



Tropentag, September 20-22, 2023, hybrid conference  
“Competing pathways for equitable food systems transformation:  
Trade-offs and synergies”

## Application of the DPSIR framework for the identification of land use and land cover change drivers from forest to agriculture in the dry woodlands of Northwestern Ethiopia

ASABENEH ALEMAYEHU MUNUYEE, ALEMTSEHAY EYASSU, ALEMAYEHU NEGASSA, MULAT SHEBABAW

*Ethiopian Forestry Development (EFD), Ethiopia*

### Abstract

The drivers, pressure, state, impact, and response model was used in the dry woodlands of Burie and Jawi districts, Ethiopia, to assess the drivers, impacts, and potential solutions of land use and land cover shifts from forest to agricultural. Two villages, Sewatam and Kaba Abo in Jawi, and Gedam Lijamor and Fetam Seltom in Burie, were chosen for their potential for land conversion from forest to agriculture. Data was gathered through 343 household surveys, two focus group discussions, five key informant interviews, field observations, and literature reviews. In all areas, the primary drivers of land use conversion from forest to agricultural were firewood gathering, small-scale agriculture, and charcoal production. At Burie, population dynamics, settlement, and increased agricultural demand are the key indirect drivers of change, whereas at Jawi, livestock pressure or overgrazing and a lack of forest law enforcement are the top three indirect drivers of change. The pressures of land use and land cover changes for Burie are high demand for agricultural land (91.8%), overcrowding of communal land (86.2%), and overgrazing of land (81.0%), whereas for Jawi, the main pressures are high demand for agricultural land (97.3%), completion of communal land (93.9%), and increased demand for forest products (87.2%). All of these drivers and pressures contribute to land degradation, forest conversion, soil fertility loss, poverty, high floods and droughts, poor water quality and availability, a scarcity of wood for construction and fuel, as well as rural-to-urban migration. Local communities, governments, and non-governmental organizations responded to the effects by diversifying their livelihoods and raising awareness. The use of policies and laws to manage impacts was determined to be inadequate. Land use and land cover changes in the study areas were demonstrated to have a major impact on biodiversity, land, water, and community livelihoods. The drivers and impacts could get worse as a result of the observed increase in climate change and population growth if responses are not made accordingly. As a result, it is important to expand interventions such as resource conservation, livelihood diversification, agricultural intensification, awareness creation, land use policy consideration, and law enforcement

**Keywords:** DPSIR, drivers, Ethiopia, land use land cover