How the climate crisis is affecting other countries

Below is a report from November 2015 of the 10 countries most affected by climate change written by Kari McGregor and published by Shift Magazine



Every day the news media delivers more facts, figures and stats about climate change, and every day business as usual continues.

We have heard that we will need to reduce atmospheric CO2 to 350ppm and stabilize there, and that we are on track for a 2 degree increase in global average temperatures by mid-century, which will be disastrous. But most of us have not heard that 260ppm is a far safer emissions level, consistent with pre-industrial times. And most of us have probably not heard that 2 degrees is a death sentence for low-lying island nations and much of Africa, which is why these nations, and others, lobbied at Copenhagen in 2010 for international agreement to a 1 degree limit, yet were undermined by even the environmental NGOs whom they believed stood for climate justice.

But all this talk of numbers is barely tangible. What does it all mean in practical terms? What will the impacts look and feel like for those who will be most affected? Why are these points not first and foremost in our public discourse?

Of course there is no place on Earth that will emerge unscathed from the effects of climate change. But there are some places where the effects will be felt more keenly than others. Large parts of some countries will become inundated when sea levels rise, leaving them uninhabitable and their populations displaced. Cycles of drought and flooding will impact food security, forcing populations to migrate away from unproductive agricultural land.

The most at-risk countries, according to the most up-to-date modelling are, as one has come to expect, all in the developing world – particularly Africa and Asia.

The greatest increase in risk levels is felt in West Africa and the Sahel, whose political terrain is already dominated by food insecurity issues, and projections up until 2040 indicate a 2 degree rise in average temperatures combined with substantial changes in rainfall and humidity. Many of these most at-risk countries have sizeable – and growing – populations that will need to relocate. The US and much of Northern Europe are, fortunately for the residents of those developed countries, deemed to be at low risk, at least for the near future.

Risk analyst Maplecroft has just released the 2014 edition of their <u>Climate Change</u> and <u>Environment Risk Atlas</u>. In the new <u>Climate Change Vulnerability Index</u> (CCVI), vulnerability has been calculated as the susceptibility of 197 nations, for which there was data available, to extreme climate-related events such as droughts, cyclones, landslides and sea-level rise. Also considered in the evaluation is each country's capacity to adapt to the anticipated threats.

Climate Change Vulnerability Index 2017

Here are the top ten most at-risk nations on Earth:

1. Bangladesh

Not just the sweatshop labour capital for our western consumerist clothing needs anymore, Bangladesh is soon to be famous for literally going under water.

Lay of the Land: Bangladesh is located in the low-lying Ganges Delta between India to the west, and Burma to the east, and boasts some of the most fertile agricultural plains in the world. Most of the country is lower than 12 metres above sea level and extremely flood-prone.

Climatic changes: A tropical monsoon country, Bangladesh is prone to floods, tropical cyclones, and tornadoes, which occur almost every year, and now the low-lying country is suffering increased rainfall, cyclones and rising sea levels.

Impacts: Soil degradation, erosion and deforestation resulting from climate change are huge problems for food and water security, as well as human health and shelter. It is estimated that a 1 metre rise in sea level would result in inundation of 10% of the country. Earthquakes also pose an increased threat as flooding of the delta forces the underlying Earth's crust down, aggravating faults, and tectonic movements have even caused rivers to suddenly and dramatically change course. Over the coming decades it is estimated that 20 million climate refugees will emerge from Bangladesh.

Adaptation: In proactive measures, Bangladesh has been experimenting since the 1960's with a "build with nature" program that implements cross dams, causing accretion of silt that creates new land. With the assistance of Dutch funding, Bangladesh has developed this new land by building roads, embankments, and cyclone shelters, as well as distributing land among settlers to re-settle 21,000 families.

2. Guinea Bissau

Not to be confused with Guinea, Equatorial Guinea, or Papua New Guinea, Guinea Bissau is soon to be placed on the map in its own right, no longer to be mixed up with other similar-sounding countries.

Lay of the Land: Guinea Bissau, located on the west coast of Africa and bordered by Senegal and Guinea, is a small, low-lying tropical country with coastal mangrove swamps and inland savanna.

Climatic changes: Guinea Bissau experiences a monsoon-like rainy season alternating with hot, dry winds blowing from the Sahara. Rainfall has become irregular and unpredictable. The coastal lowlands are exposed to increasing rising tides due to thermal ocean expansion, which in turn increases the risk of flooding.



Impacts: Coastal erosion due to flooding is causing dramatic losses of vegetation and infrastructure and threatens entire villages. Damage to infrastructure and loss of water security are already felt keenly, as is the loss of food security due to the loss of fish stocks and coral reefs, soil degradation and decreased agricultural yields. With more than two thirds of the

population living below the poverty line, Guinea Bissau is already heavily dependent on foreign aid.

Adaptation: Guinea Bissau has made efforts at reforestation, rehabilitation of degraded lands and natural resource management, and is integrating the issue of climate change into national development strategies and policies. In order to adapt sufficiently, Guinea Bissau requires financial and technical support from developed nations.

3. Sierra Leone

Sierra Leone, famous for blood diamonds and civil war, is next on the list.

Lay of the Land: Another west-African coastal nation, Sierra Leone boasts diverse terrain, from high plateau to forested lowland plains and mangrove swamps. The north is forest savanna, and the south is rainforested plains and farmland.

Climatic changes: Sierra Leone's climate is tropical, with a rainy season and a dry season which brings cool, dry winds from the Sahara. The population is now threatened by climate change-related droughts, storms, floods, landslides, heatwaves and altered rainfall patterns.

Impacts: Crop production is highly vulnerable to prolonged droughts interspersed with heavy rainfall, rendering Sierra Leone another country at high risk from threats to food and water security. These problems are compounded by deforestation, carried out in order to make room for increased agriculture as well as for commercial timber, and slash and burn land conversion for cattle grazing.

It is the poor communities who rely on subsistence agriculture who suffer the most.



Adaptation: Sierra Leone has begun adaptation efforts including sustainable land and natural resource management programs as well as improved technical and institutional capacity development to provide improved access to weather and climate data. Progress is slow and does not hold great promise.

4. Haiti

Haiti, placed on the map for many after the devastating earthquake of 2010, and winner of the 2013 honour of most at-risk country in to the world to the effects of climate change, no longer holds the top spot. However, this is likely due to increased threats to other countries than to improvements in Haiti's own situation. Lay of the Land: Haiti is the eastern half of the Caribbean island of Hispaniola, shared with the Dominican Republic. Haiti's terrain is predominantly mountainous, with small coastal plains and river valleys.

Climatic changes: Haiti's climate is characterized by two seasons: the wet and the dry. Heavier rainfall is now occurring in the wet season, hurricanes are more frequent and less predictable, and sea level rise is a major concern. Climate projections, however, indicate a hotter and drier future for Haiti with decreased precipitation overall.



Impacts: Half of all Haitians work in agriculture, which is becoming increasingly unstable with changes in climate patterns. Unseasonable droughts have caused widespread crop failure in recent years. Less than 2% of Haiti's forest cover remains since the 1915-1934 US occupation, which oversaw the majority of deforestation due to concentrated land ownership for plantations; with few tree roots to bind topsoil landslides are inevitable in heavy storms. There is little in the way of marine, coastal and river basin management, and soil erosion and deforestation have led to catastrophic flooding, which has become a norm.

Adaptation: Poverty has massively impacted Haiti's ability to prepare for extreme weather events and adapt to a changing climate, and the response capacity of Haitian institutions is low. And now that post-earthquake aid has dwindled there is little in the way of external funding coming in that could help Haiti to her feet.

5. South Sudan

The world's "newest nation" is currently generating concern for its latest descent into civil war. South Sudan, however has even harder times ahead. **Lay of the Land:** South Sudan is a landlocked central African nation that gained independence from Sudan in a referendum in 2011. The landscape is tropical forests, swamp and grassland.

Climatic changes: South Sudan's climate is tropical equatorial with a humid rainy season – with vast amounts of precipitation – and a drier season. However, climate change has delayed and shortened the rainy season, and drought has become an increasing concern.



Impacts: Rivers that were once permanent have become seasonal. Water is scarce during the dry season, and at least 50% of the population lack adequate access to safe drinking water. Rainfall patterns have now become so unpredictable that farmers simply do not know when to plant crops. Livelihoods and food security are now at considerable risk, particularly since the majority of the population is employed in the agricultural sector. Desertification and soil erosion have become a major issue, indicating the difficulty of reversing the impacts of climate change on South Sudan.

Adaptation: Stable institutions are required in order for any country to adapt to climate change. South Sudan's predicament is only worsened by the increased civil strife in the region.

6. Nigeria

The surprise addition to the list, new it at #6, is Africa's largest economy: Nigeria. Nigeria's oil-based economy is set to suffer greatly, likely impacting the funds required to address climate change.

Lay of the Land: Another west African nation, Nigeria lies on the fertile Niger Delta, one of the world's largest. The terrain is varied, with mountains, plateaus, savannah, rainforest, coastal plains, and mangrove swamp.

Climatic changes: Along with its varied terrain, Nigeria also has variable climatic patterns which are compounded by climate change. Nigeria is already experiencing

drier weather, particularly in the northern Sahel region, and droughts are increasing in frequency and severity. It is also expected that Nigeria will experience temperature shifts, changing rainfall patterns, storms and sea-level rise.



Impacts: The oil-rich Niger delta is particularly vulnerable to the effects of climate change, with erosion resulting from rising sea levels. In the Sahel region the Sahara desert is encroaching and the increased risk of drought is compounding existing patterns of water scarcity. Despite economic development in other sectors, 60% of Nigerians still work in agriculture, and their livelihoods are impacted by a changing climate. It has been predicted that the effects of climate change will lead directly to civil conflict in Nigeria.

Adaptation: Adaptation measures taken thus far in Nigeria have centered around educational initiatives, but the country still lacks a federal oversight body for the purpose of coordinating research and policy. Funding is also needed from more developed nations. The issue of adaptation in Nigeria is a complex one due to the need to various measures designed to suit the various bioregions.

7. DR Congo

Famed for civil war and the conflict minerals of the Rift Valley – particularly the coltan so essential for the making of smartphones and computer parts, the Democratic Republic of the Congo (DRC) is the richest nation on earth in terms of natural resources, and the most biodiverse African country, yet one of the poorest nations on Earth, with 70% of the population living below the poverty line.

Lay of the Land: Located in the Great Lakes region of Central Africa, the DRC is an equatorial country that is home to the world's second largest rainforest. Thickly forested terrain, high plateau merging into savannas, high mountains and dense grasslands are the lay of this African land. **Climatic changes:** The tropical climate of the DRC experiences high precipitation, and the highest frequency of thunderstorms of any country in the world. The frequency of floods, droughts and heatwaves is expected to increase.



Impacts: The predicted increase in frequency of floods, droughts and heatwaves, is expected to impact agricultural productivity and livelihoods. Deforestation and land degradation due to mining are exacerbating these climate-related disasters by increasing the likelihood of soil erosion and landslides. Rural populations have been displaced from their land by conflict, drought and flooding, and coupled with economic decline this has caused pressures on food security and resultant hunger. **Adaptation:** The low adaptation capacity of this desperately poor country places a huge proportion of the country at great risk for the future. It is also predicted that climate change will contribute to future conflict in the DRC due to scarcity of productive land.

8. Cambodia

Another country famous for its bloodshed, Cambodia has seen more than its fair share of strife.

Lay of the Land: Located on the Mekong Delta in south-east Asia, Cambodia is characterized by low-lying central plains surrounded by mountains and highlands. Heavy deforestation – much of it due to illegal logging – has scarred the landscape. **Climatic changes:** Cambodia is a tropical country with a monsoon season and a dry season. In monsoon season Cambodia is extremely flood-prone. Flooding is increasing in frequency and severity during monsoon season while temperatures during dry season are on the rise.

Impacts: Climate change is expected to amplify already existing problems of water scarcity, agricultural failure and food insecurity. Extreme flooding is predicted to endanger the agriculture that supports the majority of the population, particularly those living below the poverty line. Extreme heat is also predicted impact the Cambodian to economy due to increases in workdays lost to impossible working conditions. Economic difficulties have the further



impact of constraining funds for climate change. Increased incidences of malaria and dengue fever are also predicted.

Adaptation: A lack of infrastructure for dealing with flooding and other climate disasters has become cause for alarm among Cambodians, who fear their country's government is making inadequate efforts to prepare for climate change. Nearly half of Cambodia's settlements are categorized as either vulnerable or extremely vulnerable to climate change. Capacity-building as well as funding for adaptation measures are desperately needed if Cambodia is to avoid disastrous flooding in future.

9. Philippines

Much in the media as of late, the Philippines has escaped the attention of no one for its extreme vulnerability to the effects of climate change. The term supertyphoon is set to become a fixture in climate-related vocabulary.

Lay of the Land: The Philippines, a tropical archipelago of more than 7,000 islands in the Pacific Ring of Fire, is the 12th most populous country in the world, with more than 98 million. Most of the islands are mountainous and covered with tropical rainforest.

Climatic changes: The climate of the Philippines is tropical, hot and humid. There are three seasons: hot and dry, cool and dry, and rainy. The Philippines straddles

the typhoon belt, meaning that the archipelago is regularly hit by typhoons and torrential rains. It is expected that climate-related disasters will increase in frequency and severity, and the recent devastation and deaths of thousands from typhoon Haiyan are a stark predictor of what to expect in future.



Impacts: Rising sea levels place the Philippines in a particularly vulnerable position, and increase the threat of storm surges that inundate vast coastal regions, threatening their populations who will be forced to migrate en masse if they are to escape the effects of food insecurity and loss of shelter and livelihood that result. Manila, the country's capital, is at particular risk due to a combination of factors: exposure to climate-related hazards, poor socio-economic factors, and low adaptation capacity. Predicted to grow by 2.23 residents by 2020, an increase of close to 20% of its population, the risks of flooding and typhoons affecting Manila threaten millions.

Adaptation: Despite UNFCCC delegate Naderev (Yeb) Sano's impassioned speech at the COP19 in Warsaw, the Philippines' adaptation efforts look set to remain underfunded. The Philippines has been at the forefront of recent criticisms of developed countries' reluctance to assist developing nations with mitigation and adaptation efforts, and cover for loss and damage.

10. Ethiopia

An unsurprising new addition to the list this year, Ethiopia is famed for drought, crop failure and famine on a Biblical scale which looks set for a sequel.

Lay of the Land: Located in the Horn of Africa, Ethiopia is the world's most populous landlocked country. Ethiopia is a surprisingly diverse country with mountainous highlands to lowland semidesert.

Climatic changes: Ethiopia's diverse landscape also brings with it a diverse climate, although Ethiopia's predominant climate is tropical monsoon. However, rainfall is becoming increasingly unpredictable, arriving later in the season, and droughts – ever a mainstay of Ethiopian climate – are getting worse.

Impacts: Small-scale farmers – which make up 85% of the Ethiopian population – are expected to bear the brunt of climate change-induced drought in Ethiopia, resulting in water scarcity and food insecurity.



Crops have failed and cattle are dying; it is probable that Ethiopia will experience more famines on the scale for which the nation is famed. Drought and its effects in Ethiopia are exacerbated by deforestation, and the country has reduced its forest cover to now only 11.9% of the land down from 35% only a century ago.

Adaptation: Farmers are opting to plant more drought-resistant crops, and pastoralists have even opted for herds of camels or goats, as opposed to cattle, in order to better manage drought-associated risks. However, poverty, limited resources, and limited alternative options for livelihoods – compounded by the absence of policy measures and adequate funding – mean that Ethiopian lives hang in the balance once again.