CENTER FOR ENVIRONMENTAL JUSTICE -TOGO

POLICY BRIEF

UNDERSTANDING GEOENGINEERING AND ITS IMPACTS: CASE OF TOGO

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ACRONYMS AND ABBREVIATIONS

AFAT : Agriculture, forestry and other land uses

AP : Paris Agreement

ANAMET : National Meteorology Agency

ANGE : National Environmental Management Agency

ANPC : National Civil Protection Agency

BECCS : Bioenergy with CCS

UNFCCC : United Nations Framework Convention on Climate Change

COP : Conference of Parties

NDC: Nationally Determined Contributions

CCS : Carbon capture and storage

COP : Conference of Parties

CO2 : Carbon dioxide

CH4 : Methane

FAT : Forestry and other land uses

GHG : Greenhouse gases

MERF : Ministry of the Environment and Forest Resources

CSOs : Civil society organizations

PIUP : Industrial processes and product use

PND : National development plan

PTF : Technical and financial partners

INTRODUCTION

1. General context

Changes in the planet's climate and their adverse effects are a matter of concern for all mankind, including in Togo. Human activities such as the use of fossil fuels in industry, agriculture, livestock farming, transport and energy have significantly increased the concentration of greenhouse gases (GHGs) in the atmosphere; the greenhouse effect being the main driver of climate change. These activities release huge quantities of GHGs, adding to those naturally present in the atmosphere. The result of this increase in GHG concentration is further warming of the earth's surface and atmosphere, affecting both natural ecosystems and humanity. Some of these gases in particular are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and fluorinated gases (F-gases).

The main causes of rising emissions are due to: (1) the burning of coal, oil and gas, which produces carbon dioxide and nitrous oxide; (2) the increase in industrial livestock farming (cattle and sheep produce large quantities of methane when they digest their food); (3) fertilizers containing nitrogen produce nitrous oxide emissions; (4) fluorinated gases are emitted by equipment and products that use these gases: these emissions have a considerable warming effect, up to 23,000 times greater than that of CO2.

In this regard, the international community has recognized the need to keep global warming below 2°C, and to continue efforts to limit it to 1.5°C (The Paris Agreement). To slow global warming, we also need to reduce other greenhouse gases such as methane. Most of the greenhouse gases emitted worldwide in the past and at present originate in developed countries. Per capita emissions in developing countries are still relatively low.

The urgent need today is to combat the climate crisis by cutting the emission at the source which means moving away from fossil fuels and adopting the solutions that are in harmony with nature, the peoples, and real solutions.

But giving the fact that developed countries preferred to continue doing the business as usual and gain more profits, they came up with, in collusion with engineers, the idea of saving the planet through the use of geoengineering technologies such as Carbon Dioxide Removal (CDR) and Solar Radiation Modification (SRM) technologies. These technologies will legitimate rather the CO2 emission and will divert real climate action.

To preserve the climate system for present and future generations, i.e. to combat the harmful effects of climate change, Togo as a country has ratified the United Nations Framework Convention on Climate Change (UNFCCC) on March 08, 1995, the Kyoto Protocol on July 02, 2004 to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The country also participates in the annual Conferences of the Parties (COP) on climate change. In the optic to combat climate change, the Council of Ministers adopted in March 15, 2023 a new decree on carbon management mechanisms[1]. The decree aims to contribute to the reduction of greenhouse gas emissions in the country and to strengthen the resilience of populations in the face of climate change. The Council's communiqué says: “The adoption of this text, which sets out the rules for carbon management mechanisms, will boost carbon storage while

[1] Minutes of the Council of Ministers of March 15, 2023 – Archyde

helping to meet Togo's international commitments to reduce greenhouse gas emissions." This decree will open doors to any CDR projects in Togo which may be disastrous for the communities. In addition, the peoples and communities are ignorant of the consequences of the CDR technologies. It is therefore important to raise awareness of people and communities on the geoengineering issues.

2. Objective of the brief

In general, this brief is put together to better understand the dynamic of the promotion of geoengineering technologies in the climate negotiations spaces on one hand and to know the risks, impacts and potential impacts those technologies are having and can have on the planet and the peoples. On the other hand, it also elaborates on the different technologies pushed by the polluters to continue their business of polluting the environment.

Specifically, the brief will be used to raise Togolese population awareness and build capacity of Civil Society Organisations (CSOs) and Local Communities (LC) in Togo on the issues of geoengineering in the context of climate change, by giving clear indication on the impacts and danger those technologies can have on the communities' livelihoods and the environment. The brief will clearly name the removal technologies pushed forwards as solutions to climate change, but rather they are a distraction to climate real actions.

I. GENERAL OVERVIEW ON GEOENGINEERING

I.1. What is geoengineering ?

Geoengineering refers to the intentional manipulation of the environment at a global scale in order to affect the climate in ways that limit or reverse some of the effects of global warming. Climate geoengineering encompasses highly speculative large scale schemes for intervention in the earth's oceans, soils and atmosphere, usually temporarily and without addressing the root problem of emissions from fossil fuels and changing land use[2].

I.2. Categories of geoengineering

There are two categories of geoengineering technologies: Solar Radiation Modification (SRM) and Carbon Dioxide Removal (CDR).

According to the Geoengineering Monitor, SRM technologies are proposed to deal with the symptoms of climate change by pushing back into the space the heat from solar in reflecting sunlight away from the Earth; and regarding the CDR technologies, they are proposed to remove carbon from the atmosphere on a massive scale using a range of engineered methods.

[2] Don't Geoengineer Africa: Hands Off Mother Earth! Alliance Policy Brief - Geoengineering Monitor

1.2.1. Solar Radiation Modification technologies

There are several SRM technologies, this brief will highlight two of them: CCT[3] and MCB[4]

Cirrus Cloud Thinning

It is a solar geoengineering proposal which aims to eliminate or thin cirrus clouds to allow heat to escape into space. Researchers admit that the injection of "too many" ice-nucleating particles into cirrus clouds may produce the opposite effect – more and thicker clouds may be produced, so that even more heat is trapped, which could lead to increased global warming.

Marine Cloud Brightening (MCB)

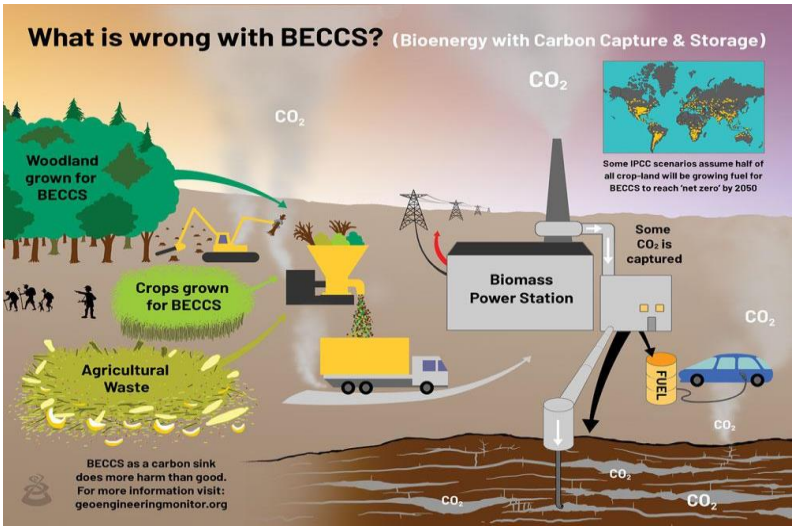
It is a theoretical solar geoengineering technique that aims to create whiter clouds in order to reject more sunlight back to space. The brightening of the clouds is to be attained by enhancing the concentration of smaller cloud droplets. MCB would not reduce the concentration of greenhouse gases in the atmosphere and, like all solar geoengineering techniques, could have impacts on weather patterns with potentially calamitous ecological impacts on entire regions.

1.2.2. Carbon Dioxyde Removal

Carbon Dioxide Removal is proposed to become the main proposal to deal with climate change in terms of carbon sequestration and reduction, and have a different way to remove CO2 from the atmosphere, which include Carbon Capture and Storage (CCS) and Bioenergy Carbon Capture and Storage (BECCS).

Bioenergy Carbon Capture and Storage (BECCS)

BECCS technologies consist of burning a huge amount of farm crops, trees, or plant residues from farmlands and forests to generate electricity, and then capturing and storing on the ground the emission of the carbon dioxide arising from the combustion process. This storage uses water-intensive processes and energy. The emissions are captured and then stored underground5 in deep geological formations. BECCS, which is a land based geoengineering, also requires massive areas of land and entail enormous threats to the environment[6], land and human rights.



Everything is wrong with BECCS :

Land grabbing

Biodiversity loss

Forest degradation

Human rights violations

[3] cirrus-cloud-thinning.pdf

[4] marine-cloud-brightening.pdf

[5] Energy explained: What is BECCS? | SLB

[6] Fact Sheet: Bioenergy with Carbon Capture and Storage (BECCS) | American University, Washington, DC

Carbon Capture and Storage (CCS)

In regards to the CCS, the promoters intend to use the technologies in the site of a carbon dioxide-emitting project. Once the CO2 is captured or removed from the atmosphere, the CCS system transports it, and stores it underground - as an attempt to "reduce emissions". The CCS was originally created to inject carbon into existing oil reserves as a way to extract more oil through Enhanced Oil Recovery (EOR) and remains predominantly used for that purpose. Today, this technology has been proposed as a solution to climate change.

I.3. Geoengineering social and environmental risks and associated human rights violations

1.3.1. Environmental and social risks

The Global South is already experiencing an immense pressure on land, and CDR at the scale needed to impact global heating would exacerbate land grabbing and human rights abuses. Geoengineering technologies such as BECCS would add considerably to these pressures, with grave consequences for both people and biodiversity.

For BECCS to have any theoretical impact on the global average temperature it scale would need to be enormous. Some climate models[7] have assumed creation of BECCS plantations as large as a third of the entire landmass of Africa. In fact, the global land gap report[8] estimates that 1.2 billion hectares of land would be required to effectively fulfil governments' pledges for all land-based CDR techniques.

Particularly, women in the Global South are at risk as their lack of land rights often make them more vulnerable to commercially-driven land dispossession.

1.3.2. Human rights violations

The UN's Human Rights Council Advisory Committee states in its report on the 'Impact of new technologies intended for climate protection on the enjoyment of human rights' (A/HRC/54/47, 10 August 2023), that because such technologies "are meant to be applied on a global scale, [they] have the potential to affect everyone indiscriminately. They could seriously interfere with the enjoyment of human rights for millions and perhaps billions of people."

The following human rights can be easily violated: the right to live in a safe environment, the right to food, the right to decent housing, the right to water, etc.

[7] HOME-Africa-Geoengineering-Policy-Brief.pdf

[8] https://landgap.org/downloads/2022/The-Land-Gap-Report_Executive-Summary.pdf / HOME-Africa-Geoengineering-Policy-Brief.pdf

1.3.3. Africa continent concerns on geoengineering

In regards to Africa, geoengineering continues to be pushed. It includes research into Solar Radiation Modification (SRM). With the involvement of the African Ministerial Conference on the Environment (AMCEN) into the discussions in 2012 and early 2013 on the governance of research into SRM, the report concluded that there is not enough information available about SRM to conclude whether it is helpful or harmful for managing climate risks, and that more research is needed to understand its full implications. AMCEN, while calling for a global governance mechanism for the non-use of SRM technologies during its 19th Ordinary Session in 2023, cautioned against the promotion of Carbon Dioxide Removal (CDR) approaches until the risks are better understood. Climate manipulation technologies such as SRM and CDR are risky and must be treated like chemical weapons and human cloning. Africa must not become a testing ground. Carbon capture and storage (CCS) is controversial and distracts attention from fossil fuel reduction like other technologies.

II. SITUATION REPORT ON GEOENGINEERING IN TOGO

2.1. Brief presentation of Togo

Togo is a West African country with a surface area of 56,600 km² and a population of 8 095 498 inhabitant, located between 6° and 11°N and 0.14 and 1°40 E. Its territory is organized into five (05) economic regions. Located in the inter-tropical zone, it enjoys a 4-season Guinean tropical climate in the southern part and a two-season Sudanese tropical climate in the northern part. The Maritime and Savanna regions receive less than 1000 millimeters of water per year. Seasonal irregularities have been observed in recent decades. The Atakora Massif and Togo Mountains slice through Togo's territory from northeast to southwest. Mount Agou is the country's highest peak, rising to over 900 m in the south-west. On either side of this range lies the peneplain. Togo has four main soil classes. These are crude mineral soils with little development; tropical ferruginous soils; ferralitic soils and vertisols; and hydromorphic soils. With a forest cover of 24.24%, Togo's biological resources are numerous and diverse. Plant formations include dense semi-deciduous forests, Guinean savanna, Sudanian savannas interspersed with dry forests or open forests depending on the locality, gallery and riparian forests, etc. Togo's flora includes 3,491 terrestrial species and 261 aquatic species. The fauna, estimated at 3,469 species, comprises terrestrial species, avifauna and aquatic fauna. Togo is divided into five main phytogeographical domains. These are known as ecological zones.

2.2. Togo's political will to combat climate change

The government's political will to combat climate change in Togo is reflected in the ratification of international conventions and the adoption of political, legal and institutional measures in this area. There are numeros policy and legal frameworks adopted by Togo to combat climate change in different sectors of work. Also some of the international commitments on the environment and climate change are ratified by Togo. At national level, climate change mitigation and adaptation are enshrined in various national texts.

A decree related to the use of technologies is a new decree on carbon management mechanisms adopted on the 15th of March 2023. The implementation of this decree may be

dangerous for Local Communities and their livelihoods in terms of land acquisition for carbon capture projects.

2.3. Is Togo at risk with CDR technology promotion?

As part of it commitments to the UNFCCC negotiations and outcomes, Togo has expressed its impressive ambitions to reduce gas emissions through various measures., In reference to the ministerial decree on the 15th of March 2023, Togo's ambition to combat climate change includes greenhouse gas (GHG) sequestration technologies which can be assimilated to the CDR technologies namely Carbon Capture and Storage (CCS) and Bioenergy with Carbon Capture and Storage (BECCS). With regard to the definition of geoengineering and its potential negative impacts on the environment and people, Togo emission reduction efforts and strategy need to be carefully thought.

2.4. State of implementation of BECCS and CCS in Togo

It has to be said that the implementation of CCS technologies in industries in Togo is not yet a reality, with the exception of the Heidelberg Cement Foundation and STEEL CUBE, which have installed a system for sequestering GHG emissions from exhaust gases. This system enables them to trap and transform GHGs into a black soot which can be traded on the international market. The system device is placed next to chimneys or exhaust fumes. They capture CO2 as it leaves the chimney or exhaust. The device then transforms the sequestered CO2 from the chimneys into a very fine, blackish powder: black soots. This soot is then offered for sale on the international market. It is noted that these two industries changed their chimneys in 2024. The new chimneys filter the smoke and dust and return the black deposits to a specially installed basin. Finally, the Heidelberg Cement Foundation is moving towards a change of fuel: from wood to used tires.

In regards to BECCS, from the media VERT TOGO's article, it clearly showed that the Heidelberg Cement Foundation put in place an effort to implement BECCS technology. Dominik Von Achten, the CEO of the Heidelberg Materials Group explained that "*We are vigorously pursuing our carbon capture and storage/reuse of the carbon projects: by 2030, we will reduce our CO2 emissions by 10 million tonnes from the projects we have already started*," Indeed, the Heidelberg Materials Togo Group is committed to use the alternative fuels made from forest and crops residues such as palm kernel shells, mahogany nuts and rice bran. The aim of the German cement manufacturer is 33% substitution rate by 2050, with a forecast of 10.04% by 2024.

The use of the crops and forest residues with intention to reduce the carbon emission may lead to the use of a large amount of land in order to produce crops and biomass for machines which will have a huge consequence on the community of the prefecture Zio and Yoto where the company is installed. There are 20,457 hectares of palm tree farms, and at least 85,856 tons of shells and 8,776 tons of pulp produced annually. In addition to the existing crops farm, the Heidelberg foundation has the intention to cultivate more biomass as an alternative solution. The project is currently in an implementation phase on a 3-hectare site. This plantation is composed of plants such as miscanthus and elephant grass which will be used as an alternative fuel for the furnaces at the Tabligbo company plant. This statement was confirmed by Mr. Koamy Gomado, Social Responsibility Manager of the Heidelberg Cement foundation in Togo. An additional concerning information to all this, is that the Social

Responsibility Manager declared that biomass is a renewable energy source that doesn't emit GHGs, which is not true.

He also declared "*We'll need a larger area if this pilot project produces positive results. If the pilot project is successful, the local population will be encouraged to grow biomass in their fields, instead of growing only food crops. This will also enable us to help them diversify their crops and sources of income*." It should be noted that 20 million XOF[9] have been already injected into the biomass cultivation and the company plans to extend the area of experimentation to 10 ha, subject to the results of the pilot project.

No information is available from other industries sites in Togo regarding the geoengineering technologies implementation.

This BECCS technology started to take form in Togo is worrisome. More land will be taken from communities and there will be diversion from communities' livelihoods activities focusing on their staple food to growing biomass for machines. All these techno-fixes are not the solutions to climate change, they are all distractions and pulling back the real action to be implemented. It is very clear that climate colonialism is continuing to take form and will destroy Local Communities in Togo. Scaling up this BECCS technology is probably in the near future since the way is paved through the country laws. There is an urgent need to sensitise Local Communities to avoid getting into a biomass cultivation trap – this will not help save the planet and their livelihoods but rather will contribute to the destruction of their environment with biodiversity, forest and land loss.

III. ACTIONS NEEDED

3.1. General overview on the real solution to climate change

Given the impact of false solutions to climate change on communities in the Global South especially in Africa, a climate justice movement has emerged, dedicated to resisting all false narratives of neo-colonialism including nature based solutions and geoengineering technologies. The real solutions are therefore being proposed to the social, gender, environmental, economic and climate crisis caused by the exploitation of fossil fuels.

In the face of these negative impacts, the only way for Local Communities and Indigenous Peoples is to push their solutions, which are the real ones in harmony with nature, to resist the climate false solutions in order to ensure the wellbeing of both people and planet.

Resistance is not limited to simply rejecting the vestiges of colonialism and extractivism; it involves building new structures of governance, promoting real, equitable and joyful development, and fighting for autonomy and social, environmental and climate justice. It is also empowering the Global South that suffers the most the effect of climate change to create a more equitable future, free from the shackles of the colonial past and the abuses of extractivism.

The narrative of developing geoengineering technologies to solve the climate crisis is not acceptable by the people, the Local Communities and the Indigenous Peoples. These technologies narrative are just a distraction; they are buying time for polluter to continue extracting fossil fuels and gain more profit. In this awakening of the necessity of phasing out fossil fuels and all dirty energy systems, the expansion of fossil industries are continuing in

[9] *XOF (is the West Africa currency - F CFA)*

the Global South and this is mainly based on the thinking that solutions like geoengineering technologies can help capture the CO2 which will solve the climate crisis. These are all false narratives and false solutions. Under the climate negotiations, the article 6.2 and 6.4 are leading to promote geoengineering technologies.

The model for change proposed by the climate justice movement lies in the Just Transition narrative. This just transition work programme under the UNFCCC proposes putting an end to the exploitation of fossil fuels for energy production by inviting another energy system based on renewables, but democratized and under the control of the people. It also requires diverse transitions in other spheres of life to avoid continued exploitation, dispossession and accumulation. This requires a total transformation of the consumption model that puts the profit of communities and peoples at the center, and aims to protect the environment.

The real solutions to climate change are in the hands of Local Communities (LC) and Indigenous peoples (IP). They are the ones living very close to nature and have indigenous traditional knowledge to live in harmony with nature. Those indigenous knowledge include Agroecology practices, Community forest conservation. The Agroecology practices are performed to counter the climate smart agriculture and industrial agriculture which is a source of LC and IP livelihoods destruction. This practice doesn't use chemicals thus does not pollute the environment but rather helps cool the planet because it does not emit industrial levels of CO2 like industrial agriculture does. Community forest conservation and management is a way to better protect the forests. The REDD+ and offsetting projects are not designed to protect the forest but rather they are implemented to displace communities and keep them away from their source of livelihoods.

The article 6.8 under the UNFCCC Paris Agreement that focuses on the non-market approach is in support of the real solutions pushed forward by the Local Communities and Indigenous people.

3.2. Action on the ground in Togo

The Centre pour la Justice Environnementale Togo (CJE-Togo), member of Global Forest Coalition and HOME Alliance Africa Working Group, is campaigning against geoengineering in Togo.

Understanding concepts of environmental and social justice is one of the focuses of the Centre pour la Justice Environnementale – Togo (CJE-Togo). In its environmental justice school held on March 28 – 29, 2023, CJE-Togo raised awareness on the issue of geoengineering. A communication was done specifically on the generality on what geoengineering is and why it is not a solution to climate change. More than 30 Participants were from local communities, namely fisherfolks and fishing communities directly impacted by climate change, Civil Society Organisations from five African countries including DRC, Uganda, Senegal, Côte d'Ivoire, Nigeria and Togo. It was an opportunity for participants to have their capacity built on climate change, environmental, social and gender justice in relation with emerging geoengineering technologies.

The upcoming activities on geoengineering to be conducted in Togo will involve more Civil Society Organisations, journalists, public departments working on climate change issues, policymakers and local communities. Training workshops and advocacy will be the center of the activities.

CONCLUSION

1. Summary

In line with the international conventions and agreements on climate change to which Togo is a party, various policy and legal documents have been drawn up. For their operational implementation, a comprehensive institutional framework has been put in place. Through this framework, the country has always drawn up and submitted to the UNFCCC secretariat its NDCs, biennial updated reports on climate change and national communications under the coordination of the Ministry of the Environment and Forest Resources (MERF), national focal point for the United Nations Framework Convention on Climate Change.

On an operational level, various actions have been implemented in execution of adaptation and mitigation and projects, part of which some industries are into Bioenergy with Carbon Capture and Storage. These programs and projects are partly the result of the ambitions expressed by Togo in its NDCs, biennial reports and national communications on climate change. The implementation of the carbon sequestration project, in particular the use of BECCS technology by a German company, tarnishes the image of Togo's efforts to combat climate change.

Togo contributes less to climate change and therefore should not seek funding that lead to implement false climate solutions such as geoengineering but should rather focus and plead for finance streams that could fund real solutions on the ground to ease the living condition of communities and at the same time protect the environment.

More capacity building is needed to reinforce the level of understanding of both government departments actors and Civil society Organisations and communities on the issues related to false solutions to climate such as geoengineering, net zero and nature based solutions, and at the same time awareness programme need to be develop on the real solutions to prepare people to effectively protect the unique planet we have.

2. Recommendations

In regards to the challenges in the face of climate change, we recommend the following:

- Adopt a legal text (preferably a law or at least a decree) to control and direct the investment and climate finance to good agroecology practices and community forests conservation and management;

- Effectively integrating climate change real solutions into national policies ;
- Strengthen collaboration between universities and the field on the practices towards the climate real solutions;
- More support for research and systematic observation to understand the risks of certain solutions proposed to climate change like geoengineering technologies;
- Build capacity and raise awareness of actors involved in climate change discussions and the general public as well on what is false and real solutions to climate change;
- Strengthen National Environmental Agency’s logistical capacities by equipping it with air quality monitoring equipment and installing emission readers in certain areas of the country, such as the autonomous habour of Lomé;

- Build the capacity of National Environmental Agency and Environment Department staff on the challenge of geoengineering for greater efficiency in the field;
- The National Environmental Agency must pressure Heidelberg and Steel Cube to move away from BECCS technology and discourage other industries to develop CCS or BECCS technologies;
- Carry out inspections, periodic and unannounced audits with certificates, environmental and social redress or closure in these industries;
- Support the operationalization of the various committees and working groups set up by the environmental department to combat CC;
- Increase the national budget to combat effectively climate change.
- Monitor closely the implementation of the decree on carbon mechanism
- Sensitise and raise awareness to expose the negative externalities of the technologies.

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