Promoting multi-functionality of rural landscape: a need of landscape approach

Rachmat Mulia
CIFOR-ICRAF
Davao city, 16 November 2023

Why do we need a multi-functional landscape?

- **Rural landscapes play an important role for developing countries to achieve national and international targets** (e.g., Sustainable Development Goals, Nationally-Determined Contribution, Convention on Biological Diversity, etc.)

- **Rural landscapes should be multifunctional:** productive – food or industrial crops, climate resilient, able to generate ecosystem services, accommodate conservation and restoration purposes, and socially inclusive.

- **Rural landscape should reconcile and minimize 'competing' interests** of diverse stakeholders (public and private sector, NGOs).

Keys to develop multi-functional landscape

- **Smooth 'negotiation' process among stakeholders to discuss land allocation and management interventions** over the landscape (e.g., municipality or province scale) to achieve social, economic and environmental goals.

- **Landscape-level assessment and trade-off analysis**:

  1. Translate land allocation and management interventions into **spatially-explicit land use scenarios**.

  2. **Assess possible impacts of the scenarios using supporting tools** (e.g., computer-based land use change model)

- **Most feasible scenario becomes evidence- and scientific-based land use plan** to integrate into existing or new policy for implementation

Possible impacts of land use scenarios
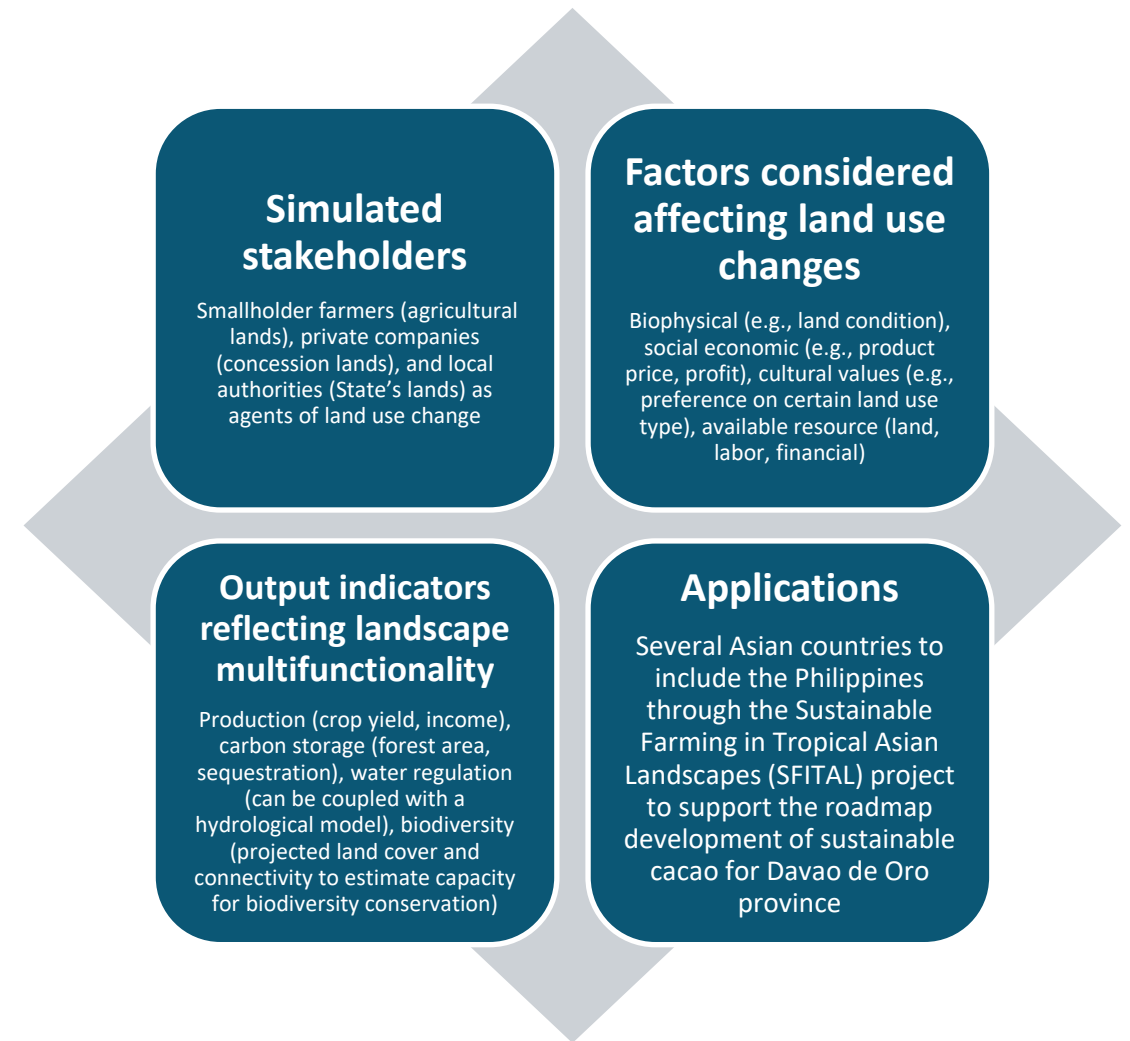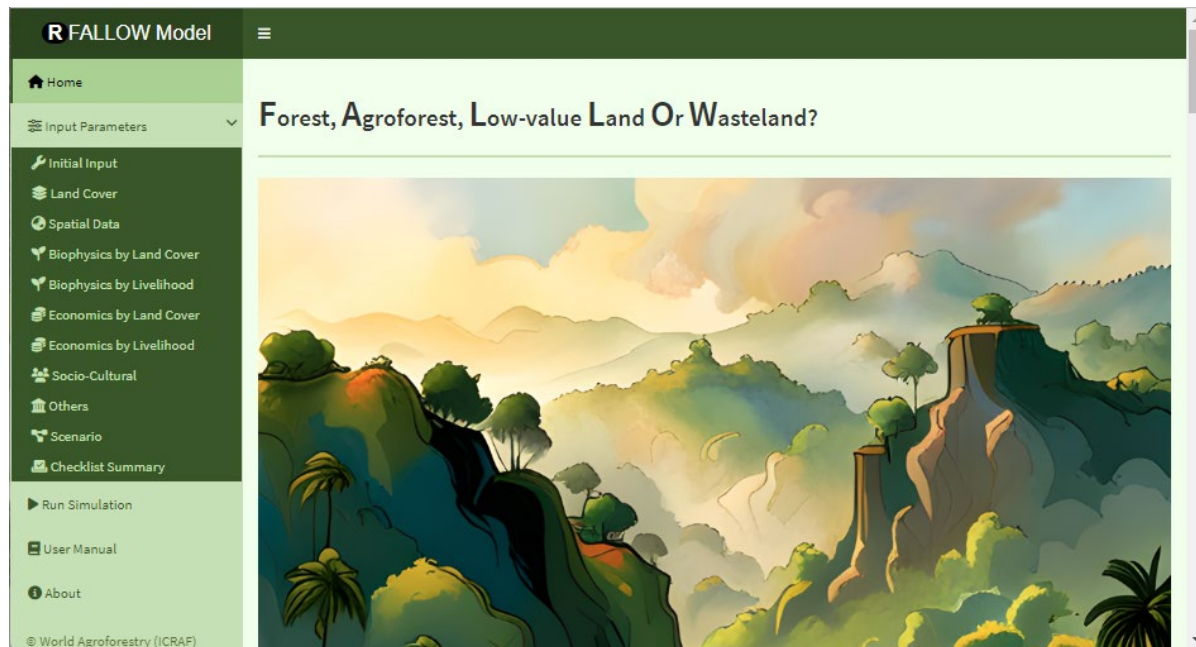
Trade-off diagram relative to the baseline
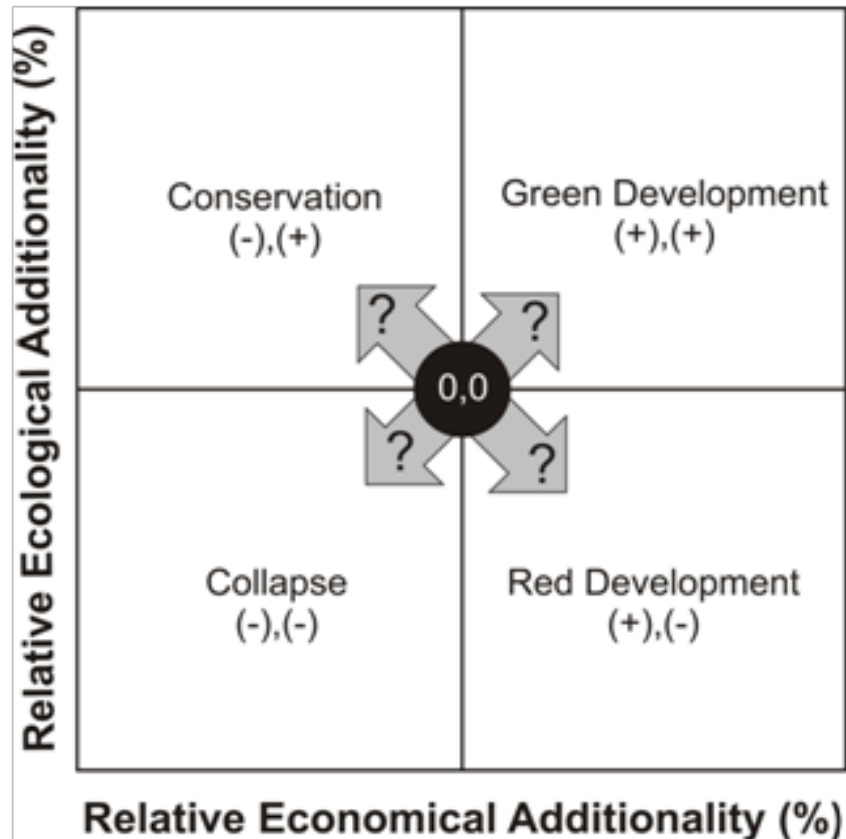
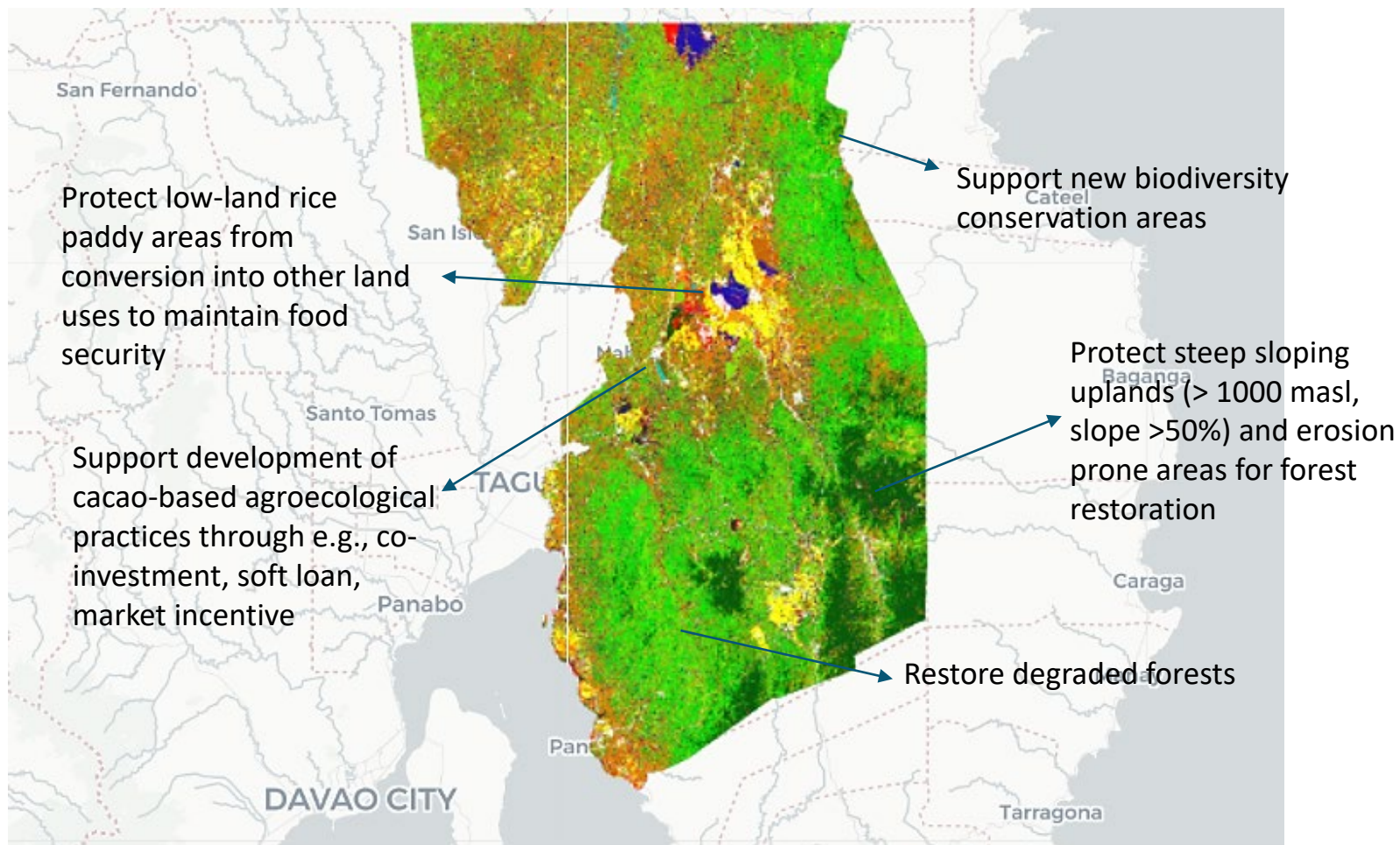Assuming we assess two indicators:

- Interventions prioritizing **conservation** might victimize economic value in contrary to **red development** strategy.

- **Green development** increases both economic and ecological value in contrary to **collapse**.

- Need a supporting tool for the trade-off analysis

Available assessment tools for the landscape approach

Example: **R-FALLOW** (Forest, Agroforest, Low-value Lands Or Waste?): spatially explicit, free download, open source, available online or off-line, developed by World Agroforestry (ICRAF)

Simulated stakeholders

Smallholder farmers (agricultural lands), private companies (concession lands), and local authorities (State's lands) as agents of land use change

Factors considered affecting land use changes

Biophysical (e.g., land condition), social economic (e.g., product price, profit), cultural values (e.g., preference on certain land use type), available resource (land, labor, financial)

Output indicators reflecting landscape multifunctionality

Production (crop yield, income), carbon storage (forest area, sequestration), water regulation (can be coupled with a hydrological model), biodiversity (projected land cover and connectivity to estimate capacity for biodiversity conservation)

Applications

Several Asian countries to include the Philippines through the Sustainable Farming in Tropical Asian Landscapes (SFITAL) project to support the roadmap development of sustainable cacao for Davao de Oro province

On-going application in the Philippines

Support new biodiversity conservation areas

Protect low-land rice paddy areas from conversion into other land uses to maintain food security

Support development of cacao-based agroecological practices through e.g., co-investment, soft loan, market incentive

Protect steep sloping uplands (> 1000 masl, slope >50%) and erosion prone areas for forest restoration

Restore degraded forests

Province-level assessment using R-FALLOW to **support the development of roadmap of sustainable cacao for Davao de Oro province** (to 2030 and vision until 2050)

Sustainable Farming in Tropical Asian Landscapes (SFITAL) project: A five-year joint initiative (2020-2025) between ICRAF, Rainforest Alliance, MARS, and International Fund for Agricultural Development (IFAD)

Many thanks for your attention

Rachmat Mulia

World Agroforestry (ICRAF)

2/F Khush Hall, International Rice Research

Institute (IRRI), Los Banos, Laguna, Philippines

r.mulia@cifor-icraf.org