



CLIMATE CHANGE NEWS

THIS PUBLICATION IS NOT FOR SALE

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LET'S TALK TRASH!



Part of the waste shipped in to Mombasa from the U.K-Picture by Harrison Mbung'u

Solid waste management is a major problem world-over and in Kenya offers several challenges from clogged drainage and sewers, waterborne diseases like typhoid, cholera and diarrhoea, increased upper respiratory diseases from open burning of the garbage to malaria.

Several incidents in recent weeks around environmental compliance – or the lack thereof – have brought environmental concerns on to the public arena. Recently, the National Environment Management Authority's investigators unearthed a scandal at the port of Mombasa involving the illegal importation of a 40-foot container load of solid waste from the UK.

The Environmental Management Co-ordination Act has however introduced what is in effect is a parallel system for managing hazardous chemicals and hazardous waste. Section 91 provides the characteristics of hazard. The Act provides that

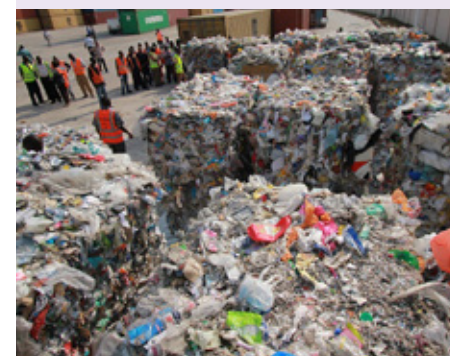
hazardous waste and substances and chemicals shall not be imported into Kenya or exported from Kenya or transported through Kenya without a valid permit issued by the authority (NEMA). Where the wastes are being exported from Kenya the written consent of the receiving country must also be obtained. This is a requirement under the Basel Convention on the trans-boundary movement of hazardous waste, it is a 1989 convention and it imposes a system which is known as prior informed consent requirement. There is a requirement that the importing country must give its prior consent before the import is undertaken. The catch is that the consent must be informed and for the consent to be informed the exporting country must disclose the nature of the substance being exported.

Kenya, like many other developing countries, lacks clearly defined policies and laws on environmental protection and where it exists, it conflicts with other policies and laws. EMCA therefore accentuates the right of every person in Kenya to live in a clean and healthy environment and obliges each and every one to safeguard and enhance the environment.

However, many questions remain unanswered. Are these tools for example not applicable to cross-border issues and to the many

Also Inside:

Shock as garbage waste is intercepted at Kenya Port



Kenya upbeat about the National Climate change Action Plan



National Climate Change Action Plan 2013 -2017



Whose responsibility is it to manage waste in Nairobi?



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Also inside:
Fun environment facts



offences linked to organized criminal structures in Africa?

One of the strategies that have been implemented successfully in developed countries in civilizing environmental protection and ensuring environmental compliance is the use of directives for investors. Before accepting any contract from a company or any other high impact enterprise, a compliance programme status is a pre-requisite.

Environmental enforcers and civil organizations have a key role to play in helping companies, hospitals and organizations to streamline the need for compliance before there is further damage to the environment. The time to get serious about environmental compliance is now!

This is the urgent cry which governments and establishments may ignore at their peril.

Times have changed and so has the climate. Some changes have been positive and sadly some are persistently negative – changes such as those on the environment. Industries have a lot to answer for this.

There is only one earth to live in and if industrial growth is poised to destroy it then sooner there would be no earth to speak of!

The Team

THE EDITORIAL TEAM

Mildred Ngesa	Executive Director
Hellen Mutio	Programs Manager
Dorothy Anangwe	Programs Officer
Nimrod Otieno	Accounts Department
Irene Njoki	Administrations Officer

CONTRIBUTORS:

Alloys Musyoka	Douglas Mwanga
Ruth Keah	Born Maina
Cyrus Akhonya	Ramla Abdi
Lillian Mukoche	Harrison Mbug'u
Moffat Mutero	Boniface Otieno
Jane Okoth	Anthony Mwachiro
Njenga Hakeena	Ian Lukoye
Jessica Omukuti	Scovian Lilian

SPECIAL APPRECIATION:

The Rosa Luxemburg Foundation (RLF)
Mr. Siegfried Schroeder (RLF)
Joan Mlay (RLF)

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Editors note:



Yes! Let's talk trash – lots of trash!

Let us focus on rubbish, garbage, wastes – name it! It could get nastier unless of course we purpose to do something about it. We need to prioritize waste management as a crucial environmental concern. In this third issue of the Climate Change News, we focus on waste and waste management.

This spotlight comes almost as an emergency detour from our usual generic climate change and environmental discourse projects – an emergency because in the last two months, an international consignment into the port of Mombasa strangely revealed that Kenya is “earmarked as a garbage dumping site”!

In this issue we re-visit this strange discovery at the Mombasa port and how the National Environmental Management Authority, NEMA and relevant port authorities handled this serious violation of international environmental regulations. So outrageous was this discovery of waste consignment allegedly from the United Kingdom that it provoked a tirade of protests from environmentalists and gate-keepers as well as Kenyan activists on social media.

Climate Change News joins this furor by unpacking the issue of waste management as handled by the authorities.

We discuss the mountains of garbage that characterize our cities and towns and are spilling right into our doorsteps yet we do not seem to be bothered the least.

We explore the tourist counties at the Kenya Coast that should be sparkling clean especially since they are the country's major foreign-exchange magnet but are sadly collapsing under heaps of unmanaged wastes.

We have also looked at the Western circuit of the country where stake-holders are putting their best foot forward to try and manage ever-growing wastes. More-so, we are focusing on Nairobi and its waste-management options amongst other dynamics as well as lauding the National Climate Change Action Plan 2013 - 2017.

Once again, we congratulate the great media team that put together this publication. Special thanks to the Rosa Luxemburg Foundation for its continued support of this project.

Mildred Ngesa

Contact us:

Peace Pen Communications,
P.O. Box 26910 - 00100 Nairobi – Kenya
Fatima Flats (Suite 32) , Chaka Place Junction, Hurlingham
Email: info@peacepencommunications.com
mngesa@peacepencommunications.com

Recycling is Expensive but it does not cost the Earth -E LaMont Gregory

By Dorothy Anangwe



of Africa.

Urbanization has transformed solid waste into a major public health and environmental concern in our urban areas. This is especially tough on the urban poor who are left to deal with waste disposal on their own. A lot has been said, written, and demonstrated about the inadequacies in solid waste management and its associated problems. According to a United Nations Conference on Human Settlement report, one third to one-half of solid waste generated within most cities in low- and middle-income countries, of which Kenya is no exception, are not collected.

They usually end up as illegal dumps on streets, open spaces, and waste lands (UNCHS 1996).

Waste management is identified as one of Nairobi's key environmental issues. Local residents fondly recall the days when Nairobi was a clean, efficient city - the pride

According to a report presented by Dr. Ayub Macharia of NEMA, Nairobi generates approximately 2,400 metric tonnes of wastes per day and Only 40 per cent of the generated waste is collected by NCC.

Despite the importance of adequate solid waste management to the urban environment, the performance of many city authorities in this respect leaves much to be desired. Irregular services rendered to producers of refuse by municipal councils compel communities, especially those living in informal settlements, to find ways of disposing of refuse. It is observed that the main methods adopted by these people are burning, composting, or indiscriminate dumping.

This is very pertinent in Kenya where waste management services are largely inefficient and ineffective. It is estimated that about 83% of the population dump their refuse in either authorized or unauthorized sites in their neighborhood, and due to weak capacity to handle solid waste, unsanitary conditions are created. Although these weaknesses have been attributed to lack of logistics and financial management, people's attitudes towards waste management should not be ignored. Urban communities should be willing to participate in the

management of solid wastes to complement the services of the municipal authority and any other environmental management agencies. However, to enhance community participation the municipal authorities should develop and implement community sensitization programs to enable urban residents to adopt appropriate waste handling practices. The municipality should also encourage the private enterprise to invest in solid waste collection, transport and disposal facilities. In addition, the municipal authorities should provide sites for the construction and use of landfills for the disposal of solid wastes and waste residuals that cannot be recycled or diverted.

Privatization as an alternative to publicly provided waste management has been explored for developing countries. Research concludes that the private sector can operate more efficiently than the public sector in providing municipal solid waste services, which is a possible opportunity, for improving solid waste management in developing countries.

The writer is a journalist and a Programs Officer at Peace Pen Communications

Readers Feedback°.

Climate information crucial in climate change mitigation and adaptation - By Jessica Omukuti

What is climate change without climate information? When people talk about climate change, mitigation and adaptation, I expect to hear them mention climate information. In my opinion, to be able to move from vulnerability to resilience, climate information must play a key role. Climate information is the baseline observed data, trends, variations and extremes of weather and climate, for both the past and projected. It also includes the associated information and assistance to interpret and use the information. It can be useful at different time scales, ranging from hours, days, weeks, months or even years.

Climate change adaptation begins at the grassroots with every individual understanding the climate change impacts. Access to and use of climate information play a key role in achieving understanding of climate and climate change impacts so that individuals are able to plan livelihood and disaster risk reduction strategies and reduce their vulnerability to climatic hazards.

The IPCC describes vulnerability to climate change as being determined by three factors; exposure to hazards posed by climate change, sensitivity to those hazards and the capacity to adapt to them. Adaptive capacity is the ability of a system to adjust, modify or change its characteristics and actions to moderate potential and future damage, take advantage of opportunities and to cope with the consequences of shock or stress. The elements of adaptive capacity include:

- Asset base, which encompasses all kinds of capital needed to respond to a change, be it human, financial, natural, social or political capital.
- Institutions and entitlements, which involves the ability of a system to ensure equitable access and entitlement to key resources, which are essential for the development of asset bases in a community.
- Knowledge and information, for understanding of future change, knowledge about adaptation options, the ability to assess them, and the capacity to implement the most suitable interventions.
- Innovation, whereby local adaptive capacity should enable people to generate new ideas and local level initiatives that enable communities to adapt to changes in a local climate.
- Flexible, forward-looking decision-making and governance, with local adaptive capacity, enabling communities to make informed decisions.

Climate information helps in achieving adaptive capacity through initially providing the knowledge about the past, current and future states of the climate system, and helps communities or individuals relate past occurrences and trends to the effects on their livelihoods. Sharing of climate information enables individuals and communities to draw on shared experiences, which can be a way to invite participation from desired audiences,

making the issue of climate change and climate impact more personal and less technical. This then leads to the identification of adaptive responses, and can provide valuable information about what does and what does not work when attempting to minimize damage or maximize opportunities associated with impacts. Past experience provides "lessons learned" that can help spark and guide discussion about adaptation options.

This provides the basis for decision-making and planning, which encourages communities to adopt new technology, intensify production and invest in more profitable and alternative livelihoods when conditions are favorable. So, as we implement mitigation and adaptation activities at community level, let us start with promoting the use of climate information.



Shock as garbage waste is intercepted at Kenya Port

By Harrison Mbungu



An aerial view of the waste shipped from the U.K - Picture by Harrison Mbung'u

Mombasa County is overwhelmed by heaps of waste and garbage that are a great eye-sore at the Kibarani and Mwakirunge dumpsites and also in the central business district. Therefore, the recent shock discovery at the port of Mombasa that a container of raw garbage waste had landed into the country from the UK added more insult to injury of Mombasa's waste disposal challenge.

Even more ironic in the depth of this challenge is the fact that Mombasa is Kenya's main foreign exchange earner as an exclusive tourist destination along the sandy beaches of the Indian Ocean. The seizing of the 40ft container of solid waste at the Mombasa port some months ago was viewed as a plot by some foreign countries to make Kenya a dumping site. This is what the Mombasa branch of the National Environmental Management Authority (NEMA) concluded.

Nema official Ben Wemali said the motive why the container was brought to the country still remains unclear. "It is shocking to realize that Kenya is being taken as a dumping country by other others despite all the existing regulations against it" Wemali said. By the time of going to press with this story, NEMA alongside other Kenya officials were

still waiting for a directive from the UK government as to why this happened.

Even though this discovery was shocking to port officials, NEMA suspects that the practice of dumping wastes into Kenya by foreign countries may have been going on for a while oblivious of the environmental hazards posed by such practices.

The garbage container from the UK and which was destined for Nairobi had no complete documents' to show where particularly it was headed to. In further explaining the strange discovery, Mr. Wemali explained that not within local or international regulations to import such kind of waste since Kenya does not officially import or export any kind of waste. "The country imports so many things but not waste, anything that comes into our country should have a logistical direction but for this the intention was not clear why it was taken into Kenya" Wemali said.

He said that NEMA had succeeded in the battle against importation of illegal goods into the country adding that the exercise of intense monitoring will continue with the help of Interpol police department to fully establish if the company

that imported the container of waste had followed the proper procedures. "We have identified the importing firm of clearing and forwarding which was involved in this and investigations are on and they will be arraigned in court once investigations are complete". He affirmed.

Following the open outrage and questioning that marred the discovery of the waste container from the UK, NEMA and port officials at the Coast moved in quickly to act on the erratic importation. It was reported a few weeks ago that the container that was imported by Vents plastic limited from UK was taken out of the country two weeks ago under tight security back to the UK.

Further still, officials of Kenya Ports Authority (KPA), the Port police, and the National environmental management Authority (NEMA) claim that the importer had no trans-boundary license which is required for one to enter goods into the country. However, it still remained unclear how the container was subsequently cleared for entry up to the point when the discovery was made and the alarm raised by NEMA officials. Even though the container has by now been re-directed "back to sender" in the UK, questions still abound about port vigilance



A heap of garbage in one of the estates in mombasa county. Picture by Moffat Mutero

and safety regulations when it comes to imports and exports.

NEMA regulations on environment

According to NEMA's Mr. Wemali, waste management is made to streamline the handling and transportation of various types of waste in the country saying that the imported UK Waste had not adhered to these regulations.

"The importer of this container violated our lab and environmental regulations which its penalty might cost him a lot of money", said Wemali. He said it is the mandate of NEMA in cooperation with other governmental bodies to file a case to whoever violates these regulations.

Security surveillance

Nearly a month after the seizing of the plastic container in the Mombasa port, it seems that security surveillance at the port is out for a major boost. A port official who requested anonymity and who deals with security matters confided that Security had been stepped up at the Mombasa port. He divulged that there has been installation

and testing of some of the latest state of the art security systems now activated at the port. He said that the commissioning of Sh1.4 billion worth of security systems will ensure all operations at the port are under 24-hour security surveillance.

The strange waste importation from the UK to the Mombasa happened as the Mombasa governor and the other environmental experts try to re-energize sanitation and environmental conservation around the tourism zones at the Coast.

This initiative faces many challenges. The Mombasa county leadership is however determined to put its waste management under control.

The county is marred by huge heaps of stinking garbage that has adversely affected the tourism sector. In his approach, Mombasa governor Hassan Ali Joho has set two days for carrying out cleaning exercise in Mombasa every month for each Mombasa resident. Recently, the county director for environment called on the commission for revenue allocation to expedite the release of the county funds so as to enable the county fight against adverse environmental pollution.

We have identified the importing firm of clearing and forwarding which was involved in this and investigations are on and they will be arraigned in court once investigations are complete

Mombasa choking under challenges to manage its waste

- By Ruth Keah



The state of garbage disposal in Mombasa - Picture by Anthony Mwachiro

With a population of more than one million people, Mombasa is Kenya's second largest city after Nairobi. The country's coastal town is a key cultural and economic hub, attracting many international and local tourists. The presence of a port and an international airport has also made Mombasa one of the busiest counties in Kenya. However, just like Nairobi and other towns in Kenya, it is struggling to cope with the garbage menace.

Before the introduction of devolution in Kenya, the then Mombasa Municipal Council had admitted having challenges in managing waste. The council shifted the town's garbage dumping site from Kibarani on the Mombasa/Nairobi Highway to Mwakirunge in Kisauni. The garbage pressure at Mwakirunge has choked area residents who recently staged a peaceful demonstration over the problem. "There are no measures to control the waste here. It has been scattered everywhere and no one seems to care. Our lives are in danger because some of the garbage is poisonous; with street families and bandits finding refuge here," protested the residents.

They lamented that not only will the waste cause an outbreak of diseases but is also degrading the environment, thus hindering them from practicing any type of farming. "We call on the county government to build landfills to stop the waste from scattering all over the place making it unsafe for living," said the residents.

Mombasa Anglican Church of Kenya Bishop Julius Kalu also raised his concern over the garbage menace in the county. Speaking during the thanksgiving service for the 2013 Mombasa ASK Show, Kalu asked the county government to come up with a lasting solution to the problem. "If Jesus was to pick a stick to punish the person responsible for this, then I don't know who he will start with," said the bishop. He added: "Waste management is every person's responsibility. It is everyone's duty to maintain cleanliness by dumping garbage at the right places."

Meanwhile, some youth and women groups in Kisauni are smiling all the way to the bank from making and selling products made from the waste. According to Peter Tosh Adeya, the Mombasa

Recycling Initiative coordinator, they came up with the waste recycling project after attending a National Environment Management Authority workshop on waste management. "We engage women, schools and youth groups on a monthly basis where they collect the garbage and sort it out according to type before recycling the waste," he said. Tunaweza Womens Group, whose members are women with disability, is one of the groups that are doing well in this venture. "The aim of bringing us together is to engage in conservation activities and make our city clean, improve our environment and also as a measure to mitigate climate change," said Adeya.

Although they are committed to the success of the project, he said high expectations from the community and lack of funds and market for their products are some of the serious challenges they are facing. He revealed that their project had attracted funding from the Danish Government through Community Development Trust Fund. The funding ends in June 2014. Adeya urged the Mombasa county government to put in place a mechanism where groups and individuals involved



Trucks from Mombasa county collecting gabbage at Bombolulu in Kisauni - Picture by Anthony Mwachiro

in the protection of the environment in the area would help in managing the waste. Kenya Forestry Research Institute Research (Kefri) in Coast region admits that waste management is a big challenge in many institutions. According to Chemuku Wekesa, an ecologist based in Gede, Kilifi County, they have come up with a management system by developing activities with significant impact to the environment. "We isolate those activities and based on them, we develop a management system that is specific to what we are doing and each staff has adopted and follow the system and we are able to manage our environment internally," he said.

Wekesa said posting of dustbins at strategic areas in the town will help in managing the waste, adding that disciplinary action should be taken against those found polluting the town.

The ecologist stressed the importance of placing different bins for organic, plastics and papers to ease disposal. "Bins of different colors may be used for each waste for residents to identify where to put each type of the waste with ease," he said. Joseph Maweu, a forester at the Kefri centre in Gede, said: "We always encourage all the stakeholders to be responsible as reckless disposal of waste destroys the environment. All Kenyans have the responsibility of making sure that the environment is clean and I urge each one of us to be a brother's keeper. If you find someone destroying the environment, you should report them to the right authorities for action to be taken against them." Maweu also urged the county governments to set aside some funds to be used in addressing environmental challenges. According to the forester, there is need to have clean environment, not only

for visitors, but also to ensure that residents are free from diseases. The county Youth, Gender and Sports Affairs executive office and the National Youth Council have been organizing youth groups in Mikindani, Changamwe, Jomvu, Likoni, Mvita and Kisauni for clean-up activities. The clean-ups are held once in a month with all the local leaders lead by Governor Hassan Ali Joho participating.

Speaking during the recent clean-up at Mewa Drug Treatment Centre in Mtopanga, the county executive member in charge of youth, gender and sports, Hazel Koitaba, revealed that plans are underway to

‘If waste can be managed properly, it will help a lot in improving our environment and mitigate climate change’

turn the monthly clean-ups into an income-generating activity that will empower youth groups across the county.

"Garbage collection is one area that we can use to channel some resources to youth groups to undertake clean-up activities in all the wards as a way of empowering them," he said. National Youth Council chairman and Chaani ward representative, Stephen Wangudu, said that it is the high time youths from the county united for a common goal of achieving their objectives.

Mombasa County executive member in charge of environment, Fatma Awale, promised to spearhead efforts to come up with by-laws to deal with those mismanaging waste. However, she admitted that despite the existence of laws on the environment, the challenge has been laxity in enforcing them. "We will review these by-laws and use the media and other platforms to educate the residents about them before implementation," said Awale in a telephone interview, stressing on the importance of educating the locals on the laws

before they are punished for floating them.

According to her, the county government, with consultation with other stakeholders, is working on by-laws and other measures to have designated dumping areas before enforcing the laws. Awale admitted to having challenges in making the county clean, citing shortage of vehicles to carry the waste as the reason. However, she was quick to assure the residents that the county government is addressing the problem.

According to the local NEMA laws enforcement officer Benson Wemali, although the issue is being taken in different views, the council has the responsibility of cleaning the city. "The management of solid waste has become a problem in Mombasa and this is easily identified by the persistent heaps of uncollected waste found on the streets," said Wemali said, adding: "With the devolved government, the county is responsible for waste management which has been a challenge to many counties due to rapid population growth.

He said despite all the challenges being faced by the county government due to lack of enough designated waste collection centers within the city, there was need to have all waste taken to the Mwakirunge dumpsite on time. The Nema officer urged the residents to participate and ensure that the city is clean.

"If waste can be managed properly, it will help a lot in improving our environment and mitigate climate change as per the United Nations Framework Convention," said Wemali.

Recycling the only solution to Mombasa's waste challenge

By Moffat Mutero



A solar recycling bin spotted in prima pest & bins company ltd at kizngo in Mombasa county - Picture by Moffat Mutero

The most renowned and historic tourist destination city within Eastern Africa has been on the local and international news but this time in very negative light. Garbage and waste especially in Mombasa's central business district has media but this time on a bad representation unlike other days. This follows garbage menace even along the Central Business District.

This city is none other than Mombasa City which is the second-largest city in Kenya, with a population of over one million. As a regional cultural and economic hub, Mombasa has a large port and an international airport, and located on the East coast of Kenya. Bordering the Indian Ocean made the city a historical trading centre, and it has been controlled by many countries because of its strategic location.

The garbage menace in the city became a topic of the day during the transition period from national to devolved system of government. During this time the first elected governor of Mombasa county Ali Hassan Joho and his team was preparing to usher in new leadership just to realize that the Mombasa city account which was under the defunct Mombasa city council was broke and full of unnecessary debts as alleged. Therefore there was no cash to facilitate

garbage collection, transport and management. This gave Joho's political rivals a chance to throw bitter words where they alleged that he was incapable to deal with waste management in the city. This war of words and protests was not easy even after the Governor explained severally on the cause of the garbage menace. Due to this problem of waste management in Mombasa County the Climate Change News Magazine interviewed an environmental expert on the impact of the waste in relation to climate change.

According to Abraham Wangila, the environmental scientist and programme controller of the Eco Ethics Kenya organization in Mombasa county, most of the wastes in Mombasa county and many other cities are commonly municipal solid wastes sometimes referred to as biodegradable municipal waste like green house, food waste, paper waste, and biodegradable plastics. He also said other biodegradable wastes include human waste, manure, sewage and slaughter house waste and in the absence of oxygen, much of this waste decays to methane by anaerobic digestion.

Wangila said the methane gas released by the municipal waste contributes to global warming hence leading to climate change which he termed

as a global challenge for several years now. "People do not know but the main environmental threat from biodegradable waste is the production of methane in landfills. These days, methane is often in the news because it is one of the primary greenhouse gases and it's second only to carbon dioxide in its contribution to global warming." He stated. He also added that in green house, methane is more potent for its ability to absorb more heat while carbon dioxide has high atmospheric concentration compared to methane. Wangila confirmed that the presence of gases like methane and carbon dioxide in the atmosphere leads to the depletion of the Ozone layer which protects the earth from harmful ultraviolet (UV) rays from the sun and therefore subjecting it to more heat causing global warming.

According to him, Earth's temperature is a balancing act since it depends on the balance between energy entering and leaving the planet's system. He said when incoming energy from the sun is absorbed by the Earth system, it warms and when the sun's energy is reflected back into space the earth avoids warming and when energy is released back into space, it cools. Wangila asserted that many factors, both natural and human, have led to changes in earth's energy balance, and these factors include changes in the greenhouse effect, which affects the amount of heat retained by earth's atmosphere, variations in the sun's energy reaching earth and changes in the reflection of earth's atmosphere and surface.

"When sunlight reaches earth's surface, it can either be reflected back into space or absorbed by ground. Once absorbed, the planet releases some of the energy back into the atmosphere as heat which is also referred to as infrared radiation. Greenhouse gases like water vapour, carbon dioxide and methane absorb energy, slowing or preventing the loss of heat to space. In this way, Greenhouse gases act like a blanket, making earth warmer than it would otherwise be. This process is what we commonly call the greenhouse effect!" Maintained Wangila.

Referring to the accumulation of municipal wastes in Mombasa County, Wangila said the population of the county has escalated immensely in the recent past due to rural-urban migration and therefore the rate of waste dumping has also increased and the authorities cannot afford to handle the wastes.

"Coast region has a population of close to three million people and almost third of them live in Mombasa city. This number is whopping and this therefore means that the rate of dumping will be high and if those wastes are not managed well,

upon decay they will emit methane gas which is among big contributors of global warming." Said him. He appealed to the environment authorities to ensure full implementation of the available waste management by-laws to overcome the environmental challenges emanating from garbage accumulation within the city and also embrace technology, whereby the waste managed can be of benefit to the society. Wangila proposed that the best way to deal with waste management in Mombasa County was only by implementing long term solution and by-laws insisting the most recommended approach was to recover and recycle all garbage.

"If we recover and recycle all biodegradable wastes here in Mombasa, that is a step in controlling the effects of green house gases like methane and carbon dioxide which interfere with earth's energy balance. These wastes recycled will offer a lot of gains both environmentally and economically. I wish all cities across the world would embrace this technology to all kinds of wastes then there would be no change of climate as we witness now." Suggested Wangila. He also opposed the plans by the county government of Mombasa to establish a landfill at Mwakirunge in Kisauni constituency since it will create a health hazard to Mombasa residents who use bore holes water for domestic purposes. Wangila claimed that if the landfill is established dangerous chemicals will infiltrate and destroy the aquifer hence polluting the underground water and therefore it will not be fit for human consumption. However, every problem has a remedy. The dream to have Mombasa County clean is almost coming to reality following the establishment of the first solid waste management plant project at Jomvu constituency located in the northern part of the county. The project which was negotiated by the current Jomvu Member of Parliament Hon. Badi Twalib Badi was funded by the Government of Kenya, European Union and the Danish Embassy through Community Development Trust Fund. The plant was meant for recycling and recovery of all garbage within the constituency and also in the whole Mombasa County. In an exclusive interview with the Climate Change News Magazine in Jitoni where the plant is located, the Jomvu Mp Badi Twalib said between 2007 and 2012 when he was then the area Councilor together with the provincial administration negotiated for the plant and after convincing the donors, the agreement to establish the Mombasa Solid Waste Management was reached. "I can say my reign as the councilor of Jomvu Ward was so historic such that I managed to convince donors to build the first ever solid waste management plant in my area. This to me is a great success and the reality is that my people did not believe such a project would be initiated in my area keeping in mind there were other prime areas within Mombasa County and also across the country. First they thought it was James Bond movie until ground breaking was done and the project set up, Joked Badi.

According to him the building for housing all the machines for recycling was ready and also the machines were installed but the plant was not yet operational due to lack of water and electricity supply. He said water and electricity are key factors in that recycling plant and revealed that the Common Market for Eastern and Southern

Africa (COMESA) has promised to fund the supply of water and electricity as well as expanding the plant to meet international standards. "Am happy COMESA has shown interest to fund the project until it becomes operational and it will also finance the second phase of the project's expansion so as to resemble a similar solid waste recycling plant located at Cairo in Egypt. Is this not history if our plant will be the second one in Africa after that in Cairo?" Posed Badi. Also the Mp revealed that the Mombasa county Governor Ali Hassan Joho toured the plant recently and was impressed by the

👉 If we recover and recycle all biodegradable wastes here in Mombasa, that is a step in controlling the effects of green house gases like methane and carbon dioxide which interfere with earth's energy balance👈

establishment of the project and promised to offer any support to ensure the plant was operational since it will assist in garbage control within the county.

Environmental gains

According to Badi, the core motivation to establish the plant was to ensure all wastes have been recycled to avoid environmental challenges emanating from chemical and gases released by wastes mostly the biodegradable municipal wastes which later cause global warming. 'We have seen how challenged we have been when we read in local and international media of how our county is burdened with garbage. This is just a short time challenge and together with our able Governor Ali Hassan Joho we will utilize maximumly this solid waste management plant to ensure all garbage is collected, transported and recycled in this first ever plant. I hope soon Mombasa city will be rated amongst other international cities in terms of environmental conservation.' Hoped him.

Economical gains.

He confessed that, according to earlier assessment, the plant will offer employment opportunities to over 4500 youth from his constituency both directly

and indirectly and therefore this will reduce the cases of unemployment in his area.

The products of the recycled wastes will also offer youth a chance to engage in micro enterprises business by selling those products and this will also give them a chance to get business loans to finance their enterprises from government through the National Youth Development Fund.

The residents neighbouring the plant will also benefit from water and electricity supply. "I addition, Badi confirmed that already stakeholders in the environment sector in Jomvu constituency have started training members of the Jomvu Vyunguni Youth Group on how to recycle wastes in small scale and how they can benefit from it. "This training is very beneficial and when the plant becomes operational, these youth will benefit so much since they will have all the experience in solid waste management. I also advise other groups to emulate this." Said him. On the other hand the National Environmental Management Authority has promised to work closely with Mombasa County government to ensure all by laws that govern solid waste management are adhered to by residents and local companies. The authority law enforcement officer in Mombasa County Benson Wemali said there were several by laws that govern waste management but they are rarely adhered to and this led to the menace witnessed in the county. However Wemali said there is an Integrated Solid Waste Management (ISWM) which is a comprehensive waste prevention, recycling, composting, and disposal program. He said the programme considers how to prevent, recycle, and manage solid waste in ways that most effectively protect environment and human health.

"This programme involves evaluating local needs and conditions, and then selecting and combining the most appropriate waste management activities for those conditions. The major ISWM activities are waste prevention, recycling and composting, and combustion and disposal in properly designed, constructed, and managed landfills. Each of these activities requires careful planning, financing, collection, and transport and that's why I said the authority will work with all key players mostly the Mombasa County Government to bring this into reality." Promised Wemali. He also reaffirmed that the multi-million waste recovery and recycling plant which is under construction in Jitoni area of Jomvu constituency will play a key role in environmental conservation and asked private sector to join the campaign to keeping Mombasa environment safe for all.

According to a recent study under the Mombasa Integrated Solid Waste Management Project, Mombasa coastal town produces 750 tons of waste daily. Only a small portion of this is collected for safe disposal at the Mwakirunge dumpsite, the rest ending up in illegal dumpsites. The study was funded by Community Development Trust Fund - Community Environment Facility (CDTF - CEF) with funds from the Government of Kenya.

Funding deficit hinders successful waste management in Kakamega County

- By Lillian Mukoche



The Rosterman dumpsite in Kakamega - Picture by Ian Lukoye

No one wants a dumpsite in their vicinity, yet no one has ever stopped producing waste material, whether biologically or physically. Residents of Rosterman estate in Kakamega have never been at peace with the decision by the former local authorities to dump garbage in the area. They wish to wake up one day and find the dumpsite relocated for it is making the place inhabitable. The county government had identified an alternative dumping site on the Kakamega-Mumias Road before the owner changed his mind over the idea. The only option left is to find out how the residents can economically benefit from the waste in relation to remedying the climate change challenges. Proper waste management is important in reducing carbon emissions. Decomposition of solid waste releases methane, which is more toxic than Carbon Dioxide. The gas is also released when burning and transporting the waste.

According to the United Nations Environment Programme Global Trends and Strategy Framework 2010, every waste management practice produces greenhouse gas both directly from the process itself and indirectly through energy consumption. The waste sector is therefore in a position of moving from being a minor source of global emissions to a major saver of emissions.

The county government of Kakamega is addressing the issue of waste management but the derailing factor is funding. There are no funds allocated for projects in waste management.

According to Mrs. Penina Mukabane, environment executive officer in Kakamega County, a number of collaborators have shown interest in converting the garbage menace into an economical benefit. "One youth group needs Sh10 million to start a project for converting the garbage into manure, plastic pipes, polls and bricks - charcoal from waste material, but the county government is still sourcing for the funds," she said. "The bricks will go a long way in saving the forest cover as they will be used as an alternative source of energy and reduce over reliance on wood charcoal."

They also have an added advantage of burning for longer and emitting minimum smoke. Mukabane says that 80 per cent of households depend on firewood as a source of energy, thus dampening the effort to increase the forest cover in the region. "Apart from preserving the environment, the project will create job opportunities, especially for the young people, an issue which is now of national concern. The youth have the knowledge and technology but lack funds," she said.

Financial support needed

The executive officer feels that if financial support is accessed, the refuse will no longer be a nuisance to the residents, but an economical activity. "Children usually find their play site here and we have a case where one of them consumed a disposed soda and died. The refuse is also close to river Isiukhu and it's important we destabilize its hazardous state," she went on to say.

To manage garbage collection in major towns within the county, about ten refuse chambers are needed. "We need about two in each town at a cost of Sh50,000 each, but we don't have the funds," said Mrs. Mukabane. "This is vital as many residents are finding trouble with disposing of garbage, making the towns untidy thus threatening the environment."

The other alternative to combat waste management is to purchase and install incinerators. These are gadgets that convert waste materials into heat, gas, steam and ash. Incineration is useful for disposal of residue of both solid waste management and solid residue from waste water management. It reduces the volumes of solid waste to between 20 and 30 per cent of the original volume. "It can be carried out both on small-scale by individuals and on a large-scale by industries and with proper funding, we can place them at strategic points," said Mrs. Mukabane. "They are recognized as a practical method of disposing of certain hazardous waste material like biological medical waste." The method is, however, controversial due to issues like emission of gaseous environment pollutants.

Garbage bins have been installed along the streets in major towns even though they are not enough. The county government is engaging collaborators especially business community to support the initiative. "We have received garbage bins from NCKK and the Cooperative Bank and as a county government we are in the process of procuring more," she said, urging more partners to support the initiative. She is also asking businesses to partner by ensuring collection bins are at their premises.

The will and the potential to address waste management are available. The only issue is funding. The county government of Kakamega has not allocated funds for development in relation to waste management, according to the executive officer in charge. "Only Sh10 million has been allocated for recurrent expenditure in the county. The water sector has received Sh105 million even



Ms. Peninah Mukabane-Environment Executive officer Kakamega County-during the interview - Pictory by Ian Lukoye

Wrangles stall multi-million sewerage project in Kakamega County

By Cyrus Akhonya

though we need at least Sh600 million to achieve our target," said Mrs. Mukabane, adding: Forestry has also been allocated Sh50 million to increase forest cover. The only option left is to source for funding from well-wishers."

Garbage bins & affordable toilets

The residents appear to be willing to support the initiative to keep their towns clean but their efforts are often frustrated by inadequate garbage bins. Boda boda operators have placed themselves at the top in championing the campaign. "We are the highest transport sub-sector in these towns. Our wish is to have enough garbage bins and affordable toilets so that we can be our own police against those who dump carelessly," said Robert Amachonye, the chairman, Boda Boda Transport Association in Kakamega. Mrs. Mukabane promised to solve the issue within three months. "We have already advertised tenders for supply of garbage bins and we hope to solve the issue in the next few months," she said and urged business people to at least install bins within their premises. Another proposal is to enforce laws banning use of plastic bags.

Vivian Namayi from Soroptimist International, a non-governmental organization advocating for girl child and environment management, says Mafuko bags, which were used for packaging, should be re-introduced to address the problem. "Many people like the plastic bags because they are cheap but in the end, they become expensive to decompose. Produced by Mafuko Industries, Mafuko bags are environment-friendly and this has been confirmed as they are the ones we were using to package sugar," she said. Rwanda has enforced laws banning the use of plastic bags and is importing Mafuko bags from Kenya and Ms Namayi says there's no reason why county governments should do the same.

"We have already shared a table with the County Government of Kakamega and advised them to bring stakeholders on board to come up with a law prohibiting use of plastic bags," said Ms Namayi. "The major challenge is complying with new laws but with adequate sensitization and proper involvement of all parties, especially the businesspeople, it can succeed."



Construction material from the incomplete sewer construction project - Source <http://www.ctpost.com/localarticle>

Residents of Kakamega County are missing out on the economic benefits of a donor-funded sewer project due to selfish interests. The Sh300 million-project which started about five years ago, is funded by German Development Fund and implemented by the Lake Victoria North Water Services Board (LVNWSB).

Differences among community members have seen the project swing on and off. Some residents have filed a case at the National Environment Tribunal, accusing the National Environment Management Authority (Nema) and LVNWSB of failing to observe the law.

The residents, through the Lwatingu Maraba Residents Association, are accusing Nema and LVNWSB of failing to actively involve them in compensation matters. "The manner in which the compensation was being conducted did not aim to benefit the community. They were giving as little as Sh20, 000 and it's like they chose the amount in their own way," said Wycliffe Olumasai, a member of the association.

According to the association, the sewerage project is going to affect the economic value of the area, arguing that no one would be interested in buying land and carry out any activity in the place once the project is underway.

They want adequate compensation to enable settle elsewhere and start other income-generating activities. However, they insist they would be much better-off without the project altogether. "Our stand as at now is that the project should be relocated and leave us at peace," said Olumasai. However, the residents are no longer speaking in one

voice about the issue. There are those who support the project and those who oppose it. Ponyochi Kunyobo, a former councilor for Maraba Ward and also a former Mayor of Kakamega Town, says those who are opposing the project have selfish interests. "The association had malicious intentions by demanding to be paid the compensation on behalf of the community something we feel could lead to corrupt deals. We support the project because we understand the economic benefit tied to it and it is displeasing that a few individuals are denying us the opportunity," he said. Already lives are being threatened by the unfinished project as children are said to be drowning in the open trenches that had been dug in preparation for the project. "The sewage is a relief in waste management as not many people can afford septic tanks. They are expensive to construct and maintain and the sewer system has come in handy," said Ponyochi,

The sentiments are echoed by Aggrey Santos, the member of the County Assembly for Shieywe ward where the project is located. "There are myriad economical benefits of the project, especially with the current challenges of climate change mitigation. We can come up with energy generation, fertilizer processing and even our roads and security will be improved," he says. Santos says he is engaging the residents and the county government of Kakamega to reach an amicable solution so that the issue can be solved out of court. "The governor, Wycliffe Oparanya, will be visiting the place to hear the views and wishes of the residents concerning the project. Many people are against the association's agenda and want those in charge of the project to deal with individuals directly," he says.

Kakamega intensifies crusade on clean environment

By Lillian Mukoche



A clean up exercise in Kakamega - Picture by Ian Lukoye

The County Government of Kakamega is coming up with policies to manage waste management in its major towns. The policy, which is still at puberty stage, will ensure every resident takes the responsibility of keeping the environment clean and paves the way for legal action against those who will defy.

“We are yet to present it to the County Assembly for debate and approval and if successful, it will provide proper guidelines on how to manage our environment,” said Penina Mukabane, the executive officer in charge of environment, natural resources, water and forestry in the county. The policy aims to address waste management, the town’s cleanliness, air pollution, landfills and tree planting, among others.

The slow pace of implementing the new constitution, which came into force about two years ago and poor funding, are some of the challenges that have not spared any government department. Debate on who should do what is still filling the Kenyan air, and this has also been reflected in the Ministry of Environment. Some functions have been devolved without funding, yet others, which could be taken good care of by devolved governments, have stayed at the national level.

“We have received almost all functions within our docket but no funding has accompanied them,” said Mrs. Mukabane. The Kenya Forest Service has

not been devolved yet the county government is supposed to address forest cover. The option thus, according to Mrs. Mukabane, is to engage farmers to practice farm forestry and ensure that at least 10 per cent of their farms are covered by trees. The county government has allocated Sh50 million of its budget to forest cover. She said they will work with KFS to realize the objective.

Another challenge associated with devolution is water. The county government is supposed to take charge of water services but the main water service provider, Lake Victoria North Water Services Board (LVNWSB) is still being shared among several counties. Kakamega County is still engaging stakeholders to retain the company where its head office and major clients are located. “Water is a key component in waste management and we are concerned with proper drainage system and accessibility by residents,” said Mrs. Mukabane. In its budget, the county government has allocated Sh105 million for the service but the executive officer in charge of the docket says about Sh600 million is needed.

The National Environment Management Authority has however been on the receiving end following loopholes in managing environment matters in the county. Many complaints that are supposed to be addressed by the authority are finding their way into the docket of environment in the county government. Experts want the authority to be more proactive in enforcing environmental laws in the county.

Waste Recycling, A source of Income!

By Francis Ontwoma

As the world labors to move towards addressing the much dreaded effects of climate change, researchers agree that it is a laborious journey but one that can be realized. It is one that requires absolute commitment and dedication if it is to be achieved.

In Matungu district of Kakamega County a group of community members is excelling and if their efforts come to full realization, then this will certainly change lives in Kenya. They use agricultural waste products to make bricks - cheap cakes of charcoal that have now been fashioned a new name - ‘The Matungu Charcoal’. The coal is environment friendly and easy to use since it does not release smoke.

It is a concept that has been piloted to the region by a group of Japanese researchers from Tokyo Institute of Technology who have been pitching camp in the region for several months disseminating the idea. The Japanese researchers have so far pumped close to Sh. 1 million into the project that has now grown wings and further promises to change fortunes for thousands of residents of Matungu.

“We came here for a research programme and we decided to major on the viability of the charcoal from farm wastes” explained Shotaro Fukao, a student in the department of International Development Engineering. “It is a concept that has been tried and tested elsewhere and we decided to try it here in Matungu all in a bid to improve peoples’ lives”, he said.

Joseph Okoth is the programs manager of Yaya Education Trust, a local organisation that has been tasked with the role of administering the project and educating locals on the importance of embracing the new model charcoal. “We started this work a year ago in partnership with a few researchers from Japan who actually introduced the concept to us, I must say that it is doing well and most importantly is the fact that locals have embraced it very well” said a soft spoken Okoth.

The charcoal from farm wastes project is anchored on three pillars, one being the quest to conserve trees and encourage afforestation. “We use maize cobs and stalks, sugarcane bagasse and cassava tubers-materials that are usually considered as wastes and dumped by people, we therefore do not require wood here, and in fact part of our program is pegged on tree planting” said Fukao.

Again, health is another reason that adds color to the usage of this charcoal. Because it does not emit smoke, the charcoal is user friendly and helps



Some of products from waste plastic papers (Baskets and Necklaces) made by Tunaweza women with disability in Kisauni

stave off respiratory complications associated with smoke. "Millions of lives are lost every year worldwide due to dirty smoke and we are saying if people who use wood charcoal would be enlightened on this kind of fuel, many lives would be saved" noted Okoth. Mary Kulecho, 37, is a beneficiary of the project, according to her, 'The Matungu charcoal' is the best thing to have ever happened to her, she says it cooks faster than even firewood and it can be sustained to light up longer compared to charcoal from wood. "It takes me fewer minutes to prepare food compared to when I use firewood, besides, you can cook several dishes without adding the charcoal cakes, making it even more efficient" says Kulecho

Additionally, 'The Matungu Charcoal' is a concept set to fight poverty levels in the area as the coal can be packed and sold to earn income. "The charcoal cakes are a little bit delicate and if not packed well they can easily break, but once packed appropriately they can be stored in sacks and sold. One bag goes for Sh. 500 here" explained Okoth. Caroline Otsieno is a widow and a mother of six; she has taken up the project with zeal and as she puts it, she will never look back again. " This is a blessing to me, I started with preparing five bags of the charcoal and from the proceeds I pumped more money into the project which brought unimaginable returns, right now I am guaranteed

every month of at least getting something to fend for my family" she says of the project. The making of the charcoal is simple and easy to learn.

The farm wastes which include maize cobs and stalks, cane bagasse and cassava tubers are stashed in metallic drums with a hollow opening below rested on three small stones and a fire is lighted. The materials are allowed to burn and at an advanced stage a lid is placed on top to enhance the control of oxygen involved in combustion, a process that takes about fifteen minutes.

The burnt pieces are allowed to cool and later crushed to make a dark dusty composition that is mixed using water with loam soil in a ratio of 1: 9, soil being on the lower side. The mixing is done in a wide basin and prepared using bare hands or for safety and hygiene one can wear gloves when doing the task. Water is added in moderation to allow the mixture to be moulded and put in a compressor, a cup size metallic structure that is used to achieve the cake like shape. The last stage is placing the cakes on a dryer or out in the sun to allow them to compact, a process that takes about twenty minutes. "It is that simple and now you have your charcoal ready, what is important to remember is to handle the cakes carefully after production to avoid breakages" observed Fukao. Environmentalists contend that if technology

is employed to improve the production of this charcoal, it would be a milestone towards curbing deforestation. It will do a long way in giving space for trees. On the other hand, a lot of sugarcane waste which spills on the roads while being transported to factories will be collected and recycled. Other farmers still burn sugarcane remains on their farms in the name of clearing the farm. Once they are made aware that this is an economically viable project, they will come on board.

Veronica Kiluva of the Centre for Disaster Management and Humanitarian Assistance (Cdmha) at Masinde Muliro University notes that the project will help build community resilience. " The world is battling to combat the devastating effects of climate change and one thing that has fuelled these effects has been deforestation, 'The Matungu charcoal' concept is a positive way to go and can be made better by improving the technology used" says Dr. Kiluva. She says its important to engage the community members in climate change mitigation so that they can find pride in addressing the issues.

She adds "The constitution now supports us more than ever in this course; the county governments should ensure they set enough funds to address issues of climate change mitigation. such are the funds that could be pumped to help community members build resilience through initiatives of this ilk". Experts warn that climate change will have serious and devastating consequences for many development sectors in Africa and threatens the economies and livelihoods of many African countries. "We are at a very bad state as a continent, countries should focus more on investing in research and advisory services to develop and disseminate information that would help scale up and build resiliency" advises Veronica Kiluva,

Despite this knowledge however, the response has been wanting as human activities continue to prepare ground for these abysmal developments. "There are widespread fears from several quarters that the continent will be the worst hit simply because we are still far way behind in laying down measures to avert these effects" notes Dr. Kiluva. The negative effects of climate change on crop production are especially pronounced in Sub-Saharan Africa. Agriculture being the economic backbone of the continent accounts for a large share of Gross Domestic Product (GDP) export earnings, and employment in most African countries. It is therefore important to find a way of recycling the waste to benefit the organic matter in the soil and also sustain rainfall by salvaging trees. Deforestation has been one of Africa's biggest undoing and one that ushers in serious climate change effects. Forests are home to many of the world's most endangered wildlife and also helps protect the planet by absorbing massive amounts of carbon dioxide (CO₂), the most abundant type of pollution that causes climate change.

Unfortunately, forests are currently being destroyed or damaged at an alarming rate. Logging and clearing land for agriculture or livestock release huge amounts of carbon dioxide and other harmful greenhouse gases into the atmosphere. Ends.

The executive officer in charge of environment, natural resources, water and forestry at the county, Penina Mukabane, says engaging the community is the only way to resolve the matter. "We cannot confirm that the complainants are doing it for the benefit of the community. That's why we feel it's important to visit the site and listen to them," she said. She said according to the information within her reach, the project implementers were to compensate those within 80 metres radius from the site but others want the radius to be extended to 500 metres. She attests that the project will go a long way in mitigating waste management within the county "as currently, the attention is on recycling waste to minimize its effects on planet earth". The objection of the project is delaying another phase of funding, which the donor had pledged to give Sh450 million to implement other environment projects around the sewage. Efforts to get further information from LVNWSB were fruitless as the communication officer, Daniel

Owino, declined to comment on the matter, citing the fact that it is being handled by the tribunal. He said it is not known when the matter will be resolved as the tribunal's tenure has expired and another one is being constituted. A source from the company, who chose anonymity due to sensitivity of the matter, said the project "has met several obstacles, which are deemed to be selfish".

This is the third time the project is being challenged despite NEMA having issued a license after carrying an Environmental Impact Assessment. "Some residents are complicating the compensation process but it cannot be standard as each case was different depending on the land size and whether one was being displaced or it was simply a pipe passing through the lands," said the source.

Attempts by CC News to get a clarification from the local NEMA boss Omondi did not bear fruit as he was said to be on leave and whoever was in charge

at the time could not be reached as he was said to be engaged in meetings.

The local provincial administration is also in support of the project. The area assistant chief, Ernest Mayula, is rallying for the project and is accusing some few individuals of "constantly feeding the donor with wrong information to stall the project". "We cannot have any serious development without a sewerage system. One of the complainants wants compensation yet the project does not touch his land," he said, adding that they are collaborating with the relevant authorities to settle the matter. On their part, however, the residents' association claims that those pushing for the project are not from the area. "They will lose little or nothing. It is the shoe-wearer who knows where it pinches most and they should be informed that this is a permanent project which cannot be changed once it has been completed," said Olumasai, who also cast a doubt on how the funds for the project have been spent.

Kenya to benefit from Climate Change Adaptation Fund

By Boniface Otieno



Picture courtesy of - <http://pelum.net/blog/2011/11/pelum-kenya-launches-the-climate-change-adaptation-mitigation-and-innovations-media-award-c-camia/>

Kenya is set to receive 2.5 million US dollars grants to strengthen climate change adaptation activities across the East Africa nation. The funds were part of 11.3 million US dollars approved by the Global Environment Facility Council to be channeled through the African Development Bank (AFDB), for climate adaptation activities in Cameroon, Djibouti and Kenya.

"The Council's Least Developed Countries Fund and Special Climate Change Fund will finance the

Rural Livelihoods' Adaptation to Climate Change Programme in Djibouti and Kenya," said AFDB in a press statement. For the first phase of the programme, in order to increase the resilience of pastoralists to the effects of climate change effects on the region, Kenya and Djibouti will receive 2.5 million US dollars and 5.07 million US dollars respectively. The grant comes at a time when Kenya is implementing an ambitious programme of work and investments to address climate change through a series of linked initiatives set out in the

National Climate Change Adaptation Programme (NCCAP). This is also coming at a time when climate change impacts are likely to undermine planned development outcomes in a number of countries where it poses significant challenges for the resilience of many livelihoods and ecosystems. According to the statement, the Special Climate Change Fund will also provide a grant of 4.03 million US dollars for a project to enhance the resilience of poor communities to urban flooding in Yaoundé, Cameroon.

In Angola, a 4.41 million US dollars grant will enable the ADB to implement a project to integrate climate change into management of the environment and adoption of sustainable land management practices. The project will disseminate sustainable land management and adaptation practices in agroforestry and land ecology in 350 communities.

According to the statement, a 6.27 million US dollar grant will support the development of climate resilience in the agriculture sector in Madagascar's southwest region. NEMA accredited as the national implementing entity. The National Environment Management Authority (Nema) was accredited as the National Implementing Entity (NIE) by the Adaptation Fund Board on March 17, 2012. The fund provides a financial arrangement to assist developing, least developed countries and small Island states to undertake tangible adaptation related projects and programmes aimed at assisting the countries to make adjustments to cope with adverse effects of climate change.

Each government is expected to identify and nominate a National Implementing Entity (NIE) and a Designated Authority (DA) for policy guidance and directions. Kenya is a party to the United

Nations Framework on Climate Change (UNFCCC) and the Kyoto Protocol. The adaptation fund was established in 2009 during the 15th Conference of Parties (cop 15) to the United Nations Framework on Climate Change in Copenhagen, Denmark. Like other countries in the world, Kenya is experiencing the effects of climate change. The change in climate occurs as a result of increased emission of green house gases (GHGs) into the atmosphere, causing global warming. This in turn causes change of weather patterns leading to climate change. Studies indicate that climate change is largely caused by human activities such as burning of fossil fuels and motor vehicle and industrial emissions, all which release green house gases into the atmosphere.

Trapping Heat

These gases form an invisible film over the atmosphere that traps heat and prevents its free dissipation into space, leading to increased atmospheric temperatures and consequently global warming. It has been established that the main green house gases include Carbon Dioxide (CO₂), Methane (CH₄) and Nitrous Oxides (N₂O), Hydro-Flouro-Carbons (HFCs) and Sulphur-Hexa-Flouride (HF₆) among others. Although climate change may have some beneficial impacts, the effects of climate change are largely negative with irreversible and detrimental impacts across all sectors.

The adverse effects of climate change include prolonged and frequent droughts, flooding, flash floods and landslides, resurgence of diseases and pests, environmental degradation and destruction of habitats, rise in sea level, coral bleaching and melting of glaciers. In addition, the reduced quantities of natural resources particularly water and pasture have resulted to resource use conflicts leading to displacement of local communities as environmental migrants and refugees. The adverse effect leaves behind a trail of environmental degradation and destruction to physical and socio infrastructures comprising the provisions of goods and services. The effects of climate change have been experienced in many parts of the country, often leading to loss of lives and damage to property, with most vulnerable sectors being livestock, agriculture, forestry water, health, fisheries, energy and tourism.

What is adaptation?

Adaptation is an important intervention that enhances the resilience of any country against the adverse effects of climate change. It encompasses activities that enhance the coping mechanism such as prevention, tolerance, resilient, change of land use practices, relocation or initiating restoration of degraded environments.

The accreditation process

This is the certification of an entity considered to have fulfilled international fiduciary standards set by the Adaptation Fund Board. As such, accreditation represents a highly prestigious and honorable recognition of an agency that serves as proof of competence, efficiency and trustworthiness at international level. "The accreditation of Nema-Kenya followed a lengthy and intensive assessment and evaluation of the Authority based on its systems, procedures, institutional arrangements and competences," said

“Long ago we used to get more than five sacks of rice but things have changed. Whenever we plant rice, they don't grow instead they stagnate and slowly wither away,”

Betty Nzioka, Nema's deputy director in charge of environmental awareness and public participation. She said the Authority then submitted its application for accreditation in May 2010 followed by months of submission of numerous documentation on diverse aspects of the Authority. Nzioka noted that in September 2011, a regional training for the African continent on the accreditation procedures and guidelines was held from September 5 to 8, 2011, in Senegal.

Elaborate Evaluation

The deputy director said the lengthy and intensive assessment and evaluation which characterized the accreditation process interrogated the systems, procedures, institutional arrangements and competences of Nema, which comprises international fiduciary standards. "This was followed by a site visit by two experts from the accreditation panel of the Board in January 2012. The two experts conducted an on-site assessment and verification of the reports earlier submitted as physical evidence," she said. "The major areas of concern included financial and procurement systems, audit, project management system as well as existing modalities of handling fraud in the Authority," said Nzioka. The deputy director intimated that during its 16th Meeting of the Adaptation Fund Board on of March 17, 2012 in Bonn, Germany, Nema was pronounced as having fulfilled the international fiduciary standards. According to Nzioka, the Authority was subsequently accredited as the National Implementing Entity (NIE) for Kenya, proving to the world that it is competent, efficient, with functional systems and procedures that can stand the test of time. The official notification of

the accreditation was communicated on March 23, 2012, thus promoting Nema to join the list of other accredited NIES globally, numbering 11 at the time. In Africa, Kenya joined the family of accredited NIEs including Senegal, Benin, Rwanda and South Africa.

Role of NIE

Following the accreditation, the Authority has since embarked on establishing the necessary internal structures and guidelines in readiness to kick-off the NIE operations. This includes the establishment of the NIE steering committee with clear terms of reference to operationalize the NIE activities. The committee then embarked on domesticating the Adaptation Fund procedures and guidelines as well as planning for the National Stakeholder Forum, which took place in December last year. The forum aimed at sensitizing the public on the new status of Nema as NIE and invited proposals. The NIE then received proposals from relevant applicants namely from the government, civil society and private sector. According to NIE secretary Nancy Kirumba, most of the proposals, especially those which were submitted from the government, were good as they demonstrated how climate change issues affects the country. However, she says applications from the civil society were not able to demonstrate their capacity in handling projects effectively as their proposals focused on the huge cost of operation against the cost of direct output the project would benefit the society. Upon approval of the projects, the NIE will oversee the implementation of adaptation-related activities by the successful proponents commonly referred to as Executing Entities (EEs).

Role of the Authority

The Authority has the mandate to receive proposals from various applicants, undertake review, verification and finally select the eligible projects for submission to the Adaptation Fund for consideration. In turn, the Authority will receive notification on the successful projects by the Board, which shall subsequently release the project funds to Nema for disbursement. Nema shall then prepare Contractual Agreement with the EE on the project implementation as well as monitoring the evaluation procedures.

The project proposals for adaptation related activities will be based on the thematic areas recognized under UNFCCC namely water management, agriculture and food security, coastal management, disaster risk reduction and urban and rural development. The Authority is encouraging the development of integrated projects based on national strategies, policies and priorities that attracts the participation of many players. This is because climate change is complicated and requires concerted efforts and responses that promote synergy among sectors. In this regard, the potential applicants include government agencies, civil society organizations and individuals.

Milestone

The implementation of the Adaptation Related Activities therefore provides a solution to addressing adverse effects of climate change and NIE will ensure their successful implementation.

Whose responsibility is it to manage waste in Nairobi?

By Jane Okoth



Unmanaged sewer areas in Nairobi - Picture by Scovian Lillian

Nairobi is one of the many cities in east Africa faced with a huge challenge on how to manage its waste. The situation is further aggravated by lack of clear ways and strategies in handling and management of waste particularly in the slum areas. With no one to turn to, the hopeless city dwellers point an accusing finger at the city council.

The issue of how to deal with waste is interrogated by many stakeholders both in the private and public sector. In Nairobi, a large percentage of solid waste is managed by the private sector and NGOs due to public-private partnerships. In a slum like KIBERA the waste nightmare is just very far from over. For now a group of youth aged between 17-20 years engages itself in temporary garbage collection. The group collects a sum of ksh.20 in every household and in turn supplies these houses with plastic bags to collect the waste.

Maurice otieno the youth leader speaks of how hard and challenging the task is. "It is not easy convincing these people to part with cash every week so that we can supply them with plastic bags to collect the garbage. Some of them won't give away the money at all yet they expect us to take care of their garbage. We even go to a point of explaining to them door to door the importance of having a clean environment but not all of them

are in a position to understand. After collecting the rubbish we then heap it all in one place for the city council to come and collect." He explains.

Despite these relentless efforts to keep the slum clean, a lot still needs to be done because there is very little to show off. Maurice explains that the reason they decided to take that risk is to ensure a safer and cleaner KIBERA." Most people say the slums are very dirty but we can prove to them that we as the youth are working very hard to ensure that does not happen in our society."

According to the national environment and management authority, NEMA it is the duty of the city council to ensure that garbage collection is done in a proper manner whereas NEMA'S role is to supervise the whole activity. However there are standards set by this governing authority courtesy of the environment management and coordination act.

Dr Ayub Macharia the director general for NEMA clarifies (confirm this!) that NEMA'S role is to set the standards for the concerned parties to adhere to. The standards set as far as waste management is concerned are to clearly categorize and differentiate the different types of waste and ways of handling it. For instance domestic and hazardous waste are totally different and cannot all be dumped in the

same place because they might expose people to harmful chemical substances or diseases.

Dr macharia explains that the main role of the standards set is to streamline handling, transportation and disposal of various types of waste. "The law is very clear on handling waste. No medical or hazardous waste like batteries and syringes should be found anywhere within the human settlements. We as an authority encourages recycling of waste or waste that cannot be processed any further. Any individual or company found to be ignoring this law is strongly persecuted by NEMA.

Land-grabbing challenge

As much as there is dire need to find a proper and reliable dumping site for the residents of Nairobi as a whole both the city council and NEMA are still faced with a dilemma of acquiring land intended for this purpose. "The land that was mainly intended for being a dumpsite is either grabbed or acquired illegally. For instance the famous dandora dumping site is an illegal site. When we want to prosecute the city council for breaking the law most of them argue that they do not have a reliable or sufficient piece of land that can be used to dump the waste which is very logical if you try to argue in their perspective. This he blames on the government and insists that the government is not doing

enough to ensure that illegal acquiring of land or grabbing does not happen." the issue of land the government should have dealt with it a long time ago and we would not be discussing it now or having any problem to do with public land. Some people are just constructing structures in areas that are not properly planned and the concerned authority is not doing enough to address this issue. Dr Macharia says the situation can be improved if the city council works hand in hand with NEMA.

According to NEMA, the city council approves a lot of land hence paving way for greedy businessmen and fraudsters to start constructing their structures in dangerous zones. "Had the city council worked with NEMA we would not be discussing this matter but I am hopeful because nowadays we get to engage more and more because our duties are to have a cleaner and safer environment" He said. Dr Macharia is optimistic about the city council because if they work with NEMA, the issue of approving illegal land will be solved amicably. However there is also lack of enforcement of sanitation regulations which in turn make residents who live close to the dumping sites exposed to environmental and disease risks. "For a country to thrive and mostly Kenya because it enormously depends on agriculture the government has a moral duty to protect and respect its natural resources. If natural resources are degraded then that is directly related to poverty. Dr macharia is now calling on county governments to work with NEMA so as to ensure the natural resources are not exhausted.

The challenge on the environment

However this environmental authority is calling on the government to allocate more funds to ensure its smooth running. According to Dr Macharia the government is not supporting the authority enough as far as funds are concerned. "As much as the government has given us a mandate to take care of the environment we cannot do it all alone as we need support from them. In order for us to give licenses to the city council we need funds and we are not getting enough from the government. Comparing with last year we are understaffed this year because of financial difficulties. Once we are given the support we need we will do our best to protect the environment." He adds. NEMA is still optimistic about the future of the environment in Nairobi and Kenya. According to Dr. Macharia the authority is impressed by the huge milestones the government has taken to improve the sanitation situation and says that they are currently in talks with the county government on how to improve the situation. "Dating back there was no ministry or authority that was given a mandate to take care of the environment. Right now we have the ministry of environment and national resources which is a good sign that we have a n able government to take care of resources but there is still room for improvement." He concludes.

As the urban population in Nairobi and elsewhere in East Africa grows, so does the solid waste management burden - a situation worsened by poor funding for urban sanitation departments and a lack of enforcement of sanitation regulations.

Persistent pollution woes with unending consequences

- By Scovian Lillian



Photo Courtesy of: <http://asinatpaminta.wordpress.com/2009/06/21/kawayanbamboo/>

Despite the enactment of environmental legislation across various nations globally, a much more holistic and effective approach ought to be explored. Generally, pollution has for a long time been a major environmental issue that seems to lack real and authentic mitigating measures even after many bodies being formed to protect the environment.

Demographically, it all begins with one's self since some forms of pollution are man-made, especially emission of fumes in the air as a result of combustion. Pollution comes in different ways for instance air pollution, noise pollution, water pollution, soil pollution, nuclear energy waste, light pollution, vision pollution and thermal pollution. However, the National Environmental Management Authority (NEMA) is trying its best to address the matter. Dr Ayub Macharia, the director Environmental Education, Information and Public Participation at NEMA says that e-waste crisis is growing rapidly, both globally and locally. "It is economically very important to reduce waste appropriately, especially through complete burning and recycling, which reduces volumes of garbage by 60 to 90 per cent," he says. Dr Macharia further adds that volume trash is growing rapidly and appropriate measures ought to be taken to cut down on dangers posed by dumping sites. Long-term air pollution results to deadly diseases, which include respiratory disorders, lung cancer, nose defects and cardiovascular effects that cause hardening of arteries and therefore increasing chances of heart attack. Indoor pollution is also a health hazard that affects human beings daily and it is mostly caused by carbon monoxide from combustion, hair sprays and perfumes. Materials used to construct our homes and household items like carpets, paints, curtains, upholstery, synthetic materials and even the computers we use also

emit deadly gasses. By polluting the ecosystem through improper waste disposal, we encourage mosquito breeding havens which in turn lead to malaria outbreaks. Poor drainage systems also make us prone to health hazards like diarrhoea, cholera, dysentery and typhoid, forcing families to spend most of their incomes on medical bills. Noise pollution through hooting by vehicles, loud music, industries and welding causes hearing defects that can result to permanent deafness. A lot still needs to be done to reduce noise pollution because it is very dangerous, especially on children and infants. Dr Macharia highlights that it is important to control noise pollution since it may also result in sleeping disorders that may at times lead to the body breaking down.

Light pollution comes in various forms which includes sky glow, light trespass, glare and over-illumination. Health hazards posed by long-term light pollution are blindness and beyond sleep disorders. There is also the hazardous thermal pollution that impacts negatively on humans. This comes along as energy generated by nuclear reactors, which is waste heat. About 50 to 60 per cent of energy generated by nuclear reactors is waste heat. If it is not converted into electricity, that wasted heat will be absorbed by cooling water and dumped into the river.

There is no reason for this destructive thermal pollution of the river. Entergy possesses the technology to use a closed-loop cooling system recirculating and cooling the water by using the existing fans and cooling towers. This in turn saves the ecosystem. Shockingly, all the health hazards of long-term and indoor pollution lead to death.

The global affair of environmental conservation should be kept burning to ensure long life and also safeguard the ecosystem.

Trash here, Trash there, Trash everywhere



A heap of garbage in one of the estates in mombasa county



Mombasa Deputy Governor Hazel Katana and Jomvu MP Badi Twalib during a clean up exercise in Kongowea market

Trash here, Trash there, Trash everywhere



Waste collected by Bidii youth group



Youth engaging in clean up exercise in Jomvu



E-waste

Kenya upbeat about the National Climate change Action Plan

By Douglas Mwanga



REPUBLIC OF KENYA

National Climate Change Action Plan 2013 -2017



Photo Courtesy of:

<http://https://www.google.co.ke/search?q=kenya+national+climate+change+action+plan>

As described herein, Kenya needs to implement a range of policies and processes to create the right circumstances for further progress in responding to climate change. This includes an enhanced institutional, policy and regulatory framework, a national climate finance apparatus and a national performance and benefit measurement system, knowledge management and capacity development. Above all, there is a need to mainstream actions on climate change in the key national and sub-national development planning processes.

Kenya takes climate change and its impact on development seriously, considering it as a crosscutting issue that will be aligned in the planning process both at the national and county levels and in all the sectors of the economy. The Medium-Term Plan (2013-17) provides a singular opportunity to incorporate climate change concerns into the national development plans. The Medium-Term Plan, which sets out the five-year national priorities toward the goals of Vision 2030, will build on both the National Climate Change Response Strategy and its Action Plan to incorporate climate change programmes and projects in the next planning cycle. The NCCAP has facilitated consideration of an appropriate institutional framework for climate governance in the country. At the highest level, the

National Climate Change Council was formulated to give oversight and guidance on the integration of climate into the national development and policy-making processes.

Crosscutting issue

The National Climate Change Council will ensure that climate change is treated as a crosscutting developmental and environmental issue. A National Climate Change Secretariat within the coordinating Ministry will offer the day-to-day technical coordination for all matters on climate change and will be responsible for the national reporting obligations. The preparation of a comprehensive climate change policy commenced in September 2012 because of the analysis emerging from the Action Plan process. The policy will provide the basis for future legislative frameworks and outline the broad vision and governance for addressing the growing implications of climate change. In order to actualize the recommendations of the Action Plan, the Government recognizes the need to anchor the plan in an appropriate legislative framework. The Action Plan is an ambitious programme, which will require substantial investment. The total estimated investment costs required to adapt to climate change impacts and to implement the low carbon development options presented in the NCCAP is estimated to be one trillion Kenyan

A Really Rubbish Lesson

- Ninety-five percent of our solid waste is disposed of in almost-filled landfills - and one out of every two of those landfills desperately needs repair so it won't leak. (National Urban League)
- Recycling one aluminum can saves an amount of energy equivalent to half that can filled with gasoline.
- Every Sunday, more than 500,000 trees are used to produce the 88% of newspapers that are never recycled.
- Every year some 45,000 tons of plastic waste are dumped into the world's oceans. One of the results of this is that up to one million seabirds and one hundred thousand marine mammals are killed each year by plastic trash such as fishing gear, six-pack yokes, sandwich bags, and styrofoam cups.
- Packaging accounts for 50 percent of all paper produced in North America, 90 percent of all glass, and eleven percent of aluminum.
- Every year we dispose of 24 million tons of leaves and grass clippings, which could be composted to conserve landfill space.
- Food waste includes leftover portions of meals and trimmings from food preparation activities in kitchens, restaurants and fast food chains, and cafeteria. Food waste is the third largest component of generated waste (after yard waste and corrugated boxes) and second largest component of discarded waste, after yard waste. The amount of food waste generated in the waste stream has increased by 1.2 million tons in the last 25 years, this is one of the lowest increases on a percentage basis of any component of the waste stream.
- Paper cups consume trees, water, and chemicals, and dump them into streams and landfills- they are not re-cyclable. Paper cups are often wax-coated which reduces their biodegradability further. Paper products make up over 40 percent by weight, slightly higher by volume - of this country's municipal solid waste, by far the largest contributor. Paper Recycling and its role in Solid Waste Management. Every year nearly 900,000,000 trees are cut down to provide raw materials for American paper and pulp mills.



Shillings (US\$ 12.76 Billion) from 2013 to 2017). Implementation of the NCCAP will require all the stakeholders within and outside Government to play their rightful role, building on the partnerships built through the NCCAP process. Kenya needs to enhance public awareness on our individual contribution to climate change; our potential to play active roles in addressing the challenges; and how we can take advantage of opportunities that may arise. This Action Plan is an opportunity for all Kenyan stakeholders to demonstrate how our small individual actions to address climate change can cumulatively add up to large impacts at national level. Significant investments - both public and private, both domestic and international - will be required and a series of barriers addressed. A large challenge is addressing the larger upfront costs for climate resilient and low carbon technologies. Even with lower life-cycle costs, as is the case with many energy efficiency technologies, higher upfront costs can inhibit investment.

Investing in the plan

Greater involvement of the private sector is needed to finance these low carbon climate resilient investments. Attracting private investment for climate resilience actions can be difficult because the benefits of doing so are often outside the scope and timeframe of private sector investment decisions. The Government may need to intervene to encourage investment in adaptation actions, ensuring that climate resilience is the priority climate change response action. Kenya sees clear potential to make effective use of bilateral and multilateral funding, as well as international climate finance mechanisms – such as the Green Climate Fund, Adaptation Fund and emerging NAMAs and REDD+ mechanisms – in moving forward on the Action Plan, in addition to identifying and removing barriers through a systematic domestic focus.

The evidence base provided through Kenya's National Climate Change Action Plan can help international partners ensure their investments align with Kenya's climate change priorities – and that these investments are nested within Vision 2030 and the national planning process. International support can help Kenya create the enabling environment and implement Government interventions to attract private sector investment in support of the transition to a low carbon climate resilient development pathway. Kenya welcomes support from the international community to move forward on its Climate Change Action Plan.

The National Climate Change Response Strategy (NCCRS 2010) was the first national policy document to acknowledge fully the reality of climate change in Kenya. This National Climate Change Action Plan (NCCAP) is the logical next step to enable us to reduce our country's vulnerability to climate change and improve our ability to take advantage of opportunities that climate change offers.

The NCCRS has been guiding policy decisions since its launch in 2010 through documented evidence of climate impacts on different economic sectors and proposed adaptation and mitigation strategies to enhance the country's climate change response. Having already led to action, the country's response to climate change in Kenya, the country's cumulative spending and commitments between

2005 and 2015 is US \$2.728 billion for projects classified as having a significant climate change component. Since these initiatives represent part-development and part-climate focus, the figure does not reflect an estimate of "pure climate finance" in Kenya.

Towards vision 2013

The National Climate Change Action Plan (NCCAP) is now taking action to the next stage of implementation, providing the analysis and enabling mechanisms to make a step change in progress. It supports efforts towards the implementation of the Kenya Constitution 2010 and the attainment of Vision 2030; and encourages people-centered development, ensuring that climate change actions help the country move toward its long-term development goals.

The action plan document has set a target for a low carbon climate resilient development pathway, it has also summarized analysis of mitigation and adaptation options and recommended actions; an enabling policy and regulatory framework; and sets out next steps for knowledge management and capacity development, technology requirements, a financial mechanism, and a national performance and benefit measurement system (NPBM). Actors in the public and private sectors have already distributed the full NCCAP widely to all Government Ministries, Departments and Agencies, the private sector, the civil society, and development partners to guide decision-making and implementation. As climate change planning is an interactive practice, it is expected that the priorities will be evaluated annually and that the NCCAP will be reviewed and updated on a five yearly cycle to inform the medium term planning (MTP) process.

A national priority for Kenya

Although Kenya has little historical or current responsibility for global climate change, and emissions are insignificant relative to the global emissions, the country is highly susceptible to the impacts of climate change. Most of the population's livelihoods and economic activities are reliant on climate-sensitive natural resources. Therefore, the ambiguity posed by climate change is upsetting development and livelihood options.

At the same time, emissions are likely to increase in the future due to population and economic growth. As a result, action to respond to climate change will ensure that development opportunities are achieved through people-centered growth, while encouraging green economy and resource efficiency for the long-term sustainable development of the country. This NCCAP can help ensure that Kenya takes steps to reduce vulnerability to climate change and adopts a low carbon development pathway with many potential benefits such as Promoting wider sustainable development benefits; which help to address pressures related to economic growth, population growth, urbanization and resource use, improving the lives of the poor and vulnerable; who often experience climate change impacts most acutely; the urban poor living in slums that are flood-prone and the rural poor who rely on ground water for water supply and rainfall for food production. Also efforts to improve climate resilience can further Kenya's people-centered development strategy, improving

adaptive capacity of communities through improved access to information and services and many more factors have been included in the much publicized policy which is yet to take full effect. Reducing vulnerability to disasters by using climate risk information in development plans and policy making as well as considering that more than 70 per cent of natural disasters in Kenya are related to extreme climate events. Implementing the NCCAP will also demonstrate Kenya's commitment and leadership in the effort to combat climate change. It will enable Kenya to meet international obligations under the United Nations Framework Convention on Climate Change (UNFCCC).

Further action on climate change will also attract international partnerships and investment in innovative sustainability programmes, technology development and transfer. It will also influence investment in low carbon climate resilient technologies and industries, such as water resource management, renewable energy, and agro forestry. Policy and institutional reforms supported through climate finance would also stimulate further investment in targeted actions for a low carbon climate resilient pathway.

Low carbon climate resilient development pathway for Kenya

Transitioning to a low carbon climate resilient development pathway means the country fully acknowledges the implications of climate change for sustainable development objectives and is committed to adopting the necessary counteractive actions. The pathway would take into consideration future risks, and thus improve Kenya's ability to prosper under a changing climate while reducing the emissions intensity of a growing economy. An integrated low carbon climate resilient pathway. In this Policy document, the emphasis has been put on the key factors among them sustainable development where its recognized that climate change and development are intricately linked, adaptation where by there will be that ability to cushion the impacts of climate change and enable people to respond to the risks by moving toward a climate-resilient society.

Additionally, the document has also recognized Mitigation where actions will be taken where possible to encourage GHG emissions that are lower than business as usual practice hence reduction of human causes of emissions by moving toward a resource efficient economy that is as low carbon as possible. The actions in the NCCAP prioritize climate-proofed development that seeks to sustain the natural capital base and enhance adaptive capacity of the communities. Low carbon actions recognized in the plan are given an upper priority based on impacts on poverty alleviation and significant sustainable development benefits. Possible challenges in the implementing the low carbon climate resilient interventions must be addressed through systematic identification and removal of barriers.

This would include collaborative actions and support from international climate mechanisms. Finance, technology and capacity building support can help fill information and capacity gaps and overcome financial, regulatory and policy barriers.

The Irony of food wastage in starving nations

By Edward Kusewa

Despite the fact that a large percentage of the world's population is still undernourished, a huge amount of food is lost or wasted within the food system. This loss occurs throughout the system – from the production stage to household consumption.

According to Dr. Richard Muneng, African Regional Climatic Change Coordinator, UNEP, Kenya, Food losses takes place at the production, post harvest and processing stages in the food supply chain. Food losses are greatest in developing countries where agricultural technologies and infrastructure are less developed. He further states, "Food is lost at the front end of the food supply chain at the production, post – harvest and processing stages and food is wasted at the back end by retailers and consumers."

Speaking during the 1st Africa Food Security and Adaptation Conference held the UNEP headquarters on 20th August 2013, Dr. Tony Simons, Director General, World Agro Forestry Centre said the food lost in the supply chain or wasted by consumers or retailers also means that the huge amounts of resources invested in the production and supply have been used in vain.

According to Dr. Tony Simons, getting food from farm to fork represents 10, 50 and 80% of Kenya's energy budget, available land and freshwater consumption respectively. Hence, food thrown away by consumers in Kenya has a spinoff effect that 4% of the energy budget, 20% of available land and 32% of fresh water use is wasted. Furthermore, this wastage results in greenhouse gas emissions, which cause climate change and thus put further stress on crop production. All together, the food lost or wasted puts unnecessary pressure on the ecological foundation of food production.

In developing countries, the major cause of food loss is the lack of infrastructure for processing, transportation, storage and cooling of food.

According to, UK foresight, post – harvest losses of maize in East Africa ranges from around 5% to 35% more generally, post harvest loss of perishable crops in developing countries is estimated to be around 16 to 49%.

Options for curbing these losses include public and private investment in market, transport and storage infrastructures, especially in developing countries. Taking these steps would help curb grain loss caused by pest and fungal infestation during storage, as well as loss of fresh produce caused by the lack of well managed and hygienic municipal market infrastructure and unavailability / inadequate cold storage facilities. There are many factors that lead to food wastage at the retailers and



Food wastage from households in Nairobi. Most Household prepare more than they can consume and end up throwing away alot of food - Picture by Ramla Abdi

consumers end of the food supply chain including; demand for high quality standards for food in terms of appearance, weight, size and shape, demand for a wide variety of food types by consumers and the need for retailers to order a range of different food types in order to get better prices.

The options for minimizing wastage at the end of the food chain will include; increasing public awareness about the importance of not wasting food and the need for a cultural shift in the way consumers' value food.

land, water, energy and other resources to produce the food they consume. Likewise, each person is responsible for more greenhouse gas emissions, water pollution and other environmental impacts associated with modern agriculture.

Apart from its ecological impacts, food wastage tends to increase consumption of meat and dairy products which lead to diversion of grains for livestock production with implications for food security.

By reducing food waste we can decrease the burdens of the current food system on researches and thereby reinforce agriculture and in turn food security. According to Prof. Shem Oyoo Wandigu, University of Nairobi, what people eat affects the biosphere both directly and indirectly. The direct effects depends on the quantity and mix of plants and animals they consume while the indirect effect is determined by changing patterns of what they eat and how the food is produced. He further suggests that modern patterns of food production and consumption are unsustainable when considering their impacts on resources and the environment. Furthermore, increased production of meat and dairy products also undermines the ecological foundation of food security due to its contribution to land degradation, water pollution, biodiversity loss and climate change.

According to Ms. Sandra Freiths, Climate Analytics, Togo "as food wastage trends go up add up to a greater ecological footprint per person, meaning as personal income increases each person requires more

Africa to access clean lighting by 2015

- By Njenga Hakeenah



Picture courtesy of - http://rogbcro.files.wordpress.com/2012/03/pv_panels.jpg?w=1024&h=768

World Bank's International Finance Corporation (IFC) estimates that 600 million people in Africa still rely on expensive, ineffective and sometimes dangerous lighting sources. A new report by the joint IFC-World Bank Lighting Africa Program projects that Africa is set to become the world's largest market for clean off-grid lamps.

It is expected that with this switch, about 140 million people will have access to better lighting by the year 2015. The report shows that the market for quality off-grid lighting products in Africa has seen a 300 percent growth in sales in the past three years. The Lighting Africa Market Trends Report 2012- Overview of an the Off-Grid Lighting Market in Africa, provides a snapshot of the region's off-grid lighting market in Africa. In Africa, 600 million people still rely on expensive, ineffective, and sometimes dangerous lighting sources, such as kerosene. Considering this, the IFC's Lighting Africa project is striving to bring off-grid lighting across Africa by establishing quality standards, investing in consumer education, creating a favourable investment climate and supporting innovative business models.

Itotia Njagi, Lighting Africa's Programme manager, says the IFC and the World Bank are committed to ensuring consumers gain better access to products that meet basic needs while at the same time improving lives across the continent. "Consumers can access better and clean energy and it doesn't have to come from the grid. In rural Kenya, only 5 per cent of the population is connected to the grid and this can be changed with access to the renewable energy sources," adds Njagi.

With the price declines in raw materials and solar panels, off-grid lamps are becoming increasingly affordable and within reach for rural households that lack electricity. Lighting Africa plans to reach 250 million people without electricity by 2030. Njagi, however, intimates that for the solar products to sell, they have to incorporate the mobile phone needs like charging, which is a strong selling point for the solar-powered lamps. He adds: "Consumers are looking for that value adding service and it is premised on the mobile phone. They prefer those renewable energy sources that come with a phone charger as most of the communities are long distances from the grid and thus communication for them has to be enabled. So, the mobile phone charger is a mileage earner for the lighting products". As effects of climate change continue to bite, the traditional sources of energy like firewood are continually dwindling, leaving communities locked in a vicious cycle where it is not only the food sources which have gone dry, but all they rely on for their sustenance. Education, agriculture, health and all aspects of their lives are affected negatively as the situation changes from bad to worse.

The market for quality off-grid lighting products has matured more rapidly than Lighting Africa predicted three years ago. The report projects that cumulative sales could grow to 28 million solar lanterns in Africa by 2015, double the 2010 estimate. Njagi says that those not connected to the grid are spending USD 12 billion across Africa with Kenyans spending about Sh800 a month on kerosene for lighting only. This is an expense which does not offer quality lighting and in the long run exposes the consumers to health risks like eye ailments and breathing problems. This spending can be on a

one-off trade off where the consumers can have the renewable energy kits which will majorly improve the quality of life for those not yet on the grid. However, with the price declines in raw materials and solar panels, off-grid lamps are becoming increasingly affordable and within reach for rural households that lack electricity. Lighting Africa is helping build a market to bring off-grid lighting across Africa by establishing quality standards, investing in consumer education, creating a favourable investment climate, and supporting innovative business models. Consumers stand to gain the most from a growing market for clean off-grid lights that offer better value to low-income buyers than they did three years ago. Current product offerings have benefited from a decline in manufacturing costs while quality has improved with longer battery life, increased brightness and new features such as mobile phone charging and pay-as-you-go options from the current product offering becoming more common.

Multinational such as Schneider Electric, TOTAL, Panasonic and Energizer are now taking an interest in a market that had been dominated by smaller companies. This has the potential to drive this market at a faster speed. Sunny Money is an off-grid lighting distributor and its Marketing Director Cindy Kerr says they are seeing an improved response to the solar lights they are distributing. They have engaged school head teachers, who are increasing the products uptake in the target areas.

Kerr says: "There's been a general improvement in education as the children are studying for an extra two hours every night. They are also motivated and are performing well in school." She adds that there are also healthier families as they do not have to inhale the fumes from the use of kerosene. By converting from kerosene to clean energy, millions of consumers can improve their health; reduce their spending on expensive fuels, and benefit from better illumination and more productive time in their homes, schools and businesses.

The Lighting Africa Market Trends Report gathered input from a broad range of industry experts, manufacturers, distributors and civil society organizations. It is the second issue in a series.

Lighting Africa is a joint IFC and World Bank programme which seeks to accelerate the development of commercial off-grid lighting markets in Sub-Saharan Africa as part of the World Bank Group's wider efforts to improve access to energy.

The project is mobilizing the private sector to build sustainable markets that provide affordable, modern off-grid lighting to communities across Africa that are not on the electricity grid. Lighting Africa is also a key element of the Global Lighting and Energy Access Partnership (Global LEAP), an initiative of the Clean Energy Ministerial.

From anti-GMO Activist to GMO Crusader, Science Writer speaks of his drastic turn-around

- By Born Maina



Mark Lynas, Former Anti-GMO Activist-Source-<http://static.ddmcdn.com/gif/blogs.jpg>

Picture courtesy of - <http://www.slate.com/content>

For six years, he was leading the pack of activists who were destroying genetically modified crops in the name of conserving the environment, but in an ironical twist of events, on January 2 this year, Mark Lynas, one of Britain's influential science writers and climate change advocate shocked the world when he publicly apologized for his activism and fully embraced GMO products.

The winner of the Royal Society Prize as a result of his 2008 book, *Six Degrees*, is in Kenya in his first tour to Africa. He is currently a visiting research associate at Oxford University. Lynas is faulting the government for banning GMO, saying it used a wrong premise in doing so.

So, why the sudden change of heart?

In this interview, Lynas spoke to CC News about his surprise turn-around.

CC News: We know that the GMO industry is a multi-billion outfit, were you bought?

Lynas: I have never received a single penny from any industry, organization or any commercial interested in GMO. For me, it is critical to set my integrity as an environmental commentator and

also somebody who values scientific credibility. I have to keep a very strong dividing line between what commercial interests are in this area and what scientists are saying.

CC News: Why did you choose Kenya?

Lynas: Kenya is a regional leader. Kenya has huge amounts of capacity and has the best universities. What comes from Kenya shapes the rest of the continent.

CC News: As an anti-GMO activist, how many countries did you visit and how many have you visited as a pro-GMO activist?

Lynas: I was not a travelling activist. Information that we produced was spread through the Internet but this was long time ago. I never involved myself in spreading fears that GMO was linked with cancer. However, since I became pro-GMO, I have been to South Korea, USA, and I will also be going to Uganda and Tanzania in this trip.

CC News: Don't you think GMO is coming to derail Kenyan communities' cultures? Some say it is foreign.

Lynas: GMO is foreign, so are mobile phones, Facebook. The modern world is coming. The traditional way of living is also changing. The world is always changing.

CC News: If we embrace GMO, don't you think that Kenya will be pouring millions of shillings to the international outfits that manufacture GMO products?

Lynas: Well that is another concern but there are other products that would be developed locally. Banning GMO is also disadvantaging young students' scientists who I would not like them ending up as activists. The issue is if you ban GMO, you will be stopping scientific research in your country. I would like to see as situation where Kenyan scientists are becoming global researchers coming up with new GMO products.

CC News: Why the change of heart. Does it mean you never believed in anti-GM campaigns?

Lynas: I was so passionate about anti-GM campaigns that I could even go out in the dead of the night and destroy GM crops in the farms.

But that was then when I knew very little about genetically engineered products and was just taking direct action based on misinformation.

CC News: What led to your change of heart?

Lynas: I apologized not only for the physical destruction which I participated in of crops belonging to farmers who I had never met, but also for the intellectual destruction caused by the worldwide spread of misinformation and myths about biotechnology, many of which are still believed today by hundreds of millions of people around the globe.

That is after I had done a lot of research and made an informed decision that GM-products were not really as bad as I was initially made to believe.

CC News: What is it that you did not understand then?

Lynas: I did not really understand that DNA is a universal code, and that is all it is. I have since learnt that DNA encodes information which determines the characteristics that an organism will have. And all living things share this system, from flies, to trees to people. By the way, we share 30 per cent of our genome with carrots and wheat, and 80 per cent of our genome with mice.

CC News: How did your fellow activists react to your move?

Lynas: They called me all sorts of names and made very wild accusations that I was paid to change my views. But I am ready to present my bank statements for anyone who wants to follow it. My website was also hacked but I will never regret.

CC News: But a research conducted by French molecular biologist, Prof Gilles-Eric Seralini has linked GM foods to cancerous tumors and liver and kidney infections. What will you say about that?

Lynas: That was one of the worst pieces of scientific research over the last decade and it is unfortunate that some countries like Kenya acted on the basis of such sensational works of anti-GM crusaders to impose a ban on GM products. It was a research with a lot of flaws. The study was part of the propaganda against GM products and even professional scientific associations, including the European Food Safety Authority, have dismissed it as having no merit.

CC News: But why is it that even most European nations have not wholly embraced GM technology?

Lynas: The reason is simple: stringent and unfriendly regulatory systems. Most people around the world have been greatly misinformed about this technology and that is why it is important that the right content comes out. Most policy makers tend to be loyal to politicians who must always stick with what is popular.

CC News: Are there benefits of GM products?

Lynas: Of course there are, and they are many. The only way to ensure food security with the expected population bulge is to adopt helpful scientific ways like the GM technology.

The Climate Change Adaptation Fund and the criminal exploitation of carbon trading

-By Njenga Hakeenah



Picture courtesy of - <http://yagrein.blogspot.com>

Kenya has qualified for the climate adaptation funding which will see farmers and other groups compensated through carbon credits. The director Environmental Education, Information and Public Participation at NEMA, Dr Ayub Macharia, says Kenya has received USD 10 million for climate change adaptation. Nema is the National Implementing Authority (NIE) in the country following its vetting by the Adaptation Board in Washington.

Among the eleven shortlisted institutions for the job are the Kenya Red Cross, Tana and Athi Rivers Development Authority (TARDA), Kenya Forestry Research Institute (Kefri) and a number of NGOs and women groups from around the country. The eleven institutions will be mandated with the rolling out the carbon crediting project. This is good news for the country, especially coming at a time when climate change effects are being witnessed in the farms where productivity is dwindling. Climate change has caused unpredictable weather patterns, low farm productivity as well as wasted

resources when seasons fail. Carbon credits and carbon markets are a component of national and international attempts to mitigate the growth in concentrations of green house gases (GHGs). Carbon trading is an application of an emissions trading approach. Greenhouse gas emissions are capped and then markets are used to allocate the emissions among the group of regulated sources. Carbon credits are an established market-based tool through which individuals and organizations can support projects which counteract the carbon dioxide (CO₂) emissions, which they have not been able to eliminate.

This inconclusive benchmark on quantifying and qualifying carbon credits is, however, a big challenge on how the funds will be disbursed. There is also a general lack of information by a majority on how they should be compensated. A new law enforcement guide produced by the International Police (INTERPOL) shows that with this challenge of the intangible nature of the global carbon trading markets, it puts them at the risk of

exploitation by criminal networks. The INTERPOL Guide to Carbon Trading Crime examines the areas within the industry which have the potential of being manipulated by criminals, through securities fraud, insider trading, embezzlement, money laundering and cybercrime. It also assesses the current vulnerabilities of the carbon market and provides information to support national authorities in establishing adequate policing measures.

Prof Geoffrey Wahungu of Nema says they have put in place measures to curb any corruption that may arise, "We had very stringent vetting measures in our tool kit and which will address the likelihood of corruption cases happening," he says, adding that as the national implementing authority, they do not want to have any loopholes which would jeopardize the country's benefitting from the Common Climate Change Fund's kitty.

The Climate Change Adaptation Fund is a common kitty where countries get funding for their projects aimed at mitigating the effects of climate change. Nema, through the Adaptation Board, will be overseeing the implementation countrywide. Prof Wahungu says since the implementation cannot be delegated, they will be expanding the committee to ensure that the project is a success. He adds that they received hundreds of proposals for the funding but only 11 qualified. Prof Wahungu adds that they will be calling for more proposals as and when another opportunity comes up. He says there is a likelihood of more funding but this will be heavily benchmarked on the implementation this time round.

The INTERPOL report further claims that the difficulty in assessing adequate information provides ample opportunity to manipulate the process and make false claims over the environmental integrity of the project. Under these circumstances, companies can ensure their projects receive carbon credits in circumstances where they should not have qualified to receive. Carbon trading is the world's fastest growing commodities market, with its current value estimated by the World Bank at around USD 176 billion. Differing from traditional markets in that there are no physical commodities, only "credits" for offsetting the output of carbon dioxide, it is this unquantifiable market combined with the large amounts of money invested and a lack of oversight which make it vulnerable to criminals. Senior Criminal Enforcement Counsel at the US Environmental Protection Agency and Chair of the INTERPOL Environmental Crime Committee Andrew Lauterback says it is imperative that the carbon trading markets remain secure from fraud, not just to protect financial investment, but also because the global environment depends upon it. Lauterback adds: "The INTERPOL Guide to Carbon Trading Crime is an important resource for all organizations and agencies committed to protecting our environment and developing a cohesive global response to this crime."

The INTERPOL carbon trading guide, an initiative of the INTERPOL Pollution Crime Working Group, was produced with contributions from partners including Environment Canada, the Norwegian Agency for Development Cooperation, the Netherlands Government and the US Environmental Protection Agency. The Pollution

Crime Working Group will hold its 18th meeting during the INTERPOL Environmental Compliance and Enforcement Events in Nairobi, Kenya from 4 to 8 November 2013. The guide includes several case studies from around the world where greenhouse gas accounting firms, national authorities operating in under-regulated jurisdictions, and individuals or companies claiming to offset emissions in return for investment have cut corners, falsified information or received bribes. "Crimes that harm our environment have a wider impact on the health and safety of society as a whole, and therefore must be investigated and the perpetrators punished," said INTERPOL Secretary General Ronald K. Noble. Noble adds that INTERPOL will continue to fight the criminal networks which endanger the precious environmental resources and use their ill-gotten proceeds to fund other criminal activities. With eight carbon credit trading companies operating on the European Union Emission Trading Scheme recently shut down for malpractice, the INTERPOL guide seeks to generate an international law enforcement response to these crimes.

INTERPOL's Environmental Crime Programme manager David Higgins says: "It is sad to see criminals using fraud and other crimes to make profit out of a commodity that was created to protect the environment. It is not just the financial harm it causes investors, but this criminal activity risks seriously undermining the environmental integrity of the carbon markets globally." He adds that INTERPOL is supporting governments which are in the process of establishing or regulating the carbon markets to put an end to these types of crimes.

INTERPOL also assists law enforcement agencies in policing the carbon market across borders and jurisdictions, particular by identifying inconsistent regulations between countries and other legal loopholes which can be exploited by criminals. The INTERPOL report only briefly mentions the biggest, most influential and probably the most dangerous network working in the carbon markets – the banks and financial companies that are responsible for the global financial crisis and that also helped design the carbon markets.

The report emphasizes that the Carbon markets involve more than just direct trading in carbon credits. They also include trading its derivatives and other financial instruments and as they (carbon markets) develop, so too does the complexity of the financial instruments that can be traded.

The recent global financial crisis has illustrated difficulties in regulating financial markets when financial instruments become too complex to properly disaggregate and assess for compliance. Many of the same derivatives traders responsible for developing these complex financial instruments are also actively engaged in investing in the carbon market. The financial crisis demonstrated the lack of technical and enforcement capacity among financial regulators to deal with complex financial instruments. The carbon market is at risk, therefore, of following the same path unless its regulators are able to properly manage these complex financial instruments. All the details on the climate change fund are available on the website www.nema.go.ke.

Interesting Facts about Recycling

1. Modern garbage is a relatively new phenomenon--a result of industrialization, mass production, and consumption.
2. Bones were one of the most recycled items before the twentieth century. Bones were often used for making buttons and gelatin, which was used in food processing, photography, and glue and paper making.
3. In the late 1800s, peddlers acted as early recyclers. Used condoms were recycled into hair bands in Southern China. They sold quite well, although several physicians voiced concerns about potential hygiene problems.
4. Plastic bags are easier to recycle and require less energy to produce than paper bags.
5. Recycling one aluminum can saves enough energy to run a television for three hours.
6. Batteries that were made before 1997—when Congress mandated that mercury be phased out of batteries—should be recycled rather than thrown away. Older batteries can contain up to ten times more mercury than newer batteries. Rechargeable batteries can also contain heavily toxic materials and should be recycled or properly disposed of.
7. As landfills continue to reach their capacities, recycling has become an attractive alternative.
8. All recycling creates some amount of residue (e.g., shredder fluff) that will eventually end up in a landfill.
9. Nearly 50 million tons of e-waste (electronic waste such as cell phones and computers) is created each year around the world. This is enough to fill a line of garbage trucks across half the globe.
10. Over 70% of e-waste ends up in China, where much of it is recycled in family-run workshops. Their methods of recycling are often rudimentary and can create serious environmental contaminants and health risks.
11. Cigarette butts and filters take 12 years to biodegrade. An aluminum can takes between 200 to 500 years to biodegrade. Plastic diapers and sanitary pads take between 500-800 years. Styrofoam takes more than 5,000 years. And it would take a glass bottle 1 million years to biodegrade.



GMOs Stop the Big Scam!

With genetically modified organisms (GMOs) we risk transforming our food into a patented commodity controlled by a few multinationals and stripping farmers and consumers of their rights. This is according to Slow Food, a global, grassroots organization with supporters in 150 countries around the world who are linking the pleasure of good food with a commitment to their community and the environment. Slow Food believes that everyone has a fundamental right to the pleasure of good food and consequently the responsibility to protect the heritage of biodiversity, culture and knowledge that make this pleasure possible.

GMOs are unreliable from a scientific point of view, inefficient in economic terms and environmentally unsustainable. Little is known about them from a health perspective and from a technical standpoint they are obsolete. They have severe social impact, threatening traditional food cultures and the livelihoods of small-scale farmers.

In many countries labelling of GMO-containing food is not obligatory and people cannot be sure that they are avoiding these foods. We support mandatory labeling of all products containing GM ingredients, including meat and dairy products where animals have been fed with GM feed, thus giving consumers the freedom to make an educated choice about what they eat.

Pros and Cons of GMOs

The term genetically modified food (also known as biotech or genetically engineered food) refers to crop plants that have been modified in the laboratory to enhance desired traits, such as resistance to herbicides or improved nutritional content.

Experts say this science, like any other, has no guarantees. Risks include:

- Introducing allergens and toxins to food
- Accidental contamination between genetically modified and non-genetically modified foods
- Antibiotic resistance
- Adversely changing the nutrient content of a crop
- Creation of "super" weeds and other environmental risks

Benefits include:

- Increased pest and disease resistance
- Drought tolerance
- Increased food supply

Street Boys Changing the Environment

- By Ramla Abdi



Garbage collected by Bidii Youth group being sorted out before being sold-Picture by Ramla Abdi

Famous and renowned industrialist both locally and internationally have gone into historical books as having turned the least thought materials into opportunity. The likes of John deRockerfeller of US and our very own Manu Chandaria of MRM just to mention but a few have all inspired many with their raising from Grass to grace.

This is a story of Juma Mwangi, a 27 year old reformed street boy and an aspiring industrialist in the sprawling slums of Huruma, Nairobi. When I pay him an unexpected visit on a sunny Monday afternoon, I find Juma chairing a meeting comprising of 31 street boys, some reformed, some in the process -as the theener bottles on their mouths tell it all. Since I didn't book an appointment with them, I join them quietly not to interrupt.

'Kila mmoja ahakikishe by Jioni amerudi na hamsa'. (Everyone should ensure they come back with Kshs50 in the evening.), Instructs Juma as his troop listens carefully braving the scotching sun.

Later Juma briefs me on what their project entails and how he is determined to transform the slum that he has known since he was 5, before his parents abandoned him. 'My dream is to see Huruma clean and above all free from street boys who have found a safe haven here...' he goes on to

explain. As a reformed street boy, Juma tells me he has seen it all in the hustle and bustle of the slums and hence his present spirited fight.

Shortly the over 20 street boys disperse in groups of 5 each group pulling a hand cart with filthy looking sacks. They are heading to the neighboring Eastleigh estate where several hotels operate and is also known to be a home to thousands of Kenyans of Somali origin. They leave in a hurry as Juma pulls a three legged stool for me to seat. 'they are now headed to Eastleigh where they collect garbage before pulling their hand carts here where we sort out the stuff separating food stuff, plastic bottles and paper bags'. He explains in Sheng language. Before an hour elapses, one of the 5 groups in back, their cart fully loaded with garbage from Huruma estate, a stone throw away. Without any protective gloves, they tear the huge plastic bags apart and start sorting out the contents.

As I later come to learn, the stinking and almost rooting food stuff are place in a different area and not before long, a pick up pulls by and Juma leaves hurriedly to go to attend to its owner. After few minutes of accessing and bargaining, they strike a deal and the buyer - who rares pigs in kawangare estate-, has his vehicle filled with the waste, after parting with Ksh 700. My host Juma pockets the old

notes as he receives a call on his rubber band-held 'kabambe' mobile phone. After disconnecting, he informs me that a lorry that collects plastic bottles for recycling is on its way. Looks like a good day to them.

After a few hours of chatting, all but one group is back with varying loads and they go through the same separating process, under the instruction of their leader Juma. Am later taken to their make shift camp where am shown letters and certificates from various reputable institutions including The Nairobi city council where they are recognized for their efforts to conserve and keep the environment clean. Before he hits 32, i.e. 5 years to come, Juma envisions his troop as one of the most profitable and sought for in matters environment. He expresses his faith that with the current rate of savings, the will soon buy their own truck, gloves and boots to eastern their job.

He also calls upon the Nairobi Governor Evans Kidero to embrace the Private Public Partnership (PPP) in his quest to beautify Nairobi. As at the time I was leaving Bidii Youth Group, as they have christened themselves, am literally challenged at how much money can be made from the trash we throw away. They seem to have changed the old adage 'Strike the iron while it is still hot' to ' Strike the iron so that it may be hot'.