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Mr. Shadrack Lotundonyang (holding microphone) assisted by Dr. Bernard Kigomo commissioning the project during the inception workshop at Loitokitok. Looking on is Ms. Wangari Kirumba and Ms. Miriam Kago (left), Mr. Solomon Kereku and Dr. Gabriel Muturi (right)

Kenya has taken bold steps towards climate change. Over the years the government has put in place relevant policies and strategies. It has launched the National Climate Change Response Strategy (NCCRS) towards effectively addressing challenges posed by climate change phenomenon and is in the process of formalizing both the National Climate Change Framework Policy and Climate Change Bill. Additionally, the government has integrated climate change into the second national Medium-Term Development Plan (MTP II) and established a Climate Change Secretariat in the Ministry of Environment to serve as the overall national climate change coordinating unit.

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It is against this background that the National Environment Management Authority (NEMA), jointly with Kenya Forestry Research Institute (KEFRI), Tana and Athi River Development Authority (TARDA) and Coast Development Authority (CDA) signed a memorandum and launched Kenya's Climate Change Adaptation Programme (KCCAP) on 29th January, 2016 in Nairobi. KCCAP is supported by the Adaptation Fund, a Kyoto Protocol provision.

The Fund supports developing countries' integrated programmes to build resilience to climate change and help vulnerable communities adapt to climate change based on their respective country priorities.

Speaking during the launch, the Cabinet Secretary Ministry of Environment, Natural Resources and Regional Development Authorities, Prof. Judi Wakhungu lauded NEMA for securing 10 Million USD on behalf of the Kenya Government to fund Climate Change Adaptation projects.

"The Ministry nominated NEMA to become the National Implementing Entity (NIE) for Kenya as well as serve as the Designated National Authority (DNA) for Clean

Development Mechanism (CDM). NEMA becomes the 12th organisation globally, and 5th in Africa to get this accreditation.

The Cabinet Secretary further outlined adoption of drought tolerant trees and crops, promotion of value addition in farm produce, and development of water harvesting structures among others as the means the programme intends to use in implementing the programme.

Kajiado to benefit from Adaptation Fund

By S. Gitonga and B. Kamondo

KEFRI commissioned the Kenya Climate Change Adaptation Programme (KCCAP) in Loitokitok, Kajiado South sub-county on 23rd March, 2016 under the Integrated Programme to Build Resilience to Climate Change and Adaptive Capacity of Vulnerable Communities in Kenya.

Dr. Bernard Kigomo, Senior Deputy Director KEFRI revealed that the programme aims to improve livelihoods, promote climate resilient agriculture, agroforestry, pastoral and agro-pastoral production systems to mitigate effects of climate change.

“The outcomes of the project are enhanced land use systems, increased food security, water harvesting and management for livestock and crop production, value chain engagement and drought tolerant high value tree and food crops,” said Dr. Kigomo.

Speaking at the same inception workshop, Ms. Wangari Kirumba the National Implementing Entity coordinator representing Director NEMA, the National Implementing Entity (NIE), congratulated KEFRI for being the first among 11 implementing entities to launch its programme component.

“Loitokitok component of the programme will cost Ksh. 428 Million, and KEFRI will coordinate the component to be implemented jointly with Kenyatta University, World Vision, VIRED International and Nasaru Women Group,” she said.

“The Integrated Programme to Build Resilience to Climate Change and Adaptive Capacity of Vulnerable Communities in Kenya is one of the 11 other projects to be implemented by public and private agencies in 14 sub-counties in Kenya,” she said.

Mr. Shadrack Lotundonyang, the Deputy County Commissioner Loitokitok Central Division, stated that global warming is real and directly related to climate change.

“Kenya’s poorest and most vulnerable are at the frontline in experiencing the negative impacts of climate change. Where there is scarcity of resources such as water, food



Ms. Wangare Kirumba and Dr. Muturi addressing attendants during the opening ceremony of the inception workshop

and pasture, communities turn against each other,” he said. “Communities in Loitokitok sub-county a semi arid zone, experience widespread poverty, food insecurity, human wildlife conflict and loss of life,” he added.

He called upon communities and stakeholders to conserve the environment and embrace the project to diversify livelihood opportunities for the benefit of the sub-county and the country at large.

Mr. Solomon Kereku, the sub-County Administrator is proud of Loitokitok for being among the few selected sub-counties to implement the programme. “The meteorological department recorded February 2016 as the hottest month globally, proving climate change is with us,” said Mr. Kereku.

According to Dr. Gabriel Muturi, the Project Manager, the objectives of the workshop was to update members on; progress of the programme and stakeholders discussion on strategies and framework that will govern operation of the programme.

For the past three decades, KEFRI has successfully implemented such projects in other ASALs regions of Kenya including Turkana, Laikipia, Makueni and Kitui counties. This long experience in dryland research gives the institute a strategic advantage in implementation of the programme,” he revealed.

One of the engagements in the climate change dialogue process at COP 21 of global agreement, was to support smallholder farmers and pastoralists to build resilience to climate change.

The World Bank in 2015 unveiled Ksh. 1.6 trillion funding to help African countries adapt to climate change and build resilience to climate shocks such as the prevailing El Nino rains and recurrent droughts.

KEFRI Marks International Day of Forests - 2016

By S. Gitonga and D. Ochieng

More than 700 visitors participated at the field day hosted by KEFRI in partnership with the County Government of Laikipia at Kinamba Primary School on 21st March, 2016.

The field day coincided with the International Day of Forests whose theme was “Forests and Water”. The objective of the event was to shed light on the potential and usefulness of trees on the environment and economy. The programme of the day included: exhibition by KEFRI and stakeholders; farm visits; tree planting and celebration of the International Day of Forests at Kinamba Primary School.

Exhibition at Kinamba Primary school

KEFRI and its stakeholders exhibited various technologies that could enhance environmental conservation and improve livelihoods of Laikipia County residents.

The Institute displayed: tree seed production; sandalwood (*Osyris lanceolata*) products and propagation methods that included seed and air layering; bamboo products, propagation and utilization. Farmers got an opportunity to purchase high quality tree seed of both indigenous and exotic species as well as seedlings of sandalwood and bamboo and *Melia volkensii* (Mukau)

Fifteen (15) collaborators including; Kenya Forest Service, Dedan Kimathi University, KARLO, Ministry of Agriculture, Fisheries and Livestock and various Community Based Organizations (CBOs) also displayed their products and technologies. The exhibits included high quality coffee seedlings, poultry, medicinal plants, indigenous vegetables, honey and related products, and tree seed and collection by Lariak Forest Community Association.

Farm visit

KEFRI delegates visited Hon. Joshua Irungu’s farm near Kinamba town. The farm comprises: indigenous and exotic tree species planted specifically for aesthetic and medicinal value; water harvesting techniques; high value fruit trees; macadamia, mangoes, avocados, passion fruits, pawpaw and lemon; drip irrigation in horticulture; growing of cabbages and kales; zero grazing (rearing of dairy cows, goats and pedigree dopper); hatchery and improved indigenous poultry; a tree nursery propagating macadamia and several mango varieties; and fodder bank and hay store.

The Governor has devoted every Monday and Wednesday to train visitors on various agribusiness ventures that he has initiated on his farm. During each visit he trains up

to 200 visitors aiming to change the attitude through demonstration of the various agribusiness technologies.

Mr. Gatimu’s farm

Mr. Andrew Kinyua Gatimu operates a vibrant tree nursery and fruit orchard since 1999. KEFRI trained him on Tree Nursery Management and Practices. The skills gained have enabled him to improve farming practices, thus reaping benefits from high value fruit trees namely grafted mangoes, avocados and apples which are the key farm produce.



Mr. Gatimu explaining about propagation and improved production of grafted apples growing on his farm

The farmer also operates a tree nursery currently holding assorted tree seedlings that include Jack fruit, avocado, macadamia and tomato tree.

He amazed even the scientists by his exceptional grafting of tomato tree with *Cestrum aurantiacum* which in many places is considered an invasive plant.

Celebration of International Day of Forests

The day’s climax was tree planting at Kinamba Primary School and speeches by stakeholders.

The Laikipia County Governor Hon. Joshua Irungu, KEFRI Deputy Director in charge of Technical Support Services Dr. Ebby Chagala-Odera, County Director for Forests and Environment Mr. David Kingori and the Headmaster Kinamba School Mr. Peter Mwaura planted *Prunus africana*, *Filicium decipiens* (Thika Palm), *Teclea nobilis* and *Olea europaeae* in that order.

Dr. Ebby Chagala on behalf of the Director KEFRI highlighted the importance of forests as part of the solution to improving water supply, environment and food security.

“KEFRI conducts research and partners with other institutions in trainings and dissemination of forestry



Dr. Ebby Chagalla-Odera (left) is helped by Mr. Joram Kagombe and Dr. Gabriel Muturi in planting Thika Palm tree at Kinamba Primary School, Laikipia

information and technologies. Trees provide fuelwood and employment, food, medicine, and at the same time acts as carbon sinks for mitigating climate change. Thus, forests highly influence water availability and quality,” she said.

Dr. Chagala pointed out that Kenya is considered a water scarce country and in Laikipia County 42% of residents have no access to clean water. She called upon the community to plant trees as an enterprise and to improve their environment.

“KEFRI jointly with the County government of Laikipia will strengthen efforts in tree planting and forest rehabilitation to lessen deforestation which is the main contributor of water shortage, global warming and land degradation,” she said.

Governor Joshua Irungu in his keynote address revealed his Countys’ 4-year strategy of planting 40 million trees and 2 million fruits trees to reach the 10% tree cover.

Currently, 46% of Laikipia residents are living below the poverty line, is considered as water scarce and has 672 Km² approximately 6.9% of forest cover. Thus the County Government plans to improve the environment and livelihoods by empowering youth to embrace horticulture and other agribusiness enterprises, construct water dams for the community to access clean and safe drinking water.

In order to reduce forest and environmental degradation his government has initiated Household Economic Empowerment Programme (HEEP) to provide environmentally friendly alternative livelihoods such as horticulture water harvesting and use of energy efficient systems amongst others.

“My Government will foster a working relationship to spur national economic development through enabling

legal frame works that will motivate institutions to partner and provide appropriate technologies for socio-economic development,” said the Governor.



Governor Joshua Irungu holding piece of timber made from Bamboo at KEFRI Forest Product Centre

KEFRI and CFA plants tree

KEFRI jointly with Muguga Community Farmers’ Association (CFA), Human Rights Information Forum (HRIF), pupils from Nguriunditu primary school, and other stakeholders planted different tree species to mark the International Day of Forests on at Gachuthi farm in Muguga Natural forest.

Mr. Josidas Muthama, for HRIF urged members to foster a culture of planting and taking care of trees for the goodness of all mankind and wildlife at large.

Speaking at the same event, Mr. Simon Kamonde the CFA Chairman, urged members to continue planting more trees so as to leave a positive legacy and help in mitigating effects of climate change. “Tree planting is a mandate that each and everyone should embrace, this group has not only planted trees, but also yielded their profits and provided employment opportunities to many,” he added.

Laikipia Governor visits KEFRI

Prior to the field day, the Governor Hon. Joshua Irungu accompanied by his County Director of Cabinet Affairs Ms. Annette Wambui, Director for Development and Planning Mr. Charles Ndiritu, and the Director in-charge of Laikipia Development Authority Mr. Peter Wangai paid a visit to KEFRI headquarters on 2nd March, 2016.

The main agenda was to chart the way forward on a joint tree planting project for Laikipia County. “KEFRI will be happy to partner with the County Government and offer technical skills to help increase the countys’ tree cover to 10% from the current 6.9%,” said Dr. Chikamai.

Consultative Meeting on Bamboo Resource Development

By B. Namisi and R. Mokaya

International Network for Bamboo and Rattan (INBAR) and the Governments of the Netherlands, China, Ethiopia, Uganda and Kenya will draft a proposal for a new tri-lateral programme on the development of the bamboo sector in Europe, East Africa and China. This resolution was reached during the regional consultative meeting hosted by KEFRI with support from INBAR on 8th March, 2016.

The regional meeting had in attendance representatives from both the private and public sector including the Ministry of Environment, Natural Resources and Regional Development Authorities, Kenya Forestry Service, Green Belt Movement, The Clinton Foundation, Embassy of the Kingdom of Netherlands, The Bamboo Trading Company, Kitil Farm among others.

The meeting focused on three key areas. First, the reduction of poverty and securing green economic growth through the development and improvement of industrial Bamboo value chains in East Africa. Proposed activities in this area include: national bamboo assessment through mobilization of domestic resources in order to collect information; the testing of exotic species as opposed to *Oldenia alpina*; inclusion of a market study so as to understand the current sales statistics of bamboo; capacity development activities which would depend heavily on private partners.

The second key area focused on increased international trade and investment between Europe, East Africa and China. The activities under this result area include: developing technical guidelines for bamboo products and processes. This activity would serve as a guideline for companies to develop their processing and product quality and provide the much needed boost to forge partnerships with European importers. The second activity in this result area involves training of Kenyans on technical guidelines while involving the Ministry of Industrialization, County governments, technical colleges and universities. The third activity would be a national awareness campaign on bamboo for domestic consumers focusing specifically on producing green procurement policy briefs.

The third result area focus on land restoration and mitigating climate change. Within this area, participants noted that delivery system of the planting material is critical to the development sector. Emphasis was placed on support in the identification of flagship species and areas of plantation. Sustainable forest management capacity development with the involvement of public private partnerships is also an area of interest.



A display of assorted furniture made from bamboo. Bamboo has shown potential to support cottage industry in Kenya

Mr. Paul Ongugo, science leader at KEFRI thanked the Governments of China and Netherlands for their commitment to the development of the Bamboo sector in Kenya. He emphasized the importance of synergy between the private sector, government, civil society and academia.

The meeting concluded with participants agreeing to the formulation of a draft proposal to be submitted to the Governments of Netherlands and China by the 3rd quarter of 2016.

Kenya WaTER Towers Project Inception Workshop

By B. Namisi and M. Rao

KEFRI in partnership with the European Union and the Ministry of Environment, Natural Resources and Regional Development Authorities hosted the inaugural workshop for the Kenya WaTER Towers Protection and Climate Change Mitigation and Adaptation (WaTER) project in Kisumu County on 11th February, 2016.

The WaTER project focus on protecting two of Kenya's five water towers namely Mt. Elgon and Cherangany Hills and their eco-system services. The 5-year project has four components.

KEFRI is implementing component 4 of the project whose goal is to develop technologies and procedures that will enhance decision making options and systems that will help improve the management of key water towers in the country.

In his welcome remarks, Dr. Bernard Kigomo on behalf of the Director KEFRI, lauded the project saying that



Participants who attended the Inception Workshop for Kenya WaTER Towers Protection and Climate Change Mitigation and Adaptation Project in Kisumu

the launch was taking place at an opportune time as the effects of climate change are now becoming a reality. He further encouraged both the National and County Governments to offer support to community groups that have taken initiative to rehabilitate degraded areas within the forests.

The workshop gave stakeholders an opportunity to; acquaint themselves with the purpose, objectives and expected deliverables of the project; review issues affecting protection and sustainable management of the two water towers; share experiences and lessons learnt in forest rehabilitation; and identify community representatives to support implementation of the project at grass-root level.

Chief Officer for Green Energy and Climate Change Authority, Kisumu County Mrs. Lorna Omuodo highlighted that the County is faced with challenges including deforestation and land degradation; loss of biodiversity; soil erosion and water pollution. Consequently, the County Government is spearheading planting of bamboo along water courses to control soil erosion and mitigate climate change.

“The Government is also sensitizing local communities on consequences of their negative actions on the environment,” she stated.

Mrs. Omuodo thanked EU and other development partners for their support towards achieving 10% tree cover in the country as envisioned in Kenya’s Vision 2030 Plan.

Mr. Paul Ongugo a Science Leader in KEFRI, informed participants that the project seeks to empower local communities to adopt viable land use options which will contribute to their well-being.

The participants visited also were drawn from Kenya Forest Service, Kenya Water Towers, University of Eldoret, Community Forest Associations, County Governments and the private sector. Maragoli Hills and Nandi forest to view sites that KEFRI is rehabilitating.

CHERP Open Day

By J. Otwoma

Open days is one of the channels KEFRI uses to disseminate information and technologies to stakeholders. An open day for Central Highland Eco Region was held on 31st March, 2016 at KEFRI headquarters.

A total of 934 people attended the event whose objective was to: show-case various KEFRI technologies, products and services, and provide opportunity for interaction and sharing experiences between KEFRI scientists and stakeholders.

KEFRI under CHERP displayed various technologies including: high quality tree seed; propagation and utilization of bamboo sandalwood and camphor; tissue culture of trees such as *Melia volkensii* (Mukau); forest health focusing on tree diseases, pests and control measures; agroforestry practices, site matching of trees, best farm practices; identification of diverse tree species, rehabilitation of forests, Water towers and degraded sites, soil analysis and soil improvement strategies, wood and non - wood products.

Publications such as; guidelines for wood preservation using diffusion, high yielding *Eucalyptus grandis* as a commercial crop in Kenya, vegetative propagation of *Pinus patula*, pests and diseases associated with Eucalyptus in Kenya among others were given out to stakeholders for purposes of reinforcing information and technologies gathered and exhibited respectively during the open day.

Kenya Forest Service, a partner institution also demonstrated and explained their functions in forest protection, regulations and implementation of various forest policies.

Stakeholders also displayed their technologies including: training on traditional medicinal plants by Kerwa old age group; herbal medicine and value addition of Moringa by clean care; conservation activities by CFA – Muguga; use of bio-digesters by Nderi Uzima Health Community; production of yoghurt and strawberries by Green Farm-Limuru; and energy saving technologies.

Learning institutions that attended the event were; Precious Primary School Zambezi, Kikuyu Boys High School and Kabianga University College.

Ngobit Farmers Field Day

By S. Wakori and J. Otwoma



Farmers attending Field Day demonstrating domestication of *Osyris lanceolata* (Sandalwood) at Ngobit

CHERP conducted a Farmers' Field Day to demonstrate domestication of *Osyris lanceolata* (Sandalwood) in Ngobit, Laikipia County on 26th January, 2016.

Sandalwood is an indigenous shrub or small tree, currently over exploited due to its highly valued oil. Sandalwood oil is used in cosmetic, fragrance and pharmaceutical industries.

Demand for the tree species is high yet propagation is a challenge. KEFRI has been researching on propagation methods as well as training youth and groups on the same.

Nestle World, a youth group in Ngobit old beneficiary of such training has been raising seedlings in their tree nursery. Two years ago, KEFRI bought 50 seedlings from the group and established a demonstration plot at Ngobit Girls High School.

CHERP therefore held a field day at the School aiming to demonstrate propagation and domestication of *Osyris*. It was also an interactive forum between KEFRI and stakeholders.

During the field day, community members were shown: how to identify sandalwood tree species in the wild; propagation methods of the species by use of seed and marcots.

Planting techniques, and nurturing of the tree species



Mr. Joram Kagombe, Deputy Regional Director CHERP addressing farmers and other stakeholders during the discussion session

on farm was also highlighted. The community were very happy with KEFRI for organizing the field day and training them.

Farmers Field Day, Nachu

Within the same period, CHERP held a farmers' field day at Mr. Paul Karomo's farm in Nachu - Ndeiya, Kiambu County on 22nd January, 2016.

The field day, attended by 87 people, sensitized the local community on growing *Melia volkensii* (Mukau). Mukau is an indigenous fast growing drought tolerant tree that grow very well the Eastern region, Kenya. It is valued for its high quality termite resistant timber.

KEFRI used the on farm trial to demonstrate techniques of establishing and managing Mukau, which has shown growth potential in Central region semi-arid areas Messrs; Jesse Lugadiru and Eston Mutitu informed farmers the tree has high growth rate and its timber sells 3 times higher than cypress. In agroforestry systems mukau grows well even when intercropped with food crops. The farm has 10 Mukau trees that are 5 years old.

Ekerege Field Day

By R. Shanda

KEFRI Forest Products Research Centre (FPRC) and Lake Victoria Basin Eco-region Research Programme (LVBERP) is promoting value addition to bamboo in the region.

On 10th March, 2016, a joint field day was organized at Ekerege, Migori County to transfer technologies on bamboo value addition. This was the first official KEFRI function within Migori County under the auspices of the new KEFRI sub-center.

Dr. Robert Nyambati, the Regional Director LVBERP, gave an overview of the institute's mandate, pointing out that with establishment of Migori sub-centre, KEFRI technologies and services have been brought closer to the people and they should therefore utilize them effectively.

The display included: posters; publications on seedlings; assorted value added bamboo products; nursery establishment techniques; on farm management; harvesting and post harvesting handling; utilization and marketing of bamboo products.

Participants toured a nearby bamboo plantation where six species, *Bambusa vulgaris*, *Oxytennera abyssinica*, *Dendrocalamus giganteus*, *Dendrocalamus asper*, *Bambusa tulda* and *Bambusa bambos* are growing. Bamboo products i.e corner stands, tables, chairs, curtain blinds, mats stools, floor boards and laminated timber among others were displayed.

Participants raised issues on propagation, management, harvesting, processing and marketing which KEFRI staff addressed accordingly.

Bronze bug: an invasive eucalyptus pest

By E. Mutitu and S. Gitonga

Eucalyptus trees are the most widely grown hardwood species outside their natural habitat. These trees have been introduced in more than 50 countries and cover about 20 million hectares worldwide (excluding 11 million hectares in their native habitat, Australia).

In Kenya eucalyptus enjoys wide acceptance due to survival in diverse climatic zones. Eucalypts provide socio-economic and environmental benefits, and act as an important source of poles, post, timber, and commercial cellulose fibre for paper and viscose industry.

Eucalyptus plantations and woodlots in East Africa and particularly Kenya have been threatened by increasingly devastating invasive pests and diseases. Lately the Eucalyptus have been infested by Bronze bug (*Thaumastocoris peregrinus*) joining other pests which include Blue Gum Chalcid (BGC) (*Leptocybe invasa*), Red gum lerp psyllid (*Glycaspis brimblecombei*) and Eucalyptus snout beetle (*Gonipterus scutellatus*). There is need therefore to develop, efficient and cost-effective measures to counter economic loss from the invasive bug.

Biological control, or biocontrol, is the use of living organisms such as predators or parasitoids to manage pests. Such organisms may be indigenous, in which case the numbers of the natural enemies need only to be increased. This is simply termed as Augmentative Biological Control.



Bronze bug (left), and *C. noackae* its biological control agent

Management of the exotic Cypress aphids (*Cinara cupressivora*) that caused serious damage on Mexican Cypress countrywide in the early 1990s is a model example of a recent successful Classical Biological Control Programme in Kenya. *Pausia juniperorum*, a parasitoid, was introduced in the aphid infested areas in the mid 90s. After a short duration, the biocontrol agent spread in all major host tree-growing areas, lessening the economic loss caused by the pest.

The Bronze bug, is an Australian insect pest first reported in South Africa in 2003. Therefore it has been reported in other African countries, including Zimbabwe, Malawi, Mozambique, Tanzania and Uganda. In Kenya, it was reported in October 2009 in Kajiado County, attacking a wide range of Eucalyptus species including hybrid clones.

The Bronze bug is a small sap-sucker that mainly infests fully expanded leaves of host trees. Infested trees display reddening of leaves, and then yellowing (=“Winter bronzing”) sometimes followed by early leaf senescence. Although the bug infestations seldom result in tree death, highly infested trees become stunted and open to attack by other pests and diseases. The bug causes economic loss similar to BGC and is thus considered one of the most devastating pests of Eucalyptus in the country. A management strategy is being developed by KEFRI with the help of quasi-related international institutions.

DERP Stakeholders Trainings

By E. Kyalo



Mr. Ezekiel Kyalo demonstrating to farmers processes of *Melia volkensii* seed pre-treatment for quick germination

KEFRI Drylands Ecoregion Research Programme (DERP) has been in forefront developing technologies and disseminating information which can contribute towards improving tree cover and to mitigate the negative effects of climate change in the drylands.

KEFRI staff, with funding from Africa Sand Dam Foundation, trained members of NdwaeeNgutwaeeand Wikwatyowa Mutula self-help group on 15th and 17th March, 2016 respectively on environment conservation, income generating activities, and good governance.

Grafting techniques and management of *Melia volkensii* on farm was highlighted because the tree has desirable characteristics for the drylands. It can grow fast within a

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Sainsbury/KEFRI Grant to Community group in West Ugenya Siaya

By S. Gitonga W. Omondi and V. Otieno



Mr. William Omondi addressing community representatives during the function

Sifuyo Primary School and West Ugenya Self Help Group, in Ukwala Siaya County benefited from Kshs.180,000 donated by KEFRI-Sainsbury project.

The grant will be used to construct an Early Child Development classroom at the school and boost tree seedling production by the group.

Mr. Shem Ogao on behalf of the Director KEFRI, Dr. Ben Chikamai presented the cheques in a ceremony witnessed by KEFRI Regional Director in charge of Lake Victoria Basin Dr. Robert Nyambati, Sainsbury Project Manager Mr. William Omondi and his Deputy Mr. Victor Otieno, KEFRI Communications and PRO Mr. Stephen Gitonga, West Ugenya Ward Administrator Mr. George Odunga Obare and the community representatives.

West Ugenya Development Group

West Ugenya Development Group with 72 members across 9 sub-locations was started in 2014, and deals in environmental conservation and tree seedling production. In 2015, the group raised 50,000 tree seedlings both indigenous and exotic. Some of the seedlings were sold whereas others were donated to institutions including churches and schools to establish woodlots, on-farms and public grounds.

The Chairman Mr. John Orawa Oluoch, who received the cheque on behalf of the group, thanked KEFRI Sainsbury project for the fund. "The group is in need of assistance to; overcome challenges brought about by; drought; lack of skills to raise quality seedlings and quality tree seeds to supplement those obtained from KEFRI," said Mr. Oluoch.

According to Mr. Charles Ndege, forester at KEFRI Lake Basin Region, the donation will also support bamboo propagation, utilization for riverbank stabilization and promotion of fast growing and termite resistance tree species in the region.

Sifuyo Primary School

The School benefited from a cheque worth Kshs.75,000 to complete the Early Child Development classroom started earlier through the same project and to support 10 needy pupils. According to the Deputy Head teacher Ms. Rose Orodho, the school has previously benefited with water tanks and tree seedlings.

With the seed fund from Sainsbury project, the communities are able to raise tree seedlings and sell amongst themselves, creating economic empowerment within the region.



Dr. Nyambati on behalf of KEFRI, commissioning tanks earlier donated to the school by the project

LVERP Farmers Field Day

By M. O. Okech & C. Ndege

LVERP in liaison with KFS held a field day with the theme "woodlot establishment and management for agribusiness and climate change mitigation" at a farmer, Mr. Celestine Ongaria's woodlot, in Tangakona, Namable Sub county, Busia county on 26th January, 2016. The farm has a mixed woodlot of mature Eucalyptus, *Casuarina equisetifolia* and *Grevillea robusta*. A total of 211 adults attended the field day.

Another field day was held at Ayora farm, in Gem sub county, Siaya County on 3rd February, 2016. A total of 215 adults and 120 students attended the event whose objectives were: to showcase agroforestry as climate smart technology, demonstrate agroforestry technologies and best management practices in relations to species choice and site selection, tree establishment and management, amongst other relevant technologies and research information.

Siaya County Assembly Environmental Committee chair, Mr. Abayo and KEFRI LVERP Deputy Regional Director Mr. David Langat presented the host Mr. & Mrs. Asuna with certificate of excellence in agroforestry practices.

Forestry and Wildlife Forum

B. Namisi and S. Otieno

The Food and Agriculture Organization (FAO) in collaboration with the Government of Kenya hosted the 20th Session of the African Forestry and Wildlife Commission (AFWC) at KICC, Nairobi.

The conference ran from 1st to 5th February, 2016 and attracted over 100 delegates across the continent.

The conference themed “Sustainable Management of Forests and Wildlife in Africa: Enhancing Values, Benefits and Services” brought to the fore the importance of sustainable management of forests and wildlife for improvement of livelihood of millions of people in Africa.

The Cabinet Secretary Ministry of Environment, Prof. Judi Wakhungu emphasized the role of forests in climate change mitigation and the need to embrace sustainable forest management so as to; conserve biodiversity, improve productivity, enhance resilience and release their potential to fulfil ecological, economic and social functions without damaging the ecosystems.

“It is my expectation that this Conference will inform delegates and provide a forum to share information on the contribution of the forestry and wildlife sector to the economy and stability of the environment,” she said.

Mr. Bukar Tijani, Assistant Director General, FAO Regional Office-Africa, referred to 2015 as a decisive year having witnessed the culmination of a number of global events and policy processes related to forestry and affecting forests.

“The Sustainable Development Goals (SDGs), the World Forestry Congress and the Paris Agreement of the UN Framework Convention on Climate Change created opportunities for countries to build strong and sustainable forest sectors that contribute to global sustainability goals,” Said Tijani.

“It is our responsibility to integrate forests with other mainstream processes and people at both international and national levels, increase investment in capacity and institutional development to strengthen the actual and potential socio-economic contribution of forests to our global concerns,” he reiterated.

The Commission deliberated on issues including: forestry and climate change adaptation and mitigation; opportunities and challenges in non-wood forest products; implementation of forest and wildlife policies; enhancing sustainability and efficiency of woodfuel production and consumption; implications of illegal hunting and trade on livelihoods, gender, youth and education.



Forest and Wildlife are threatened by extinction due to habitat destruction, and overharvesting by poachers

The heads of forestry from participating countries noted that success would require effective linkage of interventions under both sectoral and external policies, correction of capacity constraints, prioritization and selective interventions and inclusion of the informal sector activities into national accounting.

Emphasis was placed on involvement of both private and public sector in poverty eradication through small scale forest and wildlife enterprises development.

The Commission recommended stakeholder participation and consultation including the purpose of developing in each country a shared vision of future development ambitions and priorities involving the land.

This would in turn allow forests, wildlife and other natural resource sectors to move forward alongside other sectors in a coherent manner.

Coast Region Activities

By A. Amur

Coast Eco-region Research Programme held a farmers’ workshop at the Kenya School of Government Matuga on 30th March, 2016.

The workshop reckoned implementation of the project’s activities, developments toward strengthening and recognition of traditional systems. Experiences from Mijikenda communities on indigenous knowledge for forest conservation and food security in the face of climate change were shared.

During the Farmers’ Innovation Fair, at KARLO Matuga on 31st, innovators from Giriama, Rabai, Digo and Duruma sub-tribes displayed traditional knowledge based innovations developed towards enhancing livelihoods and agro-biodiversity conservation.

SIFOR is a European Union funded project implemented in Kenya, India, China and Peru. The project is implemented in Kenya by KEFRI in collaboration with IIED and targets the Mijikenda communities.

Technical workshop on restoration of degraded drylands in East Africa

By M. Sacande and N. Berrahmouni

Nairobi: During a workshop organized by FAO in collaboration with the KEFRI from 22nd to 24th February, and funding support from EU-ACP, detailed plans for land restoration in East African countries across the Great Green Wall (GGW) in support of Africa's flagship initiative to combat desertification and climate change were arrived at.

The workshop complements a similar exercise for Western Africa held end January in Nigeria to prepare for large-scale restoration efforts from Senegal to Ethiopia during the first half of 2016 in the framework of Action Against Desertification, or AAD, supporting the Great Green Wall initiative in six African countries.



Participants who attended the GGW workshop

Experts numbering 35, from Djibouti, Eritrea, Ethiopia, Egypt, Fiji, Haiti, Kenya, Sudan and Uganda, as well as the African Union Commission and international organisations such as IGAD, NGARA, ICRAF, SPC and FAO gathered in Nairobi to work out detailed plans for restoration activities in 2016.

Central to these plans is an approach tested in Burkina Faso, Mali and Niger, which puts communities at the heart of restoration efforts and focuses on their needs for useful plant species and preferences for restoration in support of their livelihoods.

Other key elements of the approach include planting the right species in the right place, promoting the use of quality native forest and fodder seeds, ensuring that a wide range of plant species diversity are used and made available for use, managing natural regeneration of species and planted areas, and updating a Great Green Wall species database for gene pool traceability, monitoring, reporting and for future uses of data and information.

Experts from Haiti and Fiji took part in the workshop to share knowledge and lessons learned from the Great Green Wall experience to inform their own efforts in helping local communities adopt improved sustainable land, and forest management and restoration practices, as



KEFRI Director Dr. Ben Chikamai (left) introducing NGARA Board Chairman Mr. Chidume Okoro to Ms. Elina Young and Maika Daveta of Fiji

part of AAD's efforts to foster the sharing and exchange of development solutions between countries in the global South, or South-South cooperation.

The workshop also offered the opportunity to introduce the Global guidelines for the restoration of degraded forests and landscapes in drylands, recently published by FAO, which brings together knowledge gained worldwide in dryland restoration.

At the same time, experts updated each other on restoration efforts in their respective countries and regions and explored synergies and complementarities between projects and programmes carried out by the organizations involved in sustainable land management.

The Network for Gum Arabic and Resins of Africa (NGARA) commended the GGW restoration programme and urged for more support to the African communities in restoring degraded land with useful species the likes of *Acacia senegal* in order to get income out of gum production and added value.

Areas of collaboration and synergies have been identified with ICRAF restoration research programme and with the Pacific Community (SPC) restoration programme based in Fiji.

Action Against Desertification, or AAD, is an initiative of the African, Caribbean and Pacific Group of States (ACP) to promote sustainable land management and restore drylands and degraded lands in Africa, the Caribbean and the Pacific, implemented by FAO and partners with funding from the European Union in the framework of the 10th European Development Fund (EDF).

Policies and Practices for Climate Change Adaptation Course (PP4CCAC) *By B. Namisi*

The United Nations Development Programme (UNDP) in collaboration with KEFRI conducted a 3-week training on Policies and Practices for Climate Change Adaptation within the context of arid and semi-arid settings.

The course was held between 25th January and 12th February 2016 following the first one held in September 2015. It was tailored to build capacity of Federal and Regional Government officials working in the environmental-related sectors of the Government of Somalia.

Sustainable initiatives and interventions to enhance resilience and improve adaptive capacity of vulnerable communities in Somalia and the ecosystems on which they depend upon is imperative given that the country is predominantly arid. Such initiatives should embrace cross-sectoral dimensions to build capacity of government institutions to effectively empower stakeholders to actively embrace integrated sustainable natural resources management measures that ensure environmental resilience and improved livelihoods in a participatory manner.

The training exposed participants to; strategies on adaptive response and challenges encountered in the implementation of climate change initiatives, and experiences from success cases. Based on the lesson learnt participants formulated proposed management plans for their areas of jurisdiction.

The training integrated visits to selected field sites including; Muguga, Karura, Machakos, Kitui, Makindu, Kibwezi, Nakuru, Molo, Marigat, Rakwaro, Funyula and Bungoma.

DERP Stakeholder's Trainings

Continued from page 9

wide range of altitudes, and produces high value timber, which is drought tolerant and termite resistant.

Introduction to grafting was considered imperative due to its advantages that allow propagation of clones that cannot be raised or economically propagated by other means. Grafting can also combine different cultivars into a composite plant with each part contributing a special characteristic disease resistant, drought tolerant, high yielding sweeter or less fiber in case of mango etc.



One of the group members practicing grafting method as directed by KEFRI trainer Mr. Kyalo (blue shirt). Fruiting grafted mango (right)

Africa Sand Dam Foundation operates in the dryland parts of Eastern region and constructs sand dams and shallow wells in the seasonal rivers thus availing water to the group members.

At the same time 4 family members (Mbonayo's) from Nzeluni village, Migwani Location Mwingi sub-county were trained on best tree species for bee foliage and in particular *Melia volkensii* which is suitable for timber drylands.

Drylands though fragile are failing in production in recent years due to erratic climate change and rapid population increase. Basic commodities such as food and water becoming scarce and people spend a lot of time searching these resources.

These groups are found in areas that receive unreliable rainfall and therefore it was a viable idea for ASDF to empower the groups to plant fruit trees (i.e. Mangoes and Pawpaw) which thrive in the area and provide food with minimal rainfall.

KENASA Conference *By Z. Chelangat*

At the 6th Annual General Conference of Kenya National Secretaries Association (KENASA) held in Eldoret from 31st March to 1st April 2016, it was agreed that members will contribute their inputs towards the Bill by the end of May, 2016.

KENASA will also organize stake holder's regional conferences at regional level to deliberate on their inputs.

KEFRI staff; Ann Indimuli, Redemter Mutembei, Jovita Akiki, Zaituni Chelangat and Hellen Nyarindo attended the workshop.

Robert Emojong' was recognised as the best secretary of the Year during the SOYA Award Gala Dinner officiated by the Eldoret, County Governor, H.E. Hon. Jackson Mandagor.

Pension News

By A. Dzitu

Afya Akiba, a new health product

Afya Akiba, a new health product to provide client a platform to build fund for medical costs needed during retirement period is being introduced by AON Kenya, the Administrator of KEFRI Pension Scheme.

AON calls upon KEFRI staff to save for this product which requires a minimum saving of Kshs.1,000 per month for 5 years by a contributor whose age should be between 18 to 60 years.

Afya Akiba helps one to prepare while still strong and healthy and to safeguard post retirement income. One can also use Afya Akiba savings as security for bank loans and mortgage with the regulator's approvals.

Afya Akiba has many macro economic benefits including: increased savings; ease financial dependency among the elderly; peaceful retirement and sustainable living

in the old age; protection of working family incomes thus decreasing general levels of poverty; reduction in families financial burden e.g. disability, death and funeral insurance benefits.

The family members are protected during post retirement medical insurance as it can cover them too.

Product component

The product has two packages "Savings component" and "Life Assurance and Disability insurance".

Employers can contribute on behalf of their employees. Where an employer contributes, this contribution will be recognized in the system separately from the employees' contributions. The employees' portion of the Savings Component can be withdrawn subject to withdrawal terms & conditions. The Employers' Portion will vest for 5 years on a graduated scale after which the employee can access 100% on withdrawal.

AON recommended the product to KEFRI staff during the quarterly directors' tea forum.

List of Retireries:

No.	Name	P/No.	Centre	Date of Retirement
1	Dolly Akinyi Olumo	6990	Maseno	30/09/2015 - Death
2	Alois Mutua Mutiso	5321	Muguga	6/11/2015
3	Francis M. Gachathi	5490	Muguga	24/12/2015
4	Dama Katana Karisa	5822	Gede	1/1/2016
5	Jones Mulee Mwambaka	5309	Kibwezi	1/1/2016
6	Fred Ojuka Ogola	6825	Kuja River	1/1/2016
7	Joseph K. Rotich	6810	Londiani	1/1/2016
8	Mathias Ong'onga	6750	Headquarters	1/1/2016
9	Ndunda Musili	6476	Kitui	1/1/2016
10	Simon Karera	6304	Headquarters	1/1/2016
11	Shedrick M. Mwanzia	5375	Kibwezi	1/1/2016
12	Jackson Waithaka	5333	Muguga	1/1/2016
13	Barisa Basila Buru	5272	Gede	1/1/2016
14	Benjamin Mwathe Kiswii	5196	Kitui	1/1/2016
15	Harrison Kaingu Kavinya	5056	Gede	1/1/2016
16	Miriam Kanini Mwai	5089	Muguga	23/3/2016
17	Jane Njoki Mwangi	5364	Headquarters	23/3/2016
18	Sheila A. Wachiye	7050	Headquarters	23/03/2016 - Resignation

Visit to Children Centre

By R. Mokaya

In the spirit of giving during Easter period, KEFRI choir jointly with other members of staff visited Teresiah House of Hope ECD Centre in Kiunjuri Kiambu county. The centre was established in 2004 under the Henry Wanyoike Foundation and provides early childhood education to children from less privileged homes.

The staff donated dried food stuff, clothes and firewood to help cater for the needs of 75 children below 6 years currently housed by the centre. The choir and children had an opportunity to interact, praise and worship.

The choir acknowledges the support received from management through the office handling corporate Social Responsibility (CSR) and all staff members who contributed generously.



KEFRI staff interacting with children and management of St. Teresa House of Hope, Kiambu county

Tree crossword puzzle

R	O	O	T	B	I	R	C	P	G	T	B	A
S	B	O	N	E	E	D	L	E	T	M	S	Z
R	N	X	T	A	T	X	S	S	O	A	W	P
F	T	O	T	V	U	Z	N	T	O	P	E	B
U	V	S	E	E	D	S	P	G	T	L	V	A
R	T	A	T	R	U	N	K	T	H	E	E	M
N	Z	P	L	T	T	P	U	L	P	T	R	B
I	J	X	O	X	Y	G	E	N	I	O	G	O
T	S	U	G	A	R	T	J	M	C	Z	R	O
U	O	Y	G	S	H	R	U	B	K	S	E	S
R	T	C	E	T	B	L	I	M	B	Y	E	O
E	F	O	R	E	S	T	A	C	O	R	N	I
S	A	N	D	A	L	W	O	O	D	T	O	L

Across

1. This part of the tree anchors it to the ground and gathers water (otor).
2. The name for a leaf on a pine and spruce tree (eledne).
3. They come in many different shapes, but they are what all trees start out as (edses).
4. An indigenous endangered tree valued for its oil (wdolsadnoa).
5. This part of a tree has the same name as the back storage area of a car (knurt).
6. Trees produce this gas that all animals need to live (yognex).
7. A product that is made when wood chips and water are combined and heated (lupp).

8. This is another word for a tree branch and also for your arm (mibl)
9. This is the name for an area where thousands of rees grow closely together in the wild (tosfre).
10. It is smaller than a tree and can also be called (bursh).
11. This contains the seed from an oak tree (norca)
12. This is the type of food that a tree uses Leaves produce it when the sun shines on them and a process called photosynthesis takes place (grasu).

Down

1. The name given to people who harvest for a living (gogrel).
2. This type of tree is used as a Christmas tree (gvreereene).
3. Our homes would be quite empty if we never had this item made from trees in it (untirrfeu).
4. It is not a tree but a grass that hardens itself to attain wood properties (omabob).
5. This substance carries nutrients to all parts of the tree (psa).
6. We harvest sap to make syrup from this type of tree (pelam).
7. This small tool made of wood can help keep teeth clean (khoptotic).
8. Medium for growing plants (oils).
9. To do a particular task (tuyd).
10. A harmful destructive creature or bug (epts).



Sandalwood products



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