Throughout the highlands of eastern Africa, farming communities face critical challenges in providing for an ever-growing population while maintaining the productivity of basic resources (water, food, fuel, fodder). Most research and extension programs have approached this problem by focusing on the alleviation of farm-level productivity constraints, largely through technological solutions. There is a strong push within national and international arenas to move toward broader units of analysis and intervention, with the aim of enhancing the sustainability of rural livelihoods as well as environmental services emanating from highland areas. Yet little treatment has been given to the issue of farmer motivations for thinking and acting beyond the farm level. Outcomes of a participatory assessment of landscape-level problems of concern to highland farmers of Ethiopia, Kenya and Tanzania shed light on this question, and point to contributions that can be made from research and development to address identified challenges.

Identification of Issues Demanding a Landscape Approach

To clearly identify landscape-level issues, two “indicators” were considered: 1) that greater benefits must accrue from collective than from independent action, and 2) that solutions must require an integrated approach to bridge disciplines and landscape components (trees, water, cropland and others). Five sets of issues emerged from this inquiry:


Common property in the highlands of eastern Africa is generally limited to water resources (springs, rivers, wells), grazing land, forest resources, village roads and paths, and in some cases, livestock. Multiple problems were mentioned with regard to common property, including encroachment on different common property resources (CPR), deforestation and the loss of indigenous tree species, declining supplies of irrigation and drinking water, water contamination, and destruction of CPR from fire and water-demanding trees (namely Eucalyptus). A final problem, blockage of paths between neighboring farms and

A communal grazing area (common property resource) in highland Ethiopia.
appropriate management of natural resources, given the increase in crop pests following abandonment of a traditional pest control practice (hande) in the East Usambara Mountains of Tanzania.

5. Linkages between Livelihood and Collective Action
The final category includes areas in which collective action is currently needed to enhance income or livelihood more broadly. They include organizational strategies aimed at improving access to inputs (quality seed and fertilizer) and markets; optimizing the management of existing resources (conflict resolution, corrective action to counter theft, upkeep of water supply infrastructure); and pooling of resources to establish joint enterprises, purchase labor-saving items (oxen, mills) or avoid sale of produce at sub-optimal prices. The latter can be achieved through cooperation in post-harvest storage infrastructure (to extend the shelf life of produce) and rotational credit functions—particularly in areas subject to food shortage where predatory buyers lend money to farmers in exchange for low farmyard prices.

Conclusion
The host of issues emerging from a systematic, multi-country look into barriers to livelihood and agricultural productivity beyond the farm level clearly illustrates the need to move beyond conventional areas of agricultural research and extension. In addition to looking at integration at broader spatial scales to understand the interactions between farm-level management practices and livelihood more broadly (human health, water supplies), it will be critical to consider solutions lying outside the sphere of technology. Social strategies to enhance farmer cooperation, minimize conflict and make better use of existing resources are sorely needed, as are user-friendly tools for analyzing trade-offs between system components and users themselves (farmers, villages)—for whom differential benefits accrue from alternative land use scenarios.

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