. O. Box 1048 Asmara, Eritrea Tel: +291 8373203 Mobile: +291 7194104 Email:heruyasg@moa.gov.er
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4.	Lesotho	Mr. Gideone Tundah Matsaba	Vice Principal	Lesotho Agricultural College P/B A4, Maseru, Lesotho Tel: +22327652 Mobile: 5887061 Email: putsoanel@yahoo.com
5.	Malawi	Mr. Thomas Eliezer Makhambera	Deputy Director	Department of Forestry P.O. Box 30048 Lilongwe, Malawi makhamberathomas@yahoo.com
6.	Uganda	Dr. Wilson Kasolo	Principal	Nyabyeya Forestry College Tel: +256 392 301114 Mobile: +256 772 496986 Email: nfc@infocom.co.ug
7.	Mozambique	Mr. Dinis Caetano Lissave	Provincial Director	Provincial Directorate of Agriculture Rua Pigvide 678 P. O. Box 42, Chimoio Mozambique Tel: +258 25122075 Mobile: +258 821246230 Email: dinislissave@gmail.com
8.	Sudan (N)	Osama Tagelser Gasimelseed Ahmed	State Director	Forest National Corporation (FNC) Khartoum Tel: + 249 83471575 Mobile: +249 912911102 Email: tagelserosma@yahoo.com
9.	Sudan (S)	Mr. James Odrande Mindo	Director	Ministry of Agriculture & Forestry – GOSS Afforestation and Natural Forestry Conservation Mobile: +256477105183 Email: jamesmindo@yahoo.com
10.	Tanzania	Mr. Evarist Nderinyanga Nashanda	Forest Officer Protection/REDD Manager	Forest and Beekeeping Division P. O. Box 426, Dar-es-Salaam Mobile: +255 0789 33168 Email: evarist.nashanda@gmail.com

11.	Zambia	Mr. Deuteronomy Kasaro	REDD+ National Coordinator	Ministry of Tourism, Environment and Natural Resources Forestry Department P. O. Box 50042 Lusaka, Zambia Tel: +2600 211 226131 Mobile: +260 977654130 Email: deutkas@yahoo.co.uk
12.	Zimbabwe	Mr. Abedinigo Marufu		Zimbabwe Forestry Commission Harare, Zimbabwe Email: abedinigo.marufu@gmail.com nmurerwa@forestry.co.zw
13.	Kenya	Mr. Alfred Ndichu		Kenya Forest Service P.O. Box 30513-00100 Nairobi, Kenya Tel: +254 Mobile: +254 7
14.	Kenya	Dr. Ben E.N. Chikamai	Director	Kenya Forestry Research Institute (KEFRI) P.O. Box 20412-00200 Nairobi, Kenya Mobile: +254 722157414/733209043 Email:director@kefri.org
15.	Kenya	Dr. Ebby Chagala-Odera	Assistant Director	Kenya Forestry Research Institute (KEFRI) P.O. Box 20412-00200 Nairobi, Kenya Mobile: +254 722157414/7 Email:chagalaodera@yahoo.com
16.	Kenya	Mr. William Omondi	National Programme Coordinator	Kenya Forestry Research Institute (KEFRI) P.O. Box 20412-00200 Nairobi, Kenya Mobile: +254 726333265 Email:williamomondi2004@yahoo.co.uk
17.	Swaziland	Mr. Wilson Lukhele	Senior Assistant Forestry Officer	
18.	Kenya	Mr. John Ngugi	Senior programme Officer	JICA Kenya Office P.O. Box 50572-00200 Nairobi, Kenya
19.	Kenya	Mr. Yoichi Inoue	Assistant Director	JICA Kenya Office P.O. Box 50572-00200 Nairobi, Kenya

Annex II: Workshop Programme

Time	Activity	Facilitator
Wednesday 29 September 2010: Moderator – J. Deloge		
8.00am -830 am	Registration	Rosemary/Jane
Session I – Opening: Chair: Dr. Chagala-Odera; Rapporteurs; Ann & Maiyo		
8.30 am – 9.00 am	• Introduction • Workshop brief	M. Mukolwe
9.00 am – 10.30 am	KEFRI Research and Development Achievements and challenges	Dr. E. Chagala
10.30 am – 11.00 am	**Tea Break**	
11.00 am – 12.00 pm	Japanese Technical Cooperation in Africa	John Ngugi
12.00 – 1.00 pm	TCTP achievements and challenges: 1995 to date	M. Mukolwe
1.00 am – 2.30 pm	**Lunch Break**	
2.30 pm – 3.30 pm	Science of climate change	Dr. G. Ouma
3.30 pm – 4.00 pm	Discussion	
4.00 pm – 5.00 pm	Official Opening	Director, KEFRI
5.00 pm – 7.00 pm	Cocktail	KEFRI House
Thursday 30 September 2010		
Session II: Mr. A. Ndichu; Rapporteurs; Beryn & Rosemary		
8.30 am – 10.30 am	Country reports on climate change response strategy(I)	
10.30 – 11.00	**Tea Break**	
Session III: Chair: Mr. Woldeyohanes, F.		
11.00 am – 1.00 pm	Country reports on climate change response strategy (II)	
1.00 – 2.00	**Lunch Break**	
Chair: J. Ngugi		
2.00 pm –3.00 pm	Implementation Action Plans	J. Deloge
3.15 pm	Travel to Kitui	
Friday 1 October 2010		
Session IV : Chair: Ms. Wanjiku		
8.30 am – 9.00 am	Remark by Centre Director	CD-Kitui
9.00 am – 12.00 pm	Visit to FFS session, On-farm demonstration activities at Matinyani in Kitui	
12.00 – 1.30	**Lunch Break**	
1.30 pm – 3.30 pm	Visit Pilot Activities in Tiva	
3.30 pm	Travel back to Muguga	
Session V: Chair: Mr. M. Mukolwe: Rapporteur; Rosemary		
Saturday 2 October 2010		
Travel to Mombasa		
8.00 pm – 11.00 pm	Travel to Kibwezi	
11.00am – 1.00 pm	Visit Melia Farmers in Kibwezi	D. Muchiri
1.00 pm – 2.00 pm	**Lunch Break**	
2.00 pm	Travel to Mombasa from Kibwezi	
Sunday 3 October 2010		
9.30 am – 11.00 am	Visit Ngomongo Villages	J.O. Jaoko
11.30 am – 1.00 pm	Visit Haller Park	K. Nyinge
1.00 pm – 2.00 pm	Travel to Mombasa	

Monday 4 October 2010		
8.00 am – 8.30 am	Travel to Lafarge, Vipingo	Kevin
8.30 am – 10.00 am		
10.00 am – 11.00 am	Travel to Dida	
11.00 am – 1.00 pm	Discussions with Dida Community	S. Wairungu
1.00 pm – 2.30 pm	Travel to Watamu/Gede	
3.30 pm – 4.30 pm	Visit Kipepeo project	
4.30 pm – 6.00 pm	Travel to Mtwapa	
6.00 pm – 7.00 pm	Dinner	
7.00 pm – 8.00 pm	Travel to Mombasa Airport	
Tuesday 5 October 2010		
Session VI: Chair: D. Kasaro: Rapporteurs; Beryn, L. Maiyo, Anne & Rosemary		
8.30 am – 10.30 am	Group discussion: RTC content and scope; delivery process, and action plans	
10.30 am – 11.00 am	**Tea Break**	
11.am – 12.00	Plenary Discussions	
1.00 pm – 2.00 pm	**Lunch Break**	
2.00 pm – 3.30 pm	Recommendations, Commitments & Way Forward	
4.00 pm to 5.00 pm	**Official Closing/ Cocktail**	
Wednesday 6 October 2010		
Departures		

Pictorials: Happy and Serious Moments