The grass is green here: Africa and the eco-uprising

In the **Turkana lake district of Kenya** a howling wind blows almost all year round. The meteorologists attribute this anomaly to the valley floor lying between two mountains, the heat difference between the desert and the lake and **a scientific process called the Venturi effect**. Besides the wonder of these strong and predictable winds, there is another benefit to this natural phenomenon; energy. It is here that **the biggest wind farm in Africa will be constructed**, and it is from here that Kenya will receive over 30% of her electricity.

Soon **365 giant wind turbines** will cover part of the Turkana landscape, and jointly they will generate somewhere in the region of 300 megawatts (MW). To give these statistics some basis in reality a 5 MW turbine can produce more than 15 million kilowatt hours (kWh) in a year, enough to power more than 1, 400 American households. And what are the input costs, post construction and maintenance? Nothing, unless we start to put a price on air.

Water, wind and earth versus fire

With the known effects coal driven power stations are having on carbon emissions, and hence the end product of global warming, there has been a hard drive by power utilities and governments across the globe to try and source viable and sustainable energy solutions.

The Turkana Lake project is **not a unique venture in Africa**; rather it is one of a spate of initiatives aimed at alleviating the continents potential dependence on fossil fuels.

Prior to the announcement of the Turkana project, **the Ethiopian government had begun to implement its own giant wind farm.** Boasting a 120MW output, the turbines are to be erected in the Ashegoba region, and will meet around 15% of Ethiopia's current energy needs.

In the Congo Basin the controversial Grand Inga dam project is beginning to take shape. With a visit from World Bank chief Robert Zoellick last week, the development has re-emerged in the international

media. At 40,000MW, the Grand Inga dam has more than twice the generation capacity of the giant Three Gorges dam in China and would be equivalent to the entire generation capacity of South Africa. It will be the biggest hydroelectric power project in the world.

The Grand Inga dam project will involve transmission cables linking South Africa and countries in West Africa, **a cable would also run through the Sahara to Egypt.** What makes the project controversial is not the astronomical budget, but the fact that a substantial amount of the energy production will be rerouted to Europe.

The **rest of the world** is also looking to Africa to solve their energy problems.

Africa's golden egg

The **Kyoto protocol**, the famous international environmental treaty, was initially adopted in December 1997, and although little happened in the interleading years, the **2012 deadline is fast approaching**. What this means is that mass carbon emitting nations are on a huge push to source viable solutions to their energy problems. And Africa seems to hold all the raw potential.

Besides the power from the Grand Inga dam, **European businesses and governments have come together to propose the largest solar panel farm in the world.** The size of Wales, the solar farm will be built in the Mecca of sunlight, the Sahara Desert.

The **Sahara desert**, with so little cloud cover and a good solar angle, can offer up to 83 Watts per m². The unpopulated area of the Sahara desert is over 9 million km², which if covered with solar panels would provide 750 terawatts (TW) in total. The Earth's current energy consumption is around 13.5 TW at any given moment (including oil, gas, coal, nuclear, and hydroelectric power).

The **Desertec Industrial Initiative** is the conglomerate that will see this dream become a reality. A dozen companies, including Siemens, Munich Re and Deutsche Bank, have come together to build the solar thermal

power field. The panels would only need to capture 0.3% of sunlight falling in the Sahara to meet Europe's energy requirements; that is good money and a good investment.

Reading the international media coverage around Desertec one would think that the Sahara Desert belongs to nobody, the fact that it is a transfrontier desert spanning 11 African nations seems inconsequential. From the official documents there is no more than a mention about the power generation to be routed to North Africa, **no numbers are given, no promises made. The Kyoto protocol is calling and Europe is answering**.

Africa needs to become more self-centred, and make sure that she benefits, not exclusively but wholly, from the sustainable energy solutions her lands hold.

Much like the ICT boom in the developing world saw many nations bypass fixed line telecoms infrastructure, **Africa has the opportunity to bypass fossil fuel dependency**, moving straight onto power solutions built on sustainable energy; but not if we give it all away.

A game of leapfrog

Africa is a developing continent. Every nation within her boundaries is considered as part of the morass of emerging economies. What this means, from an energy perspective, is that Africa has not yet developed enough infrastructure to ensure that all her people, industries and institutions have uninterrupted and sufficient electricity to ensure growth and development. However **it is a mistake to assume that this is Africa's Achilles heel.**

The rest of the developed world is working hard to reinvent their power needs. With the effects of climate change and global warming high on the agendas of the developed world there is a need to rewrite and rewire the forms of power generation already in place. Developed economies have power infrastructure that is almost wholly reliant on fossil fuels; a fast depreciating, expensive and ultimately terminal system. The costs involved in reworking these power systems are far higher than those of implementing sustainable solutions from scratch.

Robert J. Samuelson writing in Newsweek notes the pressure such a change will have on economies like the U.S. "Re-engineering the world energy system seems an almost impossible undertaking... Half the nation's (U.S.) electricity comes from coal. The costs of "carbon capture and sequestration" are uncertain... No one involved in this debate really knows what the consequences or costs might be."

Africa therefore is in a unique position in comparison to the developed world. Where there is little or no power production, African countries have the opportunity to 'go green' from the start. The initial expenditure for wind farms, major hydro-turbine projects and other environmentally friendly energy producing programmes is high, but the input costs are often free.

Who does Africa think she is?

On Monday the 24th of August the **African Union (AU)** came out with a fairly intriguing demand on the international community. At the **United Nations climate-change summit**, to be held **in Copenhagen in December**, the AU will make a **request that the developed world pay the continent US$63 billion per annum**, in repatriations for the effects climate change will wreak on the continent.

In the aftermath of war, genocide and colonialism we have encountered repatriation payments; the monetary equivalent of an admission of guilt. **Repatriation payments are not aid, or donations, they are payments in respect of the damage caused to a people.** The question that must be asked is ‘how is this different from global warming?'

The United Nations 2005 Millennium Ecosystem Assessment, found that 15 out of the 24 key eco-system services that we humans depend on are degraded or used unsustainably, often with negative consequences for the poor - 1.3 billion people live in ecologically fragile environments located mainly in developing countries, half of whom are the rural poor and a large bulk live in Africa.

The **separate Stern Report** also stated that poorer countries (especially in Africa) will suffer "first and most" from the consequences of global warming even though they have "contributed least" to it.

Africa is fast becoming one of the last bastions of abundant natural resources; her oil reserves are high, her coal deposits are immense and her natural gas fields are beyond comprehension. These are the bargaining chips Africa has on the table, and **if Africa plays her cards right she might just shake a dependency on these fossil fuels herself**, and ensure that these resources can be wholly traded to those nations that can't afford to reinvent their power systems.
Herein lies the proverbial gold mine.

If Africa fails to contribute substantially to carbon emissions but is forced to suffer the wrath of climate change and global warming, should she not be able to hold the developed world accountable? And if the rest of the world asks 'who does Africa think she is?' simply put... Africa is the answer to your prayers.

By *Matthew Choate* – Africa The Good News