University of Liberia, Fendell Campus re-activation on Biodiversity, Forestry, Ecosystem Services & Carbon Sequestration.

Project proposal formatted according to the needs of the Nature Based Solutions coalition for the Climate Action Summit.

18 April 2019

Annexed with the original proposal.

Context and Rationale

The government of Liberia made an important plea to the Bonn Convention to restore 1 million hectares of tropical forest. Liberia is a hotspot of biodiversity in West Africa and preserves important forest areas such as the Sapo lowland tropical forest, the East Nimba and Gola Forest National Parks Grebo/Krahn Forest National Park and the Lake Piso multiple use reserve. According to a study of Conservation International, using satellite imagery, the loss of tropical forest in Liberia is still substantial and measured at 362,759.58 ha between 2000 and 2014. To counteract this trend we propose to reinforce the practical experience of the new generation of foresters in Liberia in relatively new sciences ranging from wildlife restoration to reforestation of degraded savannah like areas. The University of Liberia can play a central role in this process, thus avoiding dependency on foreign consultants and enhancing the new curriculum of the University. The University is located on a campus of 5800 acres or 2347 ha, given to the University in the sixties of the previous century to develop agricultural research. This campus can play a central role allowing for experiences in tropical reforestation thus answering important research questions to be developed in collaboration with sister universities both in- and outside the tropics. In the attached document, we will explore this opportunity and set out a road map for achieving the goal of a reference center for tropical reforestation, biodiversity and ecosystem restoration in Liberia. Within the proposal format, we will give you short insight in the impact of the project realizing NBS in Tropical Western Africa.

Overview of the Contribution

The contribution consists of two core elements. Firstly, the University is reformulating its curriculum with focus on reforestation and ecosystem research. The former program was based on classical forestry skills with focus on wood production. By reformulating the education of the new generation, we guarantee a sustainable way out of the current paradigm with focus on short-term profits. Secondly, the University will use its own campus to gain experience in carbon sequestration projects, leading to a

potential huge capacity, benefitting from the natural assets that Liberia and neighboring countries have. These are the places on the globe with the highest potentials in CO^2 offsetting through tree planting.

Leverages to avert Climate Change

The project consists of creating capacity and skills in Liberia enabling the new generation to learn the benefits of NBS accompanied with experience on the University Campus to develop solutions. In order to embed the challenges of NBS in a country where timber production and mining are paramount economic activities contributing to the GDP we cannot expect that NBS interventions by foreign consultants or companies lead to successful results. Capacity building in Liberia will not only lead to young people receiving another perspective to benefit from the resources of the country, it will also open up a debate that currently is not taken place. Potential locations for NBS are the campus of the University itself and various other educational/governmental sites lacking agricultural land use but possessing a large campus site. It is estimated that such terrains account for 20.000 ha in Liberia alone. Creating reforestation and landscaping skills is equally important to reforest former mining sites in the country but also in neighboring Sierra Leone pocketed with former diamond mines. The humid tropical climate gives Liberia and Sierra Leone one of the best potential to sequester CO^2 at low cost. If we assume that one ha in the tropics can sequester up to 60 tons of CO^2 we can plea for a quick sequestration of up to 1.300 tons of CO^2. In order to boost the project the University will also attempt and learn to comply with certification schema's allowing to be compensated for the reforestation by industries, airline passengers or petrol industries looking to compensate their CO^2 exhaust. In addition to the sequestration ambition, the forest will also help to cool down the hot climate in the dry season, since the university Campus is situated in the periphery of the expanding capital.

Use of Natural Systems to avert Climate Change

Liberia contains large areas of degraded Savannah landscape with potential to be transformed into agroforestry cultivation and restoration of rain forest in abandoned (mine) sites. The country has, compared to neighboring countries, a low population density and large intact forest zones that can be expanded. Reasons for not developing the huge ecological potential of Liberia are, amongst other reasons, related to lack of capacity and unclear landownership. By creating capacity for reforestation and agroforestry Liberia can develop its asset, being the main hub for biodiversity in West Africa, into an opportunity for new work and a new economic model for the region.

Support to Climate change mitigation, adaptation and societal benefits

A. Carbon Capture

A minimum of 1.300 tons CO^2 can be sequestered in a relatively short time, however through the capacity building we expect to 'convert' foresters from professionals who learned to cut trees in young people who learn to plant and grow trees. We think that this asset is the prime asset to be created and often omitted in projects steering on direct outputs. The 1 M ha. plea of the government should eventually lead to 60.000.000 tons of CO^2 sequestration, made possible with professionals trained at the University of Liberia.

B. Increasing Climate resilience

Discussion and awareness of Climate resilience in Liberia is literally absent. Causes of this are the low level of education in the country as well as poverty and lack of perspective. Yet Liberia has thanks to its humid climate, low population density, absence of fertile plains a huge potential for extensive reforestation especially if combined with low intensity agriculture (agroforestry). By creating sequestration capacity in the tropics, we increase the probability to remain within the 1.5 degrees target of the Paris agreement.

C. Social Impact, job increase

Liberia is a country recovering from civil war, with few opportunities for its youth. Entering in a carbon sequestration economy would help the country to diversify and to create both low-skilled jobs (forest guards, fruit/honey collection) as well as high skilled jobs (ecosystem research) with eventually also giving opportunities in neighboring countries such as Sierra Leone. Note that reforestation with indigenous tree species can be challenging and is open to both a scientific and practical debate in which the university, together with foreign universities can play its natural role of research and knowledge divulgation.

D. Net economic impact

The net economic impact can be estimated with rough figures giving us insight in the magnitude of the potential. Presuming the 1 M ha. plea of the government on reforestation can be coupled with carbon sequestration and presuming that 5 US$ is compensated per tree and having 1000 trees per ha. (a low estimate) we can expect an influx in the Liberian economy of 1 M * 5 * 1000 = 5 B US$ over a time span of 30 years. This amounts to 166 M US$ per year. These figures are substantial seen the fact that the Liberian government and related NGO's operate with an annual budget of 1 B US$. Hence, we are focusing on 16 percent of the annual combined budget of the Government and NGO's.

E. Impact on the SDGs

The project will have positive impact on SDG 1, 2, 4, 7, 8, 13, 15 and 17. Focus will be on Life on Land and Climate Action.

F. Just Transition

The project will partially make up for delays in the transition and create the required potential and expertise required for a 'plan B', being massive reforestation.

G. Food security

Although the project is focusing on abandoned lands, positive impact on food security will be taken on board, amongst others to avoid trees to be victim of the charcoal economy. Therefore, it is of utmost importance to assure that the forests to be created, deliver outputs to the population who in turn protect the trees from being cut for charcoal production. Fruit trees, honey, limited hunting and fishing will be considered in the ecosystem service approach of the forests to be replanted.

H. Biodiversity

The biodiversity challenge is the main scientific component of the project. Using the existing seeds of the West African tropical habitat, present in the country, the biodiversity is expected to be stabilized, to the least and hopefully to be expanded, over a longer time span.

Countries and organizations involved

In Liberia, the University of Liberia, we are looking for collaborating with the University of Nairobi, having experience in protected forests in urban contexts, in Kenya and the University of Wageningen in the Netherlands.

Linkage to stakeholders, local society

The University is embedded is the country's political ecosystem and delivering the most personnel to sectors working on the countries territory, with the Forest Development Authority (FDA) and conservation INGOs (Conservation International and Fauna and Flora International) as the main institutions benefitting from students educated at the University.

Where the contribution can be put into action?

At first on abandoned land of the University Campus, the first effort will be in setting up a tree nursery at the campus. Once the tree nursery is functioning the University, or a trust working on its behalf, will request a certification for carbon sequestration. The latter can subsequently boost the effort also outside the original campus. Grants would be required for setting up the nursery as well as the requests for certification.

Aspects of Implementation

The university is currently adapting its curriculum (validating it on May 1, 2019) and will have the personnel skilled to give updated courses. Finance is required for the set-up of a tree nursery and the certification process. These activities cannot be financed by the University budget, destined for educational purposes.

Relation to Climate Action Summit Workstream

The (iron) mining industry in Liberia is important and working using open pit mining. Skills in the country to restore the mining sites are few as well as skills within government institutions to follow recovery projects of mines. The action further leads to thousands of youth mobilization and experience in CO^2 sequestration projects.

Examples of experiences to date

The University of Nairobi has experience in maintaining a forest next to the University Campus and a mega city. We are looking for collaboration with such experiences in order to adjust our direction.

Mechanisms of funding

Upon CO^2 certification (for example through verra.org), the project can sustain itself and grow. Certification requires, apart from institution building and the creation of a tree nursery, an initial investment of minimal 60.000 US$, this milestone can be funded (partially) by a charity or development

fund. This could be a perfect subject for funding, even formulated as a loan reimbursable upon successful certification.

Means of stewardship, metrics for monitoring

Monitoring metrics can be quite straightforward in both students successfully completing the program, number of trees sprouting successfully and amount of CO^2 sequestered and used in compensation schemas.

Communication Strategy

The communication strategy initially will focus on both organization of workshops and participation in seminars and workshops in the international scientific scene. Once the nursery seedlings are to be planted in would be forest stands interest of the local population will be addressed and incorporated in providing jobs in security and hunting the terrains.

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