



KEFRI *Newsletter*

Issue No. 31

October to December 2019

A Publication of Kenya Forestry Research Institute



CS, Ministry of Environment and Forestry Mr. Keriako Tobiko (centre) opening KEFRI sub regional Centre in Taita Taveta County. He is accompanied by Chairman of KEFRI Board of Directors Dr. Sammy Letema, Director KEFRI Dr. Joshua Cheboiwo, and Prof. Agnes Mwangombe



CS, Keriako Tobiko (centre) planting a tree at Mchungunyi forest in Taita Taveta County. He is accompanied by Dr. Joshua Cheboiwo (poloshirt), KFS staff and community

Table of Contents

KEFRI Opens Research Centre in Taita Taveta County	2
Rehabilitating the Maasai Mau Forest	4
Tree Planting Campaigns for Eastern and Coast Region	5
KEFRI Board Members Tour Rift Valley and Lake Victoria Basin	8
Nairobi ASK 2019	9
Migori ASK Show	10
Kuja River station intensify tree seedling production	11
Colloquium: Scientists find solution to control nematodes	11
Economic analysis of forest landscape restoration options in Kenya	12
Field day on value addition to non-forest products in Vihiga County	12
KEFRI signs MoU on forestry with County Government of Nyeri	13
KEFRI and University of Eldoret embarks on renewing partnership	13
CS Keriako praises forest product development Centre	14
KEFRI Choir arouse cohesion in Bomet	14
Office Administrators attend KENASA Annual National Summit	14
Farewell to KEFRI Retirees	15

Contributors:

Dr. Jackson Mulatya, Stephen Gitonga, John Otwoma, Agnes Aboo, Betsy Namisi, Margaret Njenga, Sarah Mogaka, Reuben Shanda, and Mureithi Ndung'u

Layout and Design: Evans Abuje

KEFRI Newsletter is a Quarterly Magazine produced by Corporate Affairs and Quality Assurance

KEFRI Opens Research Centre in Taita Taveta County

KEFRI has officially opened Taita Taveta Sub-regional Research Centre marking the 18th research and service delivery center.

Speaking during the launch held at Ngerenyi area in Wundanyi, Taita Taveta County on 18th October, 2019, the Cabinet Secretary for Environment and Forestry Mr. Keriako Tobiko asked Chiefs to abide by the President's directive of establishing Chiefs tree nurseries to ensure availability of tree seedlings in their respective locations.

The CS also directed KEFRI and KFS to establish tree nurseries in schools and other learning institutions to enable production of seedlings that will rehabilitate the degraded Taita hills and forests which have experienced illegal grazing and constant forest fires.

“The County Commissioner should coordinate all government agencies in the county in tree growing to achieve the target of five million tree seedlings per year,” CS Tobiko said.

The CS who also led a tree planting drive that saw over 12,400 tree seedlings planted in various schools and community forest, noted Taita Taveta County requires consolidated effort to increase its forest cover to 10 percent from the current 3.3%.

“At independence our forest cover was 30% but now we stand at 7.2, what happened to the 23%?” questioned the CS, directing SAGAs under the Ministry to use local talents like rappers, poets and dancers to relay conservation messages.

He also stated that efforts being put in electioneering and pre-mature politics should be directed to environmental conservation.

"Kenyan's have politicized environmental matters irrespective of political affiliations," said the CS.

KEFRI Director Dr. Joshua Cheboiwo who was accompanied by KEFRI Board Chairman Dr. Sammy Letema, Senior Deputy Director Dr. Jane Njuguna and other staff, said the sub-centre will conduct forestry research and related natural resources mainly in Taita Taveta and Kwale counties supporting Lamu and Gede also established in the coast region.

Dr. Cheboiwo while thanking the residents of Ngerenyi for donating their land for establishment of the Centre, noted that research and extension services are crucial for sustainable environmental conservation and prosperity.

The Director said KEFRI's strategies to attain the 10% forest cover by 2022, should also encourage citizens to plant and adopt a tree every rainy season which will go a long way in increasing the county's tree cover.

The event was also attended by Principal Secretary Betty Maina, Taita Taveta Deputy Governor Majala Mlagui, immediate former Taita Taveta Governor Eng. John Mruttu, Chairman of Kenya Water Towers Agency and Former Kitui Governor Dr. Julius Malombe, Former Minister Major (Rtd) Hon. Marsden Madoka, Professor Agnes Mwang'ombe, Mwatate Deputy County Commissioner Damaris Kimondo, among other distinguished leaders.

The team planted tree seedlings at Sasenyi Primary School, Buguta Primary School, Kombolio Primary school, and Secondary School, Njukini Secondary School and Mchungunyi forest both in Taita Taveta County as a consolidated effort to increase forest cover.

Dr. Letema urged school headteachers to ensure survival of the woodlots, noting that nurturing the seedlings is crucial till they can survive on their own. He also promised support to the best pupil in the forthcoming KCPE exams.

KEFRI organised the tree planting event with various partners including Kenya Forest Service, Kenya Water Towers Agency (KWTA), Kenya Wildlife Service, County Administration, County governments, Ministry Departments and their agencies and other stakeholders.

Massive Tree Planting exercise

KEFRI in collaboration with various stakeholders spearheaded a massive tree planting exercise covering eastern and coast regions, following the Ministry of Environment and Forestry 2019 Short Rains National Tree Planting programme.



The programme that aligns to the Presidential Order entails planting 1.8 billion trees to increase forest cover to 10% by 2022. The initiative coordinated by the Ministry of Interior and Coordination of National Government and spearheaded by the Cabinet Secretary Ministry of Environment and Forestry in collaboration with Ministry of Education and other Ministry Departments, County Governments, NGOs and Development partners is in line with Medium Term III, of Vision 2030 commitment to protect natural forests in the water towers and continue rehabilitation of landscapes so as to increase and sustain water flow and ecological integrity.

KEFRI's engagement with other stakeholders therefore accomplished tree planting exercise in 8 counties namely; Narok, Taita Taveta, Makueni, Machakos, Kitui, Mombasa, Kwale and Kilifi where over 81,342 tree seedlings of the total 655,000 targeted nationally were planted. The figure also includes 10,000 conventionally planted at Maasai Mau.

Rehabilitating the Maasai Mau Forest

KEFRI has once again applied aerial seeding technology in planting 1.9 tonnes of tree seeds to rehabilitate the reclaimed 22,000 hectares of the Maasai Mau Forest.



CS Keriako Tobiko (left) in presence of KEFRI and Ministry officials is flagging off the aerial tree seeding exercise for Masaa Mau forest complex

KEFRI dispersed 1,981 Kilos of 13 species that included Cape chestnut, Moringa, Mukinduri, forest dombeya, African redwood, Pencil cedar, Mama mutere (*Maesopsis eminii*), Nile tulip, Black ironwood, Podo, Parasol tree, Meru oak and African satinwood.

Speaking during a multi-government agency tree planting exercise at Sierra Leone in the Maasai Mau Forest on 1st November, 2019, CS, Keriako Tobiko said that the ministry kicked off the ten million tree planting initiative in Mau forest as part of its efforts to restore the vital water tower.

“We have embarked on a major restoration program where we expect to plant more than 300,000 tree seedlings manually on the first day and aerial seeding covering 3,500 hectares. We must secure the land in Maasai Mau Forest and make sure the tree seedlings and aerial seeds planted survive to reclaim and protect the vital ecosystem,” said CS Tobiko.

The CS said that half of the 46,000 hectares of the Maasai Mau forest had been grabbed and the first eviction face last year saw 11,000 hectares reclaimed. This year’s exercise targets to reclaim another 22,000 hectares.

The CS was accompanied by PS Ms. Betty Maina, KEFRI Director Dr. Joshua Cheboiwo, NYS DG's representative SAD Patrick Muchai and KFS Commandant Alex Lemarkoko.

Dr. Cheboiwo said KEFRI undertook aerial seeding of almost 3,500 hectares which will cost an average Sh15 million to plant 20 million seedlings. He further added that aerial seeding is an efficient way of rehabilitating the forest with a 75% chance of survival.

He noted that under the 10% tree cover strategy, KEFRI has proposed to conduct aerial seeding on over 4,000 hectares of degraded forest land, that are inaccessible due to rough terrains in Maasai Mau, Eburru (500 hectares), Aberdare (2,500 hectares) and Mt Kenya forests (3,000 hectares). He appealed to individuals, companies and groups to join KEFRI and financially support aerial seeding of the millions of hectares of degraded areas to speed up the restoration of the country’s forest cover.

The Director was accompanied by Senior Deputy Director for Research and Development Dr. Jane Njuguna, among other Senior Deputy Directors and staff from the Headquarters as well as regional centres.

“The seeds are estimated to have approximately 60 million individual seeds, which will yield an estimated 30 million seedlings at a conservative germination rate of 50 percent. The effective stocking rate, discounting for damages, losses and predation by birds and rodents, is projected to be approximately 75,000 seedlings per hectare,” said Dr. Njuguna.

She added that they expect to plant more than 10 million seedlings in the Maasai Mau at an average cost of Sh50 each, with each seedling costing about Sh30 and Sh20 for labour which translates to Sh50 million, excluding mobilisation, transporting the seedlings, supervision and time taken to raise the seedlings.

Dr. Njuguna said aerial seeding is not new and that it has been used in other countries with considerable success.

“This technique is cost-effective and, therefore, saves time and money compared with conventional planting. We believe it is the quickest and perhaps the most cost-effective method of achieving and maintaining the recommended 10% tree cover by 2022 and also meeting the country’s target of African Landscapes Restoration Initiative 100 of restoring 5.5 million hectares of degraded land in Kenya,” said Dr. Njuguna.

KEFRI in partnership with KFS, Seed Balls Kenya and Farmland Aviation Kenya Ltd supported the first aerial seeding which was carried out in Block 1 of the Maasai Mau in September 2018, led by Narok Senator Ledama ole Kina which covered about 1,400 hectares, realizing good germination.

Tree Planting Campaigns for Eastern and Coast Regions

The launch of the 2019 short rains National Tree Planting Campaigns themed ‘Panda Miti Boresha Maisha’, for Eastern region was rolled out at Makueni, Machakos and Kitui Counties.

At Makueni County, the Chief Guest, Dr. Robert Nyambati, representing Director KEFRI accompanied by county leaders planted 2000 seedlings at Mba Primary School on 24th October 2019.



Dr. Robert Nyambati planting a commemorative tree at Mba Primary School in presence of KEFRI Kibwezi ARD Mr. Michael Okeyo, HOC Beatrice Mbula, Head teacher Meshak Mwinzi, and Jafferson Kiti - KFS

Dr. Nyambati urged all responsible government agencies and communities to spearhead the drive at county level to plant and nurture 50 million seedlings during this short rains season.

KEFRI jointly with KFS donated 10,000 seedlings to neighbouring public institutions and communities in honour of late Stephen King’uyu, a village mate who until his death was coordinator of Kenya’s National Climate Change Action Plan and co-chair of Africa LEDS Partnership at the Ministry of Environment and Forestry

Deputy County Commissioner for Mbooni East Mr. Richard Ogwoka, Eastern region Ecosystem Conservator of forests Ms. Beatrice Mbula, Kako/Waia MCA Dennis Musyoka and representatives of various agencies attended the event.

KEFRI Deputy Director for Corporate Affairs and Quality Assurance Dr. Jackson Mulatya launched the tree planting campaigns for Machakos County and Kitui County at Masinga Technical and Vocational College and GoK Kitui Prisons respectively.



Dr. Jackson Mulatya planting a commemorative tree at Masinga Technical College, accompanied by Dr. Robert Nyambati and David Mwanzia, Deputy HOC Embu

Speaking at the same event, the Sub County Commissioner for Masinga Mr. John Ayienda stated Machakos County is semi-arid and the solution to increasing the tree cover lies with the residents.



Masinga Sub County Commissioner Mr. John Ayienda (left) addressing the rally and, Machakos CEC for Water, Irrigation and Natural Resources Ms. Naomi Mutie planting a commemorative tree at Masinga College

He urged residents to embrace afforestation programmes and report any deforestation, charcoal burning and illegal sand harvesting noting these habits are contributors to environment degradation. He called upon both the national and county government and area chiefs to strengthen awareness creation efforts at grassroot levels.

In Kitui County, Dr. Mulatya marked the event by planting Mukau (*Melia volkensii*) being amongst 5100 tree seedlings planted at Kitui GoK Prison, neighbouring public institutions and community farmlands.

"Dr. Mulatya urged communities in Kitui County to adopt a culture of planting trees corresponding to one’s age. The tree planting initiative aims is to increase the county’s tree cover from 7% to 10%, protect the fragile ecosystems, create employment and conserve the environment.

Consequently, contribute to food security, affordable housing, universal health care and manufacturing as indicated in the Big Four government agenda," said Dr. Mulatya.

KEFRI and KFS co-organized the event at GoK Prisons – Kitui which was graced by Kitui County Commissioner, Mr. John Odeng, County Police Commissioner, Lydia Ligami, representatives from other ministerial departments, state agencies and County government.

Mr. Odeng urged public to plant more trees to restraint floods, drought and other environmental catastrophies experienced in the county due to severe climate change.

Coast Region, Mombasa County

The launch of tree planting drive for the Coast region kicked off at Shimo La Tewa Maximum Prison on 30th October 2019, where inmates and community members planted 6,000 tree seedlings at the prison's farmland, and 4,000 would be planted at neighbouring public institutions and community.

The national tree planting campaign under the theme 'Panda Miti Boresha Maisha' aims to plant 50 million trees during this short rains period (October – December, 2019).

The Chief Guest, Dr. Sammy Letema, who is also the Chairman of KEFRI Board of Directors marked the event by planting *Afzelia quanzensis*, a deciduous tree, locally known as Mbamba-kofi.



Dr. Letema (centre) watering a seedling at Shimo La Tewa Medium Prison assisted by officers from the Prison and KFS

Dr. Letema who was accompanied by Dr. Robert Nyambati, and KFS Deputy HOC Mombasa Mr. Peter Mwangi urged communities to plant commercial trees such as Casuarina and Mukau (*Melia volkensii*) on their farms to increase the country's forests and tree cover to 10%.

KEFRI, KFS and host GoK Prisons Shimo La Tewa, co-organized the event which was coordinated by the County Commissioner and graced by the Assistant County Commissioner for Bamburi, Mr. Stephen Orinde.

The Commissioner Mr. Orinde noted that deforestation has accelerated climate change, leading to prolonged drought, flooding with increased food shortage for both humans and animals.

Mr. Orinde instructed all area chiefs to liaise with forest officers and ensure farm owners plant trees on their land and policies on tree harvesting and transportation are implemented. The policy include Kenyans small-scale farmers planting 10% of their land with trees to improve the environment and their standard of living.



Dr. Letema and Assistant County Commissioner for Bamburi Mr. Orinde (left) planting tree at Shimo la Tewa Prison

The Prison Officer In Charge Mr. Omondi Adero requested KEFRI to support the Prison establish a tree nursery where inmates can learn techniques such as grafting and the communities can access seedlings.



Dr. Letema (green Poloshirt), ACC Mr. Orinde, Peter Maina KFS and Mr. Omondi Adero issuing seedlings to the community. Dr. Robert Nyambati and KEFRI Coast Region Director Dr. Linus Wekesa during the tree planting at Shimo La Tewa Medium Prison

Through the efforts of Superintendents, the inmates at Shimo la Tewa provided labour for digging holes and planting.

Heart Africa, Keep Mombasa Clean, Bomu Hospital, Kenya Water Towers Agency, WARMA, Kenya National Shipping Line also participated in the event.

Kwale County

The launch of tree planting campaign for Kwale County was held on 31st October 2019 at Marere forest inside the vast Shimba Hills National Park in Kwale County.

The Chairman of KEFRI Board of Directors, Dr. Sammy Letema led the exercise of planting 10,000 tree seedlings.

“We have enough quality seeds and seedlings all over the country to enable the government increase the forest cover to 10%, if you need them visit any KEFRI centre,” said Dr. Letema.



Kenya Defence Forces officer planting trees together with community at Marere forest, Shimba Hills

The joint planting exercise is organized by KEFRI, KFS and County government and County Administration among other stakeholders was made successful by participation of Kenya Defence Forces, National Youth Service, Kenya Wildlife Service, NEMA, and World Wildlife Fund.

Kilifi County

The launch of tree planting campaign for the coast region concluded at Pwani University, Kilifi County, where 8,300 tree seedlings of 10,000 were planted. 1,700 was donated to other public institutions and the community to plant on their farms.

The Chief Guest, Dr. Sammy Letema speaking during the event asked the County government to train forest enforcement officers to safeguard and ensure sustainability of public forests.

“The national government in partnership with county governments and other development partners will be planting 5 million trees annually in every County from next year,” said Dr. Letema.



Dr. Letema planting *Azelia quanzensis*, Mbamba-kofi tree at Pwani University. Dr. Letema was accompanied by Board member Ms. Maureen Mwangovya, Captain Joshua Mulang'a -KDF and Ezekiel Fondo-KFS

The Chairman also noted that by the end of this year, all counties will be expected to have planted one million tree seedlings each and challenged those that are yet to meet the target to speed up the exercise saying each county is expected to give a record of its achievement.

Dr. Letema also appealed to the public to purchase certified quality tree seeds and seedlings and plant fast growing commercial trees like Casuarina so as to reap more benefit in a shorter period.

“We are no longer planting trees for the sake of conserving the environment, but also for commercial purpose,” he said.

KEFRI Regional Director for Coast Region Ecoregion Programme Dr. Linus Wekesa led the tree planting activity in collaboration with KFS, County Commissioner, Kenya Defence Forces (Navy department) and students from Upendo Homes.

“KEFRI together with the university will use the place as a demonstration site where training of other interested parties will take place,” said Dr. Wekesa.

Kilifi Ecosystem Conservator representative Ezekiel K. Fondo, called upon consolidated efforts to protect and restore the coast forests and mangroves.

Mr. Fondo commended KOMAZA, Camcore and Africa Plantation Capital among other private firms spearheading tree planting initiatives in the region, noting the initiative has helped in conserving Kayas and Arabuko Sokoke forest, which is one of the largest remaining resource of dry coastal forest in Eastern and Southern Africa.

KEFRI Board Members Tour Rift Valley and Lake Victoria Basin

The 10th KEFRI Board of Directors toured Rift Valley and Lake Victoria Eco-region Research Programmes in a bid to meet staff and familiarize themselves with research activities within the regions.

The visit to Londiani commenced with an overview of the region presented by the Regional Director Dr. David Langat. The BoD then visited seed orchards and Eucalyptus plantation experimental sites at Kamara and Patrick Karanja's 8 acre farm at Kamara in Timboroa. Mr. Karanja is growing trees on farm having gained technologies from KEFRI since 2006. Karanja thanked KEFRI for impacting skills that have enabled him grow correct trees thus improving livelihood.



Board Members planting a ceremonial tree at Londiani Centre

At Turbo sub-centre, the Board interacted with staff and visited the tree nursery, seed orchards and experimental sites. The BoD urged the sub-center to expand its species base, produce higher germplasm of *Eucalyptus grandis* and establish more seed orchards in order to meet the set performance contract target of 4 metric tonnes of seeds.

In Kakamega, the BoD visited Shinyalu Botanical Gardens in Kakamega forest established in 2002 by Isukha Heritage Organization.

The garden is a conservancy of medicinal plants and other income generating activities. Mr. Willis Atie the Kakamega Assistant Regional Director pointed out that KEFRI partners with KALRO, KFS, Nature Kenya, Masinde Muliro University, UNEP, AGRA and the Kakamega county government to develop strategies to conserve and improve biodiversity of Kakamega forest.

In Bondo the BoD visited Senior Chief Mathews Asuna farm. Director Henry Obino on behalf of the board commended the Senior Chief for multi purposed farming practicing intergrating commercial agroforestry, aquaculture, bee keeping and animal husbandry at his 7 acre farm.

KEFRI Board Chairman Dr. Sammy Letema while addressing staff at the centres and sub-centres, emphasized on teamwork and cohesion in order to achieve KEFRI's targets. He called upon all heads to ensure that staff are adequately facilitated for better production and for the good of the Institute.

Nairobi ASK 2019

It was jubilation at KEFRI in Nairobi International Trade Fair (NITF) stand as staff celebrated the award of various trophies presented by His Excellence Deputy President Dr. William Ruto on behalf of Agriculture Society of Kenya for excelling in 2019 show at Jamhuri Park grounds, Race course in Nairobi.

KEFRI which was ranked the best in demonstrating seed production and marketing, interpreting current show theme overall - 'Promoting Innovation and Technology in Agriculture and Trade' as well as research/education category.



His Excellence Deputy President Dr. William Ruto presenting trophy to Chairman of KEFRI Board Dr. Sammy Letema (left) accompanied by Senior Deputy Director Research and Development Dr. Jane Njuguna

The 7-day show saw over 3000 visitors interact with staff who exhibited quality tree seeds and seedlings, value added products, forestry innovations and transformative technologies supporting agriculture and trade.

The show offered KEFRI an opportunity to network with exhibitors at different levels displaying products and services.

The A.S.K. exhibition remain an important forum for creating public awareness through one-on-one interaction with various stakeholders on existing industrial training programmes.



CS, Keriako Tobiko, KEFRI Board Chairman Dr. Sammy Letema and Senior Deputy Director Research and Development Dr. Jane Njuguna holding a stool, one of the value added wood products displayed at the stand. Looking on is KEFRI Central Highlands Eco-region Programme Director Dr. Joram Kagombe (left), Collins Obonyo (centre) Dr. Eston Mutitu (second from right)

The Institute continues to reach out to its stakeholders through its participation in various levels of ASK shows countrywide across cities and major towns in the country such as Mombasa, Nakuru, Eldoret, Kisumu and most recently, Nyeri. Exhibitors showcased their work as well as learn best practices during the annual classes held at the show.

The CS for Environment and Forestry Hon. Keriako Tobiko, who was impressed by performances of state agencies under his ministry visited KEFRI stand accompanied by KEFRI Board of Directors Chairman Dr. Sammy Letema.

The CS was first received at the Agriculture Society of Kenya office. He later toured the KEFRI stand with guidance of Dr. Jane Njuguna, Dr. Joram Kagombe and current show coordinator Dr. Eston Mutitu.

Keriako commended staff for demonstrating transformative forestry technologies, value addition to wood and non-wood products, as well as disseminating other information relating to agriculture and trade.

“I call upon KEFRI scientists to engage research to ensure production of quality tree seed and seedlings that are geared to help the government achieve the 10% required forest cover by 2022,” the CS said.

The annual event, organized by the Agriculture Society of Kenya, commenced on 30th September and ended on 6th October, 2019.

Migori ASK Show

Staff from Lake Victoria Basin Eco-region Research Programme (LVBERP) and Migori sub-centre participated in the South Western Kenya region ASK show held at Lichota grounds, Migori County from 9th to 12th October, 2019.

Staff interacted with over 1000 visitors including Migori Governor, Okoth Obado who visited the stand. The Governor commended KEFRI for strengthening forestry development in the region.

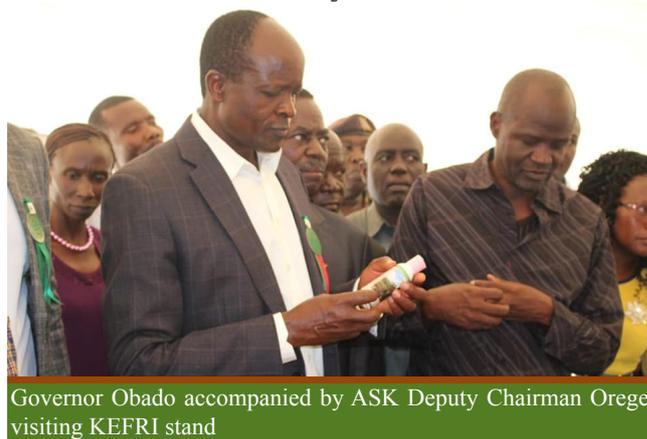


KEFRI staff with trophies awarded trophies at Migori satellite ASK show

“My County government recognises the efforts KEFRI is making in the region however the institute should strengthen capacity building and awareness creation to impact skills on value addition for both wood and non-wood products,” said Obado.

KEFRI was awarded trophies for the best stand demonstrating Research and Development, interpretation of Current Show Theme and third best Non Agriculture Based Statutory Board and Government stand.

There was fruitful engagement with Kisii University which is eager to establish a Memorandum of Understanding on capacity building and joint research in tree nursery establishment and forestry matters.



Governor Obado accompanied by ASK Deputy Chairman Orege visiting KEFRI stand

Kuja River Station Intensifies Tree Seedling Production

KEFRI Enterprise has ranked Kuja River Satellite Research Station the most improved in tree seedlings production in the Fiscal Year 2018 - 2019.

According to the Officer in Charge Mr. Lucas Ojwang, the station's main activity is production of tree seedlings, greatly required to increase tree cover in the region.



Mr. Ojwang attending eucalyptus at the station's tree nursery where production of fast growing tree seedlings is ongoing

“Since my posting here, the station has increased production capacity to 10,000 per year, which is a significant improvement compared to past years performance,” says Ojwang

Fast growing species are encouraged in the region to control soil erosion and improve soil fertility, supply the much needed fuelwood for domestic and industrial use, and support other socio-economic activities like curing bricks, tobacco and smoking fish.

Kuja River station located at Rita near Sukari Manufacturing Industry, in Ndhiwa, Homabay County, also serves as a focal point linking donor supported Community Bio-enterprise at Ligodho.

The Bio-enterprise is mainly involved in value addition - production of charcoal briquette from sugar bagasse and is positively changing the livelihood of Ndhiwa societies.

Colloquium

Scientists Find Solution to Control Nematodes

Mexican marigold (*Tagetes minuta*) and *Tephrosia vogelii* have been found to be effective in controlling plant parasitic nematode.

According to Mr. Benson Ogundu, a KEFRI Technologist (pictured), an experiment to evaluate the effects of *Tagetes minuta* and *Tephrosia vogelii* in control of nematodes at



Malale site in Muguga, Kiambu County, found out nematicide - a crude extract from the two plants is effective in controlling nematodes in the soils.

Ogundu, who made the revelation during a scientific colloquium held on Wednesday 27th November 2019 at the Institutes' Auditorium, stated that the findings added to many appropriate strategies that have been developed for use in control of nematode.

“Nematodes are microscopic plant parasites belonging to a group of worm-like animals that cause significant damage to crops. The parasites are extremely widespread and cause damage to plant roots by preventing plant water and nutrient uptake. They are harmful to turf, grasses, ornamental and home garden. Globally, farmers and nursery practitioners loose millions of dollars in crop loss as nematodes affect crop yield and quality,” said Ogundu.

Ogundu advances that selection of nematode control methods should be guided by; the economics of crop production, target nematode species and potential nematode threats, environmental and food safety regulations. In addition, integrated pest and crop management approaches encompassing as many feasible strategies as possible should be adopted in eliminating the parasite.

Economic analysis of forest landscape restoration options in Kenya

The cost of forest restoration in Kenya, in 2018 ranged from KES 28,662/ha to 631,032/ha depending on the restoration option adopted.

Mr. Jonah Kiprop, KEFRI a socio-economic scientist, reported during a scientific colloquium held at KEFRI auditorium on 17th November, 2019.

The findings stem from a 2018 study entitled, ‘Economic Analysis of Forest Landscape Restoration Options in Kenya’, undertaken in line with Governments strategies to widen interventions of degraded landscapes in the country. The study aimed to quantify the likely benefits and costs of various restoration interventions over wide range of landscapes.

The study revealed traditional cowpeas farming integrated with *Melia volkensii* had the highest Net Present Value (NPV) of KES 1,893,785, followed by poorly managed to improved eucalyptus woodlots at KES 1,649,510 and the silvo-pastoral system at KES 1,272,052. Furthermore, the benefit cost ratio for the restoration transitions analyzed over the 30 year period ranged from a low of 9.6 (Grass reseeded) to highest of 39.6 (Intensive agroforestry cowpeas and Melia).

The scientist further stated that Kenya government has committed to restore and afforest 5.1 million hectares by 2030 under the Bonn challenge and increase forest tree cover to 10 % by 2022. The Bonn challenge is a practical method of realizing several international commitments including the CBD, Aichi Target 15, the UNFCCC REDD+ goal, and the Rio+20 land degradation. The Challenge pledged to restore 150 million hectares of the world's deforested and degraded land by 2020, and 350 million hectares by 2030. The Bonn Challenge have seen many countries pledge their commitment to restoration of multifunctional landscapes, ecological integrity and improve human well-being.

"It is estimated that over 6 billion ha of global landscapes are degraded through conversions to alternative land uses impacting negatively on productivity and diminishing the flow of products and services for human well-being," said Jonah.

Conclusively, all restoration transitions analyzed are economically feasible though massive financial resources is required as well as designing of innovative mechanisms to support restoration efforts such as PES schemes, conservation easements, and carbon credit schemes (REDD+)

State agencies and private sector institutions involved in environmental conservation, county Governments and international development partners, local agencies and Non-Governmental Organizations are viable players to lead the restoration drive in Kenya

Regional Training Course on Forest Genetic Resources

KEFRI hosted a 3-day regional training course on Forest Genetic Resources (FGR) which ran from 10th to 12th December, 2019. The Centre for Ecology and Hydrology (UK), University of Oxford department of Plant Science and Bioversity International jointly organised the course.

The course, targeting forest managers, conservationists and other non-specialists who often lack adequate information about the relevance of genetic aspects to meeting their objectives, introduced the principles of genetic conservation of tree species using guidelines or flexible tool developed by Bioversity International.

Course participants were drawn from KEFRI, Kenya Forest Services (KFS), Kenya Wildlife Services (KWS), National Museums of Kenya (NMK), Egerton University, Kenya Agricultural and Livestock Research Organization (KALRO), Masinde Muliro University, Forest Society of Kenya (FSK), Friends of Karura, South Eastern Kenya University (SEKU) and Maasai Mara University.



Course participants during the three day Regional Course held at KEFRI Headquarters on (FGR)

responsible decision-making in forest and natural resource management. It has a global geographic scope and covers issues of practical relevance to local conservation and sustainable use of FGR," said Mr. David Boshier from the University of Oxford / Bioversity International.

The course was organised after the State of the World's Forest Genetic Resources (FGR) report highlighted alarming decline of important tree species due to a variety of threats (FAO, 2014). Consequently, a Global Plan of Action on Forest Genetic Resources was developed as a wakeup call to governments, international organisations and others to take action before it is too late.

The course uses real case studies to focus on the links between sustainable forest management and FGR, covering areas such as conservation strategies, trees outside forests, seed supply chains, forest management, forest restoration and logging.

Director KEFRI Dr. Joshua Cheboiwo in his closing remarks said tree genetic diversity provides the foundation for selection and breeding programmes to improve the productivity, resistance or quality of trees and their products.

“Conservation of tree genetic diversity can be achieved together with the use of trees to produce wood or non-wood products, including food for humans and animals as long as management and sustainable use practices are designed to safeguard this diversity,” said Dr. Cheboiwo

Dr. Cheboiwo further noted that education curricula for local Tertiary institutions (universities, forestry colleges) often show poor or no coverage of FGR issues, while biology teaching is often devoid of the social and practical realities

“I therefore thank the course facilitators for impacting skills to effectively integrate genetic conservation of tree species in forest conservation and management. This knowledge will enable participants overcome constraints experienced in conservation of species, hence reduce genetic risks in subsequent generations and expound adaptation to climate change,” said Cheboiwo.

Field Day on Value Addition to Non-forest Products in Vihiga County

Staff from National Forest Products Research Programme - Karura, have urged Vihiga residents to embrace value addition to non-wood forest products.

Mr. Reuben Shanda, a Communication Officer at KEFRI Karura spoke during a farmers field day held jointly with Tiriki Tropical Gardens and Farm Bamboo Value Chain Centre on 15th November 2019 at Shamakhokho, Vihiga County.



Packaged Mugombera (*Mondia whytei*) wine and seedlings displayed on top of bamboo table

The exhibition, set at Mr. Victor Mwanga farm, comprised demonstration on value addition to Mkombelo (*Mondia whytei*) and end products like wine, mondia powder, fresh roots and seeds. Charcoal briquettes and other products made from bamboo were also show cased.

Mr. Victor Mwanga appealed to the relevant authorities to establish a farmers’ training center in the region to enlighten farmers and entrepreneurs on value addition to non-forest products such as *Mondia* and Bamboo.

KEFRI signs MoU on Forestry with County Government of Nyeri

KEFRI Director Dr. Joshua Cheboiwo and Governor Mutahi Kahiga on Friday 6th December 2019 signed an MoU to strengthen forestry development in Nyeri County.



Nyeri Governor Mutahi Kahiga receiving research publication from KEFRI Director Dr. Cheboiwo, accompanied by CHERP regional Director Dr. Joram Kagombe, during the signing of MoU in Nyeri township

In the agreement, both parties committed to work together in joint research and development activities on forestry, training and exchange programs, resource mobilization, and institutional capacity building among others.

KEFRI due to its advanced experience in research and development in forestry and allied natural resources will provide technical advice on tree seed collection; rehabilitation of degraded sites; marketing of forest products; policy and legal reviews. The County government on the other hand will support the collaboration and ensure implementation.

Dr. Cheboiwo remarked that KEFRI in its implementation of the 6th Strategic Plan 2018-2022 targets to contribute to the achievement of the national minimum of 10% tree cover. This goal is to be achieved through devolving services to the counties, including Nyeri County where the institute has already established a centre in Muringato along Nyeri - Nyahururu road.

Governor Kahiga sighted deforestation and illegal human activities within the water towers as some of the causes of reduced tree coverage in the country.

He stated that his County Government will collaborate with KEFRI and other relevant partners to curb these challenges in his county, for the sake of future generations.

“My County Government aims at curbing deforestation and increase efforts to recover from ecological mistakes of yester years,” said Kahiga. The governor also urged Nyeri citizens to adopt Prof Wangari Maathai's concept of the little hummingbird and do their best in restoring the forests.

Others present at the function were County Secretary Ben Gachichio, Water CEC Fredrick Kinyua, Ag. Environment Chief Officer Yvonne Mathenge, KEFRI Central Highlands Region Director Dr. Joram Kagombe, Assistant Regional Director Nyeri Centre Mr. Muriithi Ndungu among others.

KEFRI and University of Eldoret Renews Partnership

KEFRI Director, Dr. Joshua Cheboiwo, on 19th November 2019, held a consultative meeting with a delegation from the University of Eldoret seeking to strengthen partnership in forestry research and capacity building.

The University delegation comprising of the Deputy Vice-Chancellor, Planning, Research and Extension Prof. Phillip Raburu, Director of Resource Mobilization and Strategic Initiatives Prof. James Ole Kiyiapi and the Corporate Affairs & Marketing Manager Dr. Wambui Ng'ang'a, was on a mission to explore areas of collaboration with KEFRI and partner institutions - Kenya Forest Service (KFS), which are key institutions in forestry sector in Kenya.



Prof. Kiyiapi, Prof. Phillip Raburu, KEFRI Director Dr. Joshua Cheboiwo, and Dr. Wambui Ng'ang'a, Dr. Jackson Mulatya, Dr. Joseph Githiomi, Dr. Michael Mukolwe, Dr. James Kimondo, and Mr. Charles Koech

“Our partnership seeks synergy in modelling forestry for prosperity and future generations, utilization of facilities and other resources available within the three institutions (KEFRI, Kenya Forest Service and University of Eldoret), advocacy on policies and writing joint research proposals,” said Prof. Raburu.

“We have commenced the process of coming up with a common agenda that will address key forestry opportunities and challenges, critical areas of reviving forestry to become a viable constituent in academia and market the country,” said Prof. Kiyiapi.

Prof. Kiyiapi further noted that apart from skills enhancement, the two institutions should take advantage of multi-sectoral and multi-level approach for collaborating in enhancing skills for students and researchers, proposal development in forest health; hydrology; and economic empowerment.

“These agenda will guide foresters in decision making wherever they are from grassroot to policy levels,” said Prof. Kiyiapi.

In his rejoinder, Dr. Cheboiwo stated, “We fully support the collaboration with higher institution of learning, KEFRI is in the process of establishing a school of graduate to build capacity of students undertaking forestry degree at Masters and PhD level and enable them become competent in the job market.”

Though KEFRI and the University has an existing MoU, the delegates agreed to finalize the draft Memorandum of Agreements that will set out other areas of engagement.

The Director was accompanied by Senior Deputy Director Research and Development Dr. Jane Njuguna, Deputy Director Corporate Affairs & Quality Assurance Dr. Jackson Mulatya, Deputy Director Forest Productivity and Improvement Dr. James Kimondo, Deputy Director Forest Products Development Dr. Joseph Githiomi, Training Manager, Dr. Michael Mukolwe and Partnership and Resource Mobilization Officer Mr. Charles Koech.

CS Keriako praise forest product development Centre

The Cabinet Secretary for Environment and Forestry Mr. Keriako Tobiko has praised forestry activities being undertaken at KEFRI Forest Products Research Centre and Kenya Forest Service Headquarters based in Karura forest, off Kiambu road.



CS Keriako Tobiko (right) interacting with Centre Director, Ms Nelly Oduor, demonstrating value addition to timber waste at KEFRI Karura workshop

The Cabinet Secretary commended the two institutions during a visit to the laboratories and workshop, on 11th december 2019, where KEFRI develop technologies for efficacy and utilization of wood resources, value addition to commercial viable non-wood products.

“KEFRI through the National Forestry Development Programme undertake forestry research in harvesting, processing and value addition of both wood and non-wood forest products which is crucial in enhancing environmental conservation, increasing tree cover and improve community livelihoods,” said KEFRI's Senior Deputy Director Dr. Jane Njuguna who was accompanied by Chief Conservator of Forests Mr. Julius Kamau.

“The Programme also develops forestry technologies on bio-energies including charcoal and briquettes; timber engineering on value addition to wood and non-wood forest products including bamboo, indigenous fruits, gums, resins, and aloe,” Dr. Njuguna further stated.

KFS Head of Dryland Forestry Programme Dr. Clement Ng'oriareng revealed that KFS has identified suitable indigenous trees species for establishment of an international botanical garden in Barbados. This follows a recent bilateral cooperation established between the governments of Kenya and Barbados.

KEFRI Choir arouse cohesion in Bomet

In the spirit of promoting national cohesion and peaceful co-existence in the country, KEFRI choir entertained dignitaries and the general public during the 56th Jamhuri Day celebrations held on 12th December, 2019, at Ndanai Girls Secondary School, Sotik in Bomet County.

During the function, graced by Bomet Governor Dr. Hillary Barchok, KEFRI Choir together with County police band performed both the national and East African Anthems and on its own performed six patriotic and environmental songs, emphasizing the importance of planting trees and conserving the environment.

The Choir thanks the Parastatals Ministries and County Choirs Organisation (PAMICCO) and KEFRI management for supporting the mission of spreading peace and tranquility, marketing brand and creating awareness on environmental matters in the country through music.

Office Administrators attend KENASA Annual National Summit

Kisumu Governor, Prof. Anyang' Nyong' graced the annual Kenya National Secretaries Association (KENASA) National Summit for Office Administrators in Kisumu Simba Club from 27th - 30th November, 2019.

The delegates attending the summit themed ‘Adopt, Nurture and Transform’ were informed that the conclusion of Secretarial Professional Bill 2019 is at its final stages and the Chairperson of the association in Kenya won the KENASA PAYA Awards 2018 which had contestants from Africa states.

The head of Secretarial Services in Kenya Mrs. Jane Gathu, urged Personnel Assistants and Administration in the public sector to adapt best practices to transform their workplace, embrace positive attitude, support business strategies, network and share knowledge for success in the sector.

KEFRI staff; Ms. Augusta Kabunyi, Margaret Njenga, Elizabeth Waiganjo, Lucy Mboru, Veronica Ratemo, Lucy Mutiria, Mary Mudaki, Zaituni Chelagat, Redemptor Mutembe, Abigael Kisali, Jovita Akiki and Esther Mbatia attended the summit

Farewell to KEFRI Retirees

KEFRI Scientists Welfare Association (SWA) held farewell party for its retirees on 29th November 2019 at the Kenya Agricultural Research Organization (KALRO) retreat center - Muguga. The retirees were; the immediate former KEFRI Director Dr. Ben Chikamai, Dr. Phaniel Oballa, Dr. Mbae Muchiri and Mr. Jeseo Lugadiru. Mr. John Mbaya formerly of KFS and the former Environmental Secretary at the ministry of Environment, Water and Natural Resources Dr. Alice Kaudia presided over the function.

We also salute the following retirees who exited KEFRI service as indicated here below.



KEFRI former Director Dr. Ben Chikamai (left) receiving a gift from Ms. Nelly Odour and Mr. Paul Ongugo donated by scientists

Name	P/No.	Exit Date	Exit Mode
Mbae Njugi Muchiri	6056	4 th July, 2019	Retirement
Geoffrey K. Kungu	5335	6 th August, 2019	Retirement
Samuel Njoroge Kangara	6306	16 th August, 2019	Retirement
Phaniel O. Oballa	5492	21 st August, 2019	Retirement
John Makaori Gisemba	6093	8 th September, 2019	Retirement
Jeremiah James Mwendwa	5020	28 th September, 2019	Retirement
William Amondo Ajigo	5659	15 th October, 2019	Retirement
Patrick Wachira Muthee	5304	8 th October, 2019	Retirement
Jesse Kikumba Lugadiru	5229	25 th October, 2019	Retirement
Wilberforce Biera	6496	1 st November, 2019	Retirement
Maurice Agola Oketch	6658	30 th November, 2019	Retirement
Charles Oluoch Oloo	6382	30 th November, 2019	Retirement
Joseph Ogoda Musumba	5336	3 rd December, 2019	Retirement
Joseph Owino Oyier	6257	15 th December, 2019	Retirement
Josephine Kemunto Magasi	6246	17 th December, 2019	Retirement
Mary Muvai Muvengi	6155	20 th December, 2019	Retirement
Kefa Mairura Omenda	5611	20 th December, 2019	Retirement
Anastasia Muthoni Njathika	5915	28 th December, 2019	Retirement
Joseph Owala Ochieng	6859	1 st November, 2019	Resignation
Rose Sambu Lengaina	7112	30 th November, 2019	Resignation
Aloyce Oyoo Oywer	6881	12 th July, 2019	Death
Geffrey Kiarie Nganga	6316	3 rd August, 2019	Death
Cheptumo Rerimoi	6790	7 th October, 2019	Death
Akula Mwamburi	6435	27 th November, 2019	Death



Taita Taveta Sub-regional Research Centre

Kenya Forestry Research Institute (KEFRI)
Headquarters Muguga, off Nairobi - Nakuru Highway
Tel: +254 724 259 781/2, 722 157 414
P.O. Box 20412 - 00200, Nairobi Kenya
Email: director@kefri.org
Website: www.kefri.org