

Governing the Commons in a Globalized Epoch: A case study of telecoupled vulnerability of coffee farmers in Mexico and Vietnam

Part 1: Static Analysis- Collective Action

The case study of smallholder coffee producers' vulnerability in Mexico and Vietnam was published in the journal *Environmental Science and Policy* in 2008. The authors Hallie Eakin, Alexandra Winkels and Jan Sendzimir explore cross-scale linkages and teleconnections in the Mexican and Vietnamese coffee systems. This case study is an addition to the SES library and was entered in 2013 by Ashwina Mahanti at Arizona State University.

The original case study illustrates that vulnerability in a globalized world is no longer merely a place-based construct. Adaptive responses too, are not contained within the location in which they originate and can in fact mould the vulnerability of households in distant locations via the global market. The robustness framework provides a novel conceptual lens to study these interactions as processes that involve a change in infrastructure providers and infrastructure over time, thus shaping the incentives and interactions between resource users and infrastructure providers. The framework also allows for a dynamic analysis enabling the study of local-global feedbacks across systems over time.

1.1 Introduction

Globalization is the defining feature of our era. Distant interactions pose both unprecedented challenges and opportunities for sustainability (Liu et al., 2013). The over-exploitation of the global commons such as biodiversity is driven by a combination of global and local drivers and their governance thus needs to span across scales. As distant interactions shape the sustainability dilemmas of this generation (food security, global climate change, biodiversity, land use and public health), it is imperative that we seek to understand these interactions, flows and feedbacks across systems.

The emerging heuristic of telecoupling in land use change and food systems seeks to address the 'governance vacuum' within which Social Ecological Systems (SES) interact. Globalization has thus far been studied as exogenous factors driving change within a system rather than as flows that link systems via social and ecological mechanisms of change, feedbacks and place-based outcomes (Liu et al., 2013; Eakin, forthcoming).

The term 'teleconnections' in climate literature refers to atmospheric processes having climatic consequences on geographically non-contiguous locations like the El Niño Southern Oscillations (ENSO) (Trenberth and Hurrell, 1994). When applied to Social-Ecological Systems, the idea of telecoupling is used to capture the influence that two or more SESs exert on each other. The challenge emerges when institutions acting over one system do not account for the consequences in the more distant system. The 'distance' referred to in telecoupled systems can be either spatial or

social or both: geographic separation or a separation of social networks, institutions and governance (Eakin and Rudea, 2014).

1.2 The Commons Dilemma

The global market for coffee is a commons that was governed by a set of coffee producing and consuming countries under the International Coffee Agreement (ICA). The International Coffee Organization was established in 1963 at a conference convened by the United Nations in response to fluctuations in prices and supply and demand from the 1930s to the 1960s. Price of coffee rose to unprecedented heights in 1953 and gave rise to a substantial increase in planting throughout the world and over-production followed. Stocks increased and, in the second half of the 1950s and the early 1960s, prices fell drastically. This led to an intergovernmental initiative to attempt to stabilize the market and to halt the fall in prices, which had serious economic and political consequences for a large number of coffee producing countries in Latin America and Africa (Bohman and Jarvis, 1999). There were clear boundary rules, membership and scope rules. Member countries negotiated quotas for their share in the coffee market, thus maintaining a predictable supply and price for coffee. The global market was thus governed as a global commons.

The break down of the ICA in 1989 followed by the introduction of neo-liberal policies and free trade opened the market and coffee producing countries to fluctuations in price, shocks and vulnerabilities they were previously protected from. These shocks and vulnerabilities in the global market are both a result of shocks at local scales as well as drivers of commons dilemmas such as over-exploitation of communal land resources and groundwater at local scales.

1.3 Biophysical Context:

(i) Veracruz, Mexico

The resources used include *ejidos* or communal land used for coffee cultivation, trees and plants used to produce shade coffee, water resources etc. Hard infrastructure includes tools and implements, storage units etc. that are collectively owned and provided by the INMECAFE. Technical knowledge, credit and an assured market were other soft Infrastructure that the government provided via INMECAFE.

(ii) Dak Lak, Vietnam

Vietnam tried to exploit its natural resources to maximize the production of sun coffee and severely degraded both groundwater resources and soil fertility. It is estimated that in Dak Lak groundwater was exploited for over 70% of its capacity (D' haeze et al., 2005). Large tracts of forests were cleared for conversion to coffee plantations.

Soft infrastructure included *Doi Moi*, a policy for the privatization of collective agriculture and agricultural expansion. Also, rules for the relaxation of import and export controls played a big role in allowing Vietnam to enter the coffee market

1.4. Attributes of the Community:

In the 1980's Mexico was the world's fourth largest coffee producing country. Instituto Mexicano de Café (INMECAFE) was the principal agency of the Mexican government to support coffee cultivation by small landholders. By the late 1980's when economic liberalization plans were underway and governmental agencies were being privatized, farmers who had been organized to produce in relation to specific institutional structures and were now unsure where to turn. Production in Mexico stagnated during this period of political and economic flux.

Vietnam was undergoing structural and political changes, gearing up to join the global market it had thus far been precluded from. The government, a strong infrastructure provider introduced reforms under *Doi Moi* policy for the privatization of collective agriculture. Relaxation of export and import controls, open door policy to promote Foreign Direct Investment as well as regional and International trading agreements, all allowed for Vietnam's integration to the Western markets. Vietnam only contributed about 1% of the global coffee export at this point (Eakin et al., 2008).

1.5. Rules in Use:

- Boundary Rules: Countries that availed of higher, stable prices under the ICA had to be signatories to the International Coffee Agreement. All coffee producing countries could apply to be members of the ICA.
- Scope Rules: Each country could only supply as much coffee as their export quota permitted. Price was regulated by regulating export quotas.
- Position rules: The International Coffee Organization convened meetings and decided on quotas. Quotas were not equally distributed and were a result of negotiations between countries. Some countries were allowed larger quotas than others.
- Choice Rules: Countries could withdraw from the International Coffee Agreement with a prior notice of 90 days.
- Payoff Rules: Joining or withdrawing from the ICA was voluntary and members were not penalized for withdrawing.

2. Dynamic Analysis

Commons Dilemma: With elimination of barriers to trade and relaxed entry requirements, the global market started being flooded by coffee supply. Vietnam's entrance into the global market and its huge supply of coffee resulted in a drastic drop in coffee prices leading to a global 'coffee crisis' resulting in widespread poverty in both Mexico and Vietnam.

2.1 Shocks to Resource and resource users: Robustness–vulnerability tradeoffs

When price of coffee reached its historical minimum in 2001, it had significant vulnerability ramifications for both Vietnam and Mexican smallholders.

In Vietnam, national policy emphasis on export production had led to crop specialization and a reduction in local diversity and livelihood options. An over-exploited resource base tailored to maximize sun coffee production further compromised local diversity and redundancy in the system. The resources and infrastructure catered solely to coffee production and export. Thus factors that rendered Vietnam robust to prevailing socio-economic conditions between 1989-1994 were now pivotal to its vulnerability (Eakin et al., 2008).

Mexican farmers in Veracruz felt the effects of this coffee crisis. Eakin et al report that of the thirteen municipios that produced most of the state's coffee, 77% were classified as 'highly marginal' by 2000 (Eakin et al., 2008).

2.2 Feedbacks: Emergence of new institutional mechanisms to govern coffee

The deterioration of ecosystems and livelihoods that ensued the price collapse triggered a range of public infrastructure providers such as humanitarian organizations and NGOs concerned with environmental protection to take action. Infrastructure was provided in the form of organizing farmers into groups, programs, and relief and certification schemes. International organizations and NGOs such as the Rainforest Alliance or those concerned with social justice (OXFAM) entered the coffee value chain even though their agenda wasn't concerned with commodity trading (Rueda and Lambin, 2013). Certification for quality, sustainable production as well as farmers' livelihood security became the mechanism through which concerns and preferences in consuming countries were linked to farmers. The emergence of certification schemes illustrates how changes in local conditions have global effects in this age of rapid communication. The flow of information and values across geographic boundaries has altered the attributes of the global consumer community. The adoption of these global standards feeds back to local conditions where new soft infrastructure in the form of certification schemes and a new set of rules have allowed resource users to organize into groups that can take advantage of new institutional mechanisms.

Conclusion

The robustness framework provides a useful lens to study the global market as a commons. The global-local interactions that are characteristic of globalization shape robustness-vulnerability tradeoffs across scales and geographic locations. A telecoupled approach also allows one to study feedbacks that emerge as a result of these interactions both within a system as well as amongst systems across scales and locations. In the global coffee case study discussed above, feedback mechanisms have illustrated the potential to change the attributes of a community, empower new public infrastructure providers and transform governance. As distant

interactions continue to mould the context within which we endeavor to govern the commons, understanding the mechanisms and conditions that allow feedbacks for governance to emerge will be key to successful global governance.

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