Brief 1

Transforming African agriculture through sustainable intensification February 2013

Tree growing in the highlands of Ethiopia: Key issues to be considered for its advancement

The Ethiopian highlands are losing many valuable tree and shrub species because of anthropogenic and climatic factors. The coverage of high value indigenous tree and shrub species has declined. The tree species that used to provide quality products and ecosystem services have become limited. As a result, there is increasing use of non-forest/tree products such as dung and crop residues to fill fuel and other household requirements. There is also extensive importation of wood and wood products to narrow the gap between wood demand and supply.

Trees can be a potential connector/integrator of the crop and livestock components of the farming system in the highlands of Ethiopia. Some indigenous tree and shrub species in the highlands are known for their ability to provide feed for animals (Figure 1) and organic fertilizer for crops (Figure 2). There are also exotic species that perform well in the highlands and can provide various economic and ecological uses for smallholder farmers. Generally, there is a possibility to sustain benefits and ensure resilience against the impacts of climate change and climate variability through integrating trees in farms and landscapes.

Figure 1. Hagenia abyssinica *as sources of animal feed in central Ethiopia*

At present, there are development and policy initiatives that enhance tree farming in different landscapes and farming systems. These include the Forest Policy (MoARD 2007), the Growth and Transformation Plan from 2011–2015 (FDRE 2010), the Sustainable Land Management (SLM) 15 years program framework (MoARD 2008), a reforestation program for 15 million hectares of land (on farm and communal land), a program to establish 100 million *Faidherbia albida* trees on cereal cropland (four years program), land registration and certification proclamations, and the Climate Resilient Green Economy (CRGE) strategy from 2012–2025 (FDRE 2011) directly or indirectly emphasized the benefits that can be maximized from trees.

Figure 2. Indigenous tree species serving as soil fertilizer in farmlands in western Ethiopia

The following issues need to be revisited so as to enhance the economic, environmental, ecological and social contributions of trees in Ethiopia:

Technological/germplasm issues

Agro-ecologies, farming systems and socio-economic conditions of farmers in Ethiopia are highly diverse. On the other hand, tree related technologies that are compatible with various tree growing niches and which fulfill the interests of farmers are less available. There is, therefore, a need to properly identify the demand of the farming communities, properly cluster the growing niches and make accessible technological options (germplasm, management and utilization) that provide various products and service.

Data/information related issues

There is a lack of up-to-date tree-related data/information that facilitates proper planning and the management of various tree species. Propagation, seed treatment and germination information for many of Ethiopia's indigenous trees is lacking. Therefore, a co-managed and co-owned national tree database is needed to track changes in this valuable resource, compile the indigenous knowledge/ experiences on tree farming, and provide facts and figures for research and education purposes.

Capacity building

Capacity building in terms of facilities and human resources development is a cornerstone to maximize benefits from tree and shrub species. Turnover of technical staff from research, extension and higher learning institutions is apparent in different parts of the country. This creates discontinuity in tree-related research and development initiatives and activities. Incentive mechanisms that attract productive forestry/NRM experts and researchers could be designed and implemented. The capacity building efforts for development agents (government extension workers) should be practically oriented to enable them properly respond to the information and technology demands of farmers at the grassroots level. Farmers practice tree related technologies and information with confidence when they are practically demonstrated to them.

Developing a holistic/integrated approach

Farmers have their own holistic/integrated approach to farm management to solve farming system constraints. The research and development system should also follow a similar approach to back up farmers with improved technologies and innovations.

Institutional issues

The institutional arrangements in the forestry sector have been unstable and suffering from frequent restructuring. The lack of a stable organizational structure for the sector is often cited as one of the bottlenecks to properly coordinate forestry research and development, and bring effective and long-term management and development successes in Ethiopian forestry. Therefore, capable and more efficient forestry institutions are required to coordinate national efforts and effectively handle international negotiations/agreements and mobilize resources.

Policy related issues

The Forest Policy of Ethiopia was released in 2007. However, there are no comprehensive regulations and directives to implement the policy on the ground even five years later. The issue of free livestock grazing is also another challenge to integrate high value tree and shrub species/fruit trees in the agricultural outfields. It is not uncommon to see cattle, equines and small ruminants grazing freely on croplands and other potential tree growing niches. Livestock cause considerable damage to young planted and naturally grown trees while freely grazing. Therefore, the problem of free grazing requires policy intervention and technological innovation that accommodates the interests of all.

This brief is a summary of material presented at the third meeting of the National Platform on Land and Water Management, 23−24 July 2012. The theme of the workshop was sustainable agricultural intensification and its role in the climate resilient green economy initiative in Ethiopia.

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Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation and impact assessment.

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