Quantification of Co-Benefits by the Agroforestry Carbon Project at Primary Schools in Arid and Semi-Arid areas (ASALs), Kenya

Yasuko Inoue[1] , *Bernard Kigwa*[2]

[1] Expert on Forest Policy and Extention, JICA Project for Strengthening Forestry Sector Development and Community Resilience to Climate Change through Sustainable Forest Management and Landscape Restoration (SFS-CORECC), Republic of Kenya
[2] Senior Researcher, Kenya Forest Research Institute

Abstract

There is a large area waiting for re/afforestation in Arid and Semi-Arid areas (ASALs) in Africa, while majority of the investments are distributed to relatively humid and fertile areas considering the profitability and risks. The lack of sufficient rainfall during the past three years since 2020 has led to the death of 2.5 million livestock and malnutrition among some 940,000 children under the age of five in Kenya (UNICEF 2022). There is an urgent need to mitigate the negative impacts of climate change in those disadvantageous areas. By evaluation of co-benefits, such projects in ASALs can be regarded as more attractive to support.

A pilot carbon project by agroforestry was started in 4 primary schools in South Kitui, one of the driest areas in Kenya in 2023. The schools selected to grow indigenous tree species which shows a high tolerance in limited hydrological environment; Baobab (*Adansonia digitata*) and African Mahogany (*Melia volkensii*) in combination of legume crops such as cowpeas. Young leaves of baobab are used for school lunches as they are rich in iron, calcium and vitamins. African mahogany is grown to supply school desks and chairs that are always not enough for all children. An appropriate planting-harvesting rules as for the carbon project is applied. With the increased water supply and improved land management methods provided, the agroforestry methods including terracing enriched hydrological and nutrition cycles in the soils. The project is expected to enhance resilience and adaptative capacity of the school children and surrounding communities to the changing climate.

The authors will display the quantifiable methodologies to evaluate these co-benefits such as studying hydrological status of soil, crop-diversity enhancement and nutrition improvement of children as well as financial benefits by the project. Their associated SDGs contribution potentials and monitoring methods including day-to-day monitoring by school children will also be shared. In combination with the co-benefit values which is in line with the modality stated in the UNFCCC decision of 18/CP.21 on non-carbon benefit, it will be expected higher valuation as forest carbon projects and will be useful to be diffused to wider ASALs Africa.