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Agroforestry: A Livelihood Strategy of Survival. Implications for Sustainable Development

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Abstract

The most serious environmental concerns in Sudan are land degradation, desertification and the spread of deserts. About 75 % of the population live in rural areas that account for over 80 % of the total extreme poor. Due to degraded soils, lack of inputs and unfavourable weather conditions, most of the resource-poor farmers grow their crops in degraded soils without inputs such as chemical fertilisers or pesticides. Rainfall is extremely variable in amount and distribution, making rainfed agriculture risky and thus preventing farmers from investing in inputs that enhance productivity.

A rural pilot development intervention meant to alleviate poverty targeting 100,000 small scale farmers in all states of Sudan. The trend is to move from erosion control, to soil quality conservation. Using *Moringa* and *Jatropha* trees as 'fertiliser trees' that capture nitrogen from the air and transfer it to the soil, the need for commercial nitrogen fertilisers can be reduced by 75% while doubling crop yield. The *Moringa/ Jatropha* agroforestry has proven to be a successful model to address the challenges of alleviating poverty, securing livelihoods and economically empowering women, in a successful partnership with local communities, academics, private sectors and national financial institutions. The pilot project utilised an area of 3 feddans (1 feddan = 0.42 ha) in Khartoum North, 5 km North of the capital City of Khartoum with the aim to be replicate the results in all states of Sudan utilising micro finance investments.

The area is enough to be managed by one family and would fulfil the needs of cereal and vegetable consumption. *Moringa* trees are planted along side ridges of the watering canals where vegetables and main cereal crop are planted, while *Jatropha* is used as a life fence. *Moringa* is a multipurpose tree known for nitrogen fixing, grows best in dry sandy soil and is drought resistant; it provides shade, nutritious food, medicine and oil for cooking and other products, and can even purify and clarify water. The leaves are harvested to be sold as green tea and the stripped branches as animal fodder together with seed pods. The seeds are also sold to private sector, or crushed and sold as oil used for cooking and the cakes as animal feed. The model also includes provision of livestock and continuous supply of water. *Jatropha* is used as biodiesel, lighting and soap making. Implementation in rural areas will target groups of ten families on 30 feddans where a well will be drilled and shared by the families who are asked to be organised in a farmer association. The project is linked with the Central Bank microfinance in support of the intervention.

Keywords: Agroforestry, carbon sequestrations, poverty alleviation, rural development, small-scale farmers