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## EGYPT'S WATER: A Quest To Quench Our Thirst

Egypt is predicted to be one of the most impacted countries by Climate Change in the world. Egypt is a country already screaming from water scarcity today with a per capita share of water already under the water poverty line. With the impacts of climate change on the Nile River, the lifeline of Egypt's water supply, this water scarce nation may be on the verge of a water war.

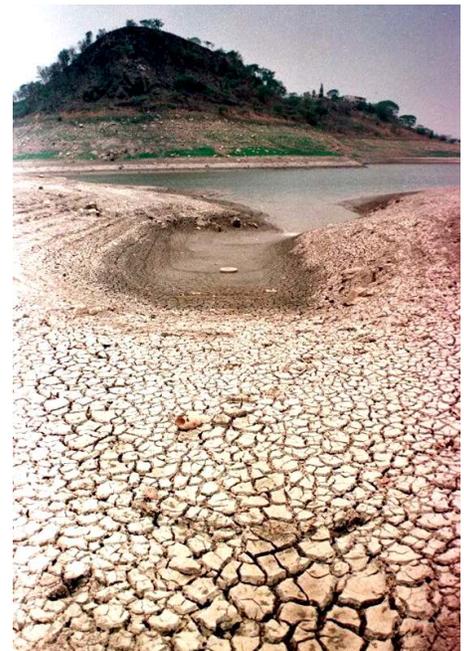
Impacts of climate change on the Nile River Basin are variable; however several conclusions can be made. An increase in water demand will be heightened by an increase in irrigation demand. There will be a high degree of uncertainty about the flow of the Nile. Increase in precipitation variability is expected. The increase in precipitation variability ultimately leads to the increase in flood frequency and intensity as well as the degradation of soil surface and erosion potential of watersheds. Inadvertently this will lead to increase of sediment discharge in rivers and reservoirs, which will lead to a decrease in reservoir life time and investment period pay off. It will also lead to the decrease of manageable water resources. The problem with the Nile River flow in Egypt is the uncertainty of the predictions from Global and Regional Climate Models. Some predictions suggest that with the increase in global temperatures there will be increased evaporation in the Nile River and thus less water supply and ultimately water scarcity. Other predictions suggest that with the increased evaporation in Egypt; will result in increased precipitation in the Ethiopian highlands (more upstream from Egypt) which will lead to increased runoff in the Nile River flows downstream to Egypt. This may ultimately cause floods as the Aswan Dam at Lake Nasser in Egypt may not be able to cope with this increased runoff. The definitive problem is that these two scenarios require completely opposite adaptation strategies; one entails floods and increased runoff, the other is water scarcity and possible drought. Egypt, as a developing country, extremely vulnerable to the most sensitive of climatic changes, is not financially capable of adapting to worst case scenarios of both the wet and dry conditions. The dry scenario has been deemed by most scientists and the majority of studies, to be the most plausible, yet preemptively better management schemes need to be in place and need to be assessed.

A recent OECD report ranked the top 10 cities in the world most impacted by sea level rises, and Alexandria in Egypt was on this list. Currently the efforts being done by the government are minimal to none. The government has formulated an Initial and Second Communication Strategy on Climate Change, but no NAPA (National Action Plan for Adaptation) has been planned for or produced until this point. There are a series of private sector initiatives to promote sustainable organic farming and composting, others involved in renewable energies and solar power, but no nation level initiative.

In Egypt one-third of the population live in the Nile Delta region and the North Coast. With the impacts of climate change on Egypt's Northern Coastal Zone, over 20 million people will become displaced and homeless. The Nile delta region hosts one of Egypt's main sources of agriculture and farming due to the lush and nutrient-enriched soils that surround the banks of the Nile River. It is the current "food basket" that provides the food for the growing population. With the inundation and flooding of this Delta Region from Climate Change and saltwater intrusion, the agricultural sector will see significant impacts and Egypt will see a serious food insecurity problem. The current IPCC report of 2007 claims that even in the absence of climate change, present population trends and patterns of water use indicate that more African countries will exceed the limits of their economically usable, land-based water resources before the year 2025. Thus agriculture and water are of significant concern to Egypt in this hot arid area.

These impacts along with the projected population increase will amount to severe water stress in the Nile River Basin. Climate variability and change have also been identified as key drivers of ecosystem health and the growth and spreading of water-related diseases. Human health will be adversely affected with the spread of diseases such as diarrhea or leptospirosis in flooded areas.

The UNFCCC negotiations and these international climate talks are paramount in the light of fighting these impacts. Egypt's role here is essential in these negotiations to make the message clear to the international community that there is truly no more time to waste, and that strong action needs to be taken immediately.



# VIEW FROM THE PACIFIC: Closing Window For Survival. . ?

The past weeks in Bonn are a reality far removed from the consciousness of people's daily life back in the Pacific. Ask any Pacific islander in a village about the impact of climate change on his community and the comeback will be for you enlighten him on what climate change is about. So you break down the science, maybe throw in a video you've shown to just about every school and talked national television into giving air time at a discounted rate as its contribution to global efforts in combating climate change. And then you recap in the local dialect to generate discussion on climate issues that are impacting the village and how the responses should look like. The person is sold, so is the rest of the village once they see the videos and heard his review. They have more questions, village leaders want to discuss alternatives so the consultation naturally revolves around adaptation -what else can they do but reflect on their own attitude toward the environment and start taking steps to adapt and acquire a new behavior that is more mindful of the sustainability of their village and resources. They start to develop response strategies that identify places for cyclone shelter or where to run to in worst case scenarios of sea surge and inundation of coastal areas where most people live. It is here in these village meeting houses that I am humbled by the resilience of the human spirit in the face of imminent disaster.

Knowledge is indeed power and an empowered community regardless of the hopeless situation before them is a credit to humanity. And they will go on learning to adapt and to prepare for the impacts of climate change in their lives. They're translating the new knowledge gained from climate workshops to actions on the ground. They're doing it on a wing and a prayer and could use a little help. "Learn to adapt...and hurry please" that is the message hitting home to pockets of Pacific island communities. It's cold, practical, and it doesn't paint a pretty picture of idyllic islands in the sun. No one wants to be the bearer of bad news despite the fact that climate change is an issue that's been hanging around the region for well on two decades at least. The scope of the work required and the resources to mobilize public participation in the climate debate is beyond our national budget.

The phenomenon of climate change is still a mystery to many of the region's island communities, yet it is the biggest thing ever to challenge all of us who share this planet. Being on the verge of a system of global governance which genuinely seeks the input of the inhabitants of the world is the only hope. I am in Bonn with other civil society representatives who long for and are vigorously engaged in lobbying a better deal for the next generation. We have a vision of the possibilities that could result from our efforts based on a belief that is held up by a certain dose of optimism, enough to bring the public voice to the international table -enough to capitalize on the power of the media for a just and safe world for all.

In the last decade has the climate agenda become a real priority in my region - and this realization was accelerated by a succession of natural disasters which randomly hit the region causing unprecedented costs in damage. It took such crises for resources to flow for the preparation of national disaster management and response strategies and adaptation programs with communities. Last February one of the islands was severely hit by Cyclone Pat leaving devastation in its wake. That event tested yet again our limited capacity and resources, an issue that is all too real in the Pacific.

Climate change is ranked high on the Pacific leaders' agenda. They have no choice as impacts are being seen. It is undeniable that climate change is hurting tourism, major revenue for the region. The hospitality industry which boasts the highest number of employees in the Cook Islands has had to start putting in place adaptive measures as cyclones ravage at random while drought and intense heat threaten essential commodities like water.

Increasing Cyclone frequency has created a live classroom for adaptation lessons for Pacific peoples. Currently the training manuals to develop the coping mechanisms are provided by our governments and NGO's working with local communities. These efforts at the most are not enough. Bringing communities onboard is not an onerous exercise but it requires commitment and financial resources. Mobilizing these resources to build national/local capacity is imperative.



We simply cannot continue on a chronic path of messy international meetings that begin with words and end with words. Regions around the world including my own are entering a crisis of unprecedented proportions. Many are helpless in the unrelenting face of climate change yet the current state of the global environment is not of their doing. The developed countries know what they should do and take responsibility going forward. As a young friend from Ethiopia said last week, laggard developed countries like the US need to feel the pain of suffering to realize that they must be a part of the solution to resolving the climate issue. Perhaps it will be too late for us by then. We cannot wait for that scenario and mortgage our survival to the outcomes of those impacts. These reasons are my motivation for being a part of these talks as an observer – working along with the global civil society to raise the urgency for the governments of the world to agree to a fair, ambitious and binding international agreement on Climate Change and keeping survival on the list of possibilities for my people and my land.

# ETHIOPIA: Landscape of Contiguous Challenges

*"By 2080, an extra 600 million people worldwide could be affected by malnutrition. An extra 400 million people could be exposed to malaria. And an extra 1.8 billion people could be living without enough water." Intergovernmental Panel on Climate Change.*

The impacts of climate change are being felt by the communities especially farmers and pastoralists in poor developing countries such as Ethiopia. Ethiopia's economy is highly dependent on rain fed agriculture of which more than 80% of the population's subsistence depends on. Ethiopia is one of the most vulnerable countries to climate variability because of multiple stresses and low resilience, arising from endemic poverty, weak institutions, as well as complex disasters and associated conflicts particularly in pastoral and agro-pastoral areas.

Ethiopia is a country of great geographical diversity characterized by a highland central plateau, with semi-arid areas to the southeast and northeast and more temperate areas to the southwest. Ethiopia has diverse livelihood systems that include sedentary farmers, pastoralists and agro-pastoralists. These systems are affected by climate change differently. It is widely recognized that poor people are most hit by the negative effects of climate change but they also have significant knowledge and capacity to respond to livelihood stresses, including climate change. However, little is known, about household and community level perceptions and responses to current climate risks, the barriers that exist to adaptation, and how adaptation can be supported in the context of other development concerns.



Climate change has been relatively a new issue being discussed among larger part of the community. However there are different studies and community hearings that have been conducted in different parts of the country by various groups to assess what climate change is to the people and how they perceive it. Impacts of climate change such as drought and extreme weather are causing frustration to farmers and pastoralists in particular who are struggling to survive. They have noticed changes in their weather as it is getting hotter and rains becoming shorter and sometimes no rain even though they don't know the connection between climate change and these weather changes. However most people in rural communities believe that God is ultimately responsible for these changes in the weather and feel helpless and have no knowledge of what can be done other than praying. Others believe that local deforestation and local pollution as the primary causes of the drought and environmental degradation they have experienced.

Additionally, malaria has become very common in the highland part of the country which was never the case before. Other impacts such as increased animal diseases, shortage of pasture for livestock and also increase of invasive species such as *prosopis* especially in the pastoralist areas. Some major lakes have also been drying in different parts of the country. However, all these problems can't be concluded as the impacts of climate change though some local practices have exacerbated these problems. Climate change presents an additional stress for Ethiopians who are already struggling with the challenges posed by drought and endemic poverty. Ethiopia has a history of drought and famine, and these impacts of climate change on this fragile environment are complex.

Regarding specific impacts, some examples about the 'Nyangatom' community found in the Southern part of Ethiopia, i.e. an agro-pastoralist community with not more than a population of 23,000, a tribe found in a remote area and semi-arid environment could be mentioned. One elder in the community has said that "we still have names of the month but they don't say anything anymore". People have started quarrelling when talking about the months as the names of each month was related to the season but they don't mean anything now. They are even discussing about changing names of the month. As there is a decrease of rainfall and increase of rainfall variability everything has changed. Since the temperature has increased and become very hot the Nyangatom don't want to dance anymore during the day time as the heat is unbearable which they feel like their lives have become boring. These impacts could lead to the extinction of this community if this changing climate worsens and unless some measures are taken.

In order for developing countries such as Ethiopia, to adapt to the impacts of climate change financial support, transfer of technology and capacity building from the developed countries that are responsible for the historical emissions is essential. International negotiations need to reach to a fair ambitious and legally binding deal resolved as soon as possible in order to save lives of many people, which is at stake. Ethiopia as a nation has prepared a National Adaptation Plan of Action (NAPA) to implement adaptation measures but unless the finance, technology transfer and capacity building is available nothing can be done. Developed countries should take all these into consideration and start acting on the solutions such as cutting their emissions and work towards a legally binding deal.

# BANGLADESH: Looking at Community Based Adaptation Solutions

Bangladesh is vulnerable to temperature variation, erratic rainfall patterns, flood, drought, cyclone and storm surge, salinity intrusion in both surface and ground water, sea level rise (SLR) etc. All these hazards especially cyclones, storm surge and saline intrusion are a major threat for the coastal areas. They adversely affect most of sectors including agriculture, water resources, health etc. It is predicted that the future impacts might be irreversible particularly in the coastal region due to SLR and other mentioned hazards.

The policy makers, researchers, media and practitioners are highly concerned nowadays about addressing climate change and adaptation in Bangladesh. We developed the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) in 2009. The government allocated about 100 million USD to implement BCCSAP. Further the first NAPA recommended projects are now being implemented. The projects under the Government's Climate Trust Fund (CTF) are in the process to be implemented soon. The CTF has already approved a number of community based adaptation projects to be implemented by the government organizations. Recently, the proposed Multi-Donor Trust Fund (MDTF) has been renamed as Bangladesh Climate Resilience Fund (BCRF) with a revamped governance structure, funds from which will be processed and disbursed in the coming months.

Different adaptation technologies have been introduced in communities according to local needs. However a majority of currently available adaptation technologies are likely to address only the present climate variability. The communities might need improved technologies in every sector if the impacts are aggravated further, as predicted by the IPCC (Intergovernmental Panel on Climate Change) and other scientific reports e.g. stern review, IARU (International Alliance for Research Universities) etc. Adaptation measures (structural or non-structural) considering long-term changes of the climate in any sector are still far away in Bangladesh. All structural and non-structural measures may need climate screening to assess risks and climate resilience. However, the government and CSOs have initiated or developed a number of adaptation technologies in many areas including coastal zone. Some of these practices are:

- Agriculture (mainly crops): Bangladesh Rice Research Institute developed a number of rice varieties which are resilient to climate induced hazards such as flooding and salinity. Some of these varieties can thrive under 40-60 cm tidal water. The other practice in the agriculture sector includes "floating garden" which is locally known as *Baira* cultivation. A floating garden is built using water hyacinth, with a base soft soil or cow dung on which vegetables are grown. Many villages in southern Bangladesh, which are exposed to flood or inundation, practice *baira* cultivation for basic or alternative income. This practice can be easily replicated in the flood prone areas. The communities which are facing the climate related hazards are trying to generate additional income through alternative livelihoods, especially by the women in many of the households. This is an example of an absolutely spontaneous adaptation practice.



However over the years, the intensity of the practices has increased and diversified from single crop to multiple crops.

- Water Supply and Sanitation: Safe water supply and proper sanitation practice is still a challenge for many communities in Bangladesh especially in the areas prone to flood, drought, cyclone and storm surge, salinity intrusion and sea level rise. However, many households or communities practice the following technologies in coastal areas: *Pond Sand Filters (PSF)*: Some of the communities use PSF technology especially for the purpose of safe drinking water. PSF technologies are mainly provided by the government and non-government organizations to ensure safe water for the vulnerable communities. *Community-level pond protection*: Many of the communities protect the small isolated water bodies (ponds) for domestic use. It is evident that large number of households under the district of *Satkhira* still uses the pond water for drinking purposes. It is to be noted that most part of this district is already exposed to saline intrusion at different levels of concentration. *Rainwater harvesting*: Likewise, many communities are using the water collected by rainwater harvesting technology. This practice is again increasing especially in the water scarcity prone areas in the country.

The NGOs in Bangladesh are actively working with communities on capacity building including awareness raising, research-impacts/vulnerability assessment and promotion of the available technologies on the ground. They are undertaking numerous pilot projects that will help to build the necessary experience around CBA to build the climate resilience of an overwhelmingly vulnerable people in a low lying least developed country.