



nema
mazingira yetu | uhai wetu | wajibu wetu

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Nema

National Environment Management Authority
NEWS

Nema decentralises
functions and services
to counties

Vision

To be a world-class environmental Authority that ensures a clean and healthy environment for all.

Mission

To safeguard, restore and enhance the quality of the environment through supervision and co-ordination of all matters relating to the environmental activities in Kenya.

Mandate

To exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of the Government in the implementation of all policies relating to the environment.

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OUR ENVIRONMENT, OUR LIFE, OUR RESPONSIBILITY

MAZINGIRA YETU, UHAI WETU, WAJIBU WETU

Cover Page Photo



The rich environment nexus.

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The Danish Ambassador to Kenya H.E. Geeret Aargard Andersen (centre) when he paid a courtesy call to NEMA Director Prof. Geoffrey Wahungu.

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Editorial

It is exciting to produce another quarterly edition of the National Environment Management Authority (NEMA) news magazine. This magazine provides information on the programmes and activities that NEMA has engaged in as well as highlights features on various environmental matters. We are continuously striving to enhance the quality of our magazine and provide technical information in a simplified manner for all our readers to enjoy.

In this edition we highlight the visit to NEMA by the Danish Ambassador to Kenya. NEMA continues to receive funding for some of its programmes through the Natural Resource Management (NRM) Programme which is sponsored by the Danish government. The meeting provided an avenue for NEMA to give feedback on some of the programmes that have been supported.

The Authority has received an immense boost in overseeing the implementation of environmental policies. This is because from the 2011-2012 financial year all ministries, departments and agencies (MDAs) will be required to submit quarterly reports to NEMA on efforts that they are engaging in to contribute to environmental sustainability. This will contribute to the attainment of a clean and healthy environment as envisaged in the Kenyan Constitution.

The Authority recognizes the important role that various institutions can play in conserving the environment. In this regard NEMA hosted the Public Complaints Committee (PCC) and the Kenya Association of Manufacturers with a view to identifying how the institutions can work together on matters of the environment. Further NEMA has partnered with Pwani University College (PUC) to set up a Botanical garden at the University.

Climate change continues to be a buzz word; however the effects of climate change are real in various parts of the country. In this edition we highlight the effects of climate change in Tana River the venue of the 2012 World Day to Combat Desertification commemoration.

In adherence to the Constitution of Kenya 2010 provisions for government agencies to devolve their operations and functions to counties to ensure efficient provision of their services to members of the public, NEMA from 1st June 2012 decentralized some of its services to the counties. These services are highlighted in this edition. Read on to find out which service is coming closer to you.

Everyday we churn out e-waste through buying and embracing new technology in the form of mobile phones,

computers, refrigerators, microwaves among others. The challenge of collecting and disposing this waste is mounting everyday. The Authority has developed e-waste guidelines to address the same. These guidelines can be found on the NEMA website www.nema.go.ke. NEMA in partnership with the National Environment Trust Fund undertook a rigorous process of identifying outstanding persons contributing to environmental management and awarded them. Some of those awarded are highlighted in this magazine.

The Authority in collaboration with other lead agencies impounded illegal ozone depleting substances from the port of Mombasa as well as extracts of illegally harvested aloe species. The operation comes in the wake of enhanced collaboration in enforcement of environmental laws in Kenya under the auspices of the East African Network for Environmental Compliance and Enforcement (EANECE).

The Sabaki Eastuary plays an important ecological and socio-economic role. However the area is experiencing serious environmental degradation as a result of various human activities. NEMA with funding from the Kenya Coastal Development Programme is putting in place measures to promote conservation and sustainable development in the area. On the other hand hyacinth has spread in Lake Naivasha and Lake Victoria affecting the social and economic benefits derived from the water sources. Various strategies have been implemented to curb the spread and negative effects. These strategies are highlighted in this edition.

I welcome you to read and enjoy the articles herein and consequently expand your knowledge on environmental matters. I also wish to remind you to find a way in which at your local level you can contribute to a clean and healthy environment. Send me your feedback on email jmarita@nema.go.ke on what you would like to read as well as comments on how we can improve our magazine.

Jacqueline Marita

Government joins forces to conserve the environment

By Morton Saulo

Ministries, Departments and Agencies (MDAs) will now be required to submit quarterly reports to NEMA on their environment sustainability efforts. Environmental Sustainability refers to concerted effort to mitigate against environmental degradation. In the new development, MDAs will be required to identify four activities which can contribute to reduced degradation.

The activities for implementation include domesticating an environmental policy at the workplace, plant trees, develop and implement environmental awareness creation programmes, protect riverbanks by enforcing riparian regulations and planting trees. MDAs are also required to participate in waste management. Under waste management, they are required to reduce, reuse and recycle waste, develop and implement mechanisms for proper disposal of e- waste.

The government agencies are also required to put in place measures to mitigate against water, air, noise and other forms of pollution, develop and implement climate change adaptation and mitigation initiatives such as energy saving, water harvesting.

MDAs are also required to promote environmental protection and conservation through partnerships with stakeholders.



Assistant minister for Environment and Mineral Resources Hon. Rev. Julius Murgor (2nd Left), Dr. Ayub Macharia NEMA Director of Education (3rd left), Environment secretary Dr. Alice Kaudia, senior government officials and stakeholders study a management plan for Singida swamp in Ahero.

NEMA hosts Public Complaints Committee

By Jacqueline Marita

NEMA held a meeting with the Public Complaints Committee (PCC). The purpose of the meeting was to enable Prof. Geoffrey Wahungu NEMA's new Director General (DG) to understand PCC as an Environmental Management Coordination Act institution. Ms. Florence Mwangangi the Chairperson of the PCC on her part stated that the meeting would discuss environmental issues common between NEMA and the PCC.

During the meeting PCC raised the following issues: Air pollution in urban centres was on the increase. PCC also sought to know the position of proposed air quality regulations. Environmental Impact Assessment (EIAs), environmental management plans and their implementation, discharge of raw effluent into water sources resulting in pollution, poor solid waste management, noise, deforestation, quarrying, sand harvesting, pollution at the Coast were other issues raised by the PCC.

On issues raised by the PCC Chairperson NEMA DG responded by stating the following: air quality regulations had been developed and were awaiting approval by the Minister for Environment and Mineral Resources (MEMR) to enable their gazettment. On processing of EIAs it was stated that processing of low environmental impact assessment projects and medium and low risk environmental audit (EA) reports had been decentralized to counties for processing by county directors of environment. This would ensure efficient provision of services and enable high impact/risk projects to be processed at NEMA headquarters.

On EIA the DG stated that the link between NEMA, proponents and EIA experts is being enhanced through the experts governing body the Environmental Institute of Kenya. NEMA will also undertake follow up on proponents to ensure that they implement environmental management plans as developed.

Prof. Wahungu further stated that E-Waste was an emerging issue which was being addressed.



PCC Chairperson Florence Mwangangi.

The Authority in conjunction with the Ministry of Environment and Mineral Resources had developed E-waste guidelines to provide practical strategies for the collection, handling and disposal of e-waste by various stakeholders. On other waste the DG stated that NEMA had taken town clerks to courts on poor waste management. Moreover the Authority was moving to negotiated compliance to address the issues. Further more public private partnerships on waste management are required.

“ The Authority in conjunction with the Ministry of Environment and Mineral Resources developed E-Waste guidelines to provide practical strategies for collection, handling and disposal of E-Waste ”

It was stated that the ongoing review of the Environmental Management and Coordination Act in order to harmonize all environmental laws to be in line with the new constitution would result in better coordination of environmental management by NEMA and other ministries/institutions in order to conserve and protect the environment.

On protection of the Coast, it was stated that implementation of the Integrated Coastal Zone Management (ICZM) plan was underway in order to protect the Coastal environment in a more sustainable manner.

On quarrying PCC was informed that a task force on quarrying, sand harvesting and mining had been formed. Regulations on the same are to be developed to assist in enforcement.

The DG informed PCC that a target on environmental sustainability had been included into performance contracting of all ministries, departments and agencies and this would go along way to enhance issues of environmental management in the country.

PCC stated that the establishment of the Environment and Land Court will go along way in the adjudication of environment land cases. A meeting is to be organized between NEMA and the new judges for the Environment and Land Court to facilitate the judges understanding of environmental matters.



An aerial view of Lamu Archipelago.

Desertification stalks Tana River

By Ramadhan Rajab

Tana River residents are looking into the future with a measure of trepidation over what is now becoming unbearable living condition due to increasing drought in the region occasioned by climate change.

Seated under a Mathenge tree, the only tree shade remaining in his four and half acres of land Mzee Bonaya Boye in his late seventies is a worried man about the future his little grandsons whose name he cannot remember.

He recollects his youthful years when there was plenty of food, water, and his entire Tarasa village was covered with green lush and tress, but now the green lush has been quickly wiped out and the women have to walk distances in search of water and food that has made them slim.

"Look all of this was covered with trees, our wells were filled with water and the rivers filled to its banks and beaming with a lot of marine life but we are only left with rocks and valleys," Bonaya says through a translator as he raises his hand pointing at the expansive land that has now been occupied by shrubs that remain scattered throughout the farms with some few Mathenge trees dwarfing them.

But this has not only left the villagers here worried but as well environmentalists and activists who have mentioned the diversion of water sources along river Tana that has led to drying up of water catchment area in the region.

The largest ox-bow lake in the East and Central Africa –Lake Shakababo is among those water sources in Tana river on the verge of extinction and the environmentalist are sounding alarm bells.

According to Mapato Community Based Organisation that works in the area in environment conservation so much is to be blamed on global warming, investors, and destruction of the environment by locals are also to blame for immense drought that is now turning Tana land into deserts.

Bwashehe Mzungulu the community based national coordinator said initially when Lake Shakababo and its twin Lake Kongolola were full with water to their brim the ecosystem of Tana district was complete teaming with activity.

"The entire district was a beautiful place with scenic views, of flora and fauna and exotic birds species, but now the bird species are no more, wildlife patterns have been tampered with, animal corridors are no longer there, what we are left with is scarcity of everything and increasing human-animal conflict, unless something is done now we are looking into a future of distress," Mzungulu said.

However he blames the soaring conditions to private developers and destruction of the environment by members of the local community, which has caused Lake Shakababo to dry up resulting to scramble for scarce resources and increase in conflict between locals and wildlife.

Lake Kongolola and Lake Shakababo were being fed by waters from the river by Kisichi Brooke but due to diversion at Matomba Brooke the lakes have dried up. Diversions along river Tana have also occasioned the drying up of water catchment areas like Siloa, Mudhanya and Singwaya.

Due to drying up of arable lands Chara and Ozi areas along the Tana Delta has been affected by salinity leading to a drop in food production, forcing locals to seek for alternative source of survival like wanton destruction of trees for timber, charcoal and building materials.

Equally under threat of extinction is the leafy indigenous Karata Forest and Gumba Forest that has been acting as a rain maker to the area in the neighborhood of River Tana, 15 Kms away from the Ngao minor irrigation scheme. "To us it has been a series of misfortunes that are condemning hundreds of thousand people in Tana River County to starvation that is being orchestrated by an advancing desert in the Tana Delta," Mzungolo says.

But the situation is not different countrywide, with a worrying trend of desertification according to the National Environment Management Authority (NEMA). While celebrating this year's World Day to Combat Desertification a commemoration held in Tana Delta district an estimated over 80 percent of Kenya's land surface was termed vulnerable to desertification and drought, which has an negative impact on over 10 million livelihoods representing 30 percent of the total population.



In addition, 50 percent of the livestock populations and a wide variety of wildlife that forms the basis of Kenya's tourism industry are found in these areas facing drought and are thus at risk.

“Land degradation has caused soil erosion, loss of soil fertility, reduced ground cover, and the reduced carrying capacity, and this has been greatly caused by poor agriculture, too many livestock on little land, removal of crop residues for feed/construction use; deforestation for fuel wood and construction materials; inappropriate irrigation practices that lead to salinity,” Kulamo Bullo, NEMA Board of management acting chair person says.

The desertification according to environment Permanent Secretary Mr. Ali Mohamed apart from posing harsh climatic conditions is pushing populations to poverty, and causing chronic food shortages.

For Tana river region, conflict on use of natural resources by farmers and pastoralist destruction of woody vegetation due to opening of land for cultivation and charcoal burning, encroachment of provisional forests within Kipini division, human wildlife conflict, flood and drought . Destruction of the riverine ecosystem by settlement, overgrazing, soil erosion in dry season, invasive and alien Mathenge species NEMA director General Prof. Geoffrey Wahungu said were the challenges accelerating desertification.

However, the environmental authority has started out community projects to raise environmental awareness, to promote sustainable land use, as well stop charcoal burning in their quest to reclaim the land. “We are developing plans on the way forward for sustainable development and management of the lower Tana basin,” Prof. Wahungu said adding that they are researching on mathenge tree species on its alternative usage to support livelihood which will also control its spread.

According to United Nations Development Resident representative in Kenya, Mr. Aeneas Chuma, an estimated 12 million hectares of fertile soil globally is lost each year due to land degradation and desertification. “In order to maximize both economic and ecological benefits for the local communities as well as the national economy, proper management of soils is important at all levels,” explained Chuma.”

Decentralization of NEMA functions and services

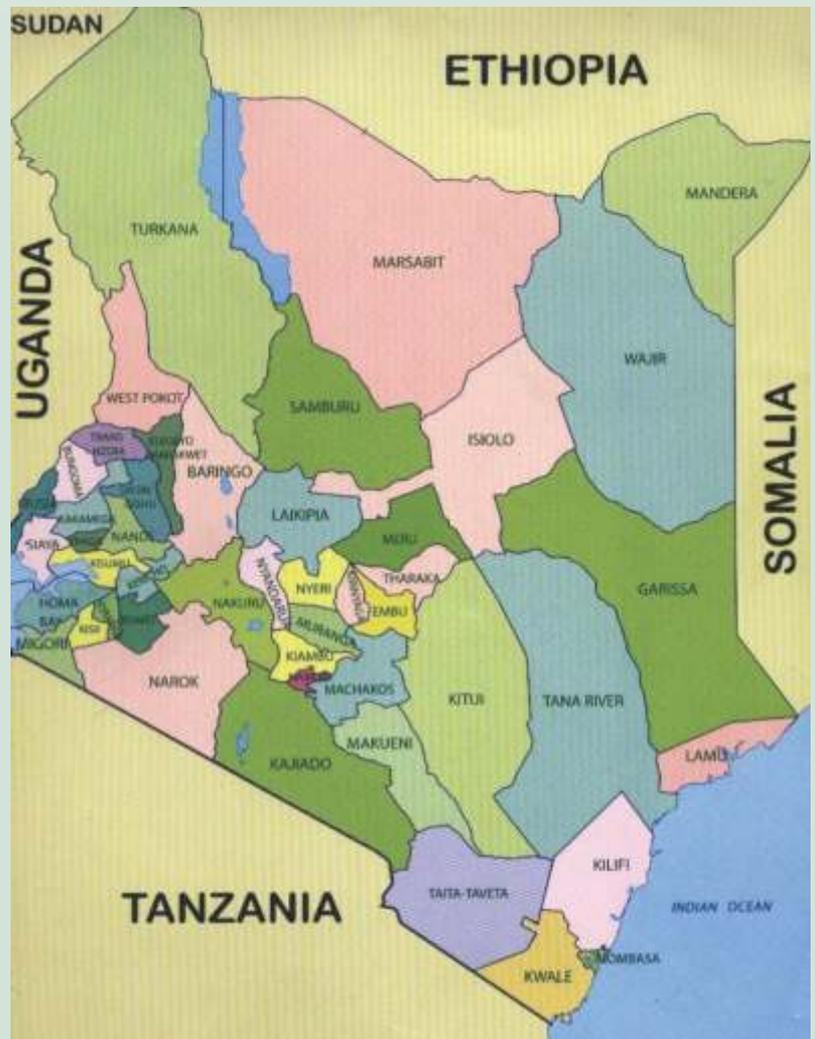
The National Environment Management Authority (NEMA) has from 1st July 2012 implemented a planned decentralization programme to counties. This is in adherence to the Constitution of Kenya 2010 provisions for government agencies to devolve their operations and functions to counties to ensure efficient provision of their services. The decentralization in particular addresses processing of environmental impact assessment, environmental audit, noise and excessive vibration control and transportation of waste (garbage and sewage) licences.

The specific criterion for decentralization is as follows:

A. Low impact environmental impact assessment (EIA) projects

The EIA for the following low impact projects are submitted and processed at respective offices of the county director of environment:

1. Residential houses (bungalows, maisonettes, flats) in zoned area (of not more than 30 units)
2. Commercial buildings (of not more than 10 storey's) in zoned areas
3. Go-downs for storage of goods only in zoned areas
4. Community based and/or constituency development Fund (CDF) projects such as:
 - i. Water projects, boreholes and water pans
 - ii. Roads (small feeder roads) and bridges
 - iii. Markets
 - iv. Cattedips
5. Cottage industry/jua kali sector/garages
6. Car and bus parks
7. Restaurants (excluding tourism facilities in or surrounding National parks and game reserves).
8. Expansion of existing facilities for same use especially socially uplifting projects (SUPs) such as schools and dispensaries
9. Afforestation/re-afforestation programmes
10. Sand harvesting, quarrying and brick making
11. Slaughter houses (handling not more than 15 animals a day)
12. Construction of churches and mosques
13. Timber harvesting



C. Medium and low risk environmental audit (EA) reports

The following medium and low impact project audits are now processed at respective offices of county directors of environment:

1. Animal feed milling
2. Apartments
3. Colleges
4. Campsites
5. Metal welding
6. Restaurants
7. Schools
8. Tea farms
9. Transport Companies
10. Timber Products
11. Warehouses
12. Stadiums

D. High impact/risk projects will be processed at NEMA headquarters

All high impact/risk projects are processed at NEMA headquarters. These include:

1. Asbestos manufacturing /based industries
2. Battery recycling
3. Airports
4. Airports hangars
5. Base transceiver stations(BTS)
6. Cement factories
7. Chemical factories
8. Distilling and blending spirits
9. Geothermal plants
10. Hydroelectric power generation plants
11. Incinerators
12. Landfills
13. Large scale irrigated agriculture farming (exceeding 50ha)
14. Molasses plants
15. Petroleum refining
16. Paper mills
17. Vegetable oil refineries
18. Steel mills
19. Sewerage works
20. Thermal power generation
21. Tanneries
22. Tourist facilities in protected areas
23. Wood preservation

All other facilities/projects not included in the high risk category shall be submitted and processed at the respective offices of the county director of environment.



E. Noise and excessive vibration control licensing

Noise and excessive vibration control licences are being issued at the county level for one off activities, where noise emitted is expected to go beyond maximum permissible noise levels. Such one off activities include: weddings and birthday parties, road shows, ceremonies, parties, religious festivals, mobile cinemas among others. The licence is valid for a maximum of seven days and costs KShs 2,200.

Permits will be issued for the following one off activities: demolition activities, construction sites, fireworks, mines and quarries, firing ranges, specific heavy duty industry. The permit shall be valid for a period of up to three months and costs KShs 5,500.

Commercial activities, discos/ live bands/ pubs, entertainment joints, places of worship among others, shall not be licenced as they are required to sound proof their premises to keep their noise to within permissible noise levels.



F. Waste transportation licensing

Licenses to transport garbage and sewage waste are being issued at the county level. All the other categories of waste management license applications are received at county level and then forwarded to NEMA Headquarters for processing.

Office contacts of respective county directors of environment can be found on the NEMA website at www.nema.go.ke.

Managing electronic waste

By Rawlings Otieno



A worker at East African Compliant Recycling [Photo:Courtesy of NEMA]

Businesses in Kenya and Africa are increasingly challenged with how to dispose of the growing amount of electronic-waste (E-waste). Discarded electronic devices and components like computers, telephones, as well as substances involved in their manufacture forms the backbone of e-waste. This makes disposal of the electronic equipment a pressing problem because it frequently contains material that threaten human health and the environment.

A survey by Eco-Ethics – Kenya indicate that the methods used in the extraction of the metals are crude and pose a great risk to human health and the environment. Some chemicals found in e-waste are known to be persistent and accumulate in fatty tissues of living organisms.

These chemicals are suspected to be causing cancer, kidney defects, affecting the nervous system and weakening the immune system. However, with proper collection and dismantling of the electronics, it is not only a viable money making venture but also a relief to the environment.

The European Environment Agency and United Nations Environment Programme estimate that 40-50 million tonnes of electrical equipment waste are produced each year globally. "Proper collection, dismantling and separating of e-waste will enable Kenya's business to manage better their environmental impact while also strengthening Kenya's competitiveness in the East African region," says East African Compliant Recycling (EACR) Managing Director, Eoghan Crosby.

Eoghan stressed imports from neighbouring countries would allow Kenya to act as a recycling centre of excellence for East Africa and would allow Kenya access to the valuable raw materials contained within the products. "Establishing proper collection and treatment makes business sense and can provide green jobs and contribute to the economy," he adds. He believes for any venture on e-waste to bear benefits, e-waste management systems need to fit local country conditions. Education and involving the informal sector into any e-waste systems are also critical.

EACR was established with funding from computer manufacturer, Hewlett – Packard (HP), with the goal of being a self-sustaining enterprise – because e-waste has a value. Crosby says disposal of electronic waste – e-waste – poses serious risk to residents and the environment.

“Mother boards of computer sets are highly toxic. Tonners powder can kill. Tonners dropped into Indian Ocean contain very hazardous materials while tubes dumped into the ocean are very hazardous,” explained Crosby on the occasion to mark this year’s World Environment Day.

The theme 'Green Economy: Does It Include You' dominated the celebrations held at the Bamburi Cement and Lafarge ecosystem and presided over by Environment and Mineral Resources Assistant Minister Ramadhan Kajembe.

On a daily basis the Kenyan port of Mombasa receives containers filled with computers and peripherals numbering thousands. These computers find their way into the businesses, educational institutions, governmental offices, and consumers' homes. In many developed countries, the obsolescence period for personal computers is about three years while in Kenya the figure is believed to be at seven. Once the computer reaches its end of life, it often gets sold off at reduced prices and continues trickling down ending up in its various toxic parts burned or dumped behind an informal sector workshop.

“The ecosystem of most parts of the country has remained vulnerable. Local communities should support the efforts of the facility that is in the forefront in promoting a green economy,” said National Environment Management Authority (NEMA) Director Prof. Geoffrey Wahungu. Among measures Prof. Wahungu proposed to members of the local community include, delivering the waste to the premises of the Nairobi based computer for schools or to Safaricom mobile subscriber that re-cycle absolute phones.

Wahungu noted that by tackling the problem of e-waste, the project has been in the forefront of safeguarding the environment and ensuring green economy thrives. “It is an initiative that has been promoting and investing in cleaner production technologies and compliance to environmental regulations by the project,” said Wahungu. The Director General explained that the Authority has developed e-waste guidelines that could be used to guide the proper disposal of e-waste.

Prof. Wahungu said plans are underway to upscale the services of the project within the wider East African Region when a re-cycling firm is built on a two and a half acre piece of land in the Export Processing Zone. He explained the move that will generate local income and employment and at the same time address current health, safety and environmental issues within East Africa. The firm arrived at the decision after it carefully carried out an analysis of available e-waste in Kenya and concluded the volume was not sufficient to sustain a fully comprehensive recycling system.

Businesses in Kenya and Africa are increasingly challenged with how to dispose of the growing amount of e-waste, which is any refuse created by discarded electronic devices and components like computers, telephones, as well as substances involved in their manufacture. This makes disposal of electronic equipment a pressing problem because it frequently contains material that threaten human health and the environment.

(The story was first published on *Standard Digital*)



An E-waste recycling plant in Mombasa

NEMA to collaborate with the Kenya Association of Manufacturers in addressing environmental matters

By Jacqueline Marita

NEMA is to partner with the Kenya Association of Manufacturers (KAM) in environmental related issues. In a joint meeting the two parties identified the areas that require collaboration in cognition of the fact that NEMA is a regulator while KAM in an industry player. Mr. Suresh Patel of KAM stated that “as industry and part of the regulated community, KAM would seek to inform and aid its members to know and to do what is expected of them so as to avoid being policed by NEMA”. On his part the NEMA director general Prof. Geoffrey Wahungu stated that “there has been a mis-perception that NEMA is against development or is out to block investment in the country”. He however stated that such meetings would enable industry hold discussions with NEMA with a view to enabling understanding between all the parties.



NEMA and KAM officers at the collaboration meeting.

“As industry and part of the regulated community KAM seeks to inform its members what is expected of them to avoid being policed”



A picture depicting an environmental-friendly factory.

The Prestigious Green Award

By *Joan Kimani - NETFUND*



George Kanyi Kuria with H.E. Ambassador to Netherlands Joost Rientjes after emerging a winner of the Prestigious Green Award 2012.

National Environment Trust Fund announced the winners of the Prestigious Green Award at a gala held at the KICC grounds on June 28th 2012. The award, the first of its kind in Kenya, recognizes exemplary individuals groups and organizations that have innovatively and sustainably protected the environment.

The overall PGA award winner was Mr. George Kanyi Kuria, a former street boy from Laikipia County, who walked away with Ksh 2 million. His project 'Nanyuki Dumping Site Rehabilitation' is a waste management initiative which he started with an aim of reclaiming the main dumping site in Nanyuki town. It has now been converted to a vegetable farm and has 800 trees planted. This award was presented by the Dutch ambassador to Kenya His Excellency Joost Reintjes who was also the guest of honor.

In the Community Based Organizations category the winners were Filadelfia Women Crisis Center from Nakuru County which is a women group initiative that is involved in waste management through reuse of paper waste for making jewelry products, purses, belts and hand bags. The Community Based Organization was awarded 2,500 USD. Others in the same category are Tich Kouma from Kisumu County and Afro craft from Nakuru County who won Ksh 500,000 and Ksh 100,000 respectively.



Margret Muchendu displaying some of the jewelry products that the women group makes from waste paper.

Matathia Primary School from Kiambu County won KSH 1 million for its involvement in agro-forestry, waste management and apiculture in the primary schools category. The initiative has expanded to neighboring community and forged partnership with Kijabe Environment Volunteers (KENVO) a Community Based Organization in its effort to increase its impact. The initiative has been recognized by various stakeholders in environmental good practice. Wajir Girls primary school from Wajir County came in 2nd position winning Ksh. 500,000 while Lomolo primary school from Nakuru County scooped the third prize of Ksh 100,000.



Pupils of Matathia Primary School displaying a crocodile doll made from waste paper.

Kimuli Secondary School from Nyandarua County scooped the 2nd best secondary school category award worth Ksh. 500,000 . The school is carrying out different conservation activities including water harvesting and recycling, waste management and developed energy saving devices. The students create environment awareness to the community through public barazas and local community based organizations such as Friends of Kinangop Plateau and they also have door to door outreach program. The initiative has worked well as a demonstration centre for the local community. In the third place was St. Agatha Mokwo Girls Secondary School from Elygeyo Marakwet County who won Ksh. 100,000.



Above, some of the fire bricks students of Kimuli Secondary School make out of waste.



thro' the **nema** lens...



NEMA Director General Prof. Geoffrey Wahungu (left) listens to NEMA's exhibitor Antony Waswa (centre) when he toured the Authority's stand at Nairobi ASK show. With him is Deputy Director Education Ms. Betty Nzioka.



Marriane Kioko the head of EIA section explains to a property developer what an EIA report entails in the outskirts of Kisii town.



Residents of Ngong town participate in a clean up exercise at the Ngong bus terminus.



Dr. Ayub Macharia NEMA Director Education presents a gift pack to pupils of Jamhuri Primary School in Nairobi.



NEMA Chief Human Resources Manager Joseph Munala (left) in Ngong town during the World Clean Up Day 2012.



NEMA Principal Compliance Officer Dickson Njora, assisted by officers from the police unit explains how a noise meter operates to a member of the public during Nairobi ASK Show.



Members of the public at a public hearing in Nyamira on proposed Esianyi Prison.



NEMA Board Vice Chairperson Kullamo Bullo waters a seedling to mark World Environment Day in Mombasa.



thru the **nema** lens...



Embu County Director Hashir Mohammed engages stakeholders from the water sector in Embu.



NEMA staff conduct inspection in Nyamira.



Director General Prof. Geoffrey Wahungu (left), Environment Secretary Dr. Alice Kaudia and Board Vice Chairperson Kullamo Bullo listen to an exhibitor during World Environment Day celebrations in Mombasa.



Environment & Mineral Resources Assistant Minister Hon. Ramadhan Kajembe is introduced to NEMA Director General Prof. Geoffrey Wahungu by Ben Mugambi, a Senior underSecretary at the Ministry of Environment.



Strathmore University Green Building.

In the tertiary institutions category, Strathmore University from Nairobi County emerged the 2nd best winner taking home Ksh. 500,000. The green business school building which is also the first green business school in eastern Africa was part of Strathmore University's Phase III of physical development that broke ground in October 2008. The SBS building has a capacity of 800 executives. Asumbi Teachers Training College took the third place for their project of extensive tree planting, winning ksh. 100,000.



Ms. Catherine Ndegwa NETFUND CEO delivers her speech during the PGA gala.

When giving her speech, NETFUND CEO Catherine Ndegwa said, 'through the award, we will provide incentives to recognize ideas, innovation, ground breaking research and extraordinary grass root initiatives in Kenya.'

The winners also got trophies and certificates.

To ensure transparency, the county and national judging panels were carefully selected and trained. The judging process was verified and audited by Kenya Institute of Management. All entries were judged along three broad themes; environmental protection, natural resource management and innovation in energy resources. Entries had to demonstrate tangible results towards solving a given environmental issue. The Prestigious Green Award will run annually.

Water Hyacinth on Lake Naivasha: Friend or foe?

By Cliff Barkatch and Washington Wachira



Water hyacinth in Lake Naivasha.

There are two schools of thought, both with competing perspectives as far as the presence of water hyacinth in Lake Naivasha is concerned. While some maintain that the water weed is the ultimate death kneel for the fresh water body, others opt to focus on the other side of the coin.

Water hyacinth (*Eichhornia crassipes*); has become a plant that is greatly discussed in many ecological forums. It has infested Lake Naivasha and carpeted the once famous boat riding site. Fishermen see it as a hindrance to their business and tourist handlers to smooth boat rides. On the other hand there are some who see great potential in the weed since they have discovered some useful products in it like bio-gas.

Water hyacinth is a weed from South America that reached most African countries as an ornamental flower. It has rounded basal leaves (formed at the base of the stem) that reach up to 10-20 cm across. Petioles (the stalks or stems of the leaves) have inflated bases for buoyancy. Its flower has 6, bluish-purple petals joined at the

base forming a tubular shape. Water hyacinth obtains its nutrients directly from the water. This makes it appropriate for use in wastewater treatment facilities to extract pollutants. This is a practice all flower farms and hotels in Naivasha are being educated on by the local NEMA office: they are taught how to construct artificial wetlands to detoxify their effluent discharge before it is released into the lake or municipal drainage conduits. The growth rate of water hyacinth is very fast.

In pond experiments, weed samples from Lake Naivasha have shown to double their populations and extent coverage in a fortnight. Its growth is highly enhanced by high nutrient content in water bodies and eutrophication. It repetitively falls to the lake's bottom thus decaying and reducing oxygenation in the water. The nutrients in these decaying plants are released back into the water to support growth of more water hyacinth. This may mean that it is almost impossible to eradicate the weed from an area where it has established itself.

Hyacinth lack natural enemies and hence can grow undeterred. Certain species of fish cannot tolerate low levels of oxygen.

Today the three fish landing beaches of Lake Naivasha (Tarambete, Kamere and Central/Banda) get few or no fish. Hyacinth has covered the water preventing proper sunlight penetration.

This affects the native autotrophic species of the aquatic ecosystems, limiting air circulation. This has been known to suffocate fish. The plant also serves as a habitat for mosquitoes; the prime vectors of malaria.

Existing control attempts for the weed globally are:

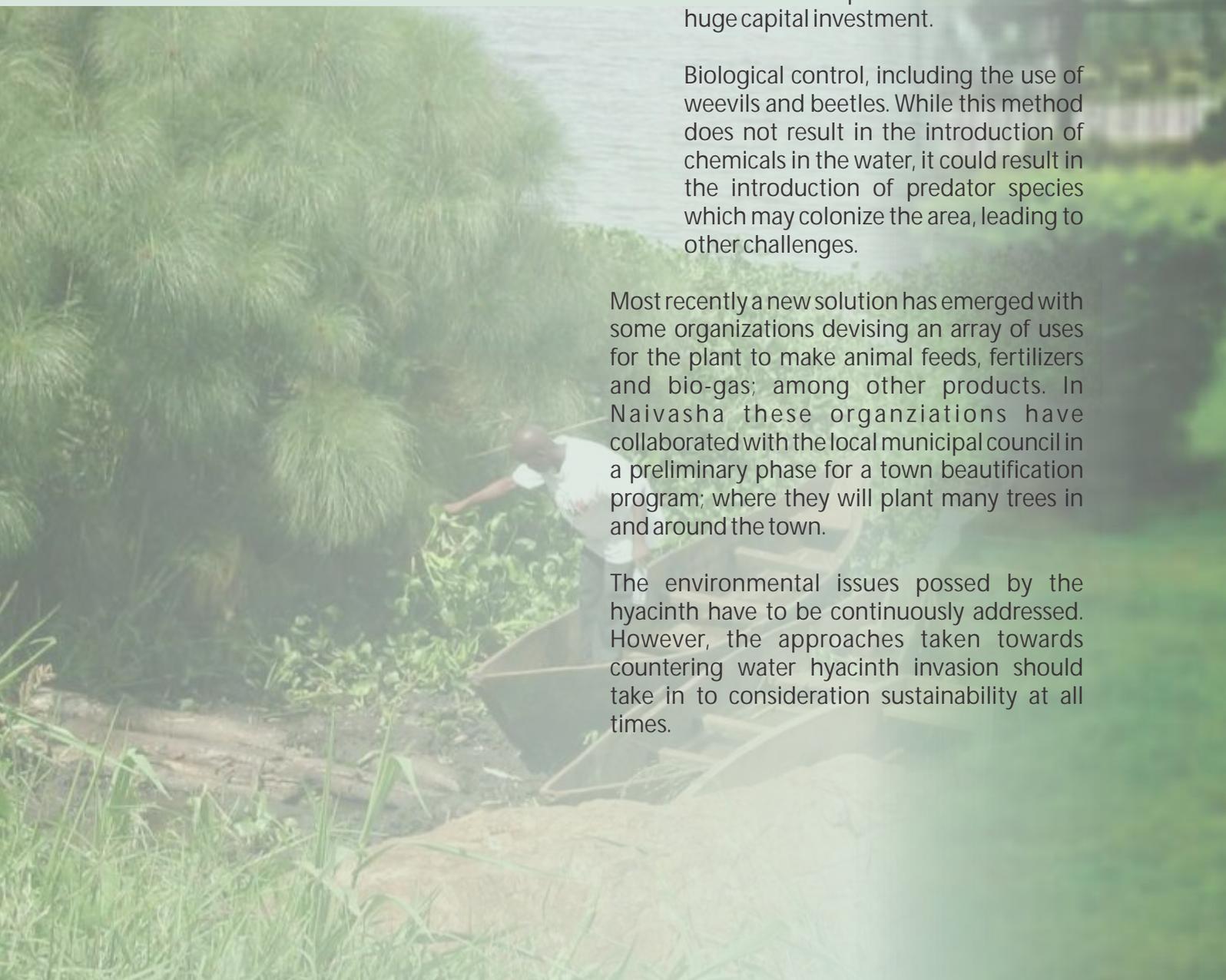
Use of chemical control by applying herbicides. It has proven successful for small infestations. The greatest ecological worry of this method is the toxic nature of many herbicides.

Physical elimination commonly referred to as direct harvesting. However this can be only used for short-term regulation. A group of people can be recruited to draw out the weed from the water or grinding machines can be used to grind the weed thus killing it. This method requires much labour and huge capital investment.

Biological control, including the use of weevils and beetles. While this method does not result in the introduction of chemicals in the water, it could result in the introduction of predator species which may colonize the area, leading to other challenges.

Most recently a new solution has emerged with some organizations devising an array of uses for the plant to make animal feeds, fertilizers and bio-gas; among other products. In Naivasha these organizations have collaborated with the local municipal council in a preliminary phase for a town beautification program; where they will plant many trees in and around the town.

The environmental issues posed by the hyacinth have to be continuously addressed. However, the approaches taken towards countering water hyacinth invasion should take in to consideration sustainability at all times.



Illegal ODS seized at Mombasa port

By Gerphus Opondo

NEMA and the Customs Department officers seized a consignment of 55 cylinders containing banned Ozone Depleting Substances (ODS) at the Mombasa Port.

The seizure followed testing and analysis by the Customs Department to ascertain the contents of the consignment. The cargo originated from Dubai and was imported in April, 2012 by a Kenyan company based in Mombasa.

The company has an annual license from NEMA to deal in controlled ODS. In the present case the company had obtained a permit from NEMA to import controlled refrigerants (R410A and R404A). However, upon random testing, one cylinder among the imported consignment was found to contain sufficient quantities of R12 (Dichlorodifluoromethane) which is a banned CFC, the same having been phased out in compliance with the provisions of the Montreal Protocol on Substances that Deplete the Ozone Layer.

The Customs Department notified NEMA about the development and a full verification of the entire consignment was ordered. The verification exercise was conducted jointly by NEMA, Customs and the Environmental Police Unit. The results revealed that all the 55 cylinders contained sufficient quantities of the banned CFC (R12).

Under Kenya's Environmental Management and Co-ordination (Controlled Substances) Regulations, 2007, it is an offence to import any banned ODS into the country.

It is also an offence to mislabel and/or misdeclare any banned or controlled ODS. Sanctions for offenders include criminal prosecution, revocation of license and/ or an order to reship the goods at own cost to the country of origin.

In this case, NEMA ordered the company to reship, at its own cost, the consignment to the country of origin. NEMA is also considering revoking the company's annual license once the cargo is shipped out of the country.

This case adds to the growing list of examples of successful partnerships in environmental enforcement by various governmental agencies not only in Kenya, but also in the larger Eastern Africa region. The increased partnerships and collaborations are attributable to the East African Network of Environmental Compliance and Enforcement (EANECE).



NEMA inspectors Cecilia Nyambu (left) Molu Huga and Seleh Okoth inspect the seized CFC banned substance.



Confiscated cylinders containing CFC banned substance at the Port of Mombasa.

NEMA and KWS impound illegal aloe species in Nairobi

By Morton Saulo

The National Environment Management Authority (NEMA) and Kenya Wildlife Service (KWS) recently impounded extracts of illegally harvested aloe species with a street value of approximately Ksh. 1.5m (USD. 20,000) in Nairobi. A Kenyan, a Pakistani and a Somali national were arrested in connection with the consignment. The premises where the consignment was found was disguised as a motor garage. The suspects were arraigned before a Nairobi court where they were charged with the offences of accessing genetic material without a permit from NEMA and attempting to export without a license from KWS. All the defendants were convicted on a guilty plea and have been sentenced to pay a fine of KES. 450,000 or, in default, serve two years in prison.

The operation comes in the wake of enhanced collaboration between the two agencies in enforcement of environmental laws in Kenya under the auspices of the East African Network for Environmental Compliance and Enforcement (EANECE).

The raid followed intelligence that the two agencies had received concerning the consignment of 15 tonnes that had been transported to a premise in Nairobi's Industrial Area. In Kenya, the aloe species is endangered and any dealing in the same is regulated under the Environmental Management and Coordination (Conservation of Biological Diversity, Access to Genetic Resources and Benefit Sharing) Regulations 2006 and the Wildlife (Conservation and Management) Act.

Thus, anybody accessing, transporting or exporting the plant or extracts thereof must obtain an access permit from NEMA and an export license from KWS. Aloe is a species threatened by international trade and is protected under the Convention on International Trade in Endangered Species (CITES) through regulation of its trade. Its usage include as an ingredient in commercially available body lotions and other beauty products, yoghurt, beverages, and some desserts. It is also used by cosmetic companies to make moisturizers, soaps, sun-screens, incense, razors, and shampoos. Aloe also has a long association with herbal medicine where it is used for the treatment of various ailments.



FILE PHOTO

A lorry carrying illegal goods.

NEMA warns of increasing desertification

By Morton Saulo

Swathes of the country's land are increasingly losing vegetation cover and environmental experts have warned that unless urgent actions are taken then the situation may get dire. Environmentalists say about 80 per cent of the country's land mass is vulnerable to desertification and drought portending food insecurity threats to the country.

While marking World Day to Combat Desertification United Nations Environmental Programmes representative said desertification has affected the world and measures must be put in place to restore vegetation cover.

Environment Assistant Minister Ramadhan Kajembe asked Kenyans to plant more trees to ensure that the vegetation cover is increased as the Permanent Secretary Ministry of Environment and Mineral Resources representative Dr. Alice Kaudia pointed out that the areas affected support ten million Kenyans and 50 per cent of Kenya's livestock, underscoring the need to protect these areas.

"Most of the populations are characterized by widespread acute poverty, chronic food shortages, inadequate social services as well as harsh climatic conditions resulting from frequent and prolonged droughts," said Dr. Kaudia.

Owing to the problem he said the government is embarking on periodic weather forecasting, resource survey and resource mapping and early warning as initiatives and programmes aimed at wresting desertification.

Additionally, National Environment Management Authority (NEMA) is making efforts to empower community based organisations to address environmental issues at the grassroots.

NEMA's Director General Prof Geoffrey Wahungu said the environmental authority has prepared the National Action Plan and Land Use guidelines that will help promote good environmental practices and improve vegetation cover.

"These documents guide the country to promote proper environmental management and land use practices that control land degradation and increase food security hence alleviating desertification," said Prof Wahungu.

He called upon other stakeholders to join hands with NEMA in curbing desertification and promote a healthy environment. The efforts include undertaking scientific studies and research to get appropriate activities that can maximize the potential of arid and semi-arid lands.

Prof Wahungu called for effective enforcement of the Forest Act, 2005 to prevent encroachment into the forests. NEMA championed the planting of 5,000 trees as it marked the day to combat desertification.



KCDP supports NEMA in sustainable development in Sabaki Estuary and Malindi accreted land

By James Kamula

There is an urgent need to address environmental issues facing Sabaki estuary in order to reverse environmental degradation and deterioration of tourism industry in Malindi.

The recently launched Integrated Coastal Zone Management Action Plan and Shoreline Management Strategy have identified the need to address the environmental issues facing Sabaki estuary and the adjoining Malindi accreted land as a priority in order to reverse environmental degradation and deterioration of tourism industry in Malindi.

The Sabaki Estuary is the discharge point for Sabaki River to the ocean and is an important bird area (IBA). Silt discharged to the ocean through the river has over many decades been washed ashore through wave and wind action resulting in formation of the Malindi accreted land. Today the land is characterised by sand dunes and unique floral community.

Despite the ecological and socio-economic importance of the Sabaki Estuary and the accreted land, the area is experiencing serious environmental degradation as a result of various human activities. The key issues include: emerging uncontrolled and unplanned development in the accreted land; siltation and overexploitation of natural resources in the estuary; illegal tourism activities in the beach; and pollution from Malindi town among others.

To address the issues, NEMA has received support from the World Bank through the Kenya Coastal Development project (KCDP) to identify and implement measures that promote conservation and sustainable development in the area. The process to seek sustainable solutions to the area was initiated during a stakeholders workshop held in Malindi. The aim of the workshop, organised by NEMA, was to discuss and provide initial inputs in a process aimed at developing an integrated action plan to promote sustainable development in the area. While opening the workshop, the Deputy Director Coastal Marine and Freshwater sub-department of NEMA, Mr. Stephen Katua, urged stakeholders to actively participate in identification and implementation of activities that promote sustainable development in the area.

Key outputs from the workshop include identification of key issues facing the estuary and the accreted land and recommendations on key interventions needed. The outputs from the workshop will be forwarded to a consultant to be mobilised in due course by NEMA to assist in development of the proposed action plan. In order to ensure buy-in and stakeholder commitment in implementation of the proposed action plan, NEMA will embrace a participatory and consultative process involving all relevant stakeholders.

The efforts to promote sustainable development in Sabaki Estuary and Malindi accreted land are part of a wider programme conceived under the environmental governance sub-component of KCDP which is spearheaded by NEMA. The aim of the sub-component is to improve coastal and marine environmental governance through promotion of integration and coordination in natural resources management and compliance with environmental standards.

Sabaki Estuary

Water hyacinth menace in Homa-Bay County

By Solomon Kihui Kinyua

Lake Victoria, despite being the world's second largest freshwater body is slowly drowning due to the evergreen water hyacinth.

One of the major challenges facing Lake Victoria is the floating aquatic weed water hyacinth *Eichhorniacrassipes*, which is considered to have originated from the Amazon and disseminated quickly to other countries. The lake is the second world largest freshwater body and has a surface area of 68,870 sq km, a mean depth of 40 metres and maximum depth of 80meters. The Lake Victoria Basin (LVB) covers an area of 193,000 sq. km, shared by Kenya (22 per cent) and other countries (78 per cent).



Hyacinth in Homa Bay area has encroached the shores of Lake Victoria to alarming levels.

The infestation of Lake Victoria by water hyacinth is traced back to 1992 in the Winam Gulf. Homa Bay County has since experienced periodic infestation by the weed. The weed is pushed onshore by wind and covers the lake shore of the four districts with a population estimated at half a million whose livelihood entirely depends on the lake. During infestation the populations livelihood deteriorates as the benefits from the lake ranges from transportation to the basic food that they need. Water hyacinth has rendered the lake idle as minimal economic activity can take place. This is quite challenging given the fact that this is the second largest fresh water lake with the potential to transform the livelihoods of many who depend on it.

The level of reproduction of water hyacinth is very high. The explosive growth rate of the weed is due, to a large extent, to the eutrophication in Lake Victoria. In addition, the absence of natural enemies of the plant contributes to the rapid growth of this weed.

Analysis of infestation coverage and status.

LOCATION	INFESTATION(Ha)	INFESTATION STATUS
Homa-bay pier	750	Heavy infestation
Kananga Beach	750	Heavy infestation
Ngegu	25	Heavy infestation
Kendu Bay Pier	0.4	Heavy infestation
Lambwe River Mouth	11	Moderate infestation

Other infected beaches include: Lela, Koginga and Kendu Bay Pier.

The adverse effects of the water hyacinth on the residents who live along the expansive Homa Bay County beaches are numerous. The main problems caused by weeds are: reduced water quality. The water hyacinth has affected the resident's access to clean water based on the fact that the weed leads to a deteriorated state of the water. The Homa Bay Water Supply Plant is also affected because the weeds enter into the supply pipes blocking the entry of water and hence affecting water distribution to the residents.

The weed also inhibits navigation as transportation cannot be carried out by motor boats. Most of the people are forced to use the road network to get to the Homa Bay Pier which is expensive compared to using boats to come to the beaches. Trade has also been affected especially oranges that were brought by boats from Tanzania, charcoal and various commodities via ferries.



Fishermen experience difficulties when attempting to dock at the shores of Lake Victoria in Homa Bay.

Mosquitoes are known to be attracted to stagnant water, and with water hyacinth on the shores, mosquitoes have access to a fertile breeding ground. This leads to an increase in malaria incidences. Other water borne diseases such as cholera, typhoid and diarrhea increase. These diseases affect the livelihoods and health of the residents and this requires intervention.

People who live around the beaches especially Ngegu, Homa Bay Pier, Kananga amongst others rely on fishing as their major income generating activity. Fish has been scarce with the water hyacinth inhibiting the growth of phytoplankton that is necessary for growth of fish. Fishing cannot be carried out based on the fact that navigation is limited, while boats rot along the Lake.

The quality of fish is also affected as the delay usually causes caught fish to rot resulting in rejection of the fish by companies that process the fish. The total catch of fish within the entire region has been effectively reduced by a range of 50 per cent to 70 per cent during the infestation periods. The weed also prevents access to water by livestock hence farmers have to find alternative means of getting clean water for their animals.

Homa Bay county beaches are known to be filled with recreational activities such as boat riding, bird watching, swimming and numerous fun activities. With the water hyacinth increase, these activities cannot be carried out with many residents preferring to stay at home. The water hyacinth has invaded at least 45 per cent of the Homa Bay Pier Beach and it is now not easy for one to take a recreational swim.

The tourists are no longer taking interest at the beach and the tourist hotels and other facilities have no persons to use them. The water hyacinth has further contributed to unemployment especially to persons who rely on fishing activities at the Lake. The unemployment results in young people engaging in suspicious criminal activities such as robbery, stealing and even forgery to meet their daily needs.

Various methods have been adopted to control the hyacinth. For instance the International Center for Insect Physiology and Ecology (ICIPE) initiated

biological control of the weed. This involved the use of termites and weevils which are entirely specific to water



The water weed has gobbled up large swathes of the lake.

hyacinth for their reproductive cycle and in nature depend entirely on water hyacinth for food. Under favourable conditions, biological control using the weevils *N.eichhorniae* and *N.bruchi* can reduce weed infestations to between 20% and 5% of its original cover within 3-5 years.

Manual removal was a short term project which was last adopted in 2011. The project was spear headed by Lake Victoria Environmental Management Programme II (LVEMP II). It had short outcome indicators with no lasting solution to the problem.



The water weed has 'marooned' large portions of the lake.

Its benefit included offering employment to people, and was suitable for clearing small infestations or delimited areas like landing sites. It did not require any skills and has no perceived environmental risks beyond the risks posed to the people clearing the weed by snakes, crocodiles and disease vectors.

The above methods were not fully effective. For instance the biological control method was not carried out systematically hence the weevils posed a threat to cash crops grown around the lake. Manual removal was labour-intensive and the operating costs became prohibitive in larger areas or heavily infested areas as the cost effectiveness of the method became unacceptably low as the overall rate of weed removal was low.

Another effective option for the hyacinth removal are mechanical harvesting. This clears larger areas of weed in a shorter time than manual removal because the harvesters remove larger quantities of weed biomass each time and clear up to 6-8 hectares, depending on size of the harvester per day than manual labour.

The advantage of mechanical harvesting is that within limits of the size of the infestation, the weed burden may be alleviated within a matter of hours or days. Re-infestation may be prevented or delayed by use of physical barriers, depending on the size and momentum of the incoming weed mats. Suitably designed barriers may also be used to keep or divert water hyacinth away from economic installations or recreational facilities.



Hyacinth's 'terrible beauty'

NEMA partners with Pwani University to establish a botanical garden

By David Ongare

The National Environment Management Authority (NEMA) has partnered with Pwani University College (PUC) to set up a Botanical garden at the University. This was done under a partnership framework in which NEMA has been working with PUC to promote both environmental education activities and the goals of the United Nations Decade of Education for Sustainable Development (UNDESD 2005-2014). This project is also in tandem with the PUC mandates of research and community outreach. The garden is grounded on four pillars namely education, research, recreation and conservation. The funding support for the project is from the NEMA sub-component of the Danida funded Natural Resource Management (NRM) Programme.

The PUC Botanical Garden comprises the entire College compound but with a defined concentration area. At that site thematic segments have been developed, and include: medicinal garden, wild-food plants garden, cosmetic and ornamental plants garden, rare and endangered plant species garden.

Specific activities in this project included the setting up of the garden, purchase of seedlings, site preparation and planting and general maintenance of the garden.

Specific activities included; making of tracks, purchase of implements, and stone laying along the side of tracks. Labeling was also undertaken for sign boards, individual tree species, labeling of thematic areas (to designate spaces for wild food plants, medicinal plants, cosmetic and perfumes garden, succulent plants, timber plants, flowers and colours garden, grass garden and the systematic garden).



A sign post marking the location of the Botanical Garden.



A foot path at the Botanical Garden.

Tree seedlings of varied species from selected thematic areas were procured to increase the diversity of species based on the value, ecological areas and its conservation status. Over 200 hundred high value tree seedlings representing varied species were planted.

Key areas to benefit from the botanical garden are research. This is expected to provide solutions to environmental, medical, social, and resource utilization challenges facing the Coast region, for faster realization of the goals of the Kenya Vision 2030. This component will encompass domestication of some of the wild plant species.

The established garden is expected to foster closer working relationships between the university and the local community. The latter are expected to utilize this facility for recreational purposes, cultural activities, and wedding ceremonies.

'The PUC Botanical garden challenges researchers to provide a convenient conservatory for Kenyan coastal forests. Relating the collection to traditional knowledge provides additional value to the garden' Dr Mohamed Pakia, PUC and project

By tapping into the indigenous knowledge of the local people in the establishment of this facility it has opened up opportunities for co-learning between the university and the communities where the flow of knowledge is two-way and not uni-directional. Key areas to benefit from the botanical garden are research. This is expected to provide solutions to environmental, medical, social, and resource utilization challenges facing the Coast region, for faster realization of the goals of the Kenya Vision 2030. This component will encompass domestication of some of the wild plant species.

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The garden is expected to bolster educational

programmes within the university and its environs. Environmental education, biological sciences, and agriculture-based programmes will be key beneficiaries. The garden is also open to school parties primary and secondary school) from the county.

Within the Education for sustainable Development (ESD) context this project enhances several important aspects including strengthening of networks, respect and care for the community of life, ecological integrity, learning to live together, learning to know and learning to do. This is especially important considering that the coastal region is a multi-ethnic.

Courtesy call by Danish Ambassador

Rosebellah Wanga

The Danish Ambassador to Kenya H.E. Geert Aargard Andersen paid a courtesy call to NEMA on 18th September, 2012.

The purpose of the visit was to acquaint himself with general NEMA operations in view of the fact that the authority is one of the implementing partners under the Danida funded Natural Resource Programme.

During the meeting, the Director General expressed his gratitude for the support NEMA has received from Danida over the years and affirmed NEMA's commitment to implementation of programmes in line with the aspirations of the programme.

The Ambassador lauded NEMA as one of the entities that recorded exemplary performance in funds utilization and implementation of programmes.



The Danish Ambassador to Kenya H.E. Geert Aargard Andersen (centre) when he paid a courtesy call to NEMA Director Prof. Geoffrey Wahungu.



County Directors of Environment undergoing a GIS training in Nakuru in September 2012.

County directors of environment undergo GIS training

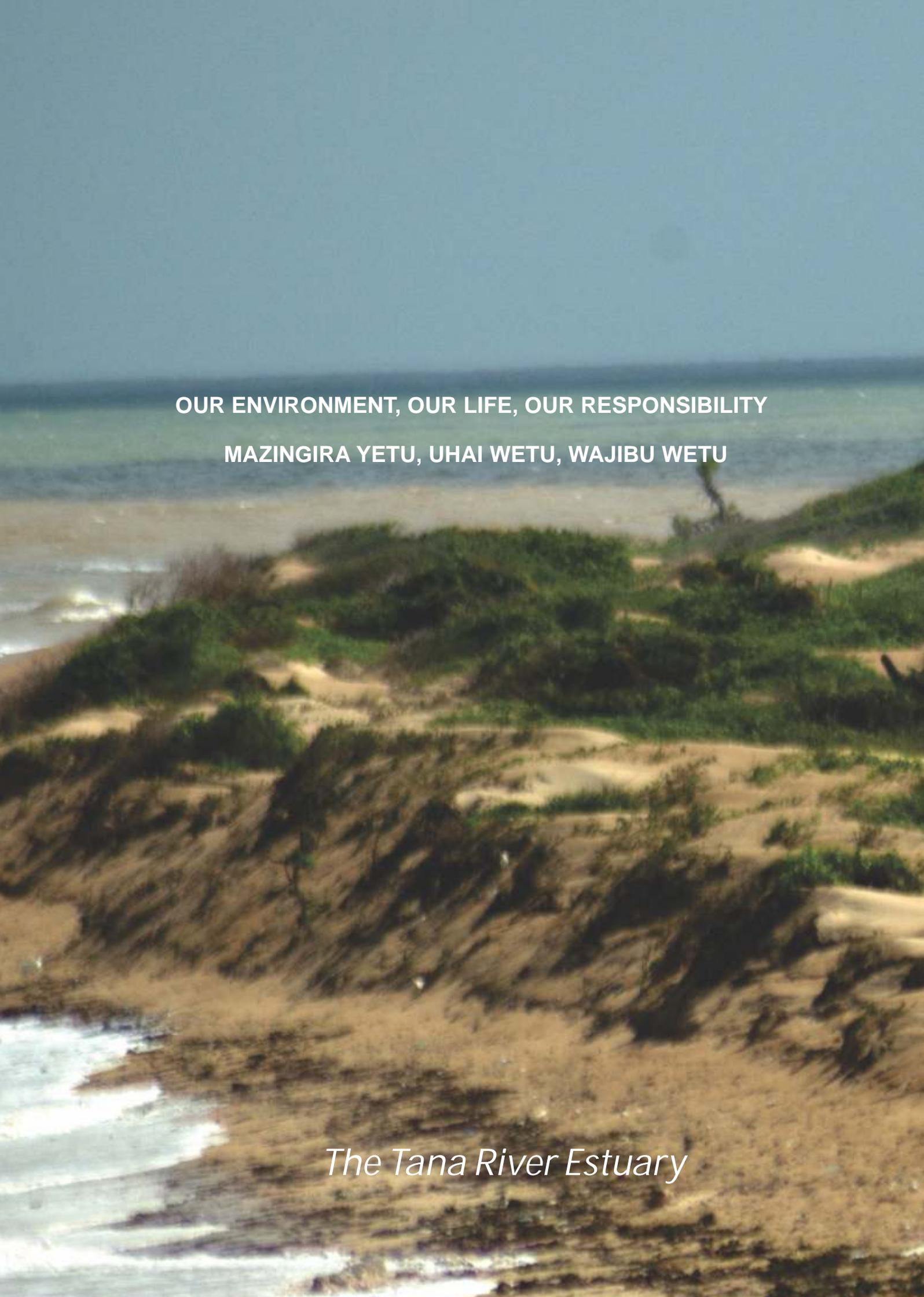
By Jacqueline Marita

Newly appointed county directors of environment participated in a training to orient the officers with geographic information systems (GIS) equipment. While officially opening the training NEMA Director General Prof. Geoffrey Wahungu stated that the Authority was devolving its functions to the grass root in order to be compliant with the Kenyan Constitution. The information thus collected by the officers would be useful for environmental planning.



nema

mazingira yetu | uhai wetu | wajibu wetu



OUR ENVIRONMENT, OUR LIFE, OUR RESPONSIBILITY

MAZINGIRA YETU, UHAI WETU, WAJIBU WETU

The Tana River Estuary