The landscape approach to create multiple synergies in food systems: Climate security, nature-positive, justice and equality - Implications from a case study on coffee sector in Vietnam -

International Workshop on Ensuring Food Security under Climate Crisis

13 March 2024, IGES Headquarters, Hayama

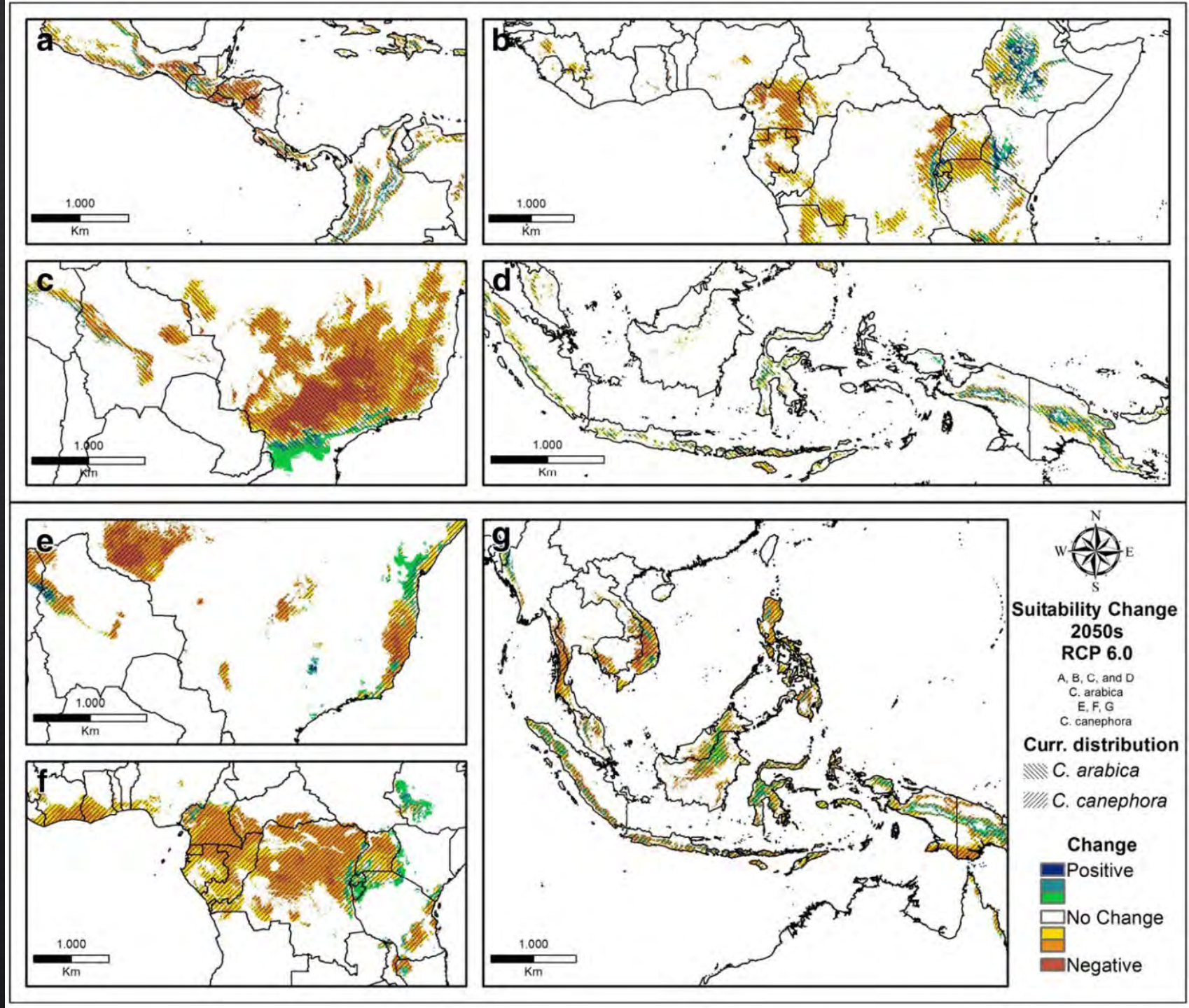
Yasuo Takahashi

Research Manager, IGES Biodiversity and Forests Area

Key questions

- **Q1: Impacts of climate change on food security governance?**
- **Q2: Legal, institutional, or policy approaches to ensure a resilient food system?**

"Climate change will reduce the global area suitable for coffee by about 50 % across emission scenarios" (Bunn et al., 2015, p. 89)



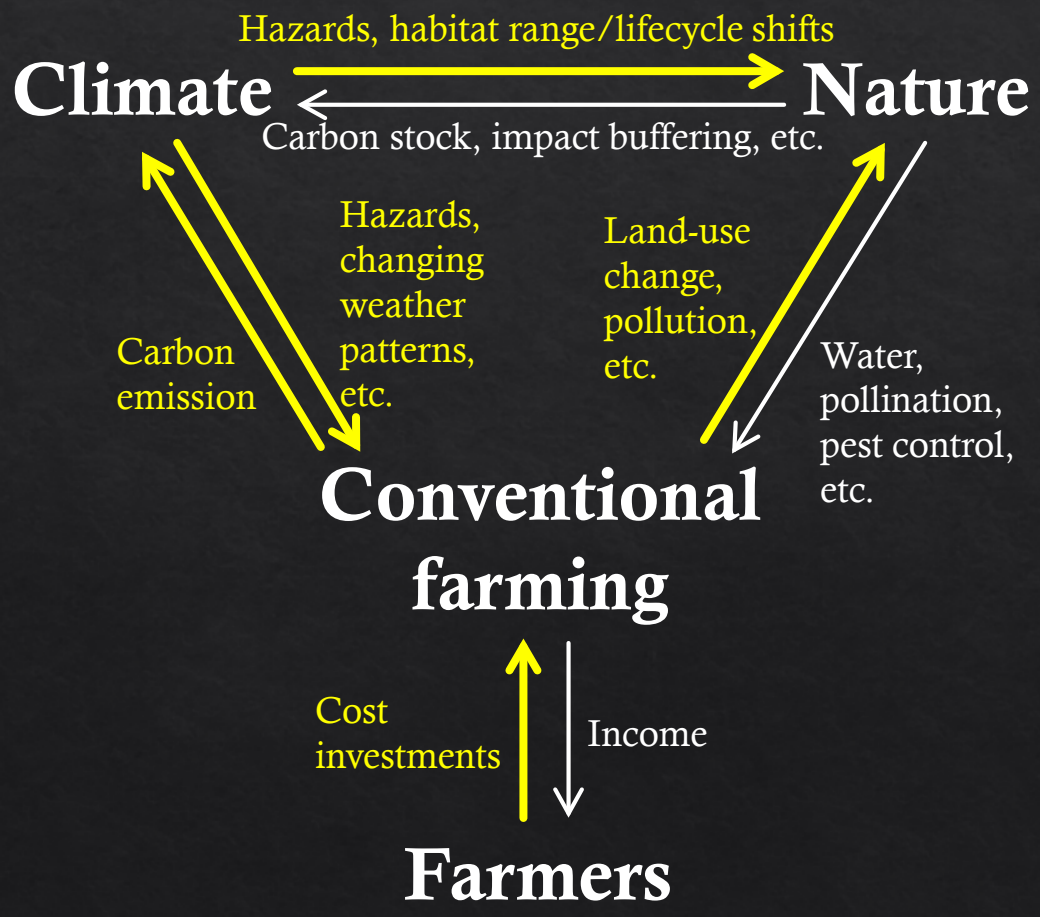
Coffee challenges in Vietnam

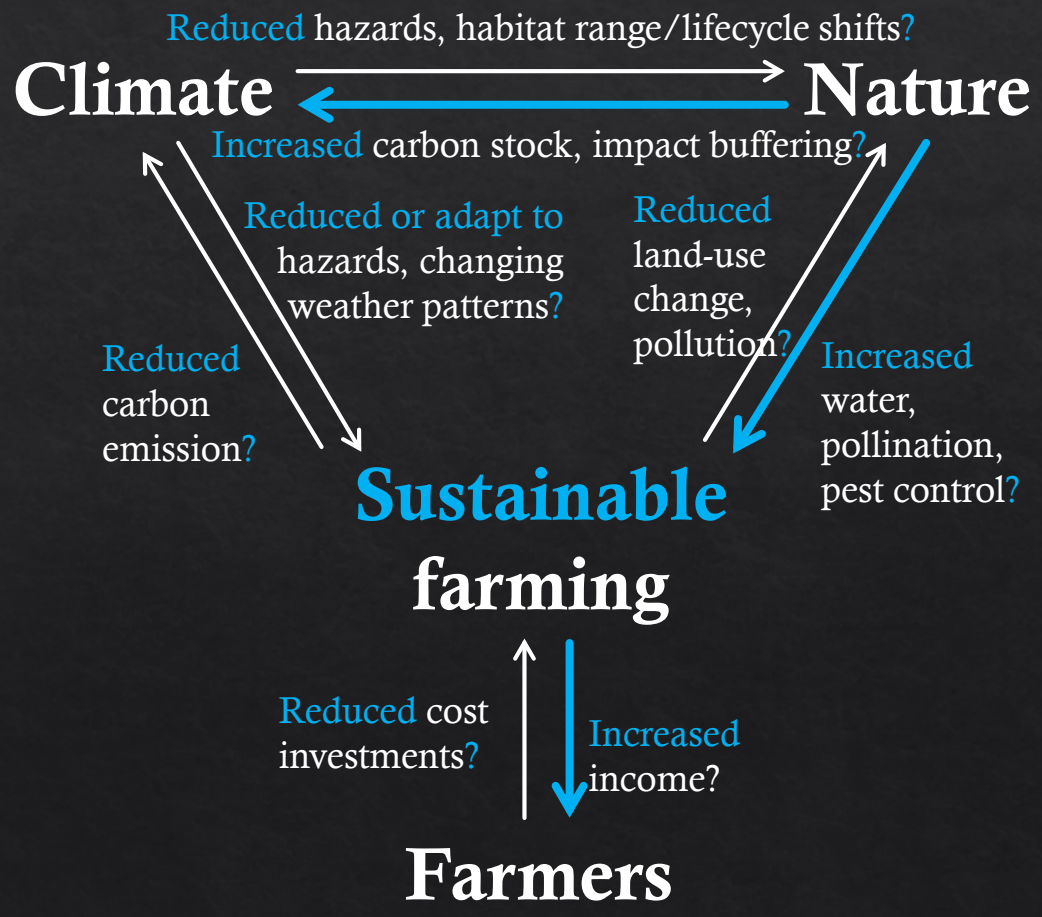
	Sustainability challenges	Causes
Environmental	Water depletion/pollution Soil erosion/degradation Forest/biodiversity loss/degradation Climate change (GHG emission)	Irrigation water overuse Agrochemicals, changing precipitation patterns Forest conversion (not serious now) Fertilizer overuse
Social	Poverty and inequality Labor shortage Child labor	Ethnic minorities Low income, economic (urban) growth and inflation Labor needs during the harvesting season (not very common)
Economic	Low and volatile income	Global commodity market

Shade trees as a mitigation and adaptation measure?

- "**A buffering impact of shade trees** on air temperatures …, with minimum night temperatures found to be 0.5–2◦C higher than under FS, and **maximum daytime temperatures 4–5◦C lower** compared to FS" (Koutouleas et al., 2022, p. 5)
- "**On-farm carbon storage**" (Koutouleas et al., 2022, p. 5)

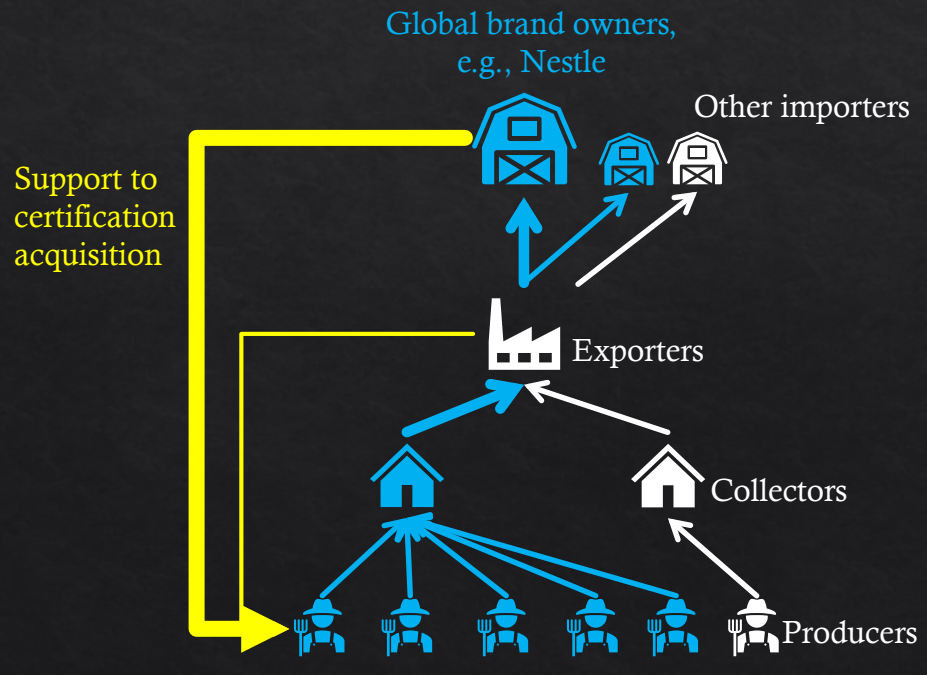
Simplified (hypothetical) fourfold interactions

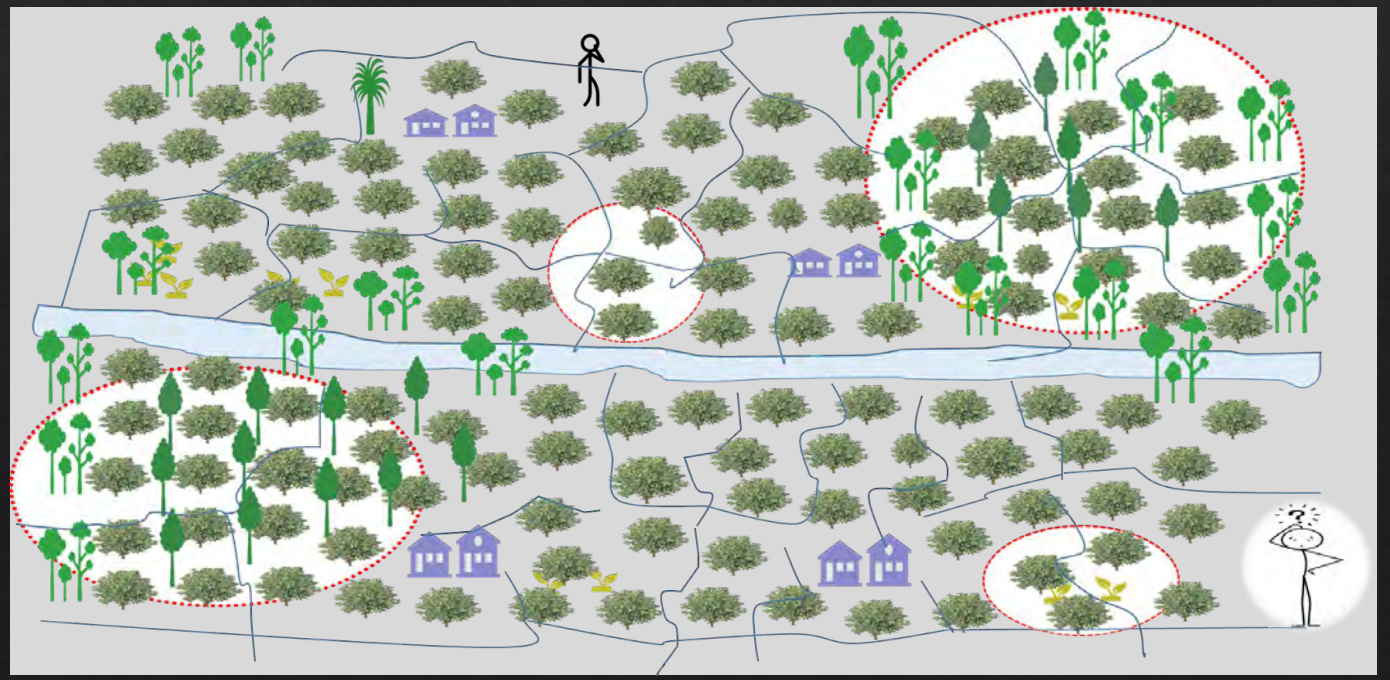




Different approaches to scaling-up sustainable farming

- **Supply chain approach** (esp. certification): with sustainability standards, chain of custody management, labeling and price premium:
  - Small market, costly, oriented to farm-scale actions, low-capacity smallholders left behind?

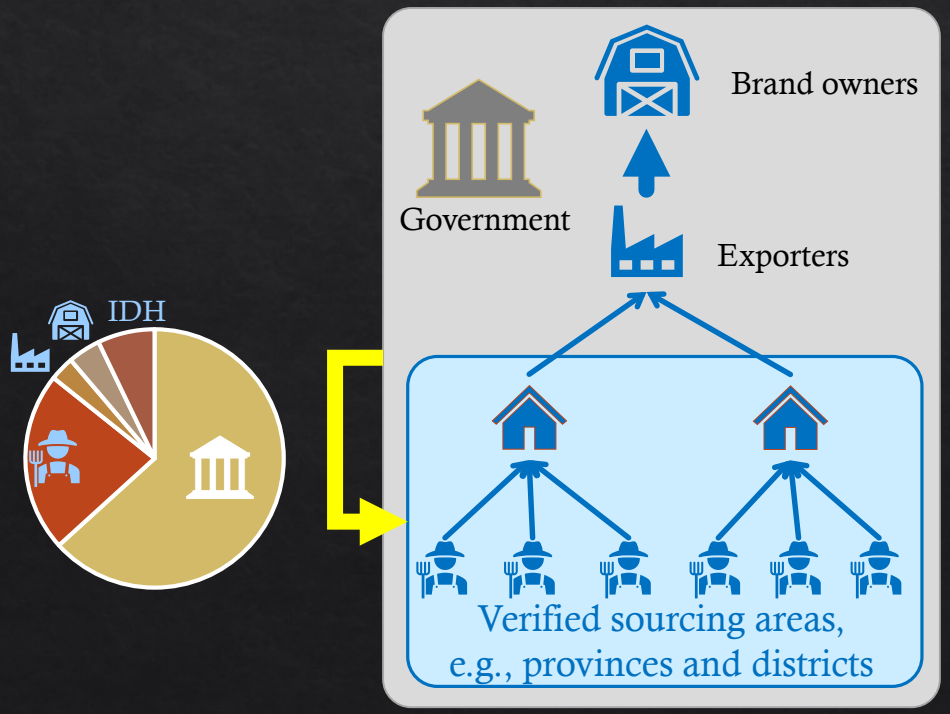


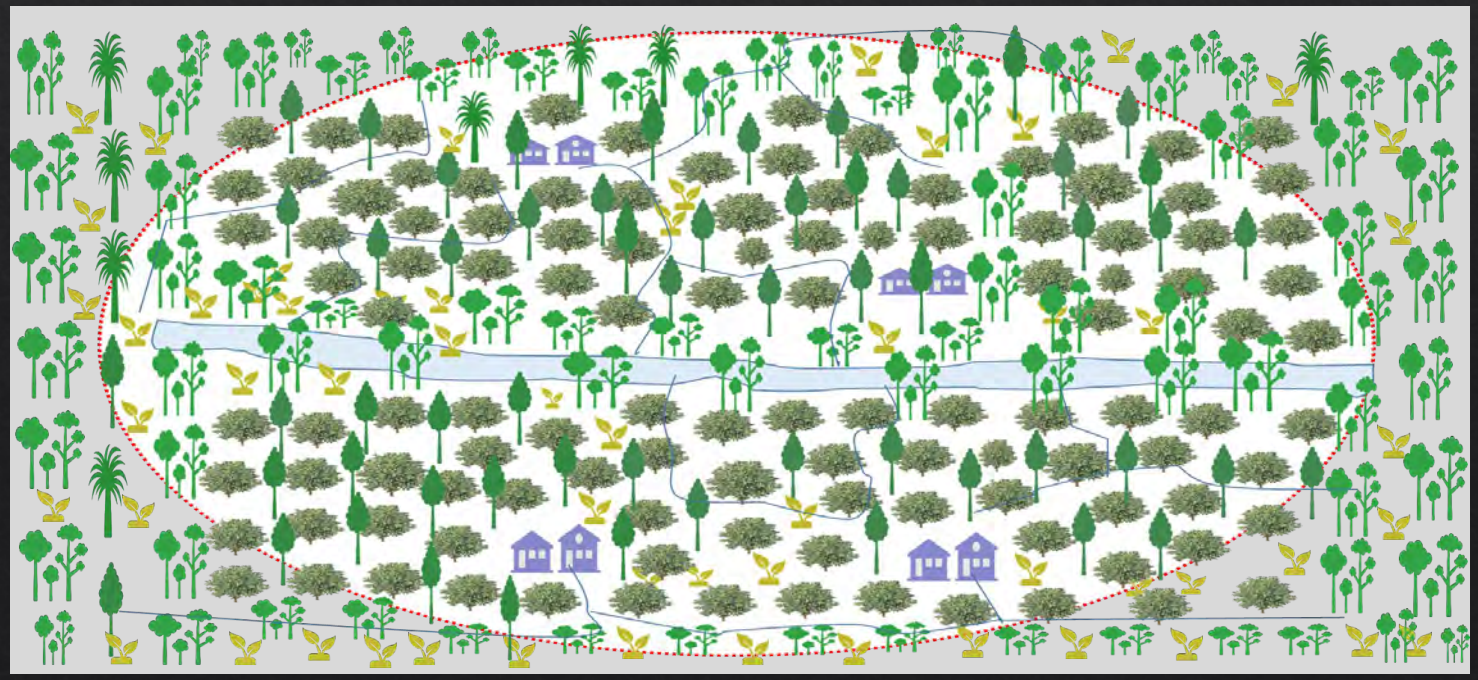


Source: IDH (2022)

Different approaches to scaling-up sustainable farming

- **Landscape approach**: with landscape due-diligence; multi-stakeholder governance; shared investments:
  - Easier traceability, open to diverse investments, support landscape-scale actions, no one left behind?



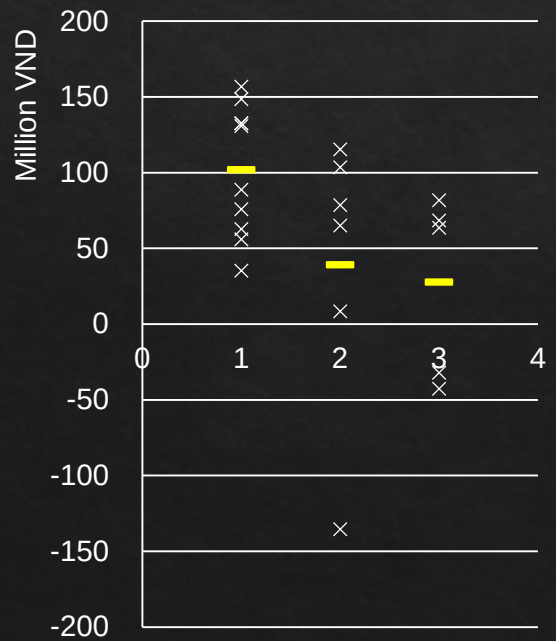


Source: IDH (2022)

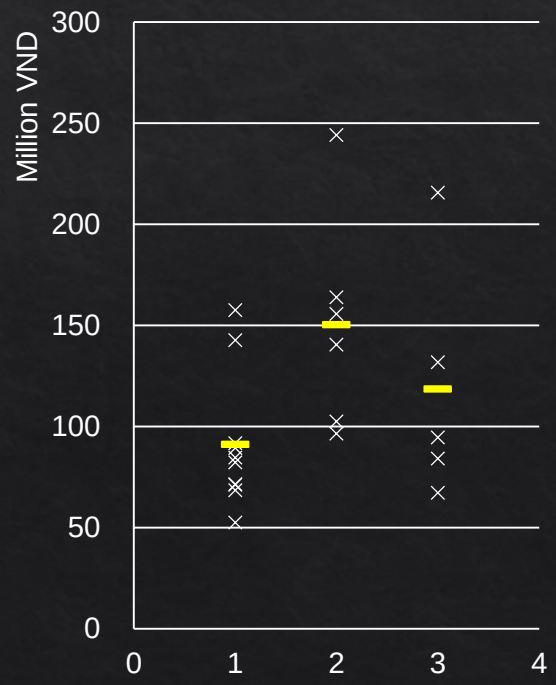
Preliminary survey results: a comparison between farmers participating in certification vs. landscape approach project

- 21 coffee farm households in Krong Nang District, Dak Lak Province, Vietnam, including 10 certified farmers (coded as "1"), 6 non-certified farmers with the landscape project ("2"), and 5 farmers without either engagement ("3")

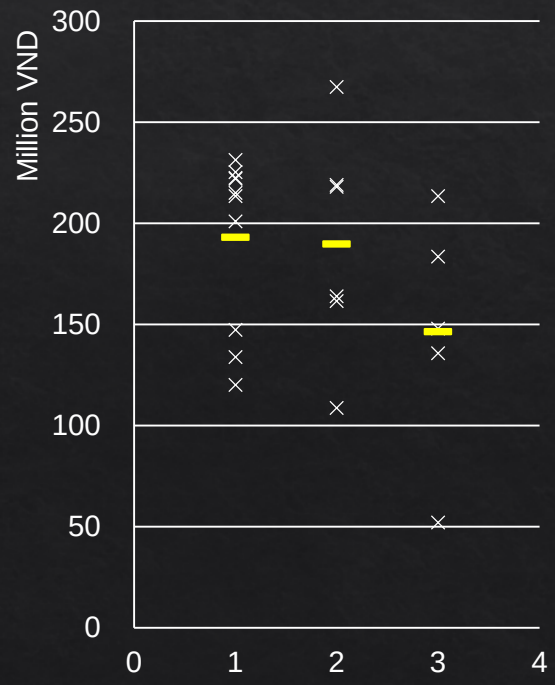
a. Net farm income (VND/ha)



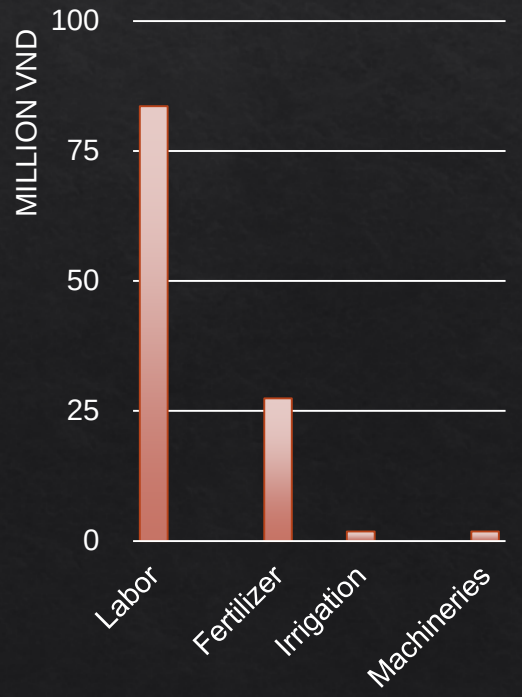
b. Farm cost (VND/ha)



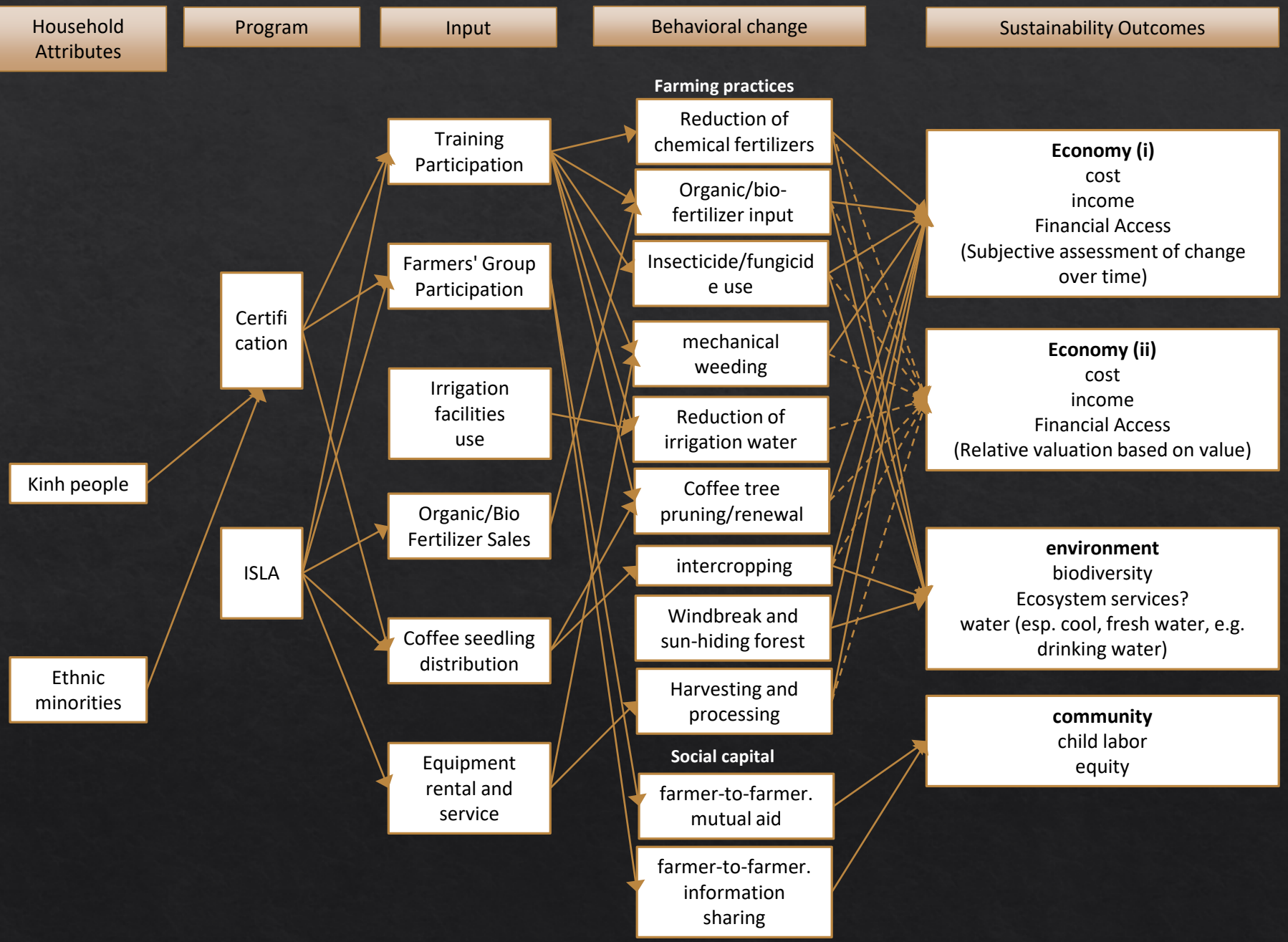
c. Farm income (VND/ha)



Cost structure



Our ongoing research



Take-home messages

- **Q1: Impacts of climate change on food security governance?**
  - **Reduced production**, which possibly can be attenuated by **adaptation measures**
  - **Landscape approach to optimize complex interactions** between food, climate and natural systems
- **Q2: Legal, institutional, or policy approaches to ensure a resilient food system?**
  - **Limitations of reliance solely on company-led supply chain approaches** (esp. certification)
  - Consumer-driven sustainable food initiatives may leave behind low-capacity smallholders, and hence possibly **exacerbate inequality** among producers
  - Potential benefits of **landscape approach** for scaling-out sustainable practices and their outcomes, which requires the **governments' strong engagement**