



Policy Brief



The Role of Earth and Environmental Sciences in Peace Development in Africa

by

Judi W. Wakhungu
African Centre for Technology Studies
Nairobi, Kenya

November 2010

Environment and Earth Science Theme speech, by Prof. Judi W. Wakhungu during the World Science Day for Peace and Development (WSDPD) Celebrations, November 10th 2010, in Nairobi, Kenya. This celebration has been organized by the Kenya National Council for Science and Technology (NCST), and the UNESCO Regional Office for Science and Technology in Africa (ROSTA).

Introduction

Africa despite its many attributes has a history of ethnic conflict, resource and trans-boundary conflict, and human security is increasingly vulnerable to climate change. What I would like to do today is to use the earth and environmental science lens to address issues that are at the root of potential conflict. But as you are all aware, the field of earth and environmental sciences is extremely broad. Therefore, the focus of my presentation shall be limited to three themes. These are **mineral dependent states in Africa**, **trans-boundary resources in East Africa**, and **climate change in Africa**. Before I articulate the role of earth and environmental sciences in peace development, I shall first attempt to describe the problem for each theme before I suggest solutions.

Mineral Dependent States in Africa

Why is it that mineral dependent states tend to find it harder than others to build peace and sustain democratic processes? Indeed, the literature that describes mineral resources as a curse tells us that not only do these countries fail to harness their resources they are, in fact, debilitated by them. Furthermore, the curse of these mineral resources exposes these countries to greater inequality, less democracy, more corruption, and makes them more at risk of violent conflict. To make matters worse, there also appears to be a correlation between the magnitude of these problems and the political and economic maturity of the country: the poorer and more politically fragile a country is before mineral extraction, the more likely it is to be harmed by it. And it does not seem to mat-

ter whether the mineral resources are extracted on-shore, as in the Niger Delta, or offshore, as in Angola.

Consider that compared to most African countries, the livelihoods of communities in petroleum producing countries are close to, or below average for sub-Saharan Africa. For example, Nigeria's income per capita and inequality has degenerated, and both Angola's and Equatorial Guinea's infant mortality rate has worsened since petroleum was discovered. Are these determinants of failure rooted in the mineral wealth?

This paradox of poverty (and conflict) from plenty is a complex phenomenon. For example, in the 1980s research on the poor performance of petroleum-rich countries in Africa focused on international oil companies as agents of western imperialism exploiting subservient Africans. These notions of western exploitation then went on to coalesce with growing concerns about the environment. Popular perceptions of international oil companies as destroyers of the environmental aesthetic and exploiters of the meek took hold, and this thinking still pervades. While these assessments have merit, I believe that from an African governance perspective, they have also served to foster ambiguity about the truth. But the emerging governance research has allowed us to understand that since the late 1980s, African countries such as Angola, Gabon, and Nigeria receive more than 50% of the value of their petroleum resources as state revenue. The international oil companies have therefore put the blame on African politicians by alluding that the problem is not a *resource curse* but a *governance curse*. And this brings to the forefront a view of corruption not just as a domestic problem

in these mineral dependent African countries, but as an international one, especially in the context of international financial standards and transactions. But this is beyond the purview of earth and environmental science as I understand it. Therefore, let me turn to issues that this conference is concerned about.

Trans-boundary Resources: Case Study of the East African Community (EAC)

Trans-boundary resources are natural resources on land, water bodies or air which occur across two or more country borders. These include minerals, wildlife, aquatic resources, and forest products whose use affects the ecosystems and livelihoods of communities in all contiguous countries. The East African Community countries have much in common. They share ecosystems, they share similar cultural values, similar educational aspirations, and all are striving to exploit their natural resource endowments in order to improve their economies and improve the livelihoods of their people. Apart from a few policy differences that are sovereign in nature, the basic tenets of their economic, environmental, and macro-economic strategies are comparable. However, many of these resources are in danger of being exploited with impunity because there is a misguided notion that they do not belong to anyone. They are therefore subject to over-exploitation on the one hand, or neglect on the other.

Development activities that have resulted in inadvertent negative effects on the environment include conversion and drainage of wetlands, bush burning, overgrazing, deforestation, introduction of alien plants and species, and unsustainable agricultural activities. Furthermore, water pollution from untreated industrial effluent, and untreated sewage from urban areas are increasingly becoming a problem. These environmental problems are immense, and include contamination of water bodies, siltation, and land degradation, loss of fisheries, all of which impact livelihoods negatively, and can also lead to conflict. The Migingo Island (Lake Victoria) controversy between Kenya and Uganda illustrates this point, and needs no elaboration to this audience. But there are other policy and political constraints, as well. For example, logging on the Minziro-Sango Bay swamp is banned on the Uganda side of the border but is legal on the Tanzania side. Another example, of policy variance is that Tanzania favours down-listing of the African elephant population from the CITES Appendix I to Appendix II, while Kenya is opposed to this move.

Despite these inconsistencies pressure on the region's fragile and finite resources will continue to escalate because of demographic transitions and East Africa's growing population. Although the EAC continues to work on policy reforms, it still faces the challenge of how to harmonize natural resource management policies and laws. Many of the policy reforms are still primarily sector-specific, and need

to be ameliorated to encompass trans-boundary environmental concerns. One way of achieving this is to conduct scientific and social research on the value of conserving trans-boundary biodiversity; on the importance of conducting environmental impact assessments (EIA) on development projects; on the worth of sustainable land-use practices; the value of peace and conflict resolution; and the significance of fostering regional cooperation and public participation in the management of shared ecosystems.

In order to move forward, the Partner States will need to continue with their spirit of cooperation and good will. In order to avoid conflict, the local communities who are the custodians of natural resources ought to be consulted, sensitized, and made aware of the relevant policy and legal provisions.

Climate Change

Although complex and analyzed through many disciplinary lenses, the scientific basis for climate change is well-established. But at the risk of simplifying a very complex environmental science, for the purposes of this meeting, I would like to focus on climate change as a security threat. This does not refer to security as a military threat but instead evokes the challenge of meeting the basic needs and aspirations of most Africans. I also wish to state very clearly that the relationship between scarcity and conflict is not linear. Moreover, information or indicators about growing insecurity is not always reliable and is often unable to predict conflict before it happens.

The earth and environmental sciences have a critical role to play in providing early warning information on vulnerability and climate risks that could lead to conflict prevention. Enhancing the capacity to adapt to climate change can help prevent or mitigate climate-related insecurity by improving measures that protect and diversify livelihoods by ensuring access to vital natural resources. Adaptation strategies such as co-management of water resources can contribute to peace-building in conflict-prone areas. Finally, adaptation if implemented and practiced correctly can help reduce vulnerability to climate change, environmental degradation, poverty and conflict.

Conclusion

It has been said that *if you want peace, you must prepare for war*. I prefer to think that if peace is a cherished aspiration, then those of us from the earth and environmental sciences milieu can contribute to peace building by working with African governments to develop policies and programmes that ensure that environmental concerns are articulated at the highest level. Efforts ought to be placed on capacity building and facilitation to ensure that all stakeholders involved in managing natural resources are able to exercise, and implement existing policies and legislation to benefit livelihoods and conserve the environment.