

# Coping with Change

Emerging vulnerabilities  
resulting from agricultural  
transformation and  
climate change

A case study from North East India

## Impact of agricultural transformation

**Agricultural transformation to replace shifting cultivation has encouraged diversified farming systems**

- Wet rice cultivation (to address cereal security)
- Cash crop plantations (to address cash generation)

**Until plantations become profitable, households continue with shifting cultivation.**

**During transition, transformation to plantation crops accentuates vulnerability**

**Where transformation is complete, some farmers are less vulnerable, others are more vulnerable.**

There is a

- gradual erosion of traditional institutions,
- weakening of social capital,
- rapid erosion of equitable access to land resources,
- complete dependence on external forces and erosion of internal social safety mechanisms, and
- emerging landlessness, particularly of the poor.

For households with inadequate labour, transformation is not a viable option; their only choice is to work as day labourers in plantations, road building, or mining.



## Transformation increases economic, social and environmental vulnerability

### Economic Vulnerability

- Lack of returns in the early phase increases cash insecurity
- Insufficient market volume in the early phase makes people vulnerable to traders' exploitations
- Poor market linkages, price fluctuations and unassured markets do not offer guaranteed incomes
- Replacement of shifting cultivation fallows with plantation crops reduces area for shifting cultivation
- Productivity in marginalised shifting cultivation land declines rapidly due to inadequate and ineffective natural recuperation processes caused by drastic reduction of fallow cycles
- Traditional risk aversion mechanisms used in shifting cultivation, like multiple crops and sequential harvesting that enable year long food availability are rapidly eroded
- Food and cash insecurity

### Social Vulnerability

- Increased demand on household labour, increased workload
- Poor returns, inability to hire labour
- Management of diverse systems is unsatisfactory due to inadequate labour
- Unsatisfactory productivity and returns
- Forced to look for wage earning; in some cases, seasonal migration
- Increased work load for women

### Environmental Vulnerability

- Permanent loss of forest cover
- Increased runoff
- Reduced moisture retention, ground water recharge
- Soils exposed to higher weathering (erosion)
- Deterioration of land capability, land degradation

