

Carbon Sequestration in Africa

Carbon sequestration is one way to significantly reduce the current influx of carbon dioxide into the atmosphere. For the process of carbon sequestration to be effective on a mass scale large tracts of arable land will be required. This requirement eliminates the employment of large carbon sequestration projects in smaller nations and most industrial nations due to the lack of arable land. Based on the need for large tracts land it makes sense to select the area with the most unused arable land, Africa.

Large scale carbon sequestration projects in Africa will not only greatly reduce the amount of carbon dioxide emissions into the atmosphere it will also provide a boost to the local economy. Much of Africa is beginning to experience industrialization and with industrialization comes increased burning of fossil fuels such as coal and oil. Starting carbon sequestration projects right at the beginning of this period of early industrialization will curb the early carbon dioxide outputs of the factories and by the time industrialization reaches its climax those trees that were planted early will be in taking more carbon dioxide effectively matching the increased carbon dioxide output of these future industrialist nations. Additionally, carbon sequestration projects will benefit local economies. The establishment of sequestration projects will require the building of irrigation systems. These irrigation systems will not only enable carbon sequestration projects but can also be used for local agriculture by providing a safe and constant supply of water. Furthermore, the project will stimulate the local economy as the farmers will have to be compensated for the use of their land. One example of a successful implication of a similar project on a small scale is Plan Vivo in western Uganda that has 3,652.04 ha dedicated to carbon sequestration. Plan Vivo has a total of 3,278 contracted small farm holders who plant and

maintain carbon sequestering trees and have because of their work approximately 589,400 metric tons of carbon dioxide will be sequestered. Plan Vivo's success demonstrates the feasibility and high potential of a carbon sequestration project that includes multiple African nations.

In the implication of this carbon sequestration project the main objective is reducing carbon dioxide levels in the atmosphere. In order to achieve this, the selection of which trees to plant in each region is crucial to success. The first priority must be maintaining biodiversity in each region and secondly the most effective selection and spacing of trees for maximum carbon dioxide sequestration. For example 20 ha of mahogany trees can sequester approximately 1696 metric tons of carbon. Additionally, Africa has around 600million hectares of unused arable land. Assuming perfect efficiency with mahogany trees being planted on each ha that would total the sequestration of 50.88 billion metric tons of carbon dioxide. This amount is five times the annual amount of carbon dioxide released, yet in reality one tree cannot be planted on all 600million ha of unused arable land in Africa. The project needs to be more focused on optimizing the planting of other high carbon sink trees such as the silky oak (*Grevillea robusta*), mahogany, and the liquidambar/sweet gum tree along with native trees. For the maximum efficiency, it would be best to plant the high nutrient requiring trees in East Africa and West Africa while planting low nutrient requiring trees in the sub-Saharan regions.

Carbon dioxide levels are continuously increasing each year with around 10 billion metric tons of being emitted annually. Carbon sequestering on a massive scale will be an arduous task but the benefits of this project will outweigh the difficulties of putting the project into place. The creation of carbon sequestration projects in Africa not only will decrease the carbon dioxide in the atmosphere but will also improve the local economy. These projects will lead to irrigation

projects and further stimulate the economy with the inflow of cash paid to the farmers to plant and maintain the trees. This process will entail high level agriculture planning to optimize efficiency while maintaining the biodiversity of the ecosystem. In summation, carbon sequestration in Africa is a high potential project that will improve the standard of living of locals and remove large amount of carbon dioxide from the atmosphere.

Works Cited

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