MINING: Are we ready for it?

By Njengah Hakeenah

Even as it promises immeasurable wealth and prospects that could well alter Kenya’s economic industrial landscape, mining is still a stubborn thorn to pluck. Mining has aligned its mark along the region at a pace that is unprecedented. Kenya has joined her neighbors Sudan and Uganda to confidently claim a stake in the oil Industry. Turkana County in the Northern part of Kenya has pushed the country into focus with the much publicized discovery of Oil in 2013. Already, multi-national oil companies like Tallow oil have already set machines to work to make the mining dream a reality.

At the Kenya Coast in Kwale County, the 2.5 billion Base Titanium Mining Company has officially landed and with it a stream of challenges and opportunities that would define industrial mining at the Coast for a long time. There is no doubt that economic prospect in mining are high. Kenya stands to earn billions of commercial wealth from industrial mining fueled by foreign investments. The earnings are expected to trickle down to the local framework and enhance development economically, socially and even politically. A boost in mining for any country is largely viewed as the game changer for fast-tracking development.

The government claims it is exercising overall caution as it pursues the mining dream. The challenges are many. Key amongst them is the overall environmental impact of mining in this fragile era of climate change. Is the government ready for the overall consequences?

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Also Inside:

Coalition for Journalists on Climate Change (CJCC) officially launched

Kakamega suffers the brunt of bad mining practices

Coast consumer lobby group consolidate support to sue NEMA

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Editors note:

It's hot over here; I hope hell is not getting closer!

A friend has the above quote as the face of his social media page. It is striking, yet disturbing – especially if you are to put the reality of Climate Change into perspective. Is the globe getting hotter? Are we getting closer to hell? These may be questions that are too evasive to be answered. These are questions which nonetheless have to be asked – and answered!

Climate Change is real and so is the necessity to do something about it. Once the bad news of the devastation has been spelt out, then the next logical step is asking the world to do something about it. The world must be urged to take a stand on Climate Change. Adaptation or Mitigation? This debate will most probably remain in boardrooms and conference halls on Climate Change long after our generation has passed on. It will remain because it is vital and necessary to handle the challenges brought about by Climate Change.

It may not be in the place of this publication to declare a stand in this debate, what is clear to us however, is that adaptation and/or mitigation are both crucial paths that the world must take in addressing the challenges of climate change. Governments must harness these approaches within their national development plans to ensure there is continuity for humanity for unless this is done then food security cannot be guaranteed, neither can a supply of clean drinking water or the conducive environment to support productive life.

In this fourth issue of Climate Change News we discuss approaches to managing the challenges of Climate Change. We unpack adaptation and mitigation strategies and ponder o what is best suited for different locations.

There is coverage on the all contentious issue of managing carbon credits and what the global platforms are doing about it. We also take a peek into the constitution of Kenya 2010 and how devolution is apparently “derailing efforts to curtail climate change”. Elsewhere too in this publication we take on human vs animal conflict where elephants are terrorizing Coastal communities as the animals scamper to survive the challenges of drastic weather changes. This is an issue that raises a myriad of questions about how climate change should be handled.

We are thankful to the entire media team that put together the content herein and we sincerely appreciate the Rosa Luxemburg Foundation for supporting this project. And while the globe sure does seem to be getting hotter everyday because of climate change, we certainly hope that we are not getting closer to hell than we would want to be!

Mildred Ngesa
The CJCC to tackle climate change within the media - By Jane Okoth

Climate change has been affecting the earth for years as human activities escalate. From unprecedented mudslides to hurricanes, it is evident that this phenomenon is here to stay. The way we live our lives every day is adversely affecting weather patterns hence the upsurge of climate change. Climate change is everywhere, from delayed rains and drought to ensuing conflict brought about by a scramble for natural resources like water.

The impact of climate change is a global phenomenon that requires full and undivided attention. All stakeholders must play a part and media is not an exception. Sadly, the local media scenario has been a let-down when it comes to prioritizing issues of climate change. Undue prominence and attention is given to politicians making empty politicking statements while real issues that matter like climate change are being ignored. On a daily basis, the print media for example runs headlines that are largely political and sadly ignore issues as important as Climate change.

The truth of the matter is that climate change affects all of us in one way or the other. Take for example the changing weather and food production patterns in Kenya in the recent past. Suddenly there is a shortage of maize in the country and the population suffers enough to warrant the government to order maize from neighboring Tanzania. This was unheard of in the past! The rains have failed yet gain and changed their patterns so drastically that farmers in Kenya failed to calculate their yields efficiently resulting in the shortage. In the past, the rains were reliable and predictable and farmers were able to predict their farming practices and in turn plan their yield. However today, human activities such as deforestation have denied us reliable rainfall hence the food shortage. Things are not the same as they were twenty years ago. Rains have become erratic, forests have been depleted rivers have been polluted and suddenly resources have become scarce and scanty. In a larger scale, governments in power seem not to have clarity on how to address these issues that seem to multiply daily. These are the things that the media should take onto their stride and make them a priority. Recently, the Coalition of Journalists on Climate Change was launched under the mentorship of Peace Pen Communications and supported by the Rosa Luxemburg Foundation. The Coalition consists of hardworking, likeminded and well informed journalists from around the country who are ready to climate change through their individual media platforms.

The vision of the CJCC is; to have a society with reduced impact of climate change both locally and globally. The members of the CJCC are drawn from various counties; Mombasa, Malindi, Kakamega and Nairobi and are determined to ensure that climate change issues remain priority news items in their media houses.

The objectives of the CJCC are:
• To bring together like minded journalists and partners in advocacy and coverage of environment and climate change issues. This means that apart from the journalists, organizations or specific groups which are interested in advocacy and handle issues of climate change may be partner with the CJCC for the ultimate goal. He CJCC will work with environment bodies such as national environment management authority (NEMA) and the United Nations under the environment body (UNEP) among others. As journalists associated with the (CJCC) the goal is to enhance media coverage on issues of climate change. To enlighten the society on matters of climate change effect and mitigation.

The CJCC is committed to enlightening society for the sake of their survival and for the good of the environment. Most people are ignorant on issues of environmental conservation and how to deal with the climate change effects. Many are desperate to find the reasons behind the lack of food and water, delayed rains, mudslides, persistent flood and drought and how to deal with it or more importantly prevent it.

• To change the perception of climate change topic in the media

This is not easy and it will be an ongoing process for the coalition. We will try to make the media and mostly mainstream to highlight these important issues to the public. Our dream is to see the heading of a national daily “climate change the likely cause of food shortage in Kenya”.

• To push the relevant authorities in implementation of climate change.

Careless cutting of trees is persistent and so are our rivers and lakes being polluted yet no action is taken by the relevant authorities.
Kenya set for Economic boon with the discovery of oil. - By Njengah Hakeenah

With the discovery of oil in the arid north of the country, there is a concern that this may jeopardize the country’s stability and peaceful co-existence. With devolution flourishing under the new Constitution, people in these communities now feel they are entitled to the natural resources in their localities.

The reality of this challenge is that the discovery of commercially viable oil deposits may risk the country’s stability as a majority of Kenyans have not yet understood how for instance how devolution would impact in this kind of finding.

The argument therefore is how much the people themselves (especially the rural communities) know in terms of their rights in devolved governments when it comes to natural resources such as oil.

Chapter five of the constitution is dedicated to the environment and natural resources. However, with poor civic education, there is a likelihood that the laws may be misinterpreted leading to an exploitative situation where corruption and underhand dealings thrive in the oil sector.

Other impacts which may negatively affect this sector are green energy targets and mechanisms to address pollution as well as sustenance for those who may be directly or indirectly affected. A case in part is the recent discovery of Oil in the arid North of Turkana by UK-based Tullow Oil Company. Even before excavation work gets underway, there already has been a disruption of the multi-billion shilling exploration work. This is by the local community demonstrating for what they said was lack of employment opportunities for the rural communities within the oil industry. Minerals play a major role in country economies and Kenya is no exception. These latest oil discoveries are extremely important for the country’s economic projections.

Because of these discoveries, Kenya’s economy could be propelled to compete with larger economies like South Africa. This is subject to various factors as explained by Mr. Cliff Otega, the director of Standard & Mutual Mining & Metals.

Otega argues that the country has to offer attractive packages to attract more investors in the mining industry. “The country has to position itself as a competitive investment destination to attract investors both local and international”.

In August 2013, Tullow Oil Plc said that Kenya will have her first commercial oil production following positive flow tests that were carried out in January and February last year. Tullow Oil Plc’s Chief Operating Officer Paul McDade was then quoted by the international media as having declared that Kenya is headed to become the first oil exporter in East Africa.

Shipments are set to begin in 2016 overtaking Uganda, where Tullow Oil found crude oil more than seven years ago. The U.K. explorer said Kenya’s deposits may top 10 billion barrels – more than three times the U.K.’s remaining reserves.

The good news of Kenya’s viability as an oil exporter began when the company announced that tests on Twiga 1 well in Turkana showed it would produce 2,850 barrels of oil per day. Tullow said results from its Twiga South-1 well showed “the first potentially commercial flow rates achieved in Kenya.” Four flow tests were carried out on Twiga South-1 in January and early February. Other successful tests have been conducted thereafter. To show the seriousness of the investments and confidence in Kenya’s oil output, Tullow Oil announced plans to secure partners to develop fields in Kenya as discoveries proved that future crude exports were viable.

Tullow Oil and partner Africa Oil Corp. planned to drill about 10 wells in Kenya and Ethiopia by the end of the year 2013 to explore the Turkana Rift Basin that stretches between the two countries. Tullow Oil CEO Aidan Heavey said the company planned to sell part of its stake in five licenses in Kenya as it’s never been their intention to stick with 50 percent all the way through.

Speaking in London, Heavey added that if local roads were improved and necessary infrastructure upgraded, Tullow could start producing from Kenya thus possibly trucking crude to the refinery in Mombasa. Tullow has drilled three wells in Kenya with the first oil discovery at the Ngamia well and the first commercial flow from the Twiga well in the South Lokichar Basin.

Kenya may export its first crude at the same time as Uganda, where Tullow is working with Total SA and Cnooc Ltd.

Tullow Oil raised its resources estimate about 20 per cent to more than 300 million barrels of oil equivalent after drilling the Etuko-1 discovery. Tullow Chief Operating Officer Paul McDade was optimistic that with this discovery, the country had reached the threshold for development.

He added that they were thinking about other options within Kenya to do earlier production by road and by rail.
Kenya has recognized the potential of the mineral sector as a key driver of economic and social development. As a result, there are concerted efforts to tap this potential by both the Government and the private sector viewed as crucial for the realization of the country’s blueprint economic ambition dubbed Kenya Vision 2030.

In the third Mining Business and Investment Conference for Eastern Africa last year, Stephen Mwakesi, a policy and research manager at the Kenya Chamber of Mines reiterated this ambition and stated that the Mineral Industry is an international business that requires world scale funding and investments for it to thrive. He noted that globally, there has been an upsurge in demand for mineral raw materials for industrial and economic development and as a result exploration and mineral development projects have been on the rise to meet this demand.

Kenya’s mineral potential found in significant quantities is soda ash (trona) in Lake Magadi area, fluorspar at Kimwarer in Kerio Valley as well as titanium in Kwale, Malindi and Lamu areas. There is also significant potential for gold in Kakamega, vihiga, Migori, Transmara, Bondo, Siaya, Pokot and Turkana as well as minor indications of the mineral in Nandi area. Coal occurs in Mwingi and Mutitu areas while iron ore occurs in parts of Taita, Meru, Kitui, Kilifi and Samia hills.

Manganese ore is found in Ganze, Kilifi and Mrima Hill area in the coastal region. Other mineral occurrences include diatomite at Kariandusi near Gilgil, Vermiculite on Kinyiki Hill in Makueni, Copper in Eastern and North Rift regions, gypsum in El Wat in Garissa, Tana River, Kajiado and Turkana areas, natural carbon dioxide at Kerela in Kimbu and Eldoret area and a variety of gemstones in Ta-

da, Kitui, Mwingi, Kajiado, Isiolo, Pokot, Turkana and Marsabit areas.

Speaking during the same conference, Covine Omondi, Assistant Secretary General, Geological Society of Kenya explained that Mining activities have been taking place in Kenya for many years up to the present time but most of the medium to large scale mining of gold for instance and base metals took place during pre-independence days.

He stated that the largest gold in the country was located as Rosterman near Kakamega town in Western region where the mine operated from 1930s till it closed down in 1952. A medium scale copper mine was also operated at Macalder in Migori area of Nyanze region from 1956 until it closed down in the late 1960s. Lead ore mines were operated in the Kinagoni and Vitenganaires of Coast region till the 1970s.

According to the chair of the Kenya Chamber of Mines, Adiel Gitari, mining in the country has become more notable and therefore required more strategic planning and caution to flourish. “There are a number of challenges in the minerals and mining sector which include environmental degradation, minerals processing for value addition, up-to-date baseline geological information and data, mineral promotion and marketing and mitigation against volatile and fluctuating mineral prices and other externalities among others”. She stated that Government and the private sector needed to build commonalities around to create an enabling environment for mineral resources development and ensure transparency and accountability.

Hon. Najib Balala, Cabinet Secretary for Ministry of Mining Kenya, while speaking at the same conference said that the Kenya Government is committed to the promotion of value addition to raw minerals before export to maximize returns for the people of Kenya and the promotion of local and foreign private sector participation to empower local investment capacity in mineral resource development.

A lot it seems has been done in this area, yet investment in the mineral sector is not only risky but also very capital intensive. Fortunately the Kenya Constitution also provides for the sustainable exploitation, utilization, management and conservation of the environment and natural resources and the equitable sharing of the accruing benefits.

We no longer harvest as much as we used to in the old days but I believe this will play a critical role in conserving our environment.****
Mining altering Kenya’s landscape

- By Jane okoth

Kenya, the gateway to East Africa is now faced with new hopes of possible mining and oil exploration. Kenya hopes that the country can maximize its newly found mineral wealth to propel East Africa’s largest economy even further. But even if more mineral reserves are discovered and confirmed, it remains to be seen whether it will create substantial employment aimed at good wages for Kenyans and improve living standards as a whole. Miners have for the past complained of poor wages and unacceptable working conditions. Thus with the ensuing discovery of the potential of mineral resources, even the common mwananchi is anxious to find out how the mining sector is going to benefit them.

One of those significant new sites is found in Kitengela, in the outskirts of Nairobi. Residents here can barely sleep thanks to noises from a quarry that is located about 10 km from their houses. "Some of our tenants have already vacated to other alternative houses." Complained Monica Njeri, a landlord in Kitengela. "Since the digging at the quarry started, most of us live in fear as our houses are crumbling and shaking. We have lodged our complaints to the area chief in charge but nothing has been done so far." Monica is amongst many Kenyans who find the mining factor to be more of a curse than a blessing. Others lament on the persistent low wages despite the discoveries.

"Most of us work from dusk till dawn yet the pay is very little" laments Stanley Mutinda a worker at a local quarry in Kitengela. He has also developed severer health complications since he started working at the quarries. "My chest became so congested and I could barely breathe. I was then advised by the doctor to stop working at the quarry because it was very unsafe for me. However I have to defy his orders because I have a family to feed. I have no other source of income." There is also the reality of abandoned quarries that are becoming very common.

A number of abandoned quarries in areas like Dandora, Kitengela and Kayole have left a trail of destruction and serious health risks among the people working in it. Most of these quarries, apart from having been targeted for building raw materials some are also being extracted in a bid to mine perceived existing minerals. Despite its economic importance the effects of mining is still a pressing issue among Kenyans. Poverty, unemployment, food insecurity and lack of infrastructure are a constant predicament to the lives of ordinary Kenyans.

Recently, the Cabinet approved the Mining Bill to help guide the exploitation of minerals in the country following the discovery of mineral resources in many parts of the country. The Bill seeks to facilitate the establishment of a vibrant minerals and mining sector to avoid the pitfalls of other mineral rich countries where they have caused environmental degradation, conflict and social decay. However this is not all; according to the Mining bill a proposal was made that the government keeps 75 percent of the royalties leaving the national government and the community to share the balance. This proposal has since sparked outrage from various stakeholders in the mining industry. Many are for the idea that the government, the national government and the community each get an equal share of all the royalties.

According to various stakeholders in the mining sector the proposed plan is discriminating against communities where resources are found. The Bill allows the minister in charge of mining to cancel mining licenses if a company fails to make the required payments makes false statement in application for grant or renewal or fails to meet obligations. It also empowers the Cabinet secretary to suspend or cancel a prospecting or mining permit if the holder of the permit has not started operations within three months of the date which it was granted.

This has however drawn sharp criticism among the mining companies following a move by cabinet secretary in charge of mining Mr. Najib Balala to cancel licenses belonging to other companies. Kenya’s mining industry is named as one of the least explored in Africa. Data from Kenya National Bureau of Statistics (KNBS) shows that Kenya produced Sh18.3 billion worth of minerals in 2012. Mining Cabinet Secretary Najib Balala confirmed last year that both Kenya and Chinese governments have entered into a partnership that will see the latter do a geo-mapping or airborne survey for minerals in all counties beginning 2014. Other proposals include requirement by mining companies to execute an environmental protection bond and come up with a plan for rehabilitation of the mined land; the establishment of a mineral commodity exchange; and restricting local minerals dealership to companies with at least 60 percent local shareholding.

This may serve as a sign of relief for many communities whose land has been used for mining activities. However this is still yet to be achieved as these concerned communities anxiously wait for compensation from the mining companies. Minerals in marginalized areas

A case study is that of the recent oil discovery in Turkana County. Many tend to think that this discovery will hardly benefit the ever marginalized Turkana County. Others are for the idea that oil exploration in Turkana will serve as a mechanism to correct economic and political inequalities. But one thing that cannot be ignored is the existence of a relationship between the availability of the newly found resources and fighting in an effort to control it. However, the irony is that minerals resources are found in places where communities are more marginalized thus giving the governing body powers to control all the resources without much resistance.

Despite all the challenges facing Kenya regarding mining and discovery of a myriad of natural resources, the economic future of Kenya looks brighter.
Lack of proper regulatory framework may undermine mining in Kenya

By Barbara Nyende

Even though Kenya is poised to reap billions of shillings from natural resources like the newly discovered oil, the absence of a proper legal framework could negate the country’s future economic gains in tapping these mineral riches. The recent discoveries have intensified calls by industry stakeholders for the government to fast-track Kenya’s Geology, Minerals and Mining Bill of 2013.

Until the new bill is passed, the government is using the Mining Act of 1940 to issue new permits, which according to the Kenya Chamber of Mines is an outdated and inadequate law for addressing modern-day mining challenges and complex contractual engagements. When cabinet secretary Najib Balala took office at the ministry of mining, he embarked on the process of reviewing the Mining Bill.

"Through consultations with key stakeholders and the private sector, I am happy to announce [August 2013], that the Bill is now ready to be forwarded to cabinet for consideration and approval," he told press conference in his office.

Balala said the bill seeks to among other things to establish the National Mining Corporation (NMC) - an investment arm of the government in the mining sector that will hold interests on behalf of the government in mining companies - National Mineral Certification Laboratory, Minerals Sovereign fund and the 10 per cent free carry interest.

The bill is now at the attorney general’s office, awaiting input from the county governments, communities, lobby groups, miners, public and other interested entities. After the consultation phase with the public is completed, the Office of the Attorney General will submit the final copy of the bill to parliament for approval, however, it is unclear when that will happen.

The new law should be comprehensive and reflective of a well thought out policy that addresses mine-leasing periods, the sharing of royalties, environmental protection and management, and how local communities can benefit from and be involved in mining and drilling projects, says Geological Society of Kenya Chairwoman Gladys Karegi Kianji.

"I know Kenyans are excited with these new minerals and oil discoveries but I advise that we tread carefully so that we do not get entangled in lopsided trade and contractual engagements with international dealers," she said.

Dr. Phillip Omondi, a Climate Scientist at the University of Nairobi, says mining for rare metals could bring many environmental dangers, coupled with myriad of challenges as a result of climate change. The new law should include provisions requiring mining firms to provide reports detailing their plans for mitigating environmental, economic, social, health and safety risks, says Dr. Omondi.

According to him, the government should focus mining contracts on the interest of local communities, because they are affected by heavy mining operations and should not be left to the mercy of miners. He notes that one way to do this is to adequately notify local communities about which companies have received licenses for prospecting in their areas.

Community involvement

According to Mwikamba Mwambi of Kenya Natural Resources Alliance, the locals in which the mining companies are currently mining or intend to mine or prospect be consulted in public brazes (not Representatives who can be corrupted) before the mining companies are allowed to carry out their activities especially in a community where people carry out agricultural, ranching, or other viable commercial activities which conflict with mining. He says the purpose of this is to ensure that those who have enriched themselves without benefiting the local community be made to recoup to those communities.

"Further they should also be involved in ‘restoring’ the environment which they have raped and left gaping holes while they went to the bank singing having got millions at the expense of those communities and the environment," says Mwambi. He adds that the benefits proposed in the bill as percentage to accrue to the local community as royalties and payments be increased.

"The benefits should include provision of basic amenities and development of the area including dispensaries, roads, water works, electricity, education opportunities etc as commensurate with the revenue earned and the development status of the concerned area," he explains.
Kakamenga aspires to infuse environmentally-safe mining practices

By Lillian Mukoche

All human activities impact on lives of other habitats directly or indirectly and mining is not an exception. Mining in Kakamega County is mainly carried out by artisan miners who shift the blame on large scale miners. They claim their work has no effect on biodiversity. This is not true.

In the first place, artisan miners for instance in Ikolomani and Rosterman have for a long time cleared vegetation which has been a habitat for many creatures. The creatures have thus been dislocated. The Kenya forest Act 2005 (42) says that a quarrying and mining activity should only be practiced in forest areas where there is no rare threatened or endangered species. The area should also not contain sacred groves or trees.

Artisan miners claim that only large scale counter parts can have effects on biodiversity courtesy of the machinery and emissions. But for their information, lives of various species of trees and animals are interfered with in the course of their work. The excavation exposes underground metal sulfides to atmospheric causing their conversion to sulfuric acid and metal oxides. These find their way to water ways threatening aquatic life and even human beings and animals who prey on aquatic habitats. In Khwisero sub county within Kakamega county for instance, mining activities are happening along river Yala which is a source of water to thousands of residents.

The mining activity has pulled and pushed children out of school for love of cheap cash. The situation has warranted the attention of local administration prompting the area chief Walter Mukungu to warn those involved. “The activities have affected performance in our schools within the mining area as children stay out of class to make money”, he told CC News. Those who engage children in the activity have been put on notice as it has been confirmed that schools within the mining stretch are leading from behind.

In Rosterman and Ikolomani, artisan miners are using mercury to separate gold from other rocks. While its escape to the universe is supposed to be highly controlled, it is not guaranteed. The toxic mercury usually find its way to the universe threatening biodiversity. “We are encouraging them to avoid using mercury due to its toxic effects”, said Penina Mukabane, the executive officer in charge of environment, water, energy and natural resources. The activities have affected performance in our schools within the mining area as children stay out of class to make money. Those who engage children in the activity have been put on notice.”
Climate Change News

resources in Kakamega County. The miners are however employing local mechanisms to mitigate the effects. They use a metal pipe which directs the mercury vapor into a water container while burning to neutralize the effects. “We then make a hole where we pour this water away from habitats”, said Vincent Khati, an artisan miner. On her part, Ms Mukabane insists that this is not a safe way of disposing the mercury as it finds its way to the universe.

More harm is expected as campaign for use of machinery takes top gear. Mwai Muraguni, the Kakamega ecosystem conservator says a lot of considerations must be put in picture before allowing heavy machinery to excavate. “Green house gases are likely to affect biodiversity as the atmosphere will be polluted thus threatening the lives of both plants and animals”, he said.

Muraguni wants those in charge to consider machinery with minimum emissions as a way of mitigating the threats. He also says planting more trees as they bring machinery on board to ensure biodiversity is not affected by the green house effects. “Trees are carbon sinks and we should encourage more plantations both on farm and within the forest”, said Muraguni.

He said the forest department in collaboration with that of mining and the county government to sensitize wananchi on importance of conserving biodiversity. And the response has been positive with residents coming to terms with the reality that protecting biodiversity is their responsibility.

A threat to biodiversity is a threat to human nature. Man relies on biodiversity for food, fuel, construction material, grazing land and even the oxygen. It helps to ensure food supply through crops and animal survival be they living organism in the soil and on the surface. It is important to have stringent measures to protect biodiversity and ensure human activities do not supersede these. It is essential for the regulation or control of natural processes that affect biodiversity. At the same time, processes that support human life should be strengthened for instance soil enrichment, reduction of carbon emissions that contribute to global warming, recycling of nutrients and purification of water among others.

It can’t go unstated that biodiversity provides space for leisure, recreation and tourism. It gives the landscape its character and sense of place and has social, health and spiritual benefits for humans, and contributes to their quality of life.

The entry of large scale miners in Kakamega county is already triggering conflict with artisan miners. “These people will leave us with nothing to do because we cannot compete with them using our bare hands!” lamented a minor in Bushiangala, Ikolomani.

The cabinet secretary for mining Najib Balala who visited the area recently assured them of their security. “They are here to test whether we have large quantities of gold. If they find it vital, we will enter into an agreement to ensure your areas are reserved for you”, he told the artisan Miners. Balala also said he is coming up with regulations to control the activities and urged the artisan miners to form cooperatives and ensure they are recognized by both county and national governments.

Ms Mukabane, says the Barrik gold company is yet to see the economic aspect in the area. ‘They expect to get at least 10grams of gold per a tone of soil but they are getting less than 0.2”. Even though successful discoveries are being wished, more conflict is expected between the artisan miners and the large scale investors.

Residents are also up in arms following the poor methods of excavation carried out by artisan miners. “They dig holes and leave them open subjecting us to Malaria as the pits attract stagnant water which is a habitat for mosquitoes. Others destroy our roads making it difficult for us to move”, said Violet Ambutsi, a resident at Rosterman.

But Ms Mukabane has assured the commitment of the County government and Ministry of mining to sensitize the artisan miners and the community at large to understand the effects of mining on biodiversity. Claims which researchers are working on includes loss of some animal and tree species and emergence of diseases like throat cancer which are associated with mining activities.
Climate Change results in environmental degradation leading to loss of wildlife habitat in many vulnerable places. Wildlife have been forced to migrate to new areas as a way of adapting hence giving rise to human-wildlife conflict in most parts of the Kenya Coast. Coastal region in Kenya have been known to be among the area mostly visited by tourist both locally and international, due to its rich pristine beaches, exotic cultural practice and wild life.

If trees could talk, they would say “do not practice mining within our vicinity!”

Artisan mining is one of the human activities within Kakamega County which is rivaling efforts of forest conservation. Due to use of poor mining techniques, a lot of land which could be covered by trees is taken up by the activity. There is no mining activity around Kakamega forest but the activities being carried out in Ikolomani and Rosterman within Kakamega municipality have adverse effects on the forest.

Artisan miners manually dig holes randomly in search of gold and have limited time to allow for rehabilitation of the soils. To simply put it, they rarely get enough catch thus the time to refill the holes is the time to search for more gold. The areas where these activities are happening could productively be used for agro forestry. Many people within the mining areas are hopeful that there is more on their land in the name of gold thus cannot plant long lasting crops, trees inclusive. The impact is now over straining on the forest for wood and wood products. It is derailing the efforts by the government to encourage farm forests and relieve Kakamega forest.

According to Mwai Muraguni, the Kakamega ecosystem conservator, a lot of vegetation which people relied upon for firewood and other wood works has been cleared by those involved in mining. “Our people still rely on wood energy and these wild vegetations have been playing a crucial role in rescuing our forests, but miners are on them every time”, he said.

Speaking to Climate Change News, Muraguni said mining should not be practiced in Kakamega forest and its environs. According to the Kenya forest Act 2005 (42) consent for mining and quarrying operations shall only be given in forest areas which do not have any cultural importance or contain sacred trees or groves. No matter how distanced the activities seem to be from the forest, it has been proven that minerals like gold, copper and diamonds and other precious metals are mainly found where rain forests are situated all over the world. This means that the threats end up affecting the forest.

As time goes by, investors are expressing interest in venturing into the activity with heavy machinery. Barrick Gold Company is already settling in Ikolomani to use machinery in excavation. This is coming along with another threat of emissions which have a direct effect on the forests. “There will be a lot of emissions from such machinery which is likely to cause acidic rainfall due to sulfur emission from the minerals”, said Muraguni. He said sulfur emissions when mixed with water result in acidic rain which is harmful to photosynthetic processes. “Once the acidic rain comes into contact with tress, they automatically start drying and leaves fall off”, he explained. Any effect on trees outside Kakamega forest means over straining on the forest as there is no alternative source of wood and its products. The current emissions resulting from exposed metals and minerals are affecting tree plantations within the vicinity and all the way to Kakamega forest. According to Ms Penina Mukabane, the executive officer in charge of environment, water, energy and natural resources, the poor techniques used by artisan miners pauses a threat to multiplication of forests. She adds that the mining activities do not seem as economical to those practicing it as farming could. “I would wish them to change and engage in We are working closely with the land commission to establish these lands where these structures will be constructed”
Agriculture but they claim they are making profits. To us we feel they are not getting value for their sweat but it’s the shoe wearer who knows where it pinches” she said. Practicing agriculture would encourage agro forestry and minimize degradation. With current trend, the concentration is on the minerals and no one bothers whether trees are in their way and thus cleared. Furthermore, even residents who would wish to plant trees find it difficult as they fear destruction by miners. Ms Mukabane however says that they are engaging the artisan miners to understand the importance of protecting the environment especially plantations while undertaking their work. The county government is also expansively rolling out tree planting exercises in collaboration with the community and forest service to counter any threats that might arise. According to Ms Mukabane, the financial year 2013/2014 they had targeted to plant at least sixty thousand seedlings across the county but they surpassed and planted one hundred thousand. Other organizations also planted over the same amount. As the world environment day is being commemorated, the County government is establishing twelve tree nurseries in the twelve constituencies as a measure to ensure enough supply. “We hope to have at least four hundred thousand seedlings in each of the nurseries and this will be a continuous exercise to ensure we do not lack tree seedlings at any given time”, she said adding that the target for 2014/2015 is one million seedlings to be planted in the forest areas and on the farms.

The efforts are however derailed by high levels of poverty which limits the residents to understand and implement the projects. According to the governor Wycliffe Oparanya, the major threat in implementation of major development is poverty. “Over 56 percent of our residents in Kakamega County are rated as poor while 84% rely on agriculture for food. These give us a challenge to invest widely as the poverty levels insert pressure on our limited natural resources”, he said.

Poverty threat is the only motivator to the leadership that wants to rescue Mother Nature. Leadership that feels threatened by high poverty levels will work towards mitigating the problem. According to the 2014 Economic Survey Report, Kakamega County which is the second largest County is among the top five contributors to national poverty. Kakamega has a poverty index of 4.77 per cent, and is given companionship by Lamu at 0.19 per cent, Turkana 4.13 per cent, Mandera 4.69 per cent Nairobi 3.94 while Bungoma 3.79 per cent.

This means that residents will go out of their way to make ends meet and mining is one of the activities opted for. Over reliance only wood energy and wood products is another result of the poverty levels. The governor is luring investors to come in and support in establishment of alternative income generating activities as a way of salvaging the forests. As the environment executive officer Ms Mukabane puts it, non- governmental organizations have come in handy “and we are encouraging more to turn on board so that we can hold hands in ensuring that we don’t commit suicide by destroying our future at the expense of what we want to feed on today”. The aim is to ensure there is enough forest cover that cannot be threatened by whatever activity be it mining or any other.

Kakamega suffers the brunt of bad mining practices

In just a span of one month this is the third time that Mama Miriam Nyongesa is visiting Kakamega Provincial General Hospital. Firmly fixed on her back is her emaciated six year old son who has been diagnosed with Malaria.

“Mosquitoes move around my house like a swarm of bees. They feast on us every day. My baby started complaining of headaches two weeks ago, then the fevers started. I brought her to the hospital and she was 2diagnosed with malaria” Lamented the 39 year old mother. Inside her one-roomed ramshackle there is a single squeaky bed and above it, a torn blue dusty mosquito net that the government donated to her several months ago. Yet Malaria does not seem to be the only sickness dodging Mama Nyongesa’s household. Persistent coughs and chest ailments have also been a major problem.

The reason is clear
Mama Nyongesa’s house stands adjacent to the goldmines of Rosterman. This is the genesis of her problems and the problems of many residents off Rosterman. Open water puddles and pools as a result of small-scale mining are everywhere around the area. Miners have left them bare exposing the residents to the threat of malaria as the water is a special breeding ground for mosquitoes. Mama Nyongesa is not alone. Hundreds of other families in the area have also been exposed to the plight of recurring malaria because of the expansive breeding grounds as a result of the mining.

Medics portend that malaria is increasingly becoming a vexed question here as more and more diagnosis continue to be registered at local health centers. Gold mining in Kakamega County started over eight decades ago with the British colonial explorer setting base at the area which later came to be known as Rosterman.

Activities at this gold mine have continued since then. This has made the land rugged and furrow During rainy seasons, rainwater fills the furrows and this becomes a nightmare for poor families here. “Away from mosquitoes invading our houses, sometimes these furrows become risky when people fall into the pits unknowingly. I know of a drunkard who broke his leg at the mines while walking to his home,” said Emmanuel Welimi, a miner. At the northern end of Rosterman is another disturbing phenomena. There is a controversial dumping site that is causing locals sleepless nights. Apart from the acid stench that emanates from the trash of the dump site is the actual health hazard that residents say is increasingly becoming unbearable.

The defunct Kakamega Municipal Council are blamed for having used this zone for waste dumping ignoring the danger it poses to the people living in the area. “We are not happy living alongside this dumping site, the land could be furrow but honestly that doesn’t automatically make it useless. A dumping site close to where people live is the height of negligence but the county government appears to have ignored our plight,” says Harrison Mwima, a resident. Mwima confides that
weeks ago, a five year old child died when he picked an apparently poisonous drink from the dumping site and consumed it thinking it was juice. The child shortly developed stomach pains, diarrhea and vomiting and was diagnosed as having consumed a poisonous substance. “This is intolerable, this land is close to where people live and therefore cannot be a dumping zone, furrow the land maybe but I believe another use can be found to make it useful to us,” grumbled Mwima.

Underground tunnels
And that is not all. Concerns are now emerging from geologists that parts of Kakamega could be sitting on underground gold tunnels dug by explorers decades ago. This, it is believed is a disaster waiting to explode. The environment around the gold mines is becoming dangerous and unpredictable owing to this fact. Road networks have also been put on spotlight as experts now say they could complicate channeling roads and general stability and durability of the roads.

The tunnels are said to have been dug to assist miners who were interested in special reefs that had high amounts of the minerals. To be able to harness as much of this as they could, they dug the tunnels which geologists now acknowledge their presence in key places in Kakamega.

“We are aware the tunnels are there, they were put in place by the British explorers but they exist hitherto, we are on a mission to map them out so that we can authoritatively advice on how high buildings in Kakamega can go,” explained Evans Masachi, Western Chief Geologist. Timothy Mukoshe is a Rosterman miner who has been in this trade for decades and he has special insights into the tunnels. Two years ago, he says a miner tried to follow through the channels to prospect for underground gold but his mission was botched. “He was a good friend. On several occasions he had insinuated that he would one day follow the channels to look for underground gold. We warned him that it could be dangerous but he did not listen. When he went under, there was an explosion but luckily, he was rescued alive. However, he lost his hands to the explosives. We believe he was trying to retrieve them thinking they were gold”. He narrated. Separately, in 2005 four miners perished tragically at the Rosterman Rehabilitation Center, a place where the British used as the main entrances for underground prospects. “They did not last an hour when they went down before we heard screams that they had been buried alive by the soil, that is how dangerous this place can be,” said Agnes Wechuli, a resident of Rosterman.

At the Rehabilitation school, teachers at the facility have issued strict instructions to student not to come any close to the ancient gold structures because some points are badly exposed. “We cannot allow them to come close to the tunnels. It is risky since some openings are still not well covered,” says a teacher at the institution. Farmers around Rosterman have also enough shares of cries. The excavation processes exposes the soils abysmally to erosion and this has made soil around the area worn out. Some of the chemicals used by miners have serious effects on crops as they find themselves into their shambas through surface runoffs. Veronica Kiluva is a researcher based at the Masinde Muliro University of Science and Technology (MMUST) and according to her these chemicals get entrenched in the food chain. “It becomes sort of a cycle when man and animals consume the chemical-laden plants. These plants harness the chemicals either through air or from the soil,” explained Dr. Kiluva. Also, at Rosterman, sometimes explosives are used during mining and the effects are just as devastating for those living in the vicinity. When the explosives are applied, the loud bang is ear-breaking and can cause the walls of nearby buildings to develop cracks.

Schools and health centers around are some of the social amenities that have been badly hit by the noise nuisance and this disrupts the natural peace. “This is the second time I am repairing my house. The triggers from the mines have kept on shaking my house. I am wondering if I will have this house two years from now,” states Bernard Indakwa, a resident who works as a taxi driver in Kakamega town.

Kakamega County Executive Member in-charge of Water and Natural Resources Peninah Mukabane however has what she calls the remedy to this problem. “In the coming financial year we have budgeted extensively for mining, we are planning to inject about KSh 6 million to buy a modern excavators that would help miners and also, we are targeting to initiate training on safety precautions to stave off avoidable accidents,” observes Mukabane. Once operational Mukabane says, excavation will become more efficient and will reduce health risks that have ages been associated with the mining.

Dr Kiluva suggests more research to be conducted at Rosterman to establish the economic viability of the minerals so as to tailor that with an appropriate excavation mechanism that will be economical.

Base Titanium facility accused of sea pollution
By Moffat Mutero

Mombasa County Government is set to probe the KSh2.5 billion Base Titanium Mining Company at the coastal port constructed for export of Titanium following allegations of sea water pollution during offloading of Titanium. Speaking to The Climate Change News, the Coast Acting Director of Environment, Water and Natural Resources Donald Waganga said although the mining company was cleared by National Environment Management Authority to erect a material handling and ship-loading facility for the export of Titanium at the port of Mombasa, there has been no follow ups to check whether the company causes any pollution during its activities since it became operational early this year.

He said the officers in-charge of pollution-related matters in the Ministry of Environment, Water and Natural Resources from Mombasa County will liaise with those from National Management Authority to visit the 2.5 billion facility located at the southern part of the Kilindini harbor to get a full report. Waganga insisted that after the officers are over with their investigation the report will be analyzed accordingly to establish whether the activities carried out in the facility are dangerous to the surrounding mostly the marine environment.

“As custodians of environment and natural resources we cannot assume the allegations being raised on the handling of Titanium minerals in this facility mostly during loading and offloading. Spillage of Titanium minerals in the sea can destroy the life of marine creatures and according to research;
Environmental degradation persists at the Coast

By Harrison Mbungu

Titanium dioxide particles have a toxic effect on marine phytoplanktons which are a primary source of food for consumers at the bottom of the marine food chain.” Insisted Waganga.

He further added that the oil spillage from the ships can also destroy marine life because when that oil begins to sink into the marine environment, it can damage underwater ecosystems, killing or contaminating many fish and smaller organisms that are essential links in the global food chain.

The acting director also insisted that his department in conjunction with NEMA is very keen on companies that emit dangerous gases which lead to global warming.

He confirmed that Mombasa County Government has its own climate change action plan and production industries will not be allowed to break laws for their own benefits while environment is at mess already.

“We are dealing with both adaptation and mitigation factors, bringing the two in an overall plan. This will assist in the control of dangerous emissions and any other chemical or material that affect the energy cycle, hence leading to global warming. Mombasa is the second capital city in Kenya and we cannot lack to join other big cities in the fight against causes of Climate Change. Therefore, those who are used to pollute environment must be ready to face the long arm of the law.” Warned Waganga

However, according to Environmental implications research that was funded by Tiomin Kenya Limited (a subsidiary of Base Titanium) on the construction of the said facility at the Kilindini Harbour, the company waters down the issues of pollution terming all of them insignificant.

From the findings, it was also concluded that the site was already exposed to industrial and shipping activities and the establishment of the ship-loading facility and its follow-up operational activities would therefore not have any significant impacts to worsen the already existing situation.

The study also found that there was no impact due to spillage of the minerals being handled since they are composed of heavy sands and any mineral spillage will quickly settle to the bottom to be assimilated and become part of the geology of the area without any impact.

Regarding potential oil spills, the study found that the impacts that could arise from them are low. The bunkering of the ships at the site could be a potential cause of accidental spills and therefore pollute the marine environment. However, that bunkering of ships is a port activity and can be dealt with, making such type of impact insignificant.

The researchers urge that, the wind and current regime is predictably known, the direction of oil flow in case of an accident can therefore be easily determined and effective mechanisms put in place to protect existing resources and therefore the impact is insignificant.

The company targets to export over 450,000 metric tonnes of titanium minerals annually and on this regard, Kenya will be among top producers of ilmenite, rutile and zircon where the Kwale mines regard, Kenya will be among top producers of 157,000 metric tonnes of titanium minerals annually and on this regard, Kenya will be among top producers of ilmenite, rutile and zircon where the Kwale mines, and the project will set the country on the map as one of the world’s largest producers of titanium.

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has not only faced closure from polluting the environment but has also impacted the locals by offering support to the ‘society. Base Titanium another mining company situated in Kwale County is the most growing mining company in the country having exported some of its products to South Africa. The locals have also positively benefited from jobs in the thriving sector serving half of the area. The company management has maintained that environmental protection is one of their priorities to ensure that there is no pollution from the plant. Base Titanium Operations manager Denham Vicker who was talking on behalf of the management said the company has strategized on environmental protection by collaboration with National environment management Authority NEMA and identified the weak points for correction. He said the mining company has been a blessing to the locals since it offers 40 percent scholarships and jobs to the youth in the neighborhood.

Vicker said over 20 students from public universities in the region have already benefited from the students program while 600 youth have secured employment from the facility. “We are focusing on bringing out students who can be absorbed straight to the market immediately after they completed their course of work” said Vicker.

In Kenya for example the government has maintained that a proper framework was needed to ascertain that the government deals with the climate change catastrophes effectively. A draft policy and bill which aims at facilitating effective climate change response is on its final stages of draft before being taken to the national assembly for adoption. In a past consultative meeting on climate change policy and bill at a hotel in Mombasa, the national assembly committee on environment and natural resources chairman Amina Abdalla said that the government has embarked on a development framework and a climate change policy.

In the meeting which was also attended by the parliamentary and senate committees on environment and natural resources, Abdalla said the draft bill will also see the objectives of low carbon climate change resilient achieved by the government. “The ministry has established a multi stakeholder taskforce with representatives from the government, private sector and civil society organizations to spearhead the development of the policy and provide inputs to the climate change bill currently under consideration by the National assembly,” She said.

Coast consumer lobby groups consolidate support to sue NEMA

By Moffat Mutero

Leading rights lobby groups from the Coast region have supported the move by the Consumer Federation of Kenya to sue the National Environmental Management Authority if the Climate Change Adaptation Fund from Geneva will be wired to the authority’s account.

The fund amounting to $ 10 million (Ksh 860 million) which is administered by a board in Geneva, Switzerland was expected to be implemented by NEMA, Kenya’s environment watchdog.

According to the project proposal, the programme presents key components, including enhancing climate change resilience in agricultural, agro forestry and pastoral production systems to improve food security, improving water systems and disaster management among vulnerable communities.

Speaking in an exclusive interview with the Climate Change News Magazine in Mombasa, Yusuf Lule who is the Executive Director of Human Rights Agenda said NEMA has been accused of many acts of corruption and inability to deliver service to the people therefore it should not be entrusted with the funds until the agency is reviewed.

Joining other civil society groups, Lule argued that since NEMA was established, it “has done nothing in the Coast region to benefit the people”. Citing an example, he said many mining companies within the Coast region do not comply with set environmental rules and this was allegedly caused by some dishonest NEMA officers who demand cash to permit the companies continue with unlawful operations.

“We are working closely with the land commission to establish these lands where these structures will be constructed”
problems cannot be solved by a “corrupt agency” like NEMA. He advised the government through the relevant Ministry to fire all the unfit officers and replace them with those who respect chapter six of the constitution.

“Corruption has crippled our country and if government through the relevant ministry and the graft body will not nail all Nema corrupt officers, we as civil societies we will use any avenue to ensure the agency is free from corruption. How can we survive climate change menace if money meant for mitigating and adaption activities is diverted into few peoples’ pockets? Corruption is the enemy of development, and of good governance. It must be got rid of. Both the government and the people at large must come together to achieve this national objective.” Insisted Lule.

He also added that, NEMA must focus on its constitutional functions to meet the expectations of the Kenyan people. One of the key roles of NEMA is to Coordinate various environmental management activities being undertaken by the lead agencies, promote the integration of environmental considerations into development policies, plans, programmes and projects, with a view to ensuring the proper management and rational utilization of environmental resources.

Cofek in its letter dated March 26 March 2014 had written to the secretariat of the fund in Geneva to delay the fund subject to a radical review, of among others, the immediate replacement of the National Environment Authority (Nema) as the national focal point. The Consumer lobby group had cited that, its petition was based on serious governance challenges at NEMA which range from among others- a board that is not filled after many directors term of office lapsed in January 2014, low public satisfaction with the Environment Impact Assessments, arbitrary sacking of senior officers, nepotism and low staff morale.

However the acting Director on Environment, Water and Natural Resources in Mombasa County Donald Wagaka disputed the move to block the fund. He said climate change is a global war and it should not be politicized. Wagaka said if the fund will not be released, there will be a gap in handling climate change related programmes and urged the government to ensure the fund is put into units of monitoring to avoid corruption. “Let’s not put politics in a topic that affect the whole world. Let the money be wired to the account first then we look at the measures to be undertaken to avoid corruption. Nema can play the role of oversight only and leave the other job to relevant bodies.” He proposed.

He also urged the graft body to audit all the authority’s funds and if any corruption, then all those involved must be nailed irrespective of their positions. The efforts to reach NEMA bosses in Mombasa County to comment on the issue of the fund did not bear any fruit. Two junior officers who sought anonymity to save their job told Climate Change News Magazine that, since the Ethics and Anti -Anti Corruption body started investigating senior officers on graft; it has been very hard for media to get information.
Coalition for Journalists on Climate Change (CJCC) officially launched

- By Henry Owino

A team of young journalists in Kenya who are perturbed by the distressing change in climate occasioned by poor media coverage on the issue have come together to form the Coalition of Journalists on Climate Change (CJCC). The twenty five journalists drawn from Coast, Nairobi and Western regions of Kenya have come together to form the CJCC. On the universally recognized World Environment Day on June 5th, the CJCC pioneers officially launched the association and called for a re-think by media houses on how Climate Change stories are covered by the newsrooms. Under the stewardship of Peace Pen Communications, a media-based organization that has in the past two years embarked on enhancing the capacity of the media in reporting Climate Change, the CJCC has come into being.

The formation of the association brings together journalists in both print and electronic media from Nairobi, Mombasa, Kakamega, Malindi, and Meru. The Association has the potential to expand to other regions. The CJCC has the sole ambition of ensuring that Climate Change issues are not ignored by the media. This comes as culmination of several climate change media reports and campaigns conducted in across a number of counties in the country for the last two years. Dissemination of this information would therefore continue to educate and enable public especially the common man to be informed and acquainted with climate change reality.

Climate change is currently causing devastating weather patterns never experienced before in the country. Unexpected weather are either long dry spell causing food insecurity due to poor harvest or long heavy rains resulting to floods that wrecks havoc to livestock, crops and displaces people. Most local farmers are ignorant about this type of erratic weather pattern yet it is all about climate change. It is for this reasons that the journalists have come together to educate and inform Kenyans on the causes and consequences of climate change. The Climate Change News’ newspaper owned by Peace Pen Communications (PPC) is the main medium for this information dissemination. However, other likeminded local media houses are encouraged to broadcast or publish for the sake of the public. This includes radio stations that report in various dialects in the country for common man to understand. Mainstream media have always ignored stories on climate change arguing that they are not catchy or spicy or ‘sexy’ for the audience hence earns no revenue. This has always rendered many Kenyans totally ignorance about climate change and blank on its effects to communities. The team known as Coalition of Journalists on Climate Change (CJCC) are collaborating with likeminded agencies, institutions, organizations among other partners within and without the country with a common goal; taking action towards its reduction, adaption or mitigation. The CJCC is therefore the first team in Kenya to come with this unique initiative specifically on climate change issues that many journalists or media houses shy away. They have not ventured into either because of not being attractive theme or assumenone reads such stuff hence earns no revenue.

Mildred Ngesa, Editorial team, Executive Director urged the journalists to take the newly founded association seriously to the next level. She added that it might look small at the start but with time, it would be big thing and darling to scientists, farmers and metrological departments globally. “I want to advise you that this is step forward you are making. It does not mean pulling out from PPC but a strategy on how to work together and better. Remember our slogan says “information for life” so you must impact people’s lives with right information on climate change,” Ngesa advised.

Dr. Ezekiel Mutua, Information Secretary in the Ministry of Information, Communication and Technology (ICT), congratulated the journalists for good thought and urged them to stand tall despite the hurdles. He was the guest of honor at the event. Dr. Mutua emphasized the need to report on climate change matters as it cuts across all sphere of lives affecting every sector regardless of professionalism. He stated that journalists and media have important role in promoting awareness on the important issue of the environment, which is a global concern.

Dr. Mutua made the remarks during the official launch of the CJCC on World Environment Day 2014, at an institution in Nairobi where he was guest speaker.

“I am pleased to note that the launch of the Coalition of Journalists on Climate Change today will go a long way in augmenting the ongoing push for the conservation of the environment and containing the intertwined issue of global warming,” Dr Mutua said.
The Coalition of Journalists on Climate Change (CJCC)

The ICT secretary encouraged CJCC for the bold step they took and promised to support this organization despite heartening trend. He foresighted more discussions on environment conservation coming up and read, watched or listened to on media through journalism. So far, inter universities and inter-ministerial associations have shown their interest to work with CJCC and more are expected to join on board. “I wish to underscore the need for specialization among the media fraternity towards ensuring effective coverage of environmental concerns. There is an adage that states journalists are jacks of all trades, but masters of none,” Dr. Mutua said.

“While this statement is true to an extent, you will agree with me that the concept of specialization is an important cornerstone in quality media reporting today,” he added. He urged the CJCC members to include the environmental campaign a call to media organizations to provide enabling avenues for specialized training and specialization, particularly on environmental issues. By so doing, the targeted impact on promoting the global good, will realized. There are numerous initiatives being made across the world towards calling on the international community to join hands in protecting the environment. These initiatives continue to unrelentingly pressure countries to cut green house emissions. All these are collectively done in interest of the only man’s home, planet earth. Although industrial emission is not yet a major problem of concern at present in Kenya, there is growing concern on the destruction of water catchment areas. There are five major catchment areas; Mau Forest, Mt. Kenya, Aberdare, Cherengani and Mt. Elgon. These have increased the risk of food security and economic sustainability. On the global front, two main points of contention are; reluctant to reduce pollution by industrialized economies in the world the other is overriding importance of the environment from various countries leading to job losses and economic decline.

These are some of the concerns that CJCC must now address. On the other hand, international media organizations have been highlighting these matters more seriously than local journalists. They have devoted space and airtime on this issue through advocacy and public sensitization. The challenge is thrown to CJCC team to take it up and reach 40 million plus Kenyans with this climate change information that rarely appears in any media. Since media enjoys public trust, the CJCC is hopeful with responsibility bestowed upon their shoulders believing that they would make it. The members of the inaugural team have been active contributors of articles to this publication Climate Change News and therefore understand the importance of the topic.

He however regretted that in Africa, discussions on environmental issues hardly gain prominence in the news. Adding that in Kenya, it is only recently that media organizations began seeing the importance of highlighting environmental issues. This is after the late Nobel Laureate Prof. Wangari Maathai won the prestigious prize that drew Kenyans’ attention to the importance of conserving environment.

The members unanimously agreed to elect a team of interim officials that would lead the network for the next year. The selection of officials ensured that each member county had a representation.

Jane Adhiambo ± Interim chair
Jane Adhiambo Okoth is an independent online writer at getfit.co.ke, an online website that deals with articles about health and nutrition. She is passionate about the environment too as she has been an active member of the climate change media project. She has been actively involved in media clinics and is also one of the founding members of the Coalition of Journalists on Climate Change. She has greatly benefited from the CJCC as she has become an ambassador of climate change. CJCC has given her an opportunity to educate members of the society on climate change and to be fully aware of the environmental conditions that rapidly change every day. She greatly values the need for finding a big space for climate change in mainstream media.

Moffat Mutero ± Interim organizing secretary.
Moffat came on board the Climate change media project from inception. He has been a great team player and a regular contributor of the climate change news. He was a reporter at Radio Kaya but moved to do communications for the Mombasa County Government. He is passionate about climate change and environment reporting and is always abreast on whatever is happening in the field.

Ruth Keah ± Interim treasurer
Ruth is a news reporter/assistant editor Radio Rahma in Mombasa. She is among the pioneers who started it in 2012. Being part of the climate change team has made her discover that climate plays such a major part in our planet’s environmental system that even minor changes have impacts that are large and complex and it affects people and nature in countless ways. Changes in nature has serious implications for people and our economic system hence made me not wait any longer and allow it to continue.

Cyrus Akhonya ± Interim secretary
Cyrus is a reporter at Radio Jambo in Kakamega County. He is a pioneer of the kakamegaplatform, having been a member since 2012. He has demonstrated great commitment to the climate change news, contributing in all the issues published to date. He has made follow ups with the office on different issues on the environment and creating linkages with stakeholders on environment and climate change in the county, which he sometimes uses as sources for his stories.
The Makupa Creek in Mombasa County will be no more if the rate of siltation from the adjacent Kibarani illegal dumpsite is not controlled, Climate Change News has learnt.

Initially, the creek that holds the Makupa Causeway was deep and full of water all the time but for the last 10 years the situation has changed. Silt from the dumpsite has found its way to the ocean and therefore raising the sea bed gradually. This is a trend that could dry-up the creek in the next few years.

This siltation, apart from destroying the creek is also posing a threat to the sea creatures since the silt originating from the garbage waste is full of toxic wastes that in-turn interfere with the breeding of fish. The CCN has established that only a few years ago the creek was favourable for fishing activities but currently large numbers of fishermen have abandoned it. This has been increased by destruction of the fishing environment by the siltation and toxic materials from the dumpsite which receives many tones of wastes each day from various places within Mombasa County. As the situation stands currently, even if the dumpsite has to be relocated, the creek would need to be dredged in order to remove the silt that has been blocking it for years!

The Mombasa County Government has however earmarked the creek as a valid area of urgent concern. The County government reckons that something needs to be done as soon as possible to save the Creek. Speaking to in an exclusive interview, Donald Wagaka who is the Acting Director of Environment, Water and Natural Resources in Mombasa County Government admitted that it was not in doubt that the Kibarani dumpsite is posing great danger to the creek. Wagaka confirmed that the Kibarani dumping site is illegal but his department is investing into some activities that could control the situation before the plans to relocate it are over. According to him, due to the high rate of siltation draining into the sea as a result of the garbage waste, his department has started arranging the garbage in a certain order that will control siltation.

“Our officers on the dumpsite are ensuring the garbage is arranged in an ascending order so as to create terraces that will control the silt from draining to the creek. This is unlike the former practise where garbage was dumped without plans. I admit the dumpsite is illegal but we need to look for measures to control the siltation before relocating the site to another location.” Explained Wagaka. He also revealed that his department is in talks with the Coast forest department in order to plant trees along the creek and established developments projects on its banks. This contributed a lot to blocking the inlet of water from the main ocean. Asked on the relocation of the Kibarani dumpsite, Waganga said the site was supposed to be transferred to Mwakirunge landfill which is at Kisauni Constituency but various challenges emerged and therefore dumping of garbage ensued at Kibarani until those problems were fixed. Poor infrastructure is also a major hindrance to tackling the Makupa Creek issue. The infrastructural improvement of the said road needs considerable investment. “The road from Mombasa to Malindi highway is approximately 20 kilometres and it is impassable due to its condition. Our garbage trucks cannot make it until that road is reconstructed and tarmacked and this needs a lot of investment. We have to wait until our county government works out the logistics to improve the road until then, the dumping will continue at Kibarani”. He answered.

The second challenge hindering the dumping to Mwakirunge landfill is the protest by the Kenya Civil Aviation Authority. Waganga revealed that the Authority objects establishment of the landfill (Africa’s first ever sanitary landfill for waste disposal) on grounds that the dumpsite was located at the Moi International Airport flight path. It emerged that dumpsites always attract birds and this is a significant threat to aircrafts. The authority also claimed that the distance between the landfill and the airport was too close than the officially recommended distance. The Authority wants the site to be declared illegal and be relocated to another place. However, Waganga dismissed those claims and insisted the presence of Mwakirunge landfill will not affect airport operations as alleged and as soon as the county gets funds, it will invest fully in its establishment.
Developing & strengthening local capacity for mineral resources development

- Edward Kusewa

It is said that 30 percent of First World supply of both mineral and oil is expected to come from Africa in the next ten years, but multinational’s from the West, will be competing with the Eastern counterparts from the Far East for access to Africa’s mineral wealth reserves. Local communities have been campaigning to gain a share of this new wealth and to prevent environmental destruction of their region. The success of local initiatives in the development of mineral resources will depend on their financial, technological and technical capacity.

“Putting in place measure for geo-data acquisitions and dissemination, by setting up a web-based mineral database and a mining cadastre will be crucial,” said SEAMIC Director General, Mr. Katema Tadessa in MBI 2013, adding that regional Governments will have to strengthen and enhance appropriate capacities for relevant institutions and promote linkages with relevant institutions, promote research and development in the minerals and mineral sector.

During the same meeting, Flemish Gold Director, Mr. Bruce Milne said “That it will be extremely useful to promote mineral processing for value addition particularly for local capacity, because this mineral processing value chain will have the double effect that value creates in employment and has the potential to enhance skills.

Indeed it is true, that mineral resources are generally non-renewable and thus there is need to bequeath a portion of the accruing wealth to future generations. Strengthening local capacity will involve a socially acceptable balance between the positive and negative impacts of mining on the physical and human environment.

Speaking during the Mining and Investment Conference 2013, Hon. Stephen Julius Masele, Deputy Minister for Energy and Minerals, United Republic of Tanzania said “The Artisanal and the small-scale Miners (ASM) contribute significantly to the creation of mineral wealth, however, there is need to mainstream their operations in order to address the challenges they face and promote best mining practice”.

Sustainable development and management of mineral resources will ensure local capacity in equitable benefit sharing, wealth distribution and long-term economic development through, promoting local sourcing of resources.

Moving forward it will be important to ensure compliance of mineral sector activities with relevant environment, health and safety legislation as well as develop in liaison with relevant institutions specific regulations for mining operations in environmentally sensitive areas such forest reserves, nature reserves and national parks.

KenGen unveils the great dams race to conserve the environment

- Boniface Otieno

The Kenya Electricity Generating Company (KenGen), has officially unveiled the Great Dams Race, an annual event seeking to create environmental awareness and raise more than KSH 100 Million to conserve the Seven Forks ecosystem. The initiative is aimed at encouraging Corporate, local communities and the general public to actively contribute towards local environmental conservation.

Unlike other annual races, this race offers a unique mix of marine and rugged savannah terrain for professional and amateur runners and provides an exceptional fun weekend for families.

Participants will have the opportunity to contribute towards environmental conservation while promoting the Seven Forks and surrounding areas as a weekend get-away destination. The Seven Forks is home to five hydro-power stations, which generate over 50% of the country’s electric power.

Masinga Dam is the largest in the Seven Forks cascade, located about 2 hours away from Nairobi (150 kilometers), off the Thika-Garissa road.

Other dams in the cascade (Kamburu, Gitaru, Kindaruma and Kiambere) are located within reach and participants have the opportunity to visit and experience their unrivalled beauty.

According to KenGen Managing Director and Chief Executive Albert Mugo, the Great Dams Race marks an important milestone in conserving the environment.

“Our aim is to not only ensure Kenya’s energy security, but to also encourage organizations, the public and local communities to actively participate in environmental conservation for a sustainable future,” said Mugo during the launch ceremony in Masinga. He urged Kenyans to enroll in large numbers for the race as a way of contributing to the protection of the environment for present and future generations. “The race is a healthy, fun way of taking part in environmental conservation while enjoying some of the most attractive sites in Kenya,” said Mugo. Mugo noted that the country has witnessed in the recent past severe and frequent
droughts and sometimes flooding which have caused untold human suffering. “As a company, we are committed to long-term environmentally sustainable development that is consistent with international standards. To achieve this objective, KenGen encourages the promotion of projects and programmes that protect and enhance the environment, hence the decision to organize the Great Dams Race,” he said.

He reiterated that environmental challenges are bigger than any single organization can handle and hence the need for a combined efforts and resources to surmount the challenges. “Through the Great Dams Race we hope to bring together individuals and organizations to raise resources to expand conservation efforts in the Seven Forks area as well as initiate community-based environment friendly income generating activities as an alternative to logging and charcoal burning,” said the Managing Director. To enroll, participants will pay Ksh12,000, while corporate teams of up to ten participants each will pay Ksh120,000. Community members will pay Ksh200. Winners in the 21-kilometer individual male and female category will be awarded a cash prize of Ksh50,000 and a trophy, while second and third runners-up will receive cash prizes worth Ksh25,000 and Ksh15,000 respectively. Corporate teams category winners will receive Ksh120,000 which will be donated to a community project. KenGen Foundation Managing Trustee, Mike Njeru said proceeds from the race will be used in supporting various environmental initiatives including the Green Schools Initiative challenge - a forestation project targeting primary and secondary schools.

Other projects include the establishment of community tree nurseries and family woodlots for conservation as well as income generation; community energy saving awareness campaigns; and bee-keeping projects to encourage a shift from logging and charcoal burning to environmentally friendly sources of livelihood. There are various sponsors and partnership opportunities for this race, with sponsorships packages ranging from Ksh100,000 to 6 Million.

In the footsteps of Wangari Maathai

- Biko Raading

In 2004, Kenya made international headlines when one of her own won the prestigious Nobel Peace Prize. The prize went to globally acclaimed environmentalist Prof. Wangari Maathai. The late Maathai was also the first Kenyan woman to earn a PhD in East Africa. She was also the first African woman to win a Nobel Peace Prize in the seldom recognized field of environment. Prof. Maathai was recognized for her work as a founder of the Green Belt Movement, a non-governmental organization that empowers women to take up ownership of their environment by planting trees to combat deforestation while providing fuel, wood and food. This journey it seems, started over two decades ago by Prof. Maathai seems to be gaining momentum. Yet another Kenyan Environmentalist Prof. Karanja Njoroge of the Centre of Environmental Action, CEA, is pushing environmental conservation. “We must learn to appreciate nature because our lives totally depend on it and it. It is not a government’s role to conserve the environment, the government only plays the legislation role. It is you and I who must conserve the environment “Says Prof. Karanja. According to the Kenya National Bureau of Statics report of 2010, majority of Kenyans are aged between 15-35 and these are the people whose lives are being destroyed by environmental degradation. “It is time we start viewing the environment in terms of the social value and not monetary value, the moment we do that then we will be able to reduce the pollution on our ecosystem” Urged Prof. Karanja.

The don whose organization advocates for the need of the conservation of the both Ngong and Karura forest says that the two forests plays a key role in reducing the carbon emitted within the capital city. “Without these two forests the people of Nairobi would be wearing masks like the case in Beijing where in certain weather seasons, residents need to put on mask because the level of Co2 is too high and breathing becomes a problem.” Prof. Karanja
Empower graduates on environment conservation.

Their donors. "Says Prof. Karanja. He added that because they want to continue benefiting from offer only lip services to matter of environment and environment changes. Most of the people in terms of sensitizing our people on both climatic same question; “We must ensure value addition is what Prof. Karanja had to say in response to the sensitize farmers in East Africa tend to ignore. This affects the prosecution of criminals in court rooms.” Says Prof. Karanja. According to him, Legislations should treat environmental cases as economical crimes as a way of ensuring that our beautiful nature that earns this country billions of dollars through tourism is protected. "Kenya is one of the few countries in Africa with beautiful sceneries that attracts tourist and when we do not preserve it, it is our economy that is being ruined” Noted Prof. Karanja.

Currently the Center for Environmental Action runs a weekly program where they allow different schools within the Nairobi county to visit the Karura forest where they are taught on the need for environment conservation. "Having school children coming into the forest and learning to appreciate nature gives them a good sense of ownership hence this creates a culture of environmental ownership among them “added Prof. Karanja.

Gold and copper were the first metals to be discovered by man, around 5000BC, and together with silver these three elements are found in a metallic.

Twenty-Four-Karat Gold is not pure gold since there is a small amount of copper in it. Absolutely pure gold is so soft that it can be molded with the hands.

All elements have an atomic number which represents the number of protons in the nucleus of an atom and determines the chemical properties of an element and its place in the periodic table.; gold is 79, and copper is 29. The lowest number is hydrogen at number 1 and the highest is Ununoctium at 118.

The selection or development of new crop varieties is an important adaptation response, and entails seeking out or breeding for specific traits depending on the local changes in climatic conditions (e.g. tolerance to heat, water stress, salinity or waterlogging) (Thornton et al. 2012).

The chemical symbol for gold is Au, from the Latin aurum, which means ‘shining dawn’. Aurora was the Roman goddess of dawn which links to the warm, yellow color of gold. The word gold comes from the Old English word “gelo,” meaning yellow.

Gold will not oxidize, rust, tarnish, corrode, decay, or deteriorate. The purity of gold is measured in Carats or Karats. A Carat was originally a unit of weight based on the carob bean, used by ancient merchants in the Middle East.

Copper does not corrode, rust or damage easily.

Archaeologists have unearthed copper drainpipes from as far back as 3,500 BC, that are still in good condition.

One of the famous Dead Sea Scrolls, found in a cave in Israel, is made of copper. This unique scroll does not contain religious writings, but rather the clues to an undiscovered treasure of gold and silver.

Metals are measured and sold in metric tons, or pounds. One metric ton is equal to one thousand kilograms or or 2,204 pounds.
EAC unites to curb illegal logging

-By Henry Owino

The first ever United Nations Environment Assembly (UNEA) of the United Nations Environment Programme (UNEP) held recently in Nairobi, Kenya saw the launch of East Africa Initiative on Illegal Timber Trade to end the illegal business in the region. Kenya, Tanzania and Uganda along with Interpol and UN agencies agreed to work together to curb the illegal timber and its products trade that is stripping East Africa - one of its most valuable natural resources.

Tanzania was represented by Lazaro Nyalandu, Minister of Natural Resources and Tourism; Uganda Ephraim Kamuntu, Minister of Water and Environment, and David Mbugua, Director of Kenya Forest Service (KFS) among other government officials.

The newly launched East Africa Initiative on Illegal Timber Trade and Reduce Emissions from Deforestation and forest Degradation (REDD+) represents an innovative cross-border, multi-sectoral effort that will create a powerful deterrent to Africa’s illegal timber trade. Illegal logging degrades forests, causes economic loss, destroys biodiversity and livelihoods, promotes corruption, and funds armed conflicts. The economic costs of illegal logging are staggering. An estimated US$ 30-100 billion is lost to the global economy through illegal logging every year, making the trade highly damaging to national and regional economies.

David Mbugua, Director of KFS said the country loses approximately 10 million trees per year due to logging by charcoal burners and wood constructors. He said the lose is four times the amount earned by the illegal loggers which is not acceptable as it interferes with the ecosystem hence accelerates climate change.

Mbugua said there is a huge demand for wood products in Kenya. In fact three-quarters of Kenyans, 40 million people rely on charcoal and wood for domestic energy. Household demand has since doubled in the last 10 years. The previous government banned logging in Kenya's plantation forests in 1999 in a bid to combat rampant loss of tree cover. However the ban was overturned in the year 2000 in recognition of the fact that it increased illegal extraction and destroyed jobs. He disclosed that deforestation costs Kenya approximately US$70 million largely through reduced water supply for irrigation, agriculture and hydropower generation. Almost half of Kenya’s power comes from hydroelectric dams. So, if the rains fail, the government is forced to resort to electricity rationing and expensive imported diesel generators.

“We have a policy in Kenya that provides guidelines for cutting down any tree either for clearing space for settlement, or removing mature trees for grazing/agriculture and replacement. Permit must be issued by government officers in the Ministry of Environment, and approved by Kenya Forest Service,” Mbugua said. Mbugua said although controlling and monitoring loggers is posing a big challenge; Kenya forest guards are deployed in all public forests in the country to take care.

In addition to facing the challenge of illegal logging, within the borders of Tanzania, Kenya and Uganda are also being used as transit countries for illegally logged timber for other countries such as the Democratic Republic of Congo (DRC). Nyalandu said Tanzania strategy on REDD+ is to partner up with the on-going Kenya governance project and
the Uganda REDD+. This is in readiness to plan for highlight on the importance of strengthening law and policies enforcement about forest governance to address the illegal timber trade as one of the key drivers of deforestation.

The three countries therefore recognized that illegal logging must be mitigated, and forests managed sustainably, in order to reduce emissions forest loss. “As such, a key goal of the initiative is to curb illegal logging and trade in East Africa as a way of addressing deforestation and subsequently reduce emissions from forests,” Nyalandu said.

Well managed forests are a vital economic resource that supports the livelihoods of 1.6 billion people. Ecosystem services from tropical forests alone are estimated to be worth, on average, US $6, 120 per hectare each year.

Africa’s forest cover is estimated at 675 million hectares, or 23 per cent of the continent’s total land area continent. Between 2000 and 2010, 3.4 million hectares were lost annually to illegal logging, equivalent to an area 322 times the size of Paris, or 5.1 million football pitches.

According to Tine Sundtoft, Minister for Climate and Environment of Norway, her country is a strong global supporter of tropical forests. She said Norway will support the noble course started since it was an important collaboration. “I am very enthusiastic to learn that there is great interest from Kenya, Tanzania and Uganda to tackle illegal logging and trade,” Sundtoft said. “We know that these illegal activities constitute an important driver of deforestation and forest degradation in the region,” she added. “Due to illegal logging, countries are deprived of substantial revenues from the forest sector, and the income from this trade often ends up in illegal networks, fueling crime as well as conflict,” Sundtoft noted.

“Norway is committed to support this initiative and we congratulate the three countries, the UN and Interpol, for coming together and announcing their dedication to work together on this important initiative,” she applauded. Generally, the East Africa Initiative on Illegal Timber Trade and REDD+ will provide an opportunity to build on each country’s experience on combating the illegal timber trade, and brings in the specialized expertise of Interpol and each collaborating UN agency.

Sundtoft said the agencies will assist the governments of the three countries to address different facets of the illegal trade in timber; from economic drivers, and corruption, to law enforcement, customs control, and monitoring. Achim Steiner, the UN Under-Secretary General and UNEP Executive Director said safeguarding the world’s forests is not just the most cost-effective way to mitigate climate change. He suggested well managed forests also generate multi-trillion dollar services such as reliable water flow, clean air, sustainable timber products, soil stabilization and nutrient recycling.

“We cannot afford economically or environmentally, to allow the continued wholesale destruction of one of our planet’s most valuable resources,” Steiner cautioned. “That is why UNEP applauds the East Africa Initiative on illegal Timber Trade and REDD+ and the firm commitment of the governments of the three East Africa countries to help ensure the responsible management of one of the most important sources of inclusive and sustainable economic growth available to us,” he emphasized.

Steiner anticipated that given the multi-sectoral negative impact of the illegal trade, the initiative will receive strong implantation support from Interpol, the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the United Nations Office on Drugs and Crime (UNODC). On the other hand, Helen Clark, UNDP Administrator, said the initiative’s strategy is to support countries in addressing the illegal timber trade from source, thus illegal logging to export. She disclosed it will focus on increasing accountability, transparency and developing the technical capacities to deliver effective enforcement and verification. Yury Fedotov, Executive Director, UNODC, said wildlife and forest crime demands a global solution that offers international cooperation founded on joint operations, intelligence sharing and strong and compatible national legislations. “We can do nothing less. This is our shared planet; wildlife and forest crime is our shared responsibility,” Fedotov said. Fedotov cautions that enforcement plays a critical role in the process. The apprehension and prosecution of those involved in the illegal timber trade and in illegal logging reduces the perceived rewards of taking part in these illegal activities.

David Higgings, Head of Interpol’s Environmental Security Unit, said through collaboration and coordination, they are building an unprecedented approach to address illegal logging and trade in East Africa. “We remain committed to developing and maturing networks of cooperation like the one we see here today between UN agencies and Interpol,” said Higgins. Higgings assured the region that the initiative will also include the support of Interpol and with the engagement of police forces, strengthened exchange of intelligence and communication across borders.
**Key facts about extractives in Kenya**

1. **$60 billion worth of oil already discovered in Kenya...**
   At present, oil reserves in Turkana alone are estimated to be worth $60 billion after the discovery of 600 million barrels by the beginning of 2014. That’s a lot of money.

2. **...and there is (a lot) more to be found**
   On current estimates, there are up to 2.9 billion barrels worth of oil in the Turkana and Mandera basins: this means up to $260 billion worth of oil in northern Kenya. This alone would give Kenya the 5th largest oil reserves in Sub-Saharan Africa. Other areas of the country may also have as-yet undiscovered reserves.

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**Fun facts related to Mineral resources**

- Did you know that if you can’t grow it, it has to be mined or recycled?
- The sewer pipes are made of clay or iron.
- The electrical wiring is made of copper or aluminum.
- Sinks and toilets are commonly porcelain made from clay.
- Plumbing fixtures are made of brass (copper and zinc) or stainless steel (nickel and chrome).
- Rain gutters are made of aluminum.
- Paint is manufactured with mineral fillers (clay and limestone) and pigments (from various minerals).
- Mortgages are printed on paper made from wood or cloth fibers, but filled with clay to give a nice smooth printing surface.
- Did you know that many of the clear juices, such as apple juice, and the wines that you may drink are filtered through skeletons? The skeletons of diatoms, microscopic single-celled plants that live in fresh or sea water, are extremely intricate and are made of silica. When large numbers of these skeletons are gathered, cleaned, and packed together to form a filter, their intricate geometry will trap the very small particles that make juices or wines look cloudy.
- In the average 3,000-pound car there are 240 pounds of aluminum, 42 pounds of copper, 22 pounds of zinc, 250 pounds of plastics and 140 pounds of rubber.
- Roads and highways are made from gravel, asphalt, and cement; all produced from minerals.
- Glass is made from silica sand and limestone, both of which have to be mined.
- The mineral barite is used to add weight to oil well drilling mud to keep oil in the drill hole and prevent oil from gushing out of the hole.
- Clays are used in hazardous waste disposal to solidify organic waste and salt solutions, and to create impermeable barriers to encase the waste.
- Clays are used in water treatment to selectively absorb organic contaminants and to remove paint residue from water used in industrial processes.
- Limestone is used in agriculture to stabilize soil and control pH.
- Limestone is used to neutralize sulfur oxide gases from industrial sources.
- Lithium is used in high energy batteries for such things as computers and propulsion of electric cars.
- Silver is used to kill bacteria in water purification systems.
- Sulfur is used as a phosphor in low-energy lighting.

Sources: U.S. Geological Survey, Minerals Information Institute
The extractives sector could grow by 10 times or more. Kenya’s extractives sector is currently valued at $400 million per year, or 1% of Kenya’s annual GDP of $40 billion. But with the expansion of the sector following existing and expected discoveries, the Government of Kenya estimates that the industry could easily increase its contribution to 10% of GDP by 2030.

Few Kenyans will be directly employed in the sector. A common misconception is that an established extractives industry is a significant source of employment. But in reality...
- 206,000 people work directly and indirectly in the sector in Norway (one of the largest oil and gas producing countries in the world)
- 800,000 Kenyans enter the labour market each year
- Base Titanium directly employs 350 people.

But...developing an extractives industry is not a quick process. Getting from discovery to commercial sales takes a long time...
- The first oil well was drilled in Kenya in the 1950s
- Development of wells is likely to start in 2016
- Commercial production is likely to start in 2020
- It took 19 years between discovery of ilmenite (an important component in titanium) first commercial shipment from Kenya. So, for Kenya the benefits from the sector are still some time away.

Most benefits will stem from government and industry spending. As employment won’t be a major consequence of the sector’s development, Kenya will primarily benefit from the extractives sector through government revenue and spending. If the revenue from the extractives sector is spent wisely, it can:
- Prudent and transparent government spending of extractives revenues; putting Kenya firmly on the path to achieving its Vision 2030 goals and avoiding the infamous ‘resource curse’
- Ensuring operational spending of international extractives companies is channelled through Kenyan suppliers. Base Titanium will spend an estimated $900 million on operational costs over the life of their mine in Kwale.