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Her Excellency, the First Lady Margaret Kenyatta greeting KEFRI Director Dr. Joshua Cheboiwo during the introduction session at Ruiru Dam. The First Lady was accompanied by CS Keriako Tobiko, CAS Mohamed Elmi and Bideo Africa Group Chairman Mr. Vimal Shah

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Bamboo Planting Day at Ruiru Dam

Her Excellency, the First Lady Margaret Kenyatta called upon Kenyans to continue embracing conservation values and champion the management of our forests and water towers.

The First Lady was speaking during this year's Bamboo Planting Day at Ruiru Dam in Kiambu County on 8th June, 2019.

Her Excellency led delegates from both the public and private sectors in planting 10,000 tree seedlings comprising bamboo, indigenous and fruit trees, along the dam and neighbouring public institutions to conserve the water towers.

“We have begun to understand and appreciate the true value of forests in our lives. Our forests and trees support human life in many ways including contributing to food security, medicinal value, and as an important economic and fuel source,” she said.

The First Lady further said it was inspiring to see communities where men, women and children participate in environmental conservation

practices, and industries taking the lead in matters of environment and natural resource management. Speaking at the same event, Environment and Forestry Cabinet Secretary Keriako Tobiko said the extreme weather experienced in our country is attributed to climate change and the consequences of our actions.

“It is our responsibility as citizens and corporate bodies to plant and nurture 500 million trees per year for the next 5 years to achieve the 10 per cent forest cover by 2022 thus leaving a legacy for the next generation,” said the CS.

KEFRI Director Dr. Joshua Cheboiwo said the Institute has partnered with other organizations in growing bamboo due to its potential in forestry and environmental conservation.

“KEFRI has introduced bamboo varieties suitable for specific ecological zones in the country and has rolled out technologies for its propagation, management and utilization to other organizations and entrepreneurs,” said Dr. Cheboiwo.

The Director added that bamboo will offer alternative renewable energy, employment and raw materials for manufacturing purposes.

Bamboo, nicknamed the wonder plant, is the strongest and fastest-growing woody plant on earth, and supplies a global trade worth an estimated US\$2 billion.

Bamboo has been in existence for hundreds of years in Asia, Latin America and parts of Africa, as one of the highly versatile giant grass that can grow in almost any kind of climate and thrive in the poorest of soils.

Bidco Africa Group Chairman Mr. Vimal Shah, said his company through ‘Save the Water Towers Initiative’, aims to conserve the environment and water towers in the country through partnership with public/private arrangements.

Bidco Africa Group organized this year’s event in collaboration with KFS, KEFRI, Kenya Defence Force, Fresha Milk, SBM Bank, Nairobi Water and Sewerage Company Limited, Safaricom, African Plantation Capital, Green Africa Foundation and Kenya Private Sector Alliance (KEPSA).

KEFRI Inaugurates Fourth Director

KEFRI Director Dr. Joshua Cheboiwo officially received the office instruments of power on 10th April, 2019 at KEFRI Headquarters, Muguga.

Mr. Henry Obino, Director of Administration in the Ministry of Environment and Forestry representing the Principal Secretary Dr. Ibrahim Mohamed graced the ceremony in the company of KEFRI Board of Directors representative Mr. Robinson Ng’ethe and KEFRI senior management.

The instruments of power received by Dr. Cheboiwo from Dr. Jane Njuguna, the former immediate acting Director, included the KEFRI seal, master keys, Strategic Plan (2018 - 2022) and the Act of Parliament which established KEFRI.



The 9th KEFRI Board of Directors confirmed Dr. Joshua Cheboiwo as the 4th KEFRI Director commencing 1st April, 2019.

In his maiden speech Dr. Cheboiwo thanked the Board of Directors for appointing him to head the Institute, promising to enhance team work and accountability.

“My focus will be to intensify use of ICT to; ensure wide sharing of research results, products and services with stakeholders; diversify sources of funding for research and development; ensure prudent use of funds; establish a training programme for both postgraduate and research associates within Kenya and regionally,” he said.

The Director added that he will spearhead improvement of forest products, through developing technologies for value addition, manufacturing and processing to create employment as well as improve livelihoods.

“I aspire to promote KEFRI as a hub of excellence in the region and internationally by conducting research for impact and sharing research findings,” he further stated.

“During my tenure as Director I will encourage scientists to publish in scholarly journals, network, and participate in global forums such as IUFRO where KEFRI scientists have already submitted 22 papers for consideration in the 2019 Conference in Brazil.

In his remarks, the Chief Guest Mr. Henry Obino urged the senior management team to support the Director to drive the Institute agendas, also noting that KEFRI is rated as one of the best performing state agencies under the Ministry of Environment and Forestry.

He asked all stakeholders to work hand in hand with KEFRI to ensure the Institute maintains the tempo to be a centre of excellence in research and increase visibility.

Mr. Ng’ethe congratulated the Director for the appointment which he stated was done on competitive basis. Ng’ethe laid emphasis on importance of nurturing stakeholders with engaging them through dialogue and offering competitive services and products.

KEFRI 10th Board of Directors

The Cabinet Secretary Ministry of Environment and Forestry Mr. Keriako Tobiko appointed KEFRI Board of Directors through Gazette Notice No. 4374.

Through the notice, the CS appointed Dr. Sammy Letema (*pictured*) as the Non-Executive Chairperson of KEFRI Board for a period of three years with effect from 3rd May, 2019.



In the same gazette notice, the CS reappointed Mr. Kevin Kihara Kariuki, Ms. Maureen Mwangovyva, Mrs. Margaret Maimba, Mr. Felix Ateng whereas Dr. Anthony Njagi Gitambu, Dr. Ali Mohamud Mohamed, and Ms Naomi Apali were newly appointed. The Board members will serve for three years with effect from 1st June, 2019.

The previous Board whose term ended on 30th June 2019, is credited for launching the KEFRI 6th Strategic Plan {2018-2022}, strengthening institutional infrastructure by overseeing development of resource centres in Lamu and Taita Taveta counties.

The former board is also recognised for overseeing completion of an Insectary at the headquarters, development of climate resilient tree species for drylands, management of Prosopis invasion in Kenya, and development of technologies with positive impact on tree cover.

The 3rd Regional Forum on Combating Desertification in the Horn of Africa



The African Development Bank (AfDB) will commit US\$ 25 billion to help African countries tackle the effects of climate change between 2020-2025. Mr. Robert Ochieng the bank’s representative announced during the 3rd regional forum on resource mobilization for Horn of Africa countries held at KEFRI headquarters, Muguga from 14th to 17th May, 2019.

“The move reveals the AfDB commitment towards combating climate change especially in African countries. We want to double our commitments and ensure there are enough funds to fight desertification and climate change,” said Mr. Ochieng.

The bank’s target allocation of funding towards climate finance by 2020 has been 40 percent, progressing steadily from 9 percent in 2016 to 28 percent in 2017 and 32 percent in 2018.

The Director of Administration Ministry of Environment and Forestry, Mr. Henry Obino, representing the Principal Secretary opened the forum whose aim was to enhance ability to access funding for combating climate change in the Horn of Africa.



Mr. Henry Obino and Mr. Katsutoshi Komori being briefed by KEFRI Director Dr. Joshua Cheboiwo on development of Mukau for drylands

KEFRI Director, Dr. Joshua Cheboiwo reiterated the Institute's commitment towards mitigating climate change, saying each country needs to expand areas under tree cover.

“We know that much of the Horn of Africa is arid or semi-arid in nature, therefore we need to unlock the potential of these lands by building on gains made by each country to sustainably manage resources including expansion of areas under tree cover,” said Dr. Cheboiwo.

He urged participating countries to build on gains made by each of them in reversing land degradation, sustainable utilization of forests and woodlands, reversing biodiversity losses, and appropriate management of rangelands.

The Regional Forum under the slogan ‘African Initiative for Combating Desertification to Strengthen Resilience to Climate Change’ brings together participants from the Horn of Africa and Sahel countries namely; Djibouti, Eriteria, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Senegal to share experiences having similar environmental challenges.

The First Secretary Embassy of Japan, Mr. Yuji Shigefuji, said the objective of the forum was to enhance the ability to access fund for combating desertification, review midterm achievements of the project and recap the terms of reference (ToR) on the fight against desertification in Africa.

“As you have already known, funding is essential to implementation of a project but it should be just a tool for achieving the target. Additionally, every donor has their philosophy or style of selecting a project we are required to follow their preference to some extent. Thus, I would like to emphasize that it is crucial to acquire fund matching own needs,” said Shigefuji.

Shigefuji noted that although financial resources are established to implement the plan, the African Initiative for Combating Desertification (AI-CD) has only one function to facilitate each country's activity.

“Considering this characteristic, I urge you to broaden the vision and hence to collaborate many stakeholders including Japan. AI-CD is a platform for all to address the issues related to desertification,” he said.

Mr. Shigefuji congratulated the participating countries for their effort to expand the knowledge needed to integrate and reach Sustainable Development Goals 15.3 and related targets at local level.

JICA Chief Representative in Kenya Mr. Katsutoshi Komori urged participating countries to prioritize building networks and forging partnerships with development funding agencies to combat climate change.

“The forum offers an opportunity to interact and build working relationships with donor partners, draft proposals on improving access to finance for forestry development and environmental conservation. The recommendations will form part of COP 14 conference presentations,” Ms. Mari Miura, (JICA) reported.

Dr. Ebby Chagala Odera, AICD-CADEP Project component 4 and 5 team leader, reported that KEFRI has developed tools and resources for good practices in Kenya, documented 8 practices, and uploaded 11 case studies onto the CADEP website.

KEFRI hosted the forum which was organized by Japan International Cooperation Agency (JICA) and attended by other development partners including: United Nations Development Programme (UNDP), Food and Agricultural Organization (FAO), International Centre for Agricultural Research in the Dry Areas (ICARDA) and Better Globe Forestry.

KEFRI Participates in International Day for Biodiversity

The Chief Administrative Secretary Ministry of Environment and Forestry Hon. Mohammed Elmi urged Kenyans to accept the gravity of climate change and embrace indigenous flora and fauna.

Speaking during the International Day for Biodiversity at Maritime Training Centre grounds in Busia County on 22nd May, 2019, CAS Elmi representing the CS lauded some counties for pioneering development of biodiversity policies.



CAS Hon. Mohammed Elmi and Busia County Governor H.E. Sospeter Ojaamong launching Biodiversity Bill at Busia Training Centre

The event themed ‘Our Biodiversity, Our Food, Our Health’ focused on biodiversity as the foundation for our food and health, and a key catalyst to transforming food systems and improving human health.

In the speech the CS stated that indigenous medicinal plants are fast disappearing with many people turning to planting exotic tree species such as eucalyptus which has led to soil degradation, decline in ground water levels and decrease of biological diversity.

The CS also pointed out that the policy will go a long way in ensuring sustainable utilization of fishery resources within Lake Victoria and the massive Yala Swamp, promotion, farming and consumption of indigenous crop varieties, ecosystem restoration, and sustainable irrigation farming.

Hon Elmi lauded Busia County for championing development of the Biodiversity Bill adding that counties should embark on preservation of the ecosystem by conserving requisite vegetation around the habitat of endangered wildlife.

Several species of plants and animals have become endangered in the recent past due to human activities that have led to environmental changes over the years, adding that this is a threat to the human race and other living organisms.

KEFRI Board of Directors Tours Turkana Centre

The 9th KEFRI Board of Directors toured Turkana Sub-centre under Rift-Valley Eco-region Research Programme to monitor progress of the on-going research activities in the region.

The first point of call was to the office of H.E Governor Joshat Nanok, who was represented by the Deputy Governor Mr. Peter Lotethiro.

Mr. Peter Lotethiro lauded the relationship between Turkana County and KEFRI stating that it has enabled ample environmental gains which are also beneficial to the communities in the region. However the county is still experiencing numerous challenges such as; deforestation, encroachment of riverine ecosystem, exclusion of community leaders from the onset of projects, and lack of exchange programmes.



Turkana Deputy Governor Peter Lotethiro (centre) with KEFRI 9th Board of Directors and Turkana County government representatives after a courtesy call to the Governor's office

Mr. Robinson Ng'ethe on behalf of KEFRI Board of Directors assured the County government of the Institute's continued support especially in enhancement of partnerships and synergizing efforts to develop forestry in the region.

KEFRI will carry out baseline surveys on Prosopis and Aloe which are prevalent resource in the region as well as engagement in the management of hilltop forests, integration of high value trees on farms, partnering in resource mobilization and development of demonstration plots.

The Board then visited Turkana University College (TUC) where they agreed to sign a Memorandum of Understanding in a bid to boost the University's mandate of teaching and research. The team was hosted by Deputy Principal, Academic Affairs Prof. David Nyongesa Kassilly.

Prof. Kassilly emphasized on the need to synergize efforts between KEFRI and TUC by developing interest in human through student attachment and internship programmes.

The Board members also made a visit to KEFRI /JOFCA (Japanese and Overseas Forestry Consultants Association) project in Kakuma where Pelekech Community Group is managing Prosopis invasion by utilizing it to make assorted products.

The group is improving the environment and livelihood through; cultivating *Aloe turkanensis*, reseeding rangelands and degraded sites for pasture production.

The group members also earn their livelihood from selling hay, grass seed, and honey from apiaries in the afforested areas. The money earned is ploughed back into the project as a money lending scheme for members.



KEFRI Turkana sub-region Assistant Regional Director Mr. Jesse Owino (centre) with KEFRI Board members and Pelekech community group members at Kakuma experimental site

KEFRI has been training the group on value addition to Aloe, post harvesting, making making soaps and shampoos. The group chairlady cited lack of equipment and chemicals to process the product is limiting supply of the growing demand of their products.

Ms. Maureen Mwangovya on behalf of the Board encouraged thanked the group and encouraged them to take advantage of the loans offered by Women Development Fund to boost their work.

KEFRI visits Kitui Governor

KEFRI Senior Deputy Director, Research and Development Dr. Jane Njuguna, paid a courtesy call to Kitui Governor Charity Ngilu on 11th April 2019.

The purpose of the visit was to brief the Governor on programmes, projects and activities KEFRI is undertaking in the county aiming to strengthen relationship for sustainable development of forestry in the region.



Kitui County Governor Charity Ngilu (3rd left) receiving KEFRI Strategic plan from Dr. Jane Njuguna during a courtesy call to the Governor's office in Kitui

KEFRI having worked closely with the County for the past 30 years indicate its commitment to develop forestry in the county to improve the environment and community livelihood.

“The Institute has been conducting forestry research in the eastern drylands for over three decades, supporting local communities in tree entrepreneurship and environmental conservation,” Dr. Jane Njuguna said.

“KEFRI in collaboration with close partners is creating awareness on growing appropriate tree species for resilience to climate change, encouraging adaptation of good practices and building capacity of groups in establishing tree nurseries, management of tree growing on-farm for enhanced tree cover,” said Dr. Njuguna.

Other KEFRI staff in the team comprising Dr. Jackson Mulatya, Dr. Albert Luvanda and Sarah Mogaka explained the importance of dryland forestry research under DERP and lobbied for protection of field trials in Tiva where development of technologies for climate change resilience in ASALs landscape as well as intervention for restoration and reforestation are undertaken.

The team further discussed flagship projects on development of *Melia volkensii* (Mukau) a fast growing indigenous tree in the drylands, domestication of Acacia species, reforestation and rehabilitation of isolated hills including Mutito, Mumoni, and Mutha in Kitui Central (Migwani) and rehabilitation of river banks.

The Governor noted that her county forest cover is approximately 7 percent, but lamented charcoal burning and sand harvesting are major detriments to the environment.

Governor Ngilu assured KEFRI of collaboration in tapping available technologies at Kitui Centre to; increase tree cover, strengthen relationship on forestry matters, environment and socio-economic development, in an effort towards achieving 10 percent forest cover in the Country.

KEFRI visits SEKU Vice Chancellor

The KEFRI team also visited the South Eastern Kenya University and held discussions with Vice Chancellor Prof. Geoffrey Muluvi. The discussion centred around establishment of collaborative initiatives for the growth and mutual benefit of the two institutions.



Prof. Muluvi (centre) receiving a copy of KEFRI 5th Scientific Conference proceedings together with the 6th Strategic Plan from Dr. Jane Njuguna

The partnership will be achieved through; collaboration in enhancement of training skills, knowledge transfer, and technical advisory services, collection, use and conservation of tree germ plasm, consultancies and publications.

In March 2019, KEFRI and SEKU signed a Memorandum of Understanding to promote joint research and development in production, conservation, protection and commercialization of forestry and allied natural resources.

Sandalwood Plantations Ltd Donate Booklets to KEFRI

The General Manager Sandalwood Plantations Limited Kenya, Mr. Loganathan Ayyakhannu donated booklets on Sandalwood species to KEFRI on 22nd May 2019.

KEFRI Director Dr. Joshua Cheboiwo while receiving the booklets titled; ‘Sandalwood - the Fragrance of the World’, and ‘Queen of Sandalwood’ commended the company for its efforts in sharing knowledge on sandalwood development in India.

The visit by the general manager was a follow up to the research and development initiatives which began in 2018, where KEFRI entered in to partnership to commercialize sandalwood in Kenya.



Sandalwood Plantations Limited General Manager, Mr. Loganathan Ayyakhannu (left) donating booklets to Director Dr. Joshua Cheboiwo at KEFRI headquarters, Nairobi Kenya

“Sandalwood species - *Santalum album* has been commercialized in India, Indonesia, Sri Lanka, Malaysia, China and Australia. The species is used in manufacturing pharmaceutical and beauty products especially perfumes after undergoing a process to extract its oil,” said Loganathan

However in Kenya the Sandalwood species *Osyris lanceolata* occurs naturally in several ecosystems and is yet to be commercialized. In this regard, partnership with Sandalwood Plantation Ltd will provide knowledge and technology to enable commercialization of the local species.

KEFRI scientists have developed propagation protocols for local *Osyris* and testing its productivity in demonstration plantations is ongoing. Its hoped the two partners will make commercialization of *Osyris* a reality.

KEFRI signs pacts to conserve environment

KEFRI Director, Dr. Joshua Cheboiwo, represented by Senior Deputy Director for Research and Development Dr. Jane Njuguna signed an agreement with Tsavo Heritage Foundation, Forestry Clubs of Kenya (FCK) and Youth Three Sixty Limited for collaboration in tree planting and environmental conservation.

“KEFRI is delighted to partner with both the private and public sector since our main objective is technical backstopping in tree planting, provision of quality tree seeds and seedlings as well as knowledge sharing,” said Dr. Njuguna.



Dr. Jane Njuguna-KEFRI, Jacob Kipongoso and Mwambi Mwasalu from Tsavo Heritage Foundation signing the agreement for environmental conservation

Dr. Njuguna who was speaking at KEFRI headquarters on 27th May 2019, pledged to support the organizations in achieving their objectives.

Dr. Njuguna highlighted partnerships as one of the strategies that public-private partnership can utilize to promote tree planting and augment government effort to increase forest cover to 10 percent by 2022.

“Tsavo Heritage Foundation located in Taita Taveta County aims to grow and nurture 1 million trees in each of the 12 counties in a span of three years to reclaim the degraded Tsavo ecosystems and Dispersal Areas - TEDA,” Mr. Mwambi Mwasalu, the Foundation President said.

The Tsavo Ecosystem comprising of West and East parks is the largest national park in Kenya and in Africa. Currently, Tsavo Ecosystem is experiencing shifts in the ecosystem including challenges caused by human interference, water scarcity, human wildlife conflicts, erratic weather change aggravated by climate change.

“The Foundation therefore has structured activities for schools in the 12 counties on awareness creation, recognizing conservationists and resource mobilization for rehabilitation and conservation of the ecosystem and dispersal area,” Mr. Jacob Kipongoso, Operations Director said.

The Forestry Clubs of Kenya (FCK), according to Mr. Jediel Kaberia, is a non-profit-making organization promoting sustainable forest resource management practices through school approach.

One of its objectives is tree planting in schools, with farmers and women groups to adapt agroforestry for commercial gains, increase forest cover and improve livelihoods.

“The school program entails establishment of medium-scale tree nurseries managed solely by students who are trained and assisted to raise seedlings for school woodlots, afforestation or reforestation purposes,” said Mr. Kaberia.



Dr. Jane Njuguna (centre) poses with representatives from Tsavo Heritage Foundation, Forestry Clubs of Kenya, Youth Three Sixty Ltd and KEFRI senior management staff after the signing the MoUs

Mr. Brian Mirigo, the Manager Youth Three Sixty Limited, said his company is set to grow bamboo for crafts, pulp and fibre production hence collaboration with public and private sector will promote bamboo growing in Coast region.

“Bamboo, the fastest-growing grass with the potential of making high-value products, remains largely unexploited in Kenya,” said Mr. Mirigo.

“We hope our collaboration with KEFRI will be valuable in technical support and market linkages for our bamboo produce, connecting youth to employment, knowledge sharing, and networking with multiple stakeholders,” said Mr. Mirigo.

Dodder Weed Spreads in Kenya

Dodder weed (*Cuscuta japonica*), has become a nightmare particularly in Western Kenya, Rift Valley and parts of Central region where it has infested forest, herbaceous landscapes and garden plants.

The weed, whose origin has been traced to North America, is a parasitic plant that draws nutrients from host plants and trees leading to suffocation.



Dodder weed attacking Golden Duranta hedge at Uhuru Park Nairobi

According to a survey report from a study done in parts of Central Kenya region including Nyeri, Muranga, Nyandarua and Laikipia counties the weed, which affects a wide range of trees and food crops is fast spreading to other counties.

It builds a canopy on the host plant and casts thousands of tendrils to form a dense spectacle before it strangles the host,"said Dr. Eston Mutitu, a KEFRI Entomologist and Chief Research Scientist.

Dr. Mutitu, together with his co-authors Dr. James Kimondo and Dr. Jared Amwatta stated in the report that to save the affected plants, some of which are of economic importance, a systematic approach that combines several control methods must be applied

"Once an area is infested with the Dodder it is difficult to eradicate it with a single treatment or within a year. If you see native Didders infesting plants, take immediate action to eliminate or reduce the infestation." says the report.

Effective management requires control of the current population, prevention of Dodder seed production, and suppression of new seedlings in subsequent years," the report further read.

People moving from Dodder infested to Dodder free areas should clean and inspect their clothing and equipment carefully to inhibit spread of the weed.

The scientists recommend isolation of small infestations, removing them manually by hand, and planting of non-host plants especially where extensive infestations exist.

Plants that do not host Dodder include grasses and many other monocots such as lilies.

The report indicated that pruning and burning the infested plants is effective control that also prevents regeneration of the Dodder from embedded haustoria.

Burning kills only some of the dodder seed; therefore amount of seed destroyed depends on the duration and intensity of the fire.

Where Dodder has been a persistent problem in certain commercial agricultural fields or in landscapes, application of pre-emergent herbicides e.g, trifluralin before Dodder seed germinates is recommended.

"Pelargonic acid (Scythe) is an effective chemical, though it also kills any plant tissue it gets in contact with," said Dr Mutitu.

He further added that spartial and careful spraying with herbicide are important measures to avoid damage to desirable plants. Where practical, follow up with close mowing, burning or spot removal of parasitized host plants is recomended to control Dodder plants that escaped the herbicide application.

The author of the rport propose further studies to; identify the full spread of the weed and hot spots for immediate intervention, carry out molecular identification, screen for identification of most suitable chemicals, and create awareness on the impact of areas where infestation has been observed.

World Environmental Day

The 2019 World Environmental Day themed 'Air Pollution: A Silent Killer' was observed worldwide with nations having defined activities spearheaded by government agencies tasked with the responsibility of environmental protection.

KEFRI jointly with Turkana County Government, National Environmental Management Authority (NEMA), Kenya Forest Service, Tullow Oil, World Vision and other stakeholders celebrated the day on 5th June, 2019 at Uhuru Girls High School, Turkana South by creating awareness on the challenges and means to mitigate air pollution.

The Institute donated 100 tree seedlings which were planted at Lokichar Primary School and Uhuru Girls' High School during the ceremony. Thereafter students and stakeholders participated in an environmental debate.



Turkana County Water Services, Environment and Mineral Resources CEC Joseph Emathe Namuar representing the Governor graced the occasion.

He impelled communities and corporates to support the County government in planting trees to rehabilitate degraded areas and increase forest cover.

Nema County Environment Director Mr Jilani Chiro Chigulu said; "Air pollution is responsible for over 7 million deaths yearly with the World Health Organization report 2012 indicating 3.2 million premature deaths worldwide are caused by outdoor air pollution including more than 200,000 lung cancer deaths."

Other notable guests speakers who make remark during the event and contributed in the debate were the Deputy County Commissioner for Turkana South, representative from Meteorological Department, Child Fund and Road Safety organization.

In Lamu County, KEFRI celebrated the day by mobilizing over 500 people in a clean-up and tree planting exercise at Mokowe town. Lamu Assistant County Commissioner for Hindi Division Mr. William Magiri presided over the event also attended by leaders from Lamu County, and representatives from KEFRI, Kenya Forest Service (KFS) National Environmental Management Authority (NEMA), National Youth Service (NYS), Northern Rangelands Trust (NRT) and Save Lamu.

KEFRI Taita Taveta Assistant Regional Director Dr. Chemuku Wekesa informed the gathering that KEFRI research is done for the benefit of citizens. He encouraged communities to adopt fast growing trees on their farms for economic benefit.

Ecosystem Conservator for Lamu County Mr. Evans Maneno urged communities to conserve the mangrove forests as they provide important ecological benefits such as breeding grounds for fish.

Maneno said the County which has the largest percentage of mangrove cover in the country - 62 percent and third in forest cover at 33.9 percent face serious threats from pollution resulting from illegal dumping of solid wastes in the marine environment, effluent discharge and grabbing.

"So far KFS in partnership with Nature Conservancy Project (TNC) have planted over 160,000 mangrove propagules against a target of 300,000 propagules," Mr. Maneno said.

NEMA Director Lamu County, James Kamula highlighted threats facing the environment including pollution from land – based sources; uncontrolled development along the coastline; depletion of fisheries and climate change.

"NEMA gazetted the Air Quality Regulations in 2004 to militate severe air pollution arising from different sectors including mobile and stationary sources. The Regulations aims to prevent, control and abate air pollution," Mr. Kamula said.

He added that compliance with these regulations would ensure air pollution is drastically cut down and clean and healthy ambient air in the atmosphere is greatly improved.

Kikuyu Elders seek forest land for cultural rites

The Chairman of Kikuyu Council of Elders in Kerwa location Mr. Ng'ang'a Gĩtuĩku has revealed that the Council is seeking part of Gachuthi Forest for conducting ceremonial rites.

Mr. Gĩtuĩku according to Mr. Simon Kamonde, Chairman of Muguga CFA, was speaking at Kerwa Administration grounds on 21st June, 2019, during a tree planting exercise organized by Muguga CFA, alias Muguga Ecosystem Research Community Forest Association (MERCFA) together with Kikuyu Council of Elders.

The Chairman of the Council in Kikuyu Sub-county Mr. Shamte Mũnyua. commended the elders for planting 100 avocado trees (*Persea americana*).

“The avocado planting campaign will cascade to all primary schools in the sub-county to enable the Jubilee government attain the 10% tree cover by 2020.” said Mũnyua.

Mũnyua called upon all land owners within the region to plant at least 5 avocado seedlings each year to diversify food security and income generation.

“Hass variety has reliable market both nationally and internationally,” said Mũnyua.

Gĩtuĩku stated that lack of employment is threatening the area youth who are resorting to alcoholism and other drug abuse.

“*Rũru rũtarĩ njaũ ni gũthirarũthiraga*’ interpreted to mean a herd without offsprings gets extinct,” said Gĩtuĩku.

The elders will use the forest site to conduct their cultural ceremonies and youth seminars to model moral behaviour and integrate cohesion in the society.

Kerwa location Chief Joseph Rĩbũthũ thanked the elders for supporting the good initiative which he states will encourage other groups to embrace caring for environment and posterity.

KEFRI Scientists call upon community to grow indigenous fruits

KEFRI National Forest Products Research Programme (NFPRP) - Karura in conjunction with Central Highlands Eco-region Programme (CHERP) held an open day at Karura Centre on 29th May, 2019.

The event attracted over 300 people. During the open day demonstrations on propagation of bamboo, *Melia volkensii* and vegetative propagation of *Pinus patula* through shoot cuttings and growing of East Africa Sandal wood were showcased.

Technologies demonstrated included; On-farm sawing, briquetting, bamboo treatment and value addition, micro techniques, timber grading and strength testing, management of tree pests and diseases.



Some of value added products processed from indigenous fruits

Over 10 collaborators including KFS and Tree Biotechnology displayed a variety of products while KEFRI exhibited; Aloe, indigenous fruits, Gums and Resins, bamboo, laminated products from waste timber and various tree seeds.



Bamboo products on displayed during the open day

The Director, National Forest Products Research Programme, Ms. Nellie Mugure Oduor (*pictured*)



speaking during the Open day stated that researchers at KEFRI have managed to extract jam and juice from indigenous fruits including B a o b a b (*Adansonia digitata*), Amarula (*Sclerocarya birrea*) (ukwaju) *Tamarindus indica* and (mbuu) *Vitex keniensis*.

According to Nellie, research on value addition to improve the quality of *Syzygium guineense* (zambarau), a fruit found in many parts of the drylands of Kenya is on going to improve its products for commercial usage.

KEFRI researchers have been using gum Arabica from *Acacia senegal* in preservation of conduits processed from these fruits. Gum Arabica is organic and has no side effects, hence its advantage over artificial food preservatives.

Ms Oduor, says, KEFRI research on the underutilized indigenous fruits have developed assorted products which include fruit cakes, wine and dried powder. The projects on fruit value addition programmes is being undertaken in Kitui, Makueni, Mwingi, Embu, Kakamega, Bungoma, Meru and various Coastal counties. Fruits under research in these counties include; zambarau, baobab, marula and tamarindus.

Oduor pinpoints lack of planting material as one of the challenge facing development and commercialization of Indigenous fruits in the Country.

However scientists are currently studying various species and developing protocols for domestication. The result will be production of quantity and quality planting materials that will be of commercial benefits to the farmers.

“For processing and value addition, some of the fruit pulps have colours, such as black, which are not readily acceptable in the market. “As researchers, we have to keep on discovering new ways to make them appealing and compete in the market.” Ms Oduor adds.

Forestry Society meet for Policy Dialogue

The Forest Society of Kenya is drafting a policy to ensure professionalism is upheld in forestry sector.



Speaking on May 30th, 2019 at the KEFRI headquarters Muguga, during policy dialogue on forestry management in Kenya, the Chairman Dr. Joram Kagombe (*pictured*) pointed out that inadequate professionals on forestry matters and guiding policies is hampering Kenya’s bid to achieve 10 per cent forest cover by 2022.

“We need professionals to; help farmers in monitoring the growth of trees from seedlings to the time of harvest, contribute to curriculum development for studies in the universities and colleges. This will form some of the measures to ensure the Country attains the 10 per cent tree cover by 2022,” said Dr. Kagombe.

Dr. Kagombe who is also the Central Highlands Eco-Regional Programme Director (CHERP), added that the Forest Bill will ensure all professionals in forest sector are registered and follow the association’s code of conduct.

The dialogue themed ‘Policy and Legislative Review Towards the Forestry We Want’, was supported by Gatsby Africa and The Nature Conservancy.

KEFRI’s Senior Deputy Director Research and Development Dr. Jane Njuguna who represented the Director Dr. Joshua Cheboiwo, said the loss of forest cover has not only exacerbated the impacts of climate change but is leading to natural hazards such as droughts, fires and floods.

“Climate change should be discussed among foresters and other stakeholders like county governments. Besides forests being a lucrative business in timber, even tourist attractions sites and nature walks should be embraced,” Dr. Njuguna added.

Participants drawn from all over the country included, FSK members and non-members. Organisations represented included:- KEFRI, KFS, NEMA, Ministry of Environment and Forestry, County government, University of Eldoret, Egerton University, Timber Manufacturer Association, Better Globe Forestry Ltd, Comply Industries, Gatsby Africa, The Nature Conservancy, USAID, FSC, African Forest Forum, Private consultants, Farmers, and Entrepreneurs in the forestry sector.



Mr. Jamlick Ndambiri, a long serving forester with Kenya Forest Service addressing participants

The meeting highlighted that the forestry sector is dynamic and faces challenges such as rapid human population growth hence a wide gap between supply and demand for forest products are increasing pressure on the forest and forest resources.

It emerged that despite forestry sector playing an important economic role, development of the sector is also limited by politics, brain drain, bureaucracy, and lack of incentives, guiding policies and data to inform concrete decisions. The Society therefore has to raise its voice on behalf of the foresters by leading dialogues on policies and other topical issues in forestry sector.

The Society will strive to link foresters and the public, work closely with County Governments and institutions to create awareness, and reach out to entrepreneurs, youth, community groups and young professionals on the need for forest conservation.

The Chairman urged members to promote the positive side of the profession and improve efficiency in operations.

ASK Show Kakamega

KEFRI Kakamega sub-centre won a trophy for the best stand demonstrating ‘Application of Environmental Quality Standards’ at the Agricultural Society of Kenya Western Kenya Branch show held from 29th May to 1st June, 2019 at Kakamega showground.



The ASK National Deputy Chairman, Mr. Charles Apudo Owelle presenting a trophy to Mr. Jimmy Maison at Kakamega showground

The Institute exhibited forestry innovations and technologies in respect to the current show theme ‘Promoting Innovation and Technology in Agriculture and Trade’.

Mangrove Field Day at Coast Eco-region



Community planting mangrove at Lamu during the farmer's field day

Mr. Henry Komu, Assistant Regional Director KEFRI Lamu has asked residents to restore and conserve the mangrove ecosystems in the County.

Mr. Komu who was speaking during the mangrove field day at Mokowe Old Jetty on 19th June, 2019, added that KEFRI is eager to provide technical support required by stakeholders on restoration and management of mangroves in the coast region.

He also urged the mangrove licensees to instruct their respective mangrove cutters not to interfere with the established research trials and rehabilitated sites, since they are key in providing useful data to guide in management of the mangrove resources.

Mr Komu pointed out that in due time KEFRI will erect signage at the demonstrates plots for easy identification.

He further advocated for the establishment of *Avecinnia marina* nurseries within Mokowe mangrove areas for rehabilitation purposes since saplings for the species are not readily available.

Kenya Forest Service, Mangrove CFAs, mangrove authorised harvesters and local communities who attended the field day participated in collection of planting materials, mangrove propagules, and planting them on the degraded sites.

KEFRI Choir Performance

KEFRI Choir in its agenda of profiling the Institute’s image has entertained in various national and institutional events countrywide.

On 8th June, 2019, the Choir entertained guest during a bamboo planting exercise at Nairobi City Water and Sewerage Company grounds, Ruiru Dam, Githunguri in Kiambu County



KEFRI Choir entertaining guests at Ruiru Dam where Her Excellency the First Lady Margaret Kenyatta launched bamboo planting campaign

The Choir performed the National Anthem and theme song ‘Jukumu La Kupanda Miti’. The song encouraged patriotism and environmental conservation

Her Excellency, the First Lady Margaret Kenyatta was the Chief Guest at the bambopo planting event sponsored by Bidco Africa Group and other partners.

On 22nd May, 2019 the Choir entertained at Amani grounds Karura Forest during the African Forest Forum (AFF) 10th Anniversary Celebrations.

The celebrations named ‘Sustainable Management, Wise Use and Conservation of Forests’ saw AFF members from over 35 African countries plant trees for sustenance of the African Continent.

The Choir also entertained at Gusii stadium in Kisii County during this year’s Madaraka day celebrations held on 30th May, 2019.

The team performed the National Anthem together with the Kenya Prisons band. They sang ‘Leo Kunalo Jambo’, ‘Siku ya Madaraka’ and ‘Panda Miti Penda Kenya’. Various schools, traditional dancers, gospel and secular singers also individually performed during the event.



KEFRI Choir performing during Madaraka Day celebrations in Kisii

The Presidential Event’s Co-ordination Unit which organise all institutions with choral groups to participate in national events assigned KEFRI Choir to participate in Kisii County to promote , through songs, national cohesion and peaceful co-existence amongst communities.

Retirees

The following persons retired from KEFRI service.

| Name | P/No. | Date of Exit | Mode of Exit |
|---------------------------|-------|------------------------------|--------------|
| George Wasonga Odhiambo | 6595 | 29 th April, 2019 | Retirement |
| Richard Odongo Omung’ala | 5964 | 15 th May, 2019 | Retirement |
| Ngaatu Peter Mutisya | 6727 | 27 th May, 2019 | Retirement |
| Rose Adero Otieno | 5919 | 12 th June, 2019 | Retirement |
| Alice Wanjiku Gacheru | 5268 | 20 th June, 2019 | Retirement |
| Ben Elijah Nandi Chikamai | 5226 | 30 th June, 2019 | Retirement |

KEFRI fraternity is glad to see you retire while strong and have capable years of life ahead of you! Congratulations! This is the beginning of the rest of your life.

We wish you good health and long happy retirement.



AICD-CADEP Project component 4 and 5 team leader Dr. Ebby Chagala-Odera with S. Mohamed and Manal Abdalla both from Sudan during the forum for combating desertification in the Horn of Africa



KEFRI Corporate Communication Officer Mr. Stephen Gitonga presenting trophies donated by the Institute to Ms. Anne Kinyanjui on behalf of Kiambu County Education Board

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