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Greening the Continent

Reflections on Low-Carbon Development Pathways

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Heinrich-Böll-Stiftung

The Heinrich Böll Foundation is a publicly funded institution that is affiliated with but intellectually independent from the German Green party. From our headquarters in Berlin and 30 overseas offices, we promote civic participation in Germany, as well as in more than 60 countries worldwide. Our work in Africa concentrates on promoting civil society, democratic structures, gender democracy and global justice. Together with our partners, we work toward conflict prevention and search for solutions to the challenges of environmental degradation and the depletion of resources. To achieve these goals, we rely on disseminating information, creating a deeper understanding between actors in Africa and Europe, and supporting global dialogue.

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Editorial

The world today faces an unprecedented set of crises in finance, development and the environment. Its impacts are felt globally, and Africa is no exception. Although it is important to acknowledge the recent high levels of economic growth in many parts of the continent, nearly 50% of the population in sub-Saharan Africa live on less than US$1 a day, while, at the same time, important ecosystems on which their livelihoods depend are being degraded. In addition, the International Intergovernmental Panel on Climate Change (IPCC) has projected that Africa will be most affected by climate change, even though the continent has contributed the least to the problem.

As a response to this polycrisis, the United Nations Conference on Sustainable Development in 2012 (commonly known as Rio+20) proposed the "green economy" as an alternative paradigm that promises growth while protecting the earth's ecosystems and, in turn, contributes to poverty alleviation and sustainable development. In order to avoid dangerous climate change, the green economy approach further aims to de-carbonise the global economy through extensive investment in resource efficiency and renewable energy.

Despite these laudable objectives, the green economy concept has drawn heavy criticism from social and environmental justice movements, primarily for its suggestion that nature is to be monetised to help preserve ecosystems. In their view, this approach perpetuates the very system that led the world into economic, social and environmental crisis in the first place.

For this edition of *Perspectives*, the Heinrich Böll Foundation offered Africa-based thinkers and commentators an opportunity to critically reflect on what a "transition towards sustainability" means or should mean for the region. The articles gathered here go beyond ideological debates to also provide some case studies where green-economy principles have been applied. As Professor Mark Swilling states in the opening piece, "whether we call it green economy or any other word, we know that the old ways are not working and this is an opportunity for Africa to shape, rather than be shaped by, the world".

An important step in this direction is for governments to take the lead: to demonstrate political will and start to re-allocate public funds to support the transition. However, as both the contributions from Nigeria point out, governments still too often stick to what's familiar and are reluctant to venture into unknown terrain, such as renewable energy. The old ways of supplying power with fossil fuels seem "safer" and more convenient. The potential of small-scale renewable energy projects to create jobs and improve the wellbeing of society is frequently overlooked, particularly in lower spheres of government.

While Kenya looks to become a pioneer in developing a greener future, local technical capacity to develop, procure, construct and operate renewable-energy projects remains a challenge. Renewable energy will only be able to provide for base loads and for the growing energy demands of the country with the right planning and continued political will.

Encouragingly, the articles show that the transition to low-carbon development in Africa is possible and already beginning, albeit in small and winding ways.

We hope that, with this edition, we help to explore how the sustainability transition can be promoted in Africa, and how it can result in transformative change to the benefit of the continent and its most marginalised groups.

Kulthoum Omari
Programme Manager

Layla Al-Zubaidi
Director

Greening African Economies

Reflections on an Emerging Contested Discourse[1]

Mark Swilling

As in the past, what we in Africa want to do cannot be separated from a world that wants to get its hands on our natural wealth. When the New World needed slaves, they took them from Africa. After the European and North American forests were cut down, it was the African forests that began to be cut. When economic growth in Western economies accelerated after World War II, Africa became the supplier of food and raw materials. Structural adjustments in the 1980s and 1990s opened up African markets and turned African economies into dumping grounds for mountains of debt finance. Today, as the world starts running out of cheap oil and demands rise for rare metals to make the new electronic infrastructures, new oil fields and mines are erupting across the African landscape. New global players in the BRICS (Brazil, Russia, India, China and South Africa) club say to the old colonial powers, "You've had your chance, now it is ours."

> Crisis is really just another word for change. If change does not happen, then it was not a proper crisis in the first place. Everything depends on how we exploit this crisis.

We also know that the world is facing an unprecedented crisis. Unprecedented, because it is not just another global economic crisis – we have seen four other such major economic crises since the start of the industrial era 250 years ago (1793-7; 1848-50; 1893-95 and 1929-33). This particular economic crisis is embedded within a much wider ecological crisis that scientists now agree could threaten life as we know it, provided major decisions to change course are not made.

We also have the crisis of poverty and its associated social effects. However, the underlying causes of poverty are no longer just economic; they are also now ecological (from climate change, to soil degradation, to deforestation).

In short, we have a nested set of crises that is best described as a poly-crisis.

Changes Underway Globally and on the African Continent

However, crisis is really just another word for change. If change does not happen, then it was not a proper crisis in the first place. Everything depends on how we exploit this crisis. Very rapid changes are underway globally and on the African continent – they are, in fact, so rapid, complex and multi-layered that they become blurred – increasingly difficult to really grasp and understand. And, yet we feel their effects every day.

The economic changes are more familiar:

- rise of the BRICS plus economic powers;
- prolonged sovereign debt crises in the developed economies underpinned by debt financed saturated markets;
- rising cost of manufacturing in China creating new opportunities for manufacturing elsewhere in the world, in particular where labour is cheaper and younger;

Mark Swilling is professor of sustainable development in the School of Public Leadership, University of Stellenbosch, academic director of the Sustainability Institute and heads up the TSAMA Hub, a centre for the transdisciplinary study of sustainability and complexity at Stellenbosch University. He co-authored, with Eve Annecke, *Just Transitions: Explorations of Sustainability in an Unfair World* (Tokyo: United Nations University Press, 2012) and is a member of UNEP's International Resource Panel.

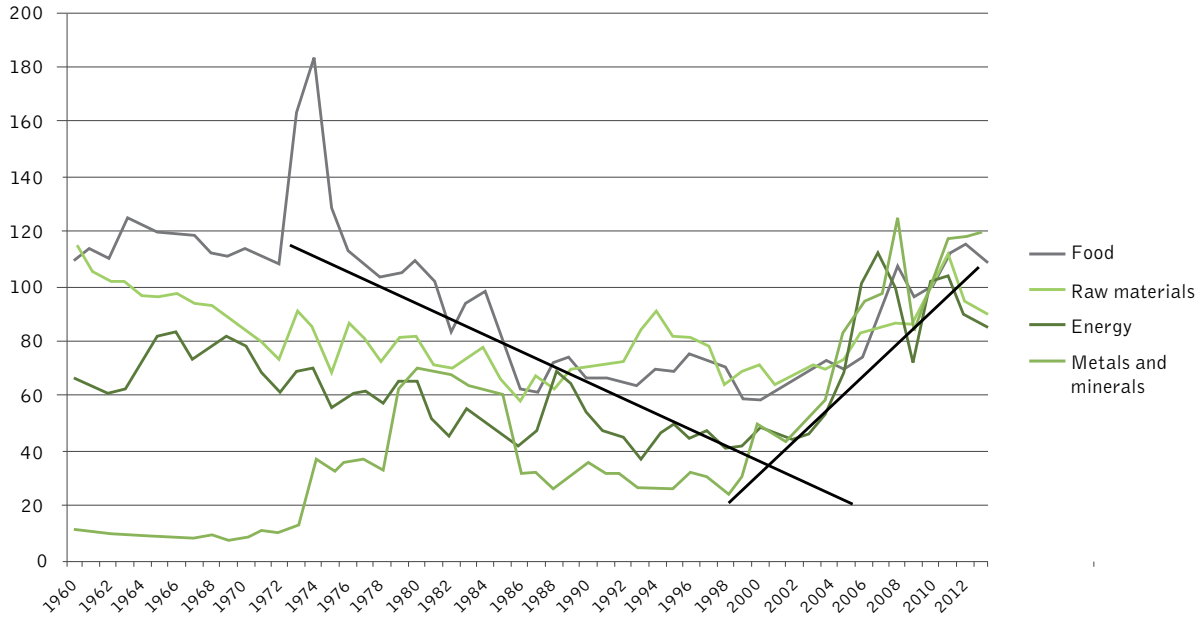
- consolidation of the Information Technology (IT) sector as it readies itself as the driver of the next long-term development cycle;
- persistent instabilities in the global financial markets as finance capital resists the disciplines and controls that should have been introduced long ago, which could have prevented the 2007– 8 financial crash;
- finally, the remarkable economic – albeit inequitable – growth that we now refer to as "Africa Rising" as many African economies join the ranks of the world's fastest growing economies and as the African resources sector drops to 24 percent of continental GDP.

At the same time some of the main ecological crises include the following:

- climate change and the findings of the Intergovernmental Panel on Climate Change (IPCC) that Africa will be affected first and most by climate change even though Africa has contributed least to the problem;
- according to the Millennium Ecosystem Assessment, 60 percent of the global ecosystems that we depend on for human prosperity are degraded with no sign of significant improvements happening in the near future;
- the era of cheap oil is over, and this in a world that still operates as if oil will remain cheap and abundant forever. Oil meets 60 percent of world energy needs, but since 2005 global production has never gone higher than 75 million barrels per day;
- more and more people and areas are facing water scarcities, while at the same time we lose between 30 and 60 percent of the water that we capture and pump through poorly maintained leaking water pipes;
- very slowly, we are starting to recognise that global soils are degrading – roughly 23 percent of the 8.7 billion hectares that we use to sustain ourselves are degraded. This contributes significantly to declining yield growth while at the same time much greater effort is being put into finding more land for agricultural production – a process that, inevitably, reduces forest cover and open pastures;
- finally, and the most important of all, reflecting on the underlying dynamics of resource depletion, the century-long decline in real prices of natural resources ended in 2000 - 2002 – since then resource prices have steadily increased confirming the predictions of those who argue that we will see a long-term supercycle of 25-35 years of rising resource prices.

The Green Economy in a Transforming World

The rise of the green economy discourse since it was first discussed at the G20 meetings in 2009 and at Rio+20 (the United Nations Conference on Sustainable Development in Brazil) in 2012, can be explained as a response to this poly-crisis. It is an implicit recognition that the language of trade-offs between the economy and environment inscribed in the notion of the, "tri-



Since 2000-2002 resource prices have steadily increased. Global commodity price indicies (real 2010 USD). Source: World DataBank.

ple bottom line" is no longer useful. If the one goes, so does the other. The fates of both are now irrevocably coupled. Develop now, clean up later is no longer an option. Instead, the economics of repairing our ecological future may well become the primary driving force of economic recovery and, after that, the next long-term development cycle. Hence the call for a "fundamental technological and structural transformation" in the official definition provided in the 2011 United Nations World Economic and Social Survey includes:

(a) reduction of resource requirements in general and of energy requirements in particular, in both absolute terms and relatively, per unit of output;
(b) substitution of renewable for non-renewable resources, given the total resource use;
(c) substitution of biodegradables for non-biodegradables, at any given level of output or waste;
(d) reduction of waste (including pollution), at any given level of resource use;
(e) protection of biodiversity and ecosystems.

Granted, the green economy means many things to different people, but for the purpose of this analysis, it is understood as a discourse that reflects an underlying reality rather than a fixed and clear ideological position.

However, it is not just a discourse that responds to the poly-crisis. It has been used to refer to a wide range of real changes taking place, as the old ways become unviable because there are more economical alternatives. As the old saying goes, "The Stone Age did not end because we ran out of stones." We have entered an extremely exciting period of revolutionary innovations that are already disrupting the world that was imagined in the 19th century and built in the 20th century.

Over 1 000 cities have programmes to become low carbon and resource efficient; the biggest IT companies in the world market their products as necessary for building smart green cities and green economies; by 2013, 33 countries introduced carbon taxes covering 850 million people and 30 percent of the global economy; since 2012, more than half of all annual net additions to electricity generation capacity are renewables and renewables now supply 22 percent of all electricity globally – South Africa has emerged as the country with the fastest growing renewable energy procurement programme in the world; restorative farming and agro-forestry is the fastest growing sub-sector of the agricultural sector; hybrid cars have expanded faster than most predicted; and bus rapid transit (BRT) systems that originated in Latin America are spreading rapidly, including in a number of African cities. Call all this "green economy" or any other word, but no matter what you call it, these are significant changes responding to the fact that the old ways are no longer working.

As resource prices rise, all sorts of new ways of doing things become possible. Those with the capacity for innovation will take the gap, stimulating new value chains, investments and jobs.

Value, now, is no longer only about how much capital you have or how productive is your labour. Value in a rapidly transforming world is now determined by ingenuity – that powerful catalyst of change that is not just the product of a few brilliant minds as in the past. Now, ingenuity is the emergent outcome of the collective mind embedded in the highly complex computer-mediated networks created by the internet. Millions of the best minds around now no longer only ponder what goes on in the private lair of their own skulls; they react to and stimulate the thousands of signals that flash across their screens every day and in so doing contribute to solutions way beyond what they can individually imagine. This relational mode is well suited to African realities.

The winning nations of tomorrow will be those that supported, nurtured and celebrated the ingenuity of their networked innovators who coalesce across institutional boundaries in the physical and virtual hubs of the 21st century's great green transformation.

It is in this light that I reflect on Agenda 2063, a vision and action plan for Africa advocated by the African Union (AU). After all, it would indeed be a tragedy if we tried to realise our 21st century dreams using 20th century technologies that many others are trying to dismantle. I strongly believe that possibly for the first time ever, Africa has a chance to *shape* rather than *be shaped* by the world of which it is a part. This will not happen, however, if we get stuck in ideological debates in pursuit of the fantasies of perfection.

I strongly believe we have the capability to take advantage of the transformative dynamics I have referred to - dynamics that the static notion of the "green economy" simply fails to capture. What is underway is the next industrial revolution - the start of the next long-term development cycle, and the driving force will be about finding ways to work with rather than against natural cycles of regeneration and restoration. However, there is no guarantee this will be a just transition - this will depend on the balance of forces, and, in particular, how well organised the poor and their allies become. In the case of Africa, a key factor will be the role of democratic governments – if they start to realise that they have more to lose by acceding to the demands from global mining corporations and resource-hungry BRIC nations and more to gain by investing in knowledge infrastructures, social development programmes and redistributive entrepreneurial initiatives, then one could foresee a more just transition that could potentially leapfrog some of the more socially and ecologically destructive dimensions of industrialisation.

Will Africa recognise this historical moment and take the lead? Or, will we miss this moment like we missed the post-World War II long-term development cycle (or at least the second half from the 1980s onwards)? There were some who said that Nikola Tesla was mad when he predicted in the late 1880s that the long-distance transmission of electricity would transform the world as it was then. How wrong they were. There were some who said in the late 1970s that the prophets of the IT revolution were mad. How wrong they were. How wrong we might be if we in Africa say now that the greening of the next long-term development cycle is just a passing fad and not a material reality.

As we deliberate the pathways to 2063, we need to remember that there have been two great technological transformations during the course of the industrial era – both came about because new communications technologies conjoined with new energy technologies:

- the first was when the steam engine conjoined with the printing press in the 1800s – the result was for the first time ever it was possible to mass produce written material, without which newspapers and the mass education of the industrial workforce and professional classes would have been impossible;
- the second was when the combustion engine conjoined with long-distance electrical communications and electricity transmission – without this, 20th century industrialisation and urbanisation would have been impossible;
- the third is the conjoining of the internet as our primary means of communication with decentralised renewable energy systems - this so-called great green transformation will undoubtedly have as great an impact as the previous two great technological transformations.

African governments run the risk of denying the reality of the third great technological transformation at great cost. However, the proposal by the International Renewable Energy Agency for a Clean Energy Corridor stretching from the desert regions of the South West, across the hydro resources of the Great Lakes region, up through the geo-thermal resources of the Rift Valley in the North East holds great promise for Africa. The continent has the installed energy capacity of France with a population of over 1 billion people and relatively high average growth rates. If it decides to power this growth with business-as-usual technologies, global climate targets will be breached. Africans and the world have an interest in making sure that Africa is energised by renewable rather than fossil-fuel based energy infrastructures.

Key Economic Realities

Given our development challenges, what are the key economic realities that need to be addressed to unlock the diverse potentials of African ingenuity to achieve more sustainable futures? I would like to recommend three:

- recognise the benefits of urbanisation – learn to love our cities;
- recognise the crisis of our soils and learn from those who still know how to care for rather than destroy our soils;
- break, once and for all, the resource curse that will get worse in a world of rising prices.

What is underway is the next industrial revolution – the start of the next long-term development cycle, and the driving force will be about finding ways to work with rather than against natural cycles of regeneration and restoration.

Learning to Love Our Cities

There are currently just over 400 million Africans living in African cities – more than the number of people living in cities in North and South America and Europe. This is projected to increase by 800 million to 1.2 billion by 2050. Compared to other regions, there is a higher percentage of the urban population living in slums in African cities (62 percent compared to 35 percent for South Asia and 23 percent for Latin America). And yet, cities and towns are where education levels are rising, the middle class expanding, most investment is taking place, social movements emerging reflecting new oppositional identities, innovation centres are clustered and where an increasing percentage of the economy is concentrated. Everything will depend on what kinds of urban infrastructures get built within these cities. Urban infrastructures conduct the flow of resources through cities.

Traditionally, African cities have adopted technologies developed in the

The outskirts of Kinshasa.
© FredR

West at a time when resource depletion was unheard. If these technologies continue to be used, African cities will be set up to fail. For example, African cities should limit provision of roads for use by private cars and maximise public transport. Like in New York and Stockholm, African cities should produce biogas from sewage treatment plants. This kind of approach will create more liveable and sustainable environments, including more appropriate spaces for the expansion of economic activities. However, none of this will happen if African governments do not formulate integrated urban development policies and then empower municipal governments to actively govern their cities. African governments will need to realise that their industrialisation strategies will only work if cities are spatially reconfigured to become more functional, integrated and culturally inclusive.

Farming by Restoring the Soils

According to research by the International Food Policy Research in Washington DC, United States of America, Africa has 187 million hectares of agricultural land, 793 million hectares of pasture and 683 million hectares of forest. Of the agricultural land, 65 percent is degraded - a rate second only to Central America (which is at 74 percent). Of the total of 1.6 billion hectares of

usable land in Africa, 494 million hectares is degraded (30 percent). This explains why yield growth for key staples has been declining since the 1970s, in some cases there has been negative growth. It will be impossible to reverse the low level of agricultural output per capita in Africa without restoring the soils. Unfortunately, this will not be achieved by adding more fertiliser or using genetically modified crops – both these solutions are heavily funded by international donors, with poor results. Where African farmers have learnt to work with rather than against nature using various agro-ecological farming methods, the results are far more encouraging.

We, Africans, have a unique opportunity to shape our own future. We can choose to wait and see how things pan out and then respond or we can anticipate a future and position ourselves accordingly

Breaking the Resource Curse

Finally, Africa needs to break the resource curse. The resource curse is when the flow of resource rents from raw material exports is so good that it creates a disincentive to diversify. The United Nations Conference on Trade and Development (UNCTAD) 2012 Report captured recent research on the material footprint of nations that makes it possible to gain a deeper insight into the resource curse.

It is now possible to calculate the total quantity of materials (in tons) consumed by every nation – this includes fossil fuels, minerals and metals, biomass and construction materials. This equals to the total amount extracted minus what is exported, plus the total amount imported plus the resources needed to generate the exports/imports.

A closer look at Africa shows that an increasing number of countries on the continent that used to be net exporters are now net importers. According to the UNCTAD Report, the total quantity of extracted materials has increased by 87 percent between 1980 and 2008. During the same period, exports of non-renewables – mainly fossil fuels and metals – have increased, and imports of refined fuels and food have also increased. The net result is that Africa is a net exporter of non-renewables and a net important of biomass (a renewable resource).

This is not a recipe for long-term sustainable development. This is why the UNCTAD Report calls for a managed process of "sustainable structural transformation". It warns strongly that current levels of economic growth are too dependent on raw material extraction and exports.

Africa will need to do three things to break the resource curse:

- secure higher prices for its raw materials by improving the governance of natural resources - what some African leaders have referred to as "resource nationalism";
- ring-fence resource rents in Sovereign Wealth Funds so that investments can be strategically focused on infrastructure, human capital development and innovation;
- reverse the long-term decline in manufacturing so that African resources can be used to benefit African development.

Conclusion

We, Africans, have a unique opportunity to shape our own future. We can choose to wait and see how things pan out and then respond or we can anticipate a future and position ourselves accordingly. I have tried to make out what I hope has been a strong case for the second option. A key factor will be whether or not a new set of political coalitions can emerge to either take over governments through the democratic process and/or influence policy in ways that will give substance to the emerging "resource nationalism" discourse. Resource nationalism could become a rallying cry for these new political coalitions, especially if it emerges as a slogan that expresses policies that are explicitly aimed at a just transition that results in highly diversified economies that are more socially equitable, ecologically sustainable, less financialised and less dependent on raw materials exports.

1 An edited version of a talk by Mark Swilling to the side event – "Greening Africa's economies and structural transformation" – at the joint African Union/ United Nations Economic Commission for Africa Conference of Ministers of Finance and Economics, Abuja, Nigeria, 28 March 2014

A Green Economy based on a Greed Agenda does not Guarantee a Just Transition for Africa

Blessing Karumbidza

The idea of a "green economy" or "greening the economy" stems from the realisation that following the current energy and environment squandering growth path, which the world economy is following, threatens the future of humanity. The term "green economy" is used to refer to an economic system that through extensive investments in, among other things, resource efficiency and renewable energy results in improved human well-being and a significantly reduced risk of dangerous climate change and resource scarcity. While decarbonising the global economy is a laudable effort, concerns that this "new" paradigm continues to place the pursuit of profit above environmental concerns and the social and cultural interests of marginalised communities persist.

This article argues two issues: first, the green economy located in the neo-liberal agenda under corporate capture will not lead to a just transition and second, Africa should come up with its own solutions as the conceptualisation process of climate policy responses is dominated by the West which reproduces underdevelopment. The article gives particular attention to green economy programmes such as the Clean Development Mechanism (CDM), the Reducing Emissions from Deforestation and Forest Degradation (REDD) initiative and bio-fuel production whose design and attachment to market mechanisms expose communities to food insecurity and land grabbing, among other impacts.

The Green Economy

Globally, the United Nations Framework Convention for Climate Change (UNFCCC) is responsible for guiding the efforts against adverse climate developments. However, besides the UNFCCC Council of Parties (COP) meeting annually, and many other global conferences on the environment and development such as the Rio de Janeiro Summit (Brazil) in 1992 and the Johannesburg Summit (South Africa) in 2002, the environmental crisis has continued to worsen. What all these conventions have in common is that they have tried to address climate change without confronting the capitalist system which is responsible for gobbling up the environment for profit. Capitalism, the development model that dominates global economic thinking and practice, has resulted in a grave loss of biodiversity, melting of polar ice caps and mountain glaciers, an alarming increase in deforestation and desertification and the looming danger of at least a 4ºC increase in temperature, which is threatening life as we know it.

The green economy as proposed by the United Nations Environment Program (UNEP) during the 2012 United Nations Conference on Sustainable Development (Rio + 20) falls into the same trap. Arguing that the recurring energy, climate, environmental, food and financial crises are results of a gross misallocation of capital, the programme, on the one side, seeks to increase investment in low carbon technology, green buildings and renewable energy and on the other advocates for viewing nature as a capital stock and subjecting it to market forces.

The UNEP green economy package

Blessing Karumbidza is an environmental and socio-economic justice activist whose work and engagement has a pan-African orientation. He is a post-doctoral fellow in the public management and economics department of the Durban University of Technology. Rural food security, gender and rural development planning, and climate change mainstreaming are among his current interests.

considers it to be essential (and normal) to put a price on the free services that plants, animals and ecosystems provide for the conservation of biodiversity, water purification, pollination of plants, the protection of coral reefs and regulation of the climate. It suggests that for the green economy to work, it is necessary to identify the specific functions of ecosystems and biodiversity and assign them monetary values, evaluate their current status, set a limit after which they will cease to provide services, and put a price on the cost of their conservation in order to develop a market for each particular environmental service.

As discussed below, however, market based approaches to greening the economy may protect nature but also lead to the hyper-exploitation of the earth's resources often with negative social impacts.

CDM, REDD and Biofuels as Examples of the Green Economy

The green economy is located within the contradictions of the global capitalist economy and evidence from some of its projects such as CDM, REDD and biofuels already show theses fissures.

The CDM

The Kyoto Protocol of 1997, an international treaty that set binding obligations on industrialised countries to reduce emissions of greenhouse gases, made investments in "clean" or low-carbon development in developing countries possible under the CDM. The CDM was to play a double role by helping developing countries achieve sustainable development while assisting industrialised countries to comply with meeting their emission reduction targets.

The main criticisms against the CDM is that it allows industrialised countries to meet part of their emission reduction commitments under the Protocol by buying Certified Emission Reduction units from emission reduction projects in developing countries without necessarily reducing activities that cause emissions in those countries. For instance, a country or corporate entity that can acquire high volumes of carbon credits in the developing world, where it is cheap to do so, due to low prices on land, commodity and labour would be considered green, even if it has not reduced carbon emission in its operations. Also, the mechanism pins emission reduction to the performance of the carbon market. As noted by the World Bank, the carbon market has already shown its volatility, growing in total value by 11% in 2011, to $176 billion, with transaction volumes reaching a new high of 10.3 billion tons of carbon dioxide equivalent (CO2e) but dropping to its lowest level, since 2004, by 2012. The collapse of the carbon market is linked to a declining demand for offsets due to economic turbulence, a growing long-term oversupply of carbon offsets in the European Union Emissions Trading Scheme and plummeting prices.

REDD

The REDD programme was developed from a 2005 proposal by the Coalition for Rainforest Nations lead by Papua New Guinea, which was discussed at COP 13 in Bali and became part of the Cancun Agreements at COP16 in 2010. Paragraph 70 of the Can-

The carbon spot price (Euros per tonne) has fallen substantially since the inception of the European Union Emissions Trading System, with a large surplus of allowances, in part because of the impact of the recent economic crisis on demand. Source: Thomson Reuters

cun Agreement "encourages developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities, as deemed appropriate by each Party and in accordance with their respective capabilities and national circumstances: (a) reducing emissions from deforestation, (b) reducing emissions from forest degradation, (c) conservation of forest carbon stocks, (d) sustainable management of forest, and (e) enhancement of forest carbon stocks."

In other words, governments, companies or forest owners in the South should be rewarded for keeping their forests instead of cutting them down, while on the other hand, those in the global North can buy carbon credits from such initiatives to offset their emissions.

For several reasons, trading the carbon stored in forests may well not lead towards a green(er) economy. Firstly, carbon trading does not reduce emissions – for every carbon credit sold, there is a buyer. As such, the developed countries with higher emission reduction targets can side-step the duty to reduce and prefer to buy carbon credits instead. Secondly, REDD-related payments are in the end not for keeping forests, but for reducing emissions from deforestation and forest degradation which makes it possible for logging a forested area but compensating for the emissions by planting industrial tree plantations somewhere else. Apart from the superficial similarity of having trees as their dominant feature, forests and plantations are not the same thing. Even when it comes to the ability to store carbon, unlike healthy forests that permanently sequester CO2 as they mature, tree plantations can only temporarily remove CO2 from the atmosphere before being cut down and consumed, and can even cause increased release of carbon from the soil and natural vegetation.

In addition, the management of forest and forest land, forest access and rights are contested in local communities due to contradictions about community beneficiation. Forest carbon credits are complicated by the difficulties in measuring the amount of carbon stored in forests. Participating communities have no way of ensuring what they earn from carbon projects is fair value. Most African land tenure systems do not protect local communities from land grabs and speculators. The recent rush for Africa's land through bio-fuel and climate-change related projects have led to a situation where tree plantations take precedence over agriculture, with negative implications for national and local food sovereignty. For example, research by the NGO Timberwatch in Tanzania has indicated that the transfer of land management to the local level has opened the floodgates of foreign corporate entities swindling land from unsophisticated rural governance structures in the name of development. Further to the land tenure concerns, the Tanzanian example shows that the positive impacts ascribed to REDD by its proponents are hard to establish in reality. The study used two outcome measures (adjusted household forest income and the share of adjusted household income from forest products) to evaluate the effect of the forest-sector reform on rural livelihoods coming to the conclusion that communities where carbon projects were implemented did not have an improved income/ livelihood.

Biofuels

Another main pillar of the green economy concept is the issue of the so-called just transition to renewable sources of energy. Biofuels are mostly made from food crops such as maize, sorghum, cassava, soya bean, beet, oil palm and sugar cane as a substitute for more harmful fossil fuels in the form of "biodiesel" and "bio-ethanol". Other non-food crops such as jatropha have been introduced to address criticism against food crop diversion to agrofuel production, seen as having a negative impact on food security. Jatropha is also suggested as contributing to land saving, as it would grow on "marginal" land and did not require much water. In reality, to be economically productive, jatropha trees must be grown under normal agricultural conditions, with a good natural water supply or under irrigation, as well as with fertilisation and chemical pest control measures. It makes absolutely no difference which crops are used to produce agrofuels; what does matter is the type of land that is taken for the purpose of growing agrofuel crops, and how converting that land to growing agrofuel crops will affect biodiversity, soil and water resources, and therefore the food sovereignty and security of local communities. Africa already hosts many capitalist enviro-prenuer projects that have invoked fears of land grabbing, green grabbing, community displacements and the destruction of biodiversity-rich habitats, with negative impacts on food sovereignty and security of supply.

The best examples of such land grabs include Ethiopia where the government earmarked nine million acres for lease to investors using the persistent famine in the country as justification. Of this land, millions of acres have already been "allocated", with Saudi Arabian companies paying USD 50 Cents per acre. Saudi Arabia is not only involved in Ethiopia, but also in Tanzania, Mali, Senegal and Sudan. China leases more than nine million acres in Congo-Kinshasa, Qatar has access to at least 250,000 acres in Kenya, while Indian companies control over 800,000 acres in Sudan. Companies from Sweden and Norway have accessed land to cultivate jatropha for bio-diesel and timber for carbon credits in many countries in East, Central and Southern Africa. In Madagascar, such large-scale land transfer led to the mass movement that overthrew the president, who gave half of the island's arable land to the South Korean company, Daewoo, for 99 years. These land deals operate on a top down system that lacks local community involvement and are not part of any home grown development plans, focused on local African production and consumption.

Concluding Thoughts

The green economy approach, like other externally designed development strategies, is not value, ideologically and interest free. By their character, policies involve the authoritative allocation of values making them the operational statements of values and statements of prescriptive intent. This means that policies represent the values and aspirations of specific economic interests. The new global green economy is firmly located within capitalist networks, pushing for ecological modernisation projects as a solution to the climate change crisis as well as promising to attend to the multiple crises around fuel, food and ecology. By designing responses such as CDM and REDD, corporate agents and consultants created a new scope for speculative investments whose main current impact is green and land grabbing, while providing an opportunity for green washing. The underlying commercial and market intent of the green economy project within neoliberalism leaves global environmental and economic crises interlocking and feeding off each other in the playing out of "disaster capitalism". The green economy has no mechanism for redistribution of wealth and does not challenge the capitalist system that led to the current crisis in the first place. A just transition will only happen in the context of a dramatically different pattern of production and consumption – one based on a green(er) economy that rejects the use of market mechanisms for sustainable development and environmental justice.

Further, the articulation of the green economy reflects a continued dominance of Western ways of seeing and rationalising the world and the sidelining of local knowledge in determining development processes. The processes used to arrive at the current climate change policy regime are far from being consultative, especially when one considers the level of participation of poor people at the community level. Local involvement in shaping the current articulation and implementation of the green economy concept and associated programmes and projects is missing. A perusal of the climate change discourse through the UNFCCC process and the debates within its working groups shows that Western ways of seeing, knowing and resolving challenges dominates the climate change crusade and the analysis from which policy and responses are generated. Resolving African challenges requires that policy and programmes are built on indigenous thinking. Mitigation and adaptation strategies consistent with African community knowledge should be promoted to ensure meaningful and sustainable development and climate resilience. It is important that Africa invests in intellectual, academic and policy articulations that would pave a way towards a decolonial turn and help Africa to "unthink" some of the ideas that we have imbibed from the Euro-American establishment. Instead of blindly adopting programmes and projects developed elsewhere to facilitate challenges faced by others in contexts dissimilar to our own, we must reanalyse for our benefit.

The green economy should be based on home grown interventions negotiated with communities and built on the centuries of indigenous knowledge on human-nature interaction, as a national duty rather than an economic pursuit. Indigenous knowledge on the environment and sustainability must be brought into the mainstream.

Green Deal Nigeria? Stumbling Along the Road from Fossil Fuels to Clean Energy

Interview

Ewah Eleri and Yahaya Ahmed

Despite the abundance of fossil and renewable energy resources, Nigerians still experience acute energy poverty: they either lack access to modern energy sources or have to cope with inadequate and poor quality supply. In a population of 170 million, close to 95 million people rely fully on traditional woodstoves for cooking, and a large number of urban households rely on generators for their electricity needs. Only 40 percent of Nigerians have access to the electricity grid. The lack of access directly affects livelihoods by lowering the quality of life and hurting the economy. The energy sector is also the single largest source of greenhouse gas emissions, especially from gas flaring in the Niger Delta region.

The potential to leapfrog into a greener economic future seems tangible in Nigeria. If the country covered only a small percentage of its landmass with solar panels, it could produce 192 000 MW of power, compared to the 4 000 MW that are currently available on the national grid. Recognising the excellent conditions for electricity production from renewable energy sources, national and international investors are already knocking on the doors of government.

Some parts of Nigeria's government seem to have woken up to the country's untapped energy potentials. Following the discovery of huge natural gas reserves, the federal government declared a gas-to-power revolution, and state governments show a growing interest in large-scale solar energy plants.

Against this background, the Heinrich Böll Stiftung (HBS) decided to interview two experts, both of whom are closely involved with Nigeria's energy transition and can offer perspectives from very different levels of engagement. **Mr Ewah Eleri**, executive director of the International Centre for Energy, Environment and Development, is the lead expert on climate change for the Nigeria Infrastructure Advisory Facility, a technical assistance project funded by UK Aid to improve the effectiveness of infrastructure-development planning, finance and implementation. **Mr Yahaya Ahmed** is the director of the Development Association for Renewable Energy (DARE), a social marketing NGO based in Kaduna in northern Nigeria. DARE is the inventor and distributor of the *Save80* cook stove, which reduces firewood consumption by up to 80 percent.

Ewah Eleri has worked on energy and environment reform issues in twelve African countries. He has specialised in the practical issues associated with expansion of energy access, energy and climate change linkages and public-private-partnerships. Over the past 20 years, Ewah has been a consultant to the World Bank, the UN Development Programme, the governments of Canada, Norway, United States, United Kingdom and Nigeria. He is the lead author of the Renewable Energy Master Plan for Nigeria, the federal government's 20-year renewable-energy investment framework. Ewah is the executive director of the International Research Center for Energy and Economic Development and coordinates the Nigerian Alliance for Clean Cookstoves.

Part 1

HBS: Is Nigeria finally going green?

Eleri: There is a dynamic at play here, which is not necessarily led or planned by government. There is an energy transition that has begun to happen. Yes, our economy and the income to the states is still much dependent on oil. But you see that gas is becoming more important than oil to Nigeria, as today we have more gas deposits than we have oil deposits.

The Save80 cook stove.

The rise in the gas sector is driven by at least two forces. Number one is the growing appetite of the domestic power sector, with many new power plants being built that are using gas. There are about 12 such plants, fully completed but sitting idle, waiting for gas. The second driver is the growth of the global liquid natural gas (LNG) market, and Nigeria has become a major exporter of LNG. I am saying this to highlight that the transition has already started: from a very dirty fuel – which is oil – to gas, which is about 60 percent cleaner than oil. I believe that gas is going to build the bridge for a cleaner future for Nigeria.

The recent re-basing of our GDP by Nigeria's Central Bank has shown that the structure of our economy radically changed: in fact, the income from the export of oil has declined considerably as a proportion of the overall GDP. Before, one third of our GDP used to come from the export of oil. Today it is less than 10 percent. We still export oil worth about USD 40 billion annually, but our GDP is about USD 510 billion. The growth and diversification of our economy is making the greening process an imperative, at least for the energy sector, as

we need a variety of sources to generate the power we need to grow further.

So this greening process is happening by expediency, rather than being a conscious decision within government to support green development options?

Yes, I don't think that there is any major driver in government. I think it's the dynamics of the economy. This transition is forcing itself through. It is not driven by environmental concerns, or even by the desire for a more inclusive energy economy. It's driven more by the needs of a growing population, the growing middle class who are demanding more energy, and this energy cannot be provided by traditional sources fast enough and in a cost effective manner. Even though Nigeria has large deposits of coal, there are no coal mining industries in place. Setting up a new coal value chain would result in high energy costs. Meanwhile, the high prices of crude oil in the international market will ensure that this product will exclusively be for the international market. Energy from gas and hydropower will therefore, by default, continue to power Nigeria's growth far into the future.

But then again, Nigeria is not going to build gas plants or large hydro plants, like the Mambilla or Zungeru dams, fast enough to catch up with the demand in the market. Investing in solar energy resources will increasingly become an imperative for a number of states that are without significant deposits of fossil and hydro resources. Many of these states have excellent solar radiation. In fact, I am aware of so many applications for large-scale solar, although very few have reached the stage of financial closure. But in a couple of years or so, solar and gas will reach parity in price. Unfortunately, government does not give preference to renewable energies. Although I think government does want that transition to happen, it is not a central plank of the government's reform agenda. The focus of the government is to provide energy to fuel growth with job creation and poverty reduction, irrespective of the source of energy – clean or dirty. That our future energy trajectory seems to be along a cleaner path is not necessarily by choice.

This transition is forcing itself through. It is not driven by environmental concerns, or even by the desire for a more inclusive energy economy. It's driven more by the needs of a growing population, the growing middle class who are demanding more energy, and this energy cannot be provided by traditional sources fast enough and in a cost effective manner.

Instead, government is investing in coal, as for example with a 400MW coal power plant in northern Nigeria as part of the German-Nigerian energy partnership.

That's correct, but I think coal will die a natural death in Nigeria. Not because government does not want coal; to the contrary: there are plans for coal generation plants in some parts of Enugu, Benue and Kogi states. But because investors will look at the advantages of extending gas from the Niger Delta to where they want to build their power plants, and compare that with setting up a coal extraction and processing facility and connecting these to a coal power plant. Coal is not only more polluting, it is also more expensive in the end. It is the same thing as government's idea of building nuclear power plants. There is no need to fight it because it will die its own natural death. It will fail on its own merits.

As a member of the team that advises the Nigerian government on infrastructure investments, do you see any climate-proofing going on in other areas, beyond energy?

I'm very optimistic about future environmental scenarios for our country, both in the energy area but also in transport. Building better roads and a larger rail transportation network is a central policy of government. Better roads reduce emissions significantly; rail transportation is even cleaner than better roads. Today, Nigerian roads are in much better shape than they have been for a long time. What we don't have is the kind of institutional arrangement that keeps the roads in excellent condition.

The disappointing part of government policy is really the almost non-existing investment in additional and modern rail infrastructure. We have a big market in Nigeria, as we have a large population. Rail transportation can cater for all segments of society, both the middle class and poor people. Rail can provide transportation for haulage of agricultural and other products. But what we have is a rehabilitation plan by government with involvement by the Chinese. It is not a transformative plan that would provide modern and cleaner rail services to Nigeria in the near future. What we are doing is rehabilitating old tracks. This – even in the best of circumstances – will not provide for significant haulage of goods and transport for people. I don't see anybody in government driving a green transition in this sector. Even though, in the future, the demand for transportation will force us to do so.

At least 75 percent of rural dwellers are using biomass – that is, mostly firewood and charcoal and other agricultural waste – to satisfy their domestic energy needs.

Who are the investors in the transition towards a low carbon future, and does the international carbon market play a role here?

I think Kyoto and the whole carbon market is a total distraction. Compared to the size and scale of investment that we need in the power sector, whatever you can get from the carbon market are mere crumbs. Here in Nigeria, we need to be investing on the order of USD 10 billion annually, into power alone, over the next ten years. You cannot finance that size of investment from the carbon market. The industrialised countries that are supposed put money into these schemes have enormous challenges – some of them need help with their own economies. This makes these schemes moribund and turns them into a side attraction.

Part 2

HBS: What is the energy situation of ordinary Nigerians currently like? And how is your organisation trying to address this?

Ahmed: At the grassroots, Nigeria is very much suffering from energy poverty. At least 75 percent of rural dwellers are using biomass – that is, mostly firewood and charcoal and other agricultural waste – to satisfy their domestic energy needs. At DARE, our motivation for the *Save80* was to rescue what remains of our forests in Nigeria, but the stoves mitigate other hardships as well, such as the increasing price of fuel

Yahaya Ahmed is the managing director/CEO of the Developmental Association of Renewable Energy (DARE) in Kaduna, Nigeria. A climate change expert, Ahmed has worked with several environmental organisations in Germany to plan and implement projects in West Africa. After studying in Europe, he came back to his home country to establish DARE in 2007. He is currently fully engaged in awareness, sensitisation and enlightenment campaigns for a green economy and mitigation of the consequences of climate change in Nigeria.

wood and the indoor air pollution that affects women and children during cooking.

What has kept us going over the past seven years is the UN support through the CDM [Clean Development Mechanism] scheme: they subsidise 50 percent of the cost of the *Save80*. But if our government could come in with another 30 percent subsidy, then we could sell the stove at 5 000 Nigerian Nairas (about USD 30), and this would make the stoves affordable to most people – including the real bottom of the pyramid, the rural dwellers – and it would allow us to speed up the dissemination of the stoves. Currently, we have to also function as a microfinance institution and give low-income customers a four-month payback period, which slows us down quite a lot.

Subsidising the *Save80* might well be economical for the government. If you calculate that every household that relies primarily on biomass for cooking uses roughly one grown-up tree per year, the roughly 10 million bottom-of-the-pyramid households in Nigeria cut down 10 million trees every year. Instead government prefers to run various reforestation programmes, which cost money but often do not work. The economics behind the *Save80* stove might actually work out cheaper.

What is the role of small-scale businesses and NGOs like yours on the road to green growth?

We are just one small NGO within this huge country, but we are now employing 35 permanent staff with regular salaries. These people were jobless before. And then we have 169 auxiliary staff: people we have trained in the assembly of the stoves. As we do not have the capacity to employ them full-time, we hire them whenever we have stoves to assemble, so they get some kind of income at least. Some trainees have even established themselves as marketers for our stoves, so we work with them on a contractual basis, which is a big improvement from where they came from. We have these idle boys hanging around in almost every community. They have nothing to do and are often hired as thugs and troublemakers, especially around political rallies and during election time.

When we bring the *Save80* to a new community, we always tell the elders to bring at least five of these youths so that we can train them. In one location, the divisional police officer brought us four boys. He said they had been arrested 17 times, on criminal offenses ranging from stealing at the car park to election violence. One of them is now our best trainer, and he is training other young boys in the assembly of cook stoves. Before we met him, he was a ringleader and always causing havoc. But he is taking that same energy and is now doing something positive. If we could create such jobs on a large scale, it would reduce violence even in the troubled north-east of the country, where Boko Haram is holding sway.

This kind of green economy has so much potential! But government is taking a different approach. One of their responses to the growing insecurity in Kaduna state was to ban motorcycles from Kaduna city about two years ago, as bikes were being used by Boko Haram in drive-by shootings back then. As a result, there were hundreds of young men who did not know what to do. Some 50 of them came to us to ask whether we could give them any job, anything at all… We trained some in solar installations, starting with solar lamps and up to the level of cabling panels for an entire house. But our capacity is really limited. We are just one local NGO.

Given the potential for job creation, has government ever approached you?

No! There might be specialised departments and donor agencies in Abuja, but here in Kaduna state, we have been sent from one government department to the other without any concrete result or funding. When you write a letter to the governor, it might never get to him, or you never get a reply. We even do some waste management that benefits government directly. For example, we recycle water bottles, which clog the gutters of Kaduna everywhere. We fill them with sand and build houses with them – more durable and sustainable houses, as a matter of fact. If government gave us only a little funding, we could train masons in this innovative technique. We had some funds from Germany for two training cycles, but the Germans rightly said they cannot train our youth on a perpetual basis. When we presented our little efforts to government, no one took us seriously. Government does not seem to see this huge potential, which goes far beyond the little examples I have given here. I think they are still blinded by the oil and gas [sector], which eventually will not be sustainable.

I think government is still blinded by the oil and gas sector, which eventually will not be sustainable.

Should Nigeria's green growth go large scale or should it focus on small-scale solutions?

I would like to see investments going into big industrial projects. There are industries lying idle in my state, here in Kaduna, due to failing infrastructure: for example, the textile industry that once employed many thousands of workers. If I had my way, I would build a large-scale solar plant of, let's say 10 000 megawatts, and would revive the textile industry with that energy. This would create a lot of employment, and workers with regular salaries would have the purchasing power to install small renewable energy solutions in their homes. They could start with one solar panel, for example, but they would certainly add more panels over time, and some small cottage industries could develop in this context as well. This in turn would have a positive effect on small suppliers like us. But government seems to lack basic awareness of the climate challenges and the opportunities for both large- and small-scale green growth. We do not have single digit loans for renewable schemes, we lack the right import duty waivers for renewable energy products, and we do not have proper quality or standards control for renewables. No wonder Nigeria's clean energy market is crippled.

Renewable Energy in Kenya: Whose Agenda?

Interview

Bernard Osawa

There are many firsts in Kenya's renewable energy story. It was among the first African countries to liberalise its energy generation sector and to introduce a feed-in tariff to promote renewable energy. The country was also Africa's first geothermal power producer and, with production at about 200 MW, it is still the largest. Investment across renewable technologies such as wind, geothermal, small-scale hydro and biofuels grew from virtually zero in the previous year to US$1.3 billion in 2010.

However, the development of renewable energy in Kenya faces various challenges. For example, while the potential of geothermal power is estimated at 10 000 MW, the expansion of the geothermal industry has been slow – partly due to regulatory framework and financing obstacles and the lack of a clear, targeted policy. In addition, recent finds of oil and gas deposits in Kenya and the East African region are expected to shift focus away from renewable to fossil sources for power generation. Nuclear energy is also being discussed as an important ingredient in Kenya's energy future.

In order to shed more light on the renewable energy sector in Kenya, the Heinrich Böll Stiftung (HBS) spoke with Bernard Osawa, a specialist in renewable energy investment and planning in the region.

HBS: What motivated the development of the renewable energy sector in Kenya?

Osawa: Kenya envisions transforming itself into a newly industrialising, middle-income country by 2030, with a globally competitive and prosperous economy and high quality of life in a clean and secure environment. Energy is one of the foundations and enablers of the socio-economic transformation necessary to achieve Vision 2030. Renewable energy solutions are well positioned to address many of the challenges the energy sector is currently facing, including a rapidly growing demand for electricity, high dependence on increasingly unreliable hydroelectric power, high cost of supply, and a low access rate – all of it compounded by the additional risk of climate change. There is an abundance of renewable energy resources – including geothermal, hydro, wind, solar and biomass – to meet the demand for both centralised and distributed energy services. Low electrification levels make off-grid renewable energy developments – mainly in solar and wind – the perfect solution.

Finally, Kenya's can-do attitude and entrepreneurial spirit, coupled with a cadre of enthusiastic professionals, the requisite expertise, innovation and finance to support the development of renewable energy resources has in the past and continues to accelerate the commercialisation and uptake of renewable energy technologies, leading to a wider market presence and a fairly efficient delivery mechanism or value chain across the country.

Bernard Osawa is the project director of Frontier Investment Management, a renewable energy assets investment fund with a focus on sub-Saharan Africa. He is responsible for liaison, licensing, regulation, compliance and interconnection. Prior to joining Frontier, he was the director for renewable energy at the Energy Regulatory Commission of Kenya, where his responsibilities included the development of national strategic plans, regulations and compliance enforcement for energy efficiency and renewable energy. He has more than 15 years consulting experience in Africa.

Electric power transmission line towards the south-east in the Tsavo East National Park, Kenya.

How do you assess the potential of renewable energy vis-à-vis fossil and nuclear sources?

Renewable energy plays a critical role in Kenya's sustainable energy future. Renewable energy already provides just over 70 percent of the energy, with fossil-thermal providing the rest. Given the right planning, renewable energy – hydro (small and large), geothermal and wind – has the ability to provide base load.

Fossil fuels have an important place in the energy mix, especially for peaking power plants and reserve capacities, as they can be brought online very quickly. Nuclear power, however, has no place, in my view. Kenya's 20-year power sector development master plan, the Least Cost Power Development Plan (LCPDP), demonstrates that projected energy demand can easily be addressed using renewables, fossil and electricity imports at a fair tariff. It also shows that, in the long term, and with increased generation from renewable energy, the marginal cost of power is expected to fall. While there is a provision for nuclear in the plan, this can easily be substituted by the hydro imports, given the transmission and distribution infrastructure that will be put in place. In addition, the management of nuclear power plants and the disposal of nuclear wastes demand stringent performance standards, discipline and financing. The basic question then becomes, "If we even cannot manage our traffic on the roads, how do we expect to manage a nuclear power plant?!" A better realisation of the demands, implications and responsibilities of building, managing, operating

and decommissioning such a plant by those advocating for nuclear is essential before the debate is carried further.

What are the key technological, economic, social and political challenges in the expansion of renewable energy production in Kenya?

Challenges to the development of renewable energy in Kenya have mainly been technological, economic and political. Renewable energy technologies are almost entirely imported, with minimal local content. Local technical capacity to develop, procure, construct, operate and maintain renewable energy power projects is either lacking or extremely limited.

The capital outlays required to develop, procure and implement renewable energy projects, ranging from small stand-alone wind or PV systems to large-scale grid connected projects, is typically higher than the cost of kerosene lamps, gensets and fossil thermal generators. In addition, local finance institutions, which are used to on-balance sheet financing, are largely unfamiliar with project finance transactions – a more complex off-balance sheet financing approach typically employed to realise large infrastructure projects. Their capacity to evaluate renewable energy projects is therefore limited. However, it is commendable that, with the support of multilateral development banks like the African Development Bank or the German Development Bank (KfW), local banks are being introduced to project finance for renewable energy projects through the provision of technical assistance as well as capital.

While the Kenyan power sector is teeming with renewable energy project developers and investors, tariffs remain a sticky issue. The Energy Regulatory Commission, which is responsible for signing off the power purchase agreements between project developers and the Kenya Power utility, provides for a maximum internal rate of return of 18 percent while setting the tariffs. This assumes a loan tenure of up to 10 years and an interest rate of 6 to 8 percent. Most developers and financiers however insist that, based on the country's risk rating and the cost of developing and implementing projects, the tariffs offered cannot deliver the expected return, which is typically in the 20 to 22 percent range. Most of the projects being implemented have ended up with rates of return of between 14 and 18 percent at financial close.

Challenges to the development of renewable energy in Kenya have mainly been technological, economic and political. Renewable energy technologies are almost entirely imported, with minimal local content.

Project developers have always argued strongly that the government offers better tariffs for fossil thermal generators while denying renewable energy an attractive tariff that could accelerate its development and deliver better tariffs in the long term. For example, a geothermal or hydro project providing base load will not get a tariff beyond US10 cents/kWh, while a thermal plant will easily get 17 cents/kWh, excluding fuel. Beyond 10 cents/ kWh, most of the proposed renewable energy projects would be very attractive to investors, allowing increased investment and expansion of renewable energy generation.

Political challenges to the expansion of renewable energy include preferences for "quick fix" and easy options, and for dealing with the known and entrenched supply-chain players. This explains the preference for tested and proven fossil-based generation options against renewable energy. The costs of developing, procuring, implementing, operating and maintaining a thermal power plant, including the supply chain for the fuel and the duration of implementation, are well known – unlike for renewable energy power plants. This makes it easier for those in government to prefer fossil-based plants, especially

when there is pressure to deliver power within a defined timeframe at a defined tariff, as is the case in Kenya. The LCPDP, which favours renewable energy, has in the past not been effectively implemented as a result of low political will. A stronger political will to support and implement the largely "unproven" renewable energy is required within government. This however is beginning to change as the benefits of expanding the contribution by renewable energy start to show.

Who stands to gain and who stands to lose from promoting renewable energies?

Everyone is a winner with the promotion of renewable energy as long as the focus is on sustainable, long-term power supply and cost reduction. Projections by the Energy Regulatory Commission under the 2012 LCPDP indicate that increased power generation from renewable energy through geothermal, wind and hydro imports, would lead to a more sustainable power supply and a long term reduction bulk tariff from US14 to 8 cents/kWh by 2030. In the case of isolated grids and interconnected systems, renewable energy systems have the potential to substitute power generated from fossil fuels. Geothermal or wind power plants supplying power to the grid do not involve fuel cost charges that are often passed on to the consumers and avoid polluting the environment, leading to lower tariffs and a healthier environment. Grid-connected solar PV, while more expensive than geothermal and wind, can also be used to complement the grid during the day and reduce the demand for thermal generation, especially if net metering is embraced. In this case, customers would use the grid to bank the power during the day and use it at night when there is no sun. The promotion of renewable energy also means the creation of additional skills and jobs as well as enhanced provision of energy services, which are all beneficial to the economy.

For stand-alone systems, renewable energy offers the most practical, cost effective and sustainable solution – replacing kerosene lamps and diesel generators in most cases. Consider the hugely successful case of off-grid lighting devices or lanterns that offer affordable and reliable lighting and telephone-charging services, eliminating the use of kerosene in rural and peri-urban Kenya. Households using these devices benefit from better indoor air and lighting quality, a reduced risk of respiratory and eye infections, as well as reduced expenditure on lighting and phone-charging services. While it is acknowledged that the cost of acquiring these technologies may be beyond most of

Kenya's Energy Provision: Facts and Figures

In Kenya, biomass provides 69 percent of the country's overall energy requirements, while petroleum accounts for about 22 percent and electricity for 9 percent. Of the electricity component, 74.5 percent is generated using renewable energy sources (largely hydro and geothermal), with fossil fuels providing the balance of 25.5 percent. Current generation capacity stands at 1 700 MW.

Fossil thermal power, mainly brought online during peak hours, is sometimes used for base load, leading to high tariffs. Access to electricity connections is estimated at 28 percent of the total population, with averages of 40 percent in high-density urban areas and 10 percent in other areas. Electricity is supplied to most of the country through one interconnected national grid and fourteen isolated mini-grids operated by the national utility, Kenya Power. Rural households and off-grid businesses mostly use diesel generators, solar PV systems and kerosene for lighting and other energy uses.

the poor in society, the cost of energy service is substantially lower than that derived from kerosene and dry cells, for example. The major challenge to access these technologies is financing, which is now taking root with the pay-as-you go movement, facilitated by mobile money and the booming cell phone industry. Under these schemes most "poor" users pay for use on a daily basis, but spend substantially less than they would if they used kerosene, while getting better-value lighting and phone-charging service. For example, a rural household would typically spend a minimum 23 cents to charge a phone and another 27 cents on kerosene for lighting per day. This compares well with the 23 to 46 cents per day currently charged by some of the providers, while offering better quality service.

What steps are needed to ensure that renewable energy will form an essential part of Kenya's energy future?

The first important step is an appreciation, acceptance and commitment on the part of the government that renewable energy can indeed deliver the energy required to run and develop the economy. Unfortunately, most of the decision makers in the power sector are weaned on the "tested and proven" fossil thermal technologies and have little faith in renewable energy – especially the fluctuating types like wind and solar – to provide the power which is often demanded. This is compounded by lack of a clear understanding of how to integrate and manage renewable energy resources and the perceived high cost of implementing the projects. This must then be followed by a well thought out strategy and a comprehensive implementation plan, including smart integration of renewable energy generators for a secure energy future, with renewable energy at its core, supported by good policy, legislation, licensing, technical design of the grids and compliance to ensure delivery. Finally, the plan to deliver the strategy should be implemented to the letter, with full and unwavering support being provided by all the relevant public and private sector agencies as appropriate. Fortunately, this sequence of activities is already largely happening in Kenya, with the revised Energy Act acknowledging the contribution from renewable energy and the push for geothermal energy coupled with wind as the next frontier for base load power. The medium-term 5 000MW-plus initiative by the government of Kenya, looking to increase the installed base load capacity, has a large renewable energy component at its core. The LCPDP investment plan targets a power system with more than 70 percent of the energy being supplied by renewables. If applied, all this should ensure that the energy future of Kenya will be based largely on renewable energy. To accelerate the process and ensure momentum in the development of renewable energy, the licensing and regulatory requirements and procedures need to either be restructured or streamlined to facilitate investment by the private and public sectors to deliver sustainable energy into the future.

Putting a Price on Nature: Will Economic Costing Protect Kenya's Water Towers?

Comment

Anne Wanjiku Maina

Kenya has five major montane forests, also known as "water towers". Mount Kenya, Aberdares, Mount Elgon, Mau Complex and the Cherengani Hills provide vital water, timber, fuel and food resources to rural communities. Over 90 percent of all water comes from these forested mountains, and the rivers which flow from them generate 70 percent of the country's electrical power.

However, all these areas face major deforestation challenges due to over-logging for timber, charcoal and fuel wood. According to a joint report by the United Nations Environmental Programme (UNEP) and the Kenya Forest Service (KFS), Kenya's water towers lost an estimated 50 000 hectares of forest between 2000 and 2010. The report proposes the use of carbon trading mechanisms – known as "clean development mechanisms" (CDMs) – to protect these areas, mitigate climate change and provide funding to address a wide range of deeply entrenched activities that endanger the forest, including illegal logging and charcoal burning and the "shamba system"[1] of agroforestry.

While the protection of Kenya's water towers is crucial for the sustainable development of the country, the use of market-based instruments requires that timber and non-timber products be valued, including a broad range of regulating ecosystem resources. Although the Kenyan government anticipates that carbon offset projects will attract international climate finance, experience to date offers little reason for optimism.

When Did the Rain Start Hitting Us?

Instead of finding ways to reduce emissions at source, the United Nations Framework Convention on Climate Change (UNFCCC) has focused on programmes that transfer carbon emission reductions to developing countries and put pressure on them to leapfrog the cheap-but-dirty development path by which industrialised countries built their wealth. It aims to create a new commodity that the South can offer the polluters in the North: carbon offsets stored in our forests and soils. Notwithstanding the question of why poor communities in Africa should pay for rich industrial nations to continue polluting, the Kenyan UNEP report appears to promote this approach.

Importantly, the UNEP report assumes that forests in Kenya belong to the government, forgetting that the government, as the custodian of such land, should first obtain free and informed consent from the communities. Insecurity over land tenure is widespread in Kenya, yet the rewards system requires clarity on who holds rights to the forest or carbon, who is responsible for reducing emissions, and who can claim the benefits.

This could open the door to commercial logging operations through the conversion of primary forests into industrial plantations. The implications for biodiversity, water catchments, soil and livelihoods seem to be of little concern.

Kenyan grassroots groups, activists and social movements have long since pointed out these issues and highlighted problems with existing carbon-trading initiatives. For

Anne Wanjiku Maina is an activist who challenges the false solutions being pushed in Africa, such as genetically modified organisms (GMOs), AGRA seed systems and carbon markets. Anne articulates these issues at national, regional and international levels in forums such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). She is continuously engaged in capacity-building and campaigning in Southern, East and West Africa.

Mount Kenya, viewed from space.

example, the World Bank-funded Kisumu carbon project, implemented by VI Agroforestry and the Swedish Co-operative Centre, has been a huge disappointment in terms of delivering the "carbon money" that was initially promised to small farmers. Calculations done in 2011 showed that farmers would earn a paltry USD 1 per year from the Biocarbon Fund for their efforts in carbon sequestration. As a result, the project implementers have changed their language, now urging communities to appreciate improvements in land and soil quality through sustainable agricultural practices, such as terracing, use of manure and establishing woodlots.

The schemes have also played a negative role by displacing the economies of women. Because of the promised financial incentive, men often took the lead in converting their small pieces of land into woodlots and growing recommended nitrogen-fixing crops like desmodium. While this is good for soil fertility and improving the microclimate, it ignores the fact that women need land for food crops.

The cost of compliance with carbon trading schemes is also a huge deterrent. The Green Belt Movement (GBM) afforestation and reforestation CDM project faced challenges even before it began. GBM was to pre-finance the entire project at a cost of

over USD 1 million. The World Bank supported some consultants for the project, but only under the condition that, if the project failed to deliver, GBM would repay the Biocarbon Fund. Together with the lack of community incentives and buy-in, these expenses led to the failure of the project.

The greatest beneficiaries of these carbon schemes may be the consultants: often more than ten companies or individuals have to be paid upfront to ensure compliance. Communities and smallholder farmers cannot afford the millions of dollars required even before they receive their carbon credits. It is the multinationals that have the financial muscle to cover these costs and that benefit from the trade in carbon.

There is also a lot to learn from international experience. The Chicago carbon market and others have collapsed, while Chinese and Indian companies have been involved in massive fraud. Further, the hypothetical carbon value of USD 6 per ton provides insufficient incentive to compensate for deforestation: the profits that can be derived from deforestation are almost four times higher than the economic value of carbon. This explains why the Kenyan government's war on illegal logging and charcoal burning is a losing battle. Even with the extra expense of bribing law enforcers, it is still very profitable to illegally log and burn charcoal in order to reach the urban markets where households use charcoal for their energy needs.

Put the Environment and People First

Although thousands of Kenyans are directly affected by carbon projects and continue to resist them, their voices are silenced by elites who firmly believe that the financialisation of nature will protect remaining forests and mitigate climate change and that CDMs offer a lucrative business opportunity. These beliefs are rooted in the same structures and interests that enable polluters to avoid taking any real action to reduce emissions at source. The financialisation of nature creates ways for the financial sector to continue to reap high profits, but it pollutes the sanctity of its cultural and environmental significance.

The idea that putting a price on nature is the only way to protect our water towers should not make us lose sight of the proper goal of any climate policy: to implement equitable, just and effective solutions that will protect the environment, lands, forests and people.

1. Under the shamba system, local communities are allowed to cultivate crops in the forests as long as they take care of the young trees. As the trees mature, the farmers move on to another area with younger trees. The system was introduced to protect the forests while at the same time supporting communities in agriculture, but it has been abused over the years. For example, farmers would deliberately neglect the young trees so that they could farm for a longer period.

Financing the Green Economy Transition in Africa

Comment

Manisha Gulati

Africa has more than enough problems to solve. Most Africans live in abject poverty and lack the essential basics of clean drinking water, medical care, electricity and education. It is the only region of the world that has witnessed a rise in absolute poverty since 1990. In 2011, 57 percent of the African population lacked access to electricity[1] and 25 of the 54 nations faced an energy crisis[2]. Nearly 40 percent of sub-Saharan Africans lacked access to clean water and nearly 70 percent lacked access to proper sanitation facilities[3]. The high levels of inequality that characterise the continent are associated with disparities in access to basic services. This explains why less than 10 percent of children who enrol in primary schools in sub-Saharan Africa make it through to university.

Urban population growth rates and the resulting growth in urban slums are putting severe pressure on already constrained public services. Economic growth that can help overcome high and persistent inequality, although impressive in recent years, is varied, episodic[4] and still not high enough to make a real dent in the pervasive poverty. To top it all, while a number of countries are rebuilding themselves after civil wars that have severely set back their development, new conflicts continue to mark other parts of the continent.

It is not surprising then that I find myself asking why we should add the burden of moving towards a green economy to Africa's woes. Some people tell me that the green economy approach, with its basic limitations on fossil fuel use, could be a barrier to Africa's development. But perhaps the answer is to be found in the very problems that Africa is trying to deal with. Africa needs economic growth that will translate into a meaningful reduction of poverty, enhanced equity and decent employment for all, while providing universal access to basic services. The green economy approach seeks to deliver such growth.

Let's take a moment to understand what green economy means. Without going into detailed definitions, the philosophy underpinning the concept supports

- investment in natural resource management and ecological restoration, particularly in the natural systems on which poor and indigenous communities depend for their livelihoods;
- fair allocation of environmental benefits and costs to achieve a more just and equitable society;
- green economic services and industries that incorporate efficiency gains in production while providing employment prospects and affordable sustainable alternatives for consumption;
- resource-efficient low carbon economic development.

Africa's economic growth and broader development objectives have relied heavily on the exploitation of its vast natural resources, exported as primary or semi-processed products to industrialised or rapidly industrialising countries. This has helped the continent perform well on economic parameters and amass wealth, but failed to bridge the gap between the rich and the poor. At the same time, it has had daunting implications for development.

Current patterns of resource extraction threaten arable land, water resources, forests and timber, and human rights. They

Manisha Gulati is an energy economist with WWF South Africa. She has over 13 years of multi-disciplinary experience in the areas of energy, low carbon transition, green economy and the resources nexus. She holds a masters degree in business economics from India.

have a disproportionate effect in the rural areas where poverty is heavily concentrated, and among vulnerable groups, such as women and indigenous people, who access a less-than-equal share of the benefits of resource exploitation.[5] They lead to an increasing number of conflicts, with farmers, forest dwellers or workers on one side and industrialists or governments on the other.

However, the green economy approach could prevent such stand-offs between economic and social development. Given the heavy economic dependence on resources, and given that the vast majority of people rely on natural systems for their livelihoods, the threats to environment and economic growth could be mitigated with improved natural-asset management and by capturing the economic value of natural and ecosystem functions, thereby reaping the benefits of Africa's abundance.[6]

Although this is a simplified view, and although there is no guarantee that the green economy approach would lead to economic and social justice, one cannot deny that the underlying philosophy of the green economy could provide better outcomes. It will require good governance, adequate financing, improved public sector budget management and prudent policymaking.

It may seem that the huge costs required for the transition – particularly the high initial costs – would likely be beyond the reach of most African countries. But this perspective ignores three related issues. First, many African countries are already paying the cost under the garb of "disaster risk management". For example, 53.9 percent of the resources dedicated to Mozambique's ministry in charge of disaster management were allocated to disaster risk reduction.[7]

Second, the incremental costs of the green economy need to be compared to the costs resulting from current economic and environmental damage, such as those of managing conflicts caused by resource scarcity and those of rehabilitation following climate-related extreme events. Relief efforts during the 2005–2008 drought in Uganda cost USD 120 per person, on average[8]. In Malawi, droughts and floods reduce total GDP by an average 1.7 percent per year.[9] Rising food and fuel prices are a huge draw on foreign exchange, make food and energy unaffordable, and don't deliver energy security. The social costs are also high. School enrolment rates in Côte d'Ivoire declined by 14 and 11 percentage points among boys and girls, respectively, living in areas that experienced a rainfall shock, while increasing in all other areas.[10]

Third, current public spending is not benefitting the poor. Take the case of fossil fuel subsidies. They are a huge fiscal burden for most African governments, but they don't benefit the poor who rely on either traditional biomass, which provides low quality energy, or diesel, which is unreliable and costly. An estimated 44.2 percent of fossil fuel subsidies in Africa benefit the richest 20 percent of the population, while only 7.8 percent goes to the poorest 20 percent.[11]

So the question is not so much about the costs of the transition, or whether financing these costs will come at the cost of development. It is about how the available finance can be better utilised for the green economy and how that financing can be socially just.

Likewise, about 45 percent of subsidies for kerosene go to the richest 40 percent.[12] At the same time, these subsidies divert public resources away from education, healthcare and basic infrastructure.

So the question is not so much about the costs of the transition, or whether financing these costs will come at the cost of development. It is about how the available finance can be better utilised for the green economy and how that financing can be socially just.

The answer is two-fold. First, there is a need to reform existing government spending – including subsidies that are environmentally and socially harmful. This would free resources that could be used to improve public services and to promote green economy technologies. For example, the development of renewable energy technology for energy service provision is likely to be cheaper than extending the grid over Africa's sparsely located rural population and will place lower cost burdens on both the poor and the fiscus.

Removing inefficient fuel subsidies could also contribute towards the green economy transition by improving the functioning of price signals and markets (although state intervention would be necessary where informational asymmetries and institutional lock-ins render markets inefficient). Increased government spending would reduce the high upfront investment costs and risks associated with green

economy technologies, subsequently incentivising and leveraging private investment. Plans will need to be made to mitigate consequences for the poor and vulnerable, such as appropriate social safety net programmes, targeted consumption subsidies, and the redirection of funds into high-priority areas like healthcare and education.

Second, governments can use their market power as consumers of goods and services to create markets for green economy producers and to incentivise investment in the green economy transition by adopting sustainable public procurement policies favouring products and services that minimise economic, social and environmental costs.

You will notice that my answer doesn't rely on global climate fund mechanisms. Various funds already exist. The Green Climate Fund (GCF) was launched in 2013 by the United Nations Framework Convention on Climate Change (UNFCCC); its aim is to disburse the USD100 billion that has been pledged to flow annually to developing countries by 2020. Bilateral donors are also playing a significant role. In April 2014, the African Development Bank approved the creation of the Africa Climate Change Fund, a bilateral thematic trust fund to support African countries in their transition to climate-resilient and low-carbon development.

If Africa's transition could be based on such international climate funding, the continent would well be on its way. But that is not the case. First, international funding persistently bypasses national budgets and, by implication, the countries' spending priorities. Second, this funding takes the form neither of sequenced interventions that are required to make a real transition nor of a viable pipeline for programmes to effectively tackle the systemic problems. Third, it focuses on either social projects or environmental projects. It does not look to combine the pillars of economy, environment and social in order to determine the most effective interventions. Finally, as evidence shows, funding is often wasted through inefficient project management or it ends up in the pockets of unscrupulous business and political leaders.

With all the hope that has been pinned on the GCF, the actual funding that will be mobilised and the mechanisms of disbursement remain to be seen. Although it proposes to give priority to the most vulnerable countries – primarily in Africa – there is no guarantee of this. So Africa can either wait without assurance for more international funding, or it can use its own resources more effectively.

A final word: the green economy will not be a miracle for Africa. But with its underlying philosophy of enhancing long-term equitable growth and enabling job creation, poverty eradication and resource efficiency, it is the most sensible way forward for Africa.

1 World Energy Outlook 2013.
2 World Bank, 2011.
3 See: <http://www.hapakenya.com/new-map-shows-possible-africans-access-clean-water-2030/>.
4 See: <http://go.worldbank.org/2ZWE585SK0>.
5 SRIC in IBON, 2013.
6 African Development Bank, 2012.
7 United Nations International Strategy for Disaster Reduction, 2011.
8 United Nations International Strategy for Disaster Reduction, 2011.
9 World Bank, 2009.
10 United Nations International Strategy for Disaster Reduction, 2011.
11 African Development Bank, 2012.
12 African Development Bank, 2012.

This publication can be ordered from our Africa offices:

Regional Office Southern Africa

33 Church Street
Cape Town, 8000
South Africa

T: +27 – 21 – 4616266
E: info@za.boell.org
I: www.za.boell.org

Regional Office East & Horn of Africa

Forest Rd, PO Box 10799-00100 GPO
Nairobi, Kenya

T: +254 – 20 – 3750329
E: info@ke.boell.org
I: www.ke.boell.org

Nigeria Office

Rukayyat Plaza
93 Obafemi Awolowo Way
Jabi District, Abuja

T: +234– 80– 99905176
E: info@ng.boell.org
I: www.ng.boell.org

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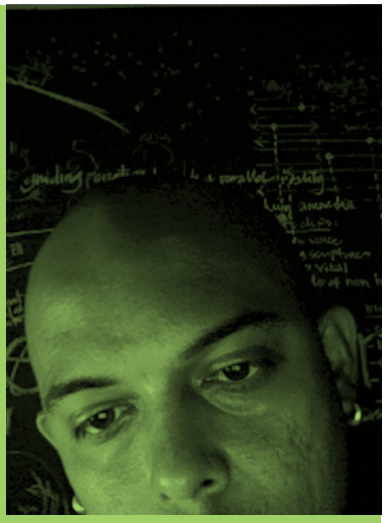
Doung Anwar Jahangeer

Doung is a kreole-Mauritian-born, living in Durban, South Africa. He is an architect. He is not an architect. His experience of the profession led him to broaden his definition of architecture focusing on space – an architecture without walls. In 2000, Doung conceptualised and implemented the City Walk initiative as a way of directly engaging and observing the flux and mutability of his adopted city. It now includes 13 major cites internationally. His work is multi-media, including live performance, film/video, sculpture, installation and architecture. He has instigated projects with organisations and artists of diverse nature internationally, including site-responsive architectural installations that engage the urban fabric in an often openly critical and sometimes provocative manner. In 2008, he co-founded dala, an NPO that engages art and architecture for social justice.



About the artwork
Title: Encountering Walter
Material: Asphalt, soil and grass
Size: 23x10cm