



Policy Analysis and  
Environmental  
Governance (PEGO)



*sustainability*



*Article*

# Land Competition under Telecoupling: Distant Actors' Environmental versus Economic Claims on Land in North-Eastern Madagascar

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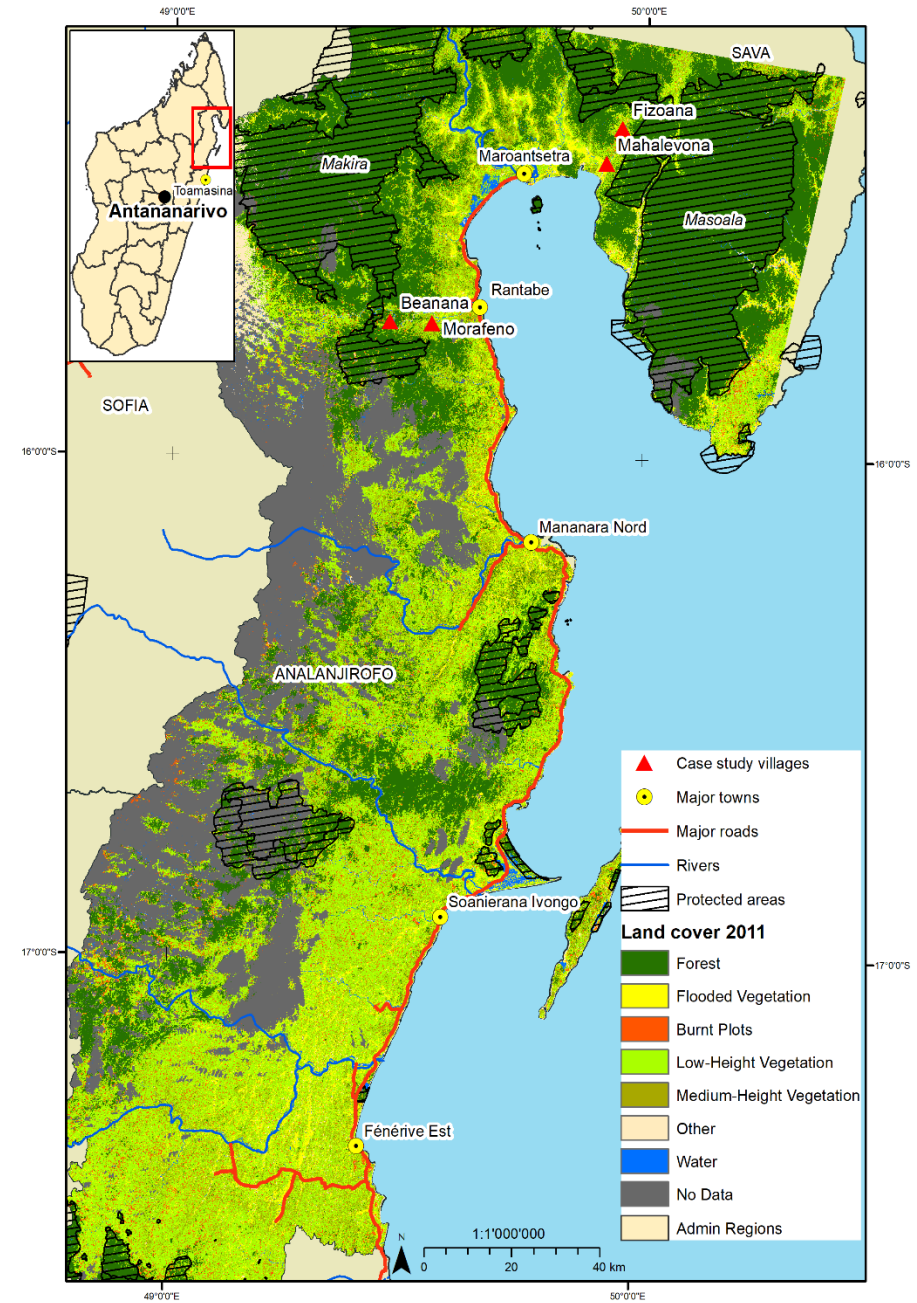
**Emergent effects in telecoupled systems: challenges and lessons for governing local land-use in a globally connected world**

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# North-eastern Madagascar



**Figure 1.** Location of study area in the Analanjirofo region in north-eastern Madagascar.




## Protected Areas of the world



Source: IUCN and UNEP-WCMC (2016). The World Database on Protected Areas (WDPA) [On-line]. April 2016, Cambridge, UK: UNEP-WCMC. Available at [www.protectedplanet.net](http://www.protectedplanet.net)



 Terrestrial protected areas

 Marine and coastal protected areas



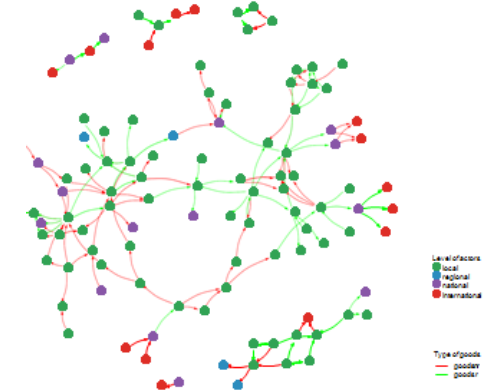
# Research question



Does telecoupled land governance foster land competition in north-eastern Madagascar?



# Data collection and data analysis



2 phases of focus groups per village:

- LU/LUC
- Main organizational actors/flows



Survey of the actors (face to face, skype calls and web survey) :

- Interaction data (actors, flows, and institutions)



Gap filling of the survey data with secondary data:

- Interaction data (actors, flows, and institutions)

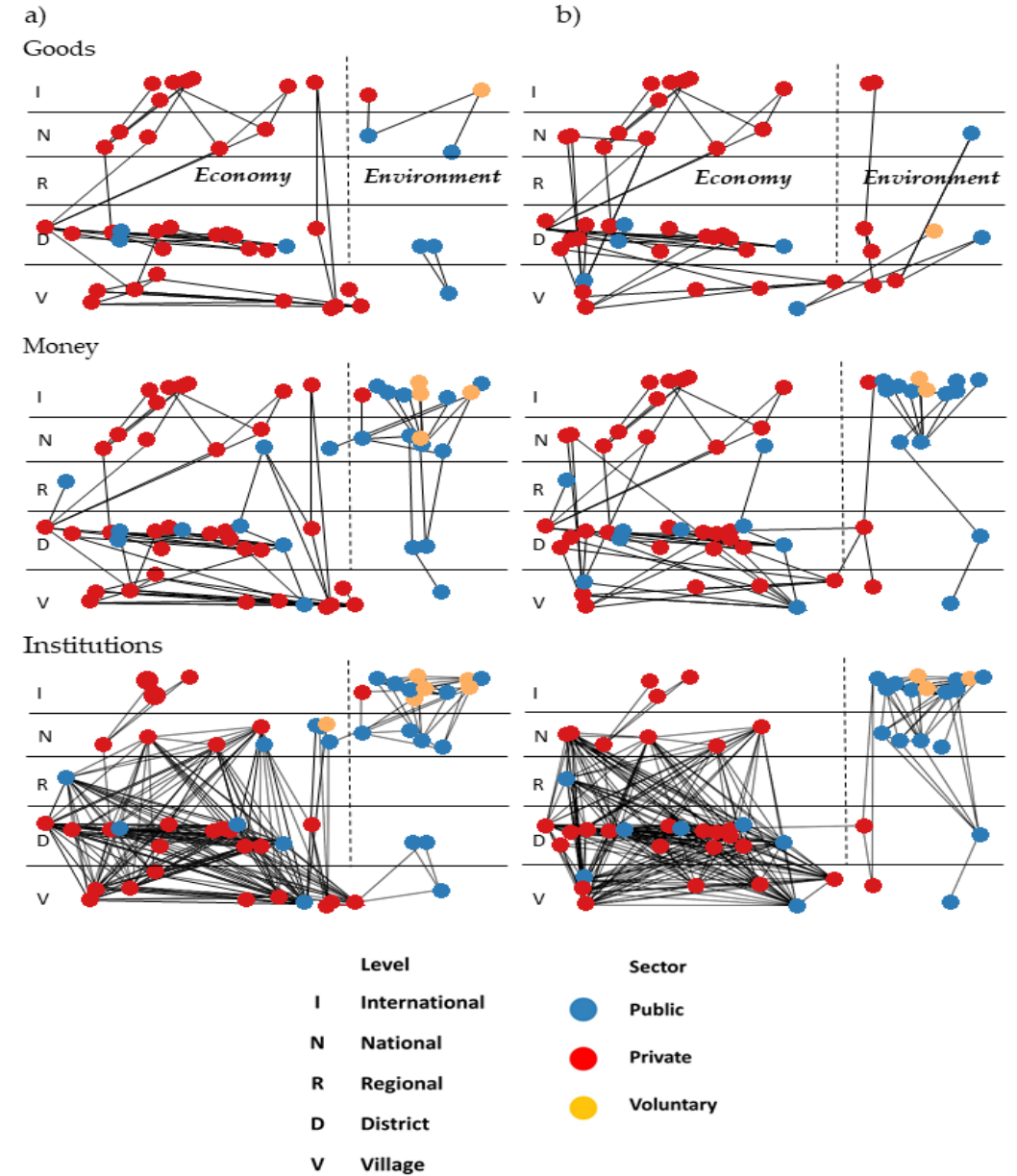


- Descriptive Social Network Analysis



Snowballing method

# Results

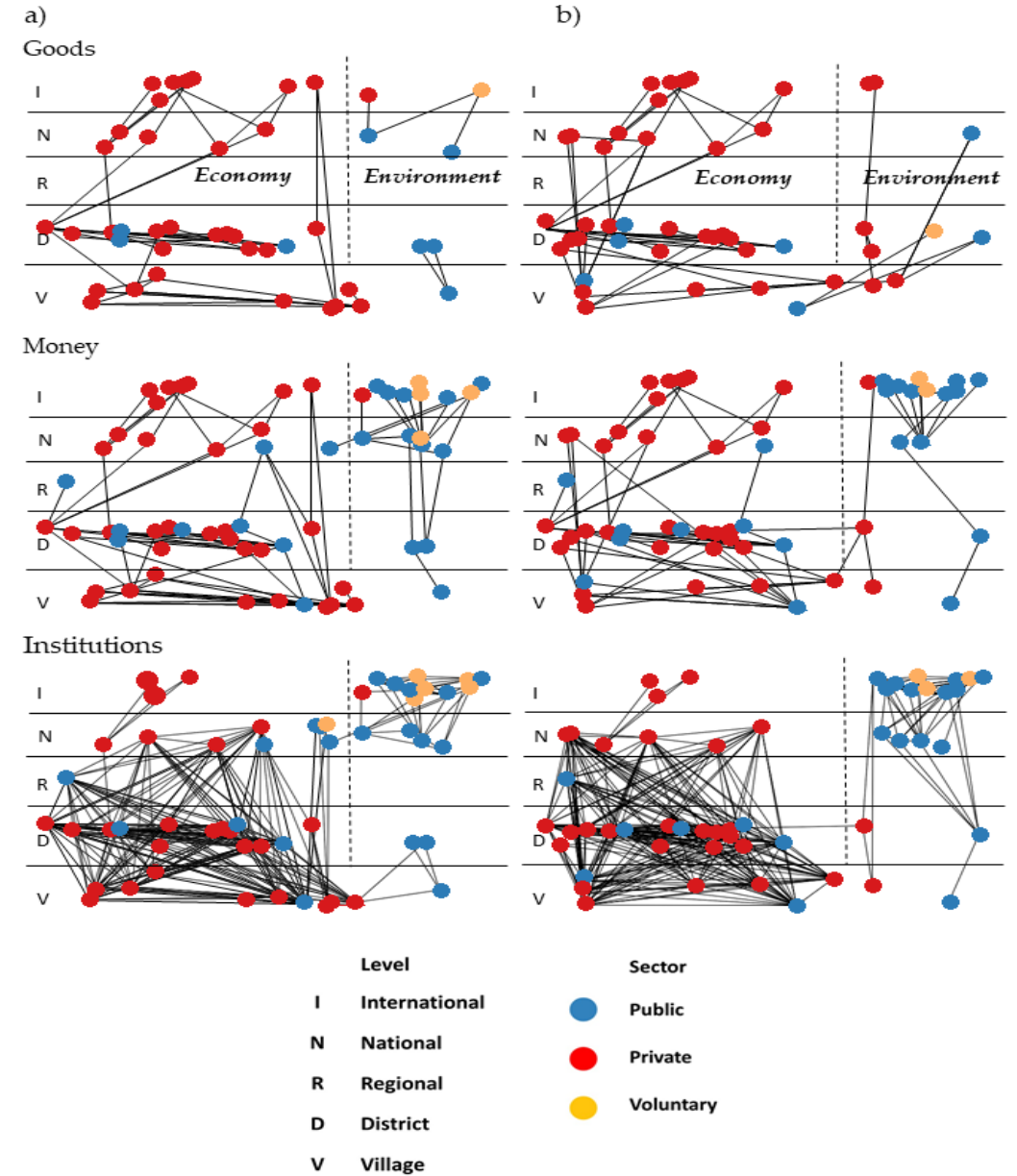


**Figure 1.** Network graphs representing interactions in terms of goods, money and institutions among the actors involved in land governance in the two case study areas of (a) Morafeno; and (b) Mahalevona. Variance in vertical positions of the nodes indicates the level to which the actors belong: international, national, regional, district, or village. The left/right of the dashed line represents the actors' domain: either economic, i.e. trade of cash crops and trade of quartz crystal (for Morafeno village only); or environmental, i.e. biodiversity conservation, silk network (for Mahalevona village only), and the carbon market (for Morafeno village only).

# Results

## (1) Land competition

- Economic and environmental domains

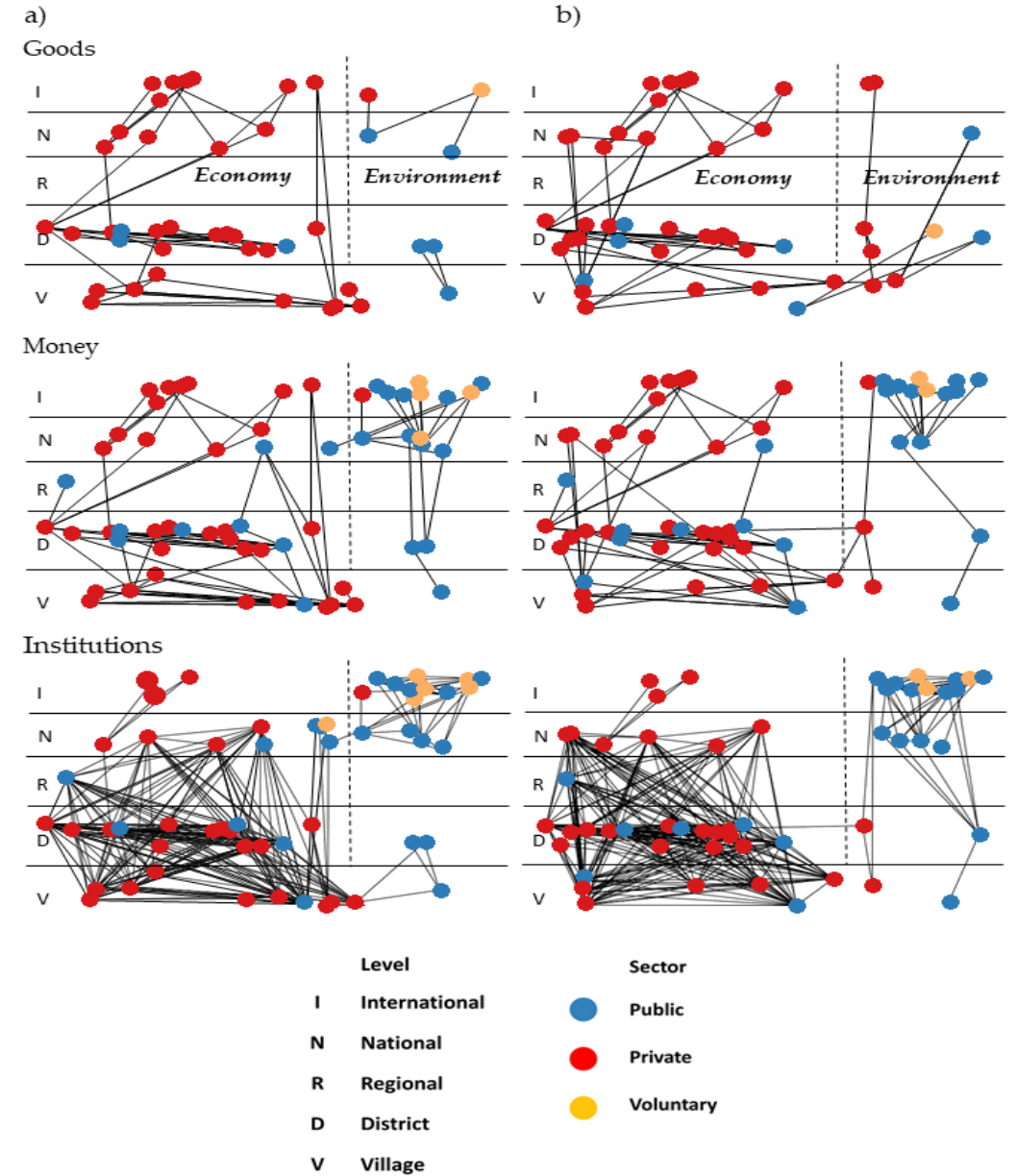


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# Results

## (1) Land competition

- Economic and environmental domains
- Few interaction between the two domains



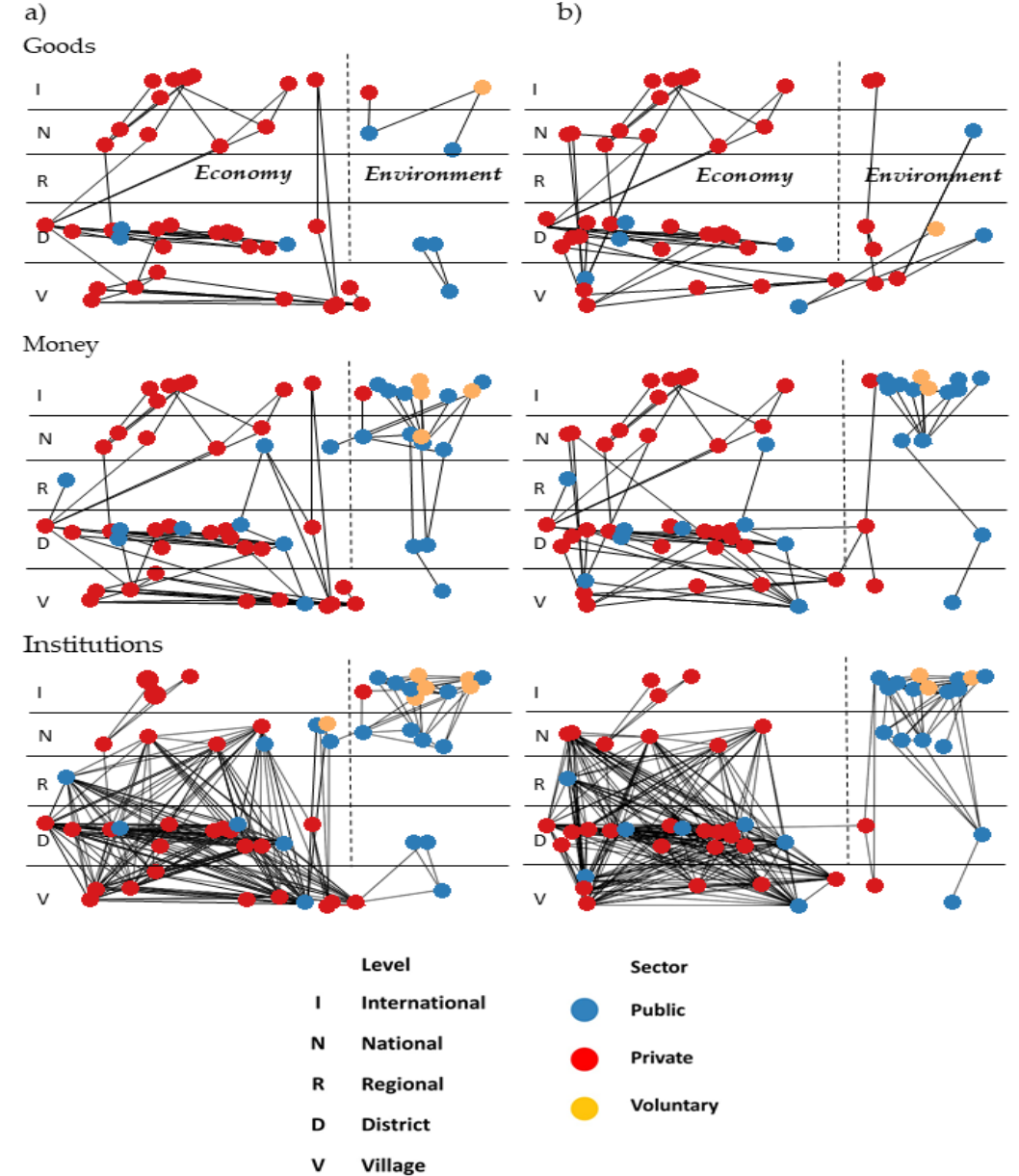
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# Results

## (1) Land competition

- Economic and environmental domains
- Few interaction between the two domains
- Village actors as bridging level

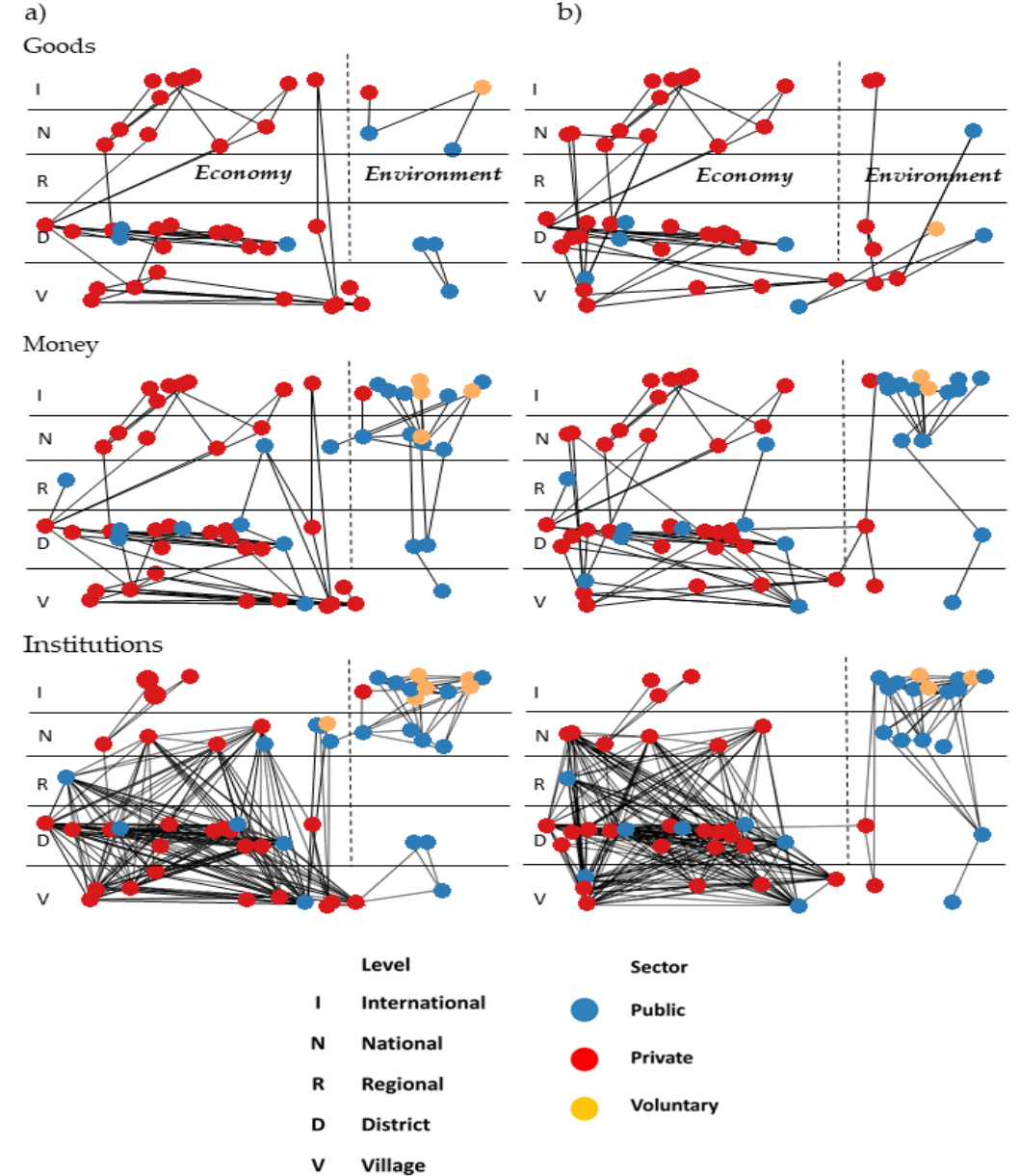


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# Results

## (1) Land competition

- Economic and environmental domains
- Few interaction between the two domains
- Village actors as bridging level
- Dominance (In number) of the private sector actors in the economic domain and of the public sector actors in the environmental domain



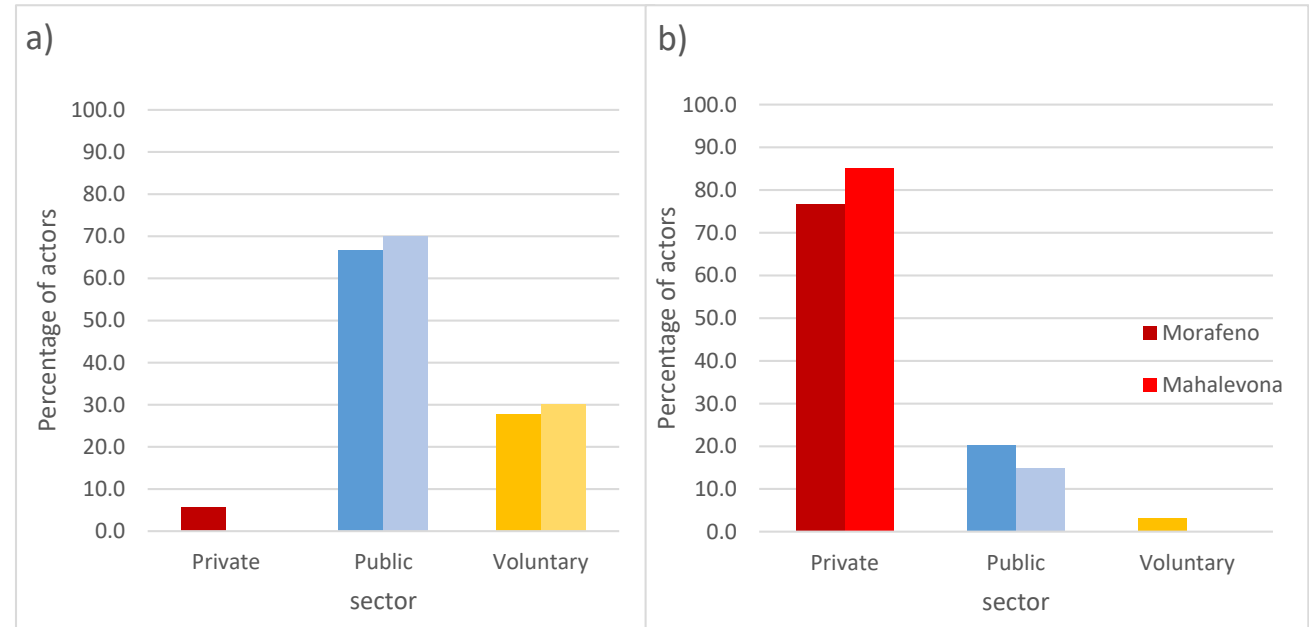
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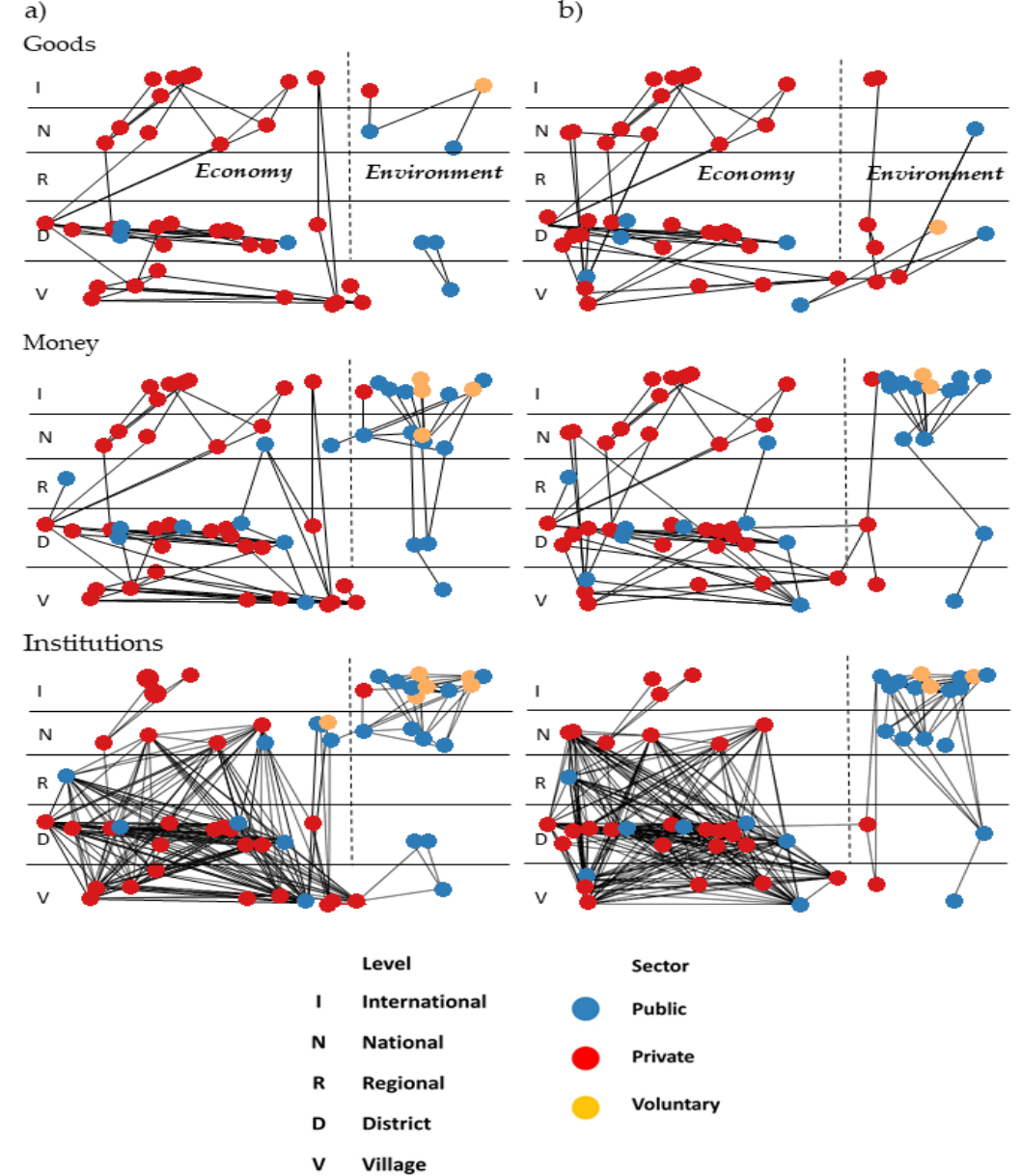


**Figure 2.** Distribution of the distant actors from the private, public, and voluntary sectors in the two domains in Morafeno (darker shading) and Mahalevona (lighter shading) villages: (a) distant actors from the environmental domain (N = 38), and (b) distant actors from the economic domain (N = 131).

# Results

## (2) *Telecoupled land governance*

- International actors in both domains and villages
- Goods and money flows: strong link between international and village actors via national and district actors
- Institutions: weak link between international and village actors



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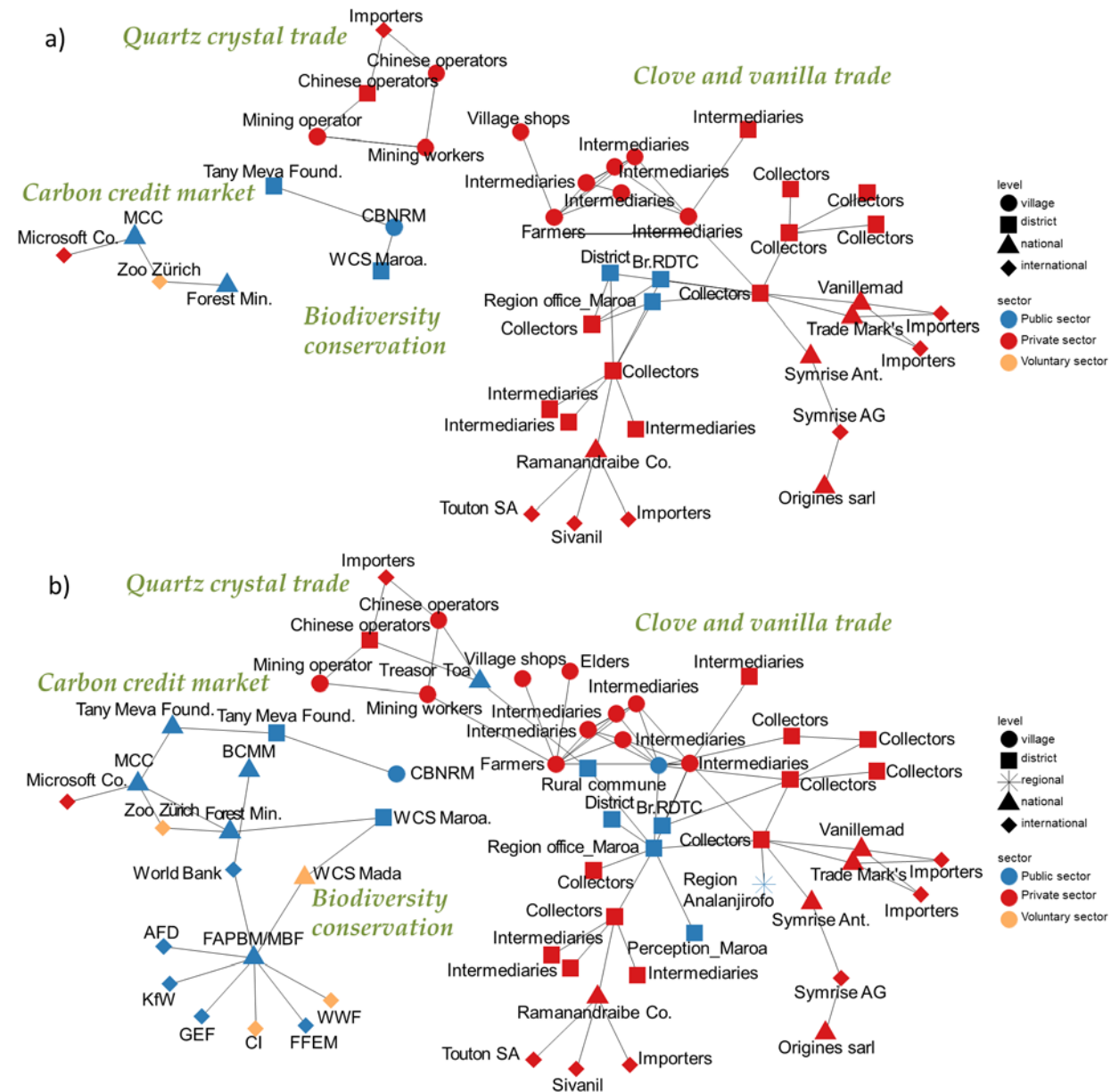
# Results

## ***(3) Distant demands reinforce land competition in north-eastern Madagascar***

Increase in vanilla and clove prices  
Forests classified as protected areas → no possibility of agricultural land expansion

Claim on the same land between cloves and vanilla plantations and biodiversity conservation, reinforced by telecoupling

Few interaction of actors within and across domains and levels



**Figure 3.** Network graphs of (a) flows of goods and (b) flows of money in Morafeno village representing the two domains: economic (e.g., trade in clove, vanilla, and quartz), and environmental (e.g., biodiversity conservation, carbon credit market).

# Conclusion

- Local land competition:
  - two different telecoupled domains (economy and environment)
  - very few interactions and different sectors dominate each domain
- Telecoupled land governance:
  - reinforces land competition in absence of interactions
- Consider these distant influences:
  - Coordination / collaboration between actors across levels and domains
- Key agents of change among these land governance actors



**Thank you!**

<https://www.mdpi.com/2071-1050/11/3/851>