

NOTES FROM THE FIELD

The Forest Game: Field Experiments as a Means to Influence Mental Models

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1. FORESTS AND LOCAL GOVERNANCE

Forests play a vital role in carbon sequestration, biodiversity conservation, and livelihoods, along with providing other local and global ecosystem services. However, forests continue to be subject to anthropogenic pressures caused by changing land use patterns and over-grazing, among other pressures. Besides causing serious ecological problems, degradation of forests negatively impacts the livelihood of more than a billion people (Chhatre and Agrawal 2008). The basic livelihood of a large proportion of the rural poor residing in the remotest villages of India is dependent on forests. However, unfavourable property rights and weak institutional arrangements have resulted in a vast expanse of land being ill managed and a total loss of livelihood for a large section of the community (Nayak 2003).

Common pool resource degradation is incorrectly attributed to ‘common property systems’; it is actually the result of disintegration of local-level institutional arrangements. A disintegrated institution leads to the incorrect application of ‘rule of capture’ on common pool resources, wherein each user tries to get as much as possible before others do (Bromley and Cernea 1989). Forest conditions are determined largely by local governance institutions, which have the potential to respond to and affect biophysical and socio-economic factors impacting forests in the local context (Andersson and Agrawal 2011). Experiences from several states in India

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suggest that, in the existing socio-economic and demographic conditions, participatory forest management is the most suitable survival strategy for the threatened Indian forest (Pandey 2007)

2. FIELD EXPERIMENTS

‘Experimental games’ was an effort (Ostrom, Walker, and Gardner 1992) to build game theoretical models in accordance with the institutional analysis and development (IAD) framework (Ostrom 2009). This participatory approach in collective action studies was conducted by involving communities in diagnosing constraints and solving problems by combining their local knowledge with the expertise of external researchers. Several experiments exist that present different dilemmas for collective action. One of the many advantages of a laboratory experiment is its ability to be replicated with modification.

In this paper we will focus on field experiments conducted in Rajasthan, the ‘Forest Game’. The Forest Game was designed keeping in mind its potential to create a real-life situation for individuals, thereby enabling them to better understand the impact of their behaviour on the given resource or on other communities and discuss likely institutional options to overcome them. This aims at generating an understanding of enforcement and its relationship with other factors that affect changes in forest conditions, which is critical to the sustainable governance of forest commons.

The field experiments conducted over a period of two months in 30 villages gave us interesting insights into the minds of communities dependent on forests. These insights were drawn through our observations during the course of the game and community debrief. The three scenarios presented in the game were aimed at influencing mental models by enabling players understand how factors such as communication, monitoring, and sanctioning are crucial for effective resource governance.

3. CATALYSING LOCAL FOREST GOVERNANCE: FIELD OBSERVATIONS AND LEARNINGS

The Forest Game, depicts real life scenarios, enabling players to make harvesting decisions on a board that represents a degraded forest. The game begins with 50 trees; the number of trees may increase to a maximum of 100 or decrease to a minimum of 4 depending on the harvest decisions made by players during the game. Players make harvest decisions in three scenarios—without communication, with communication, and communication with the provision to keep a guard to monitor harvesting

decisions and further to introduce sanctions. The game is followed by a community debrief, which attempts to trigger discussion around the playing pattern and how it influenced the condition of the forest, thereby initiating dialogue on aspects of collective action for forest governance.

The initial rounds of the game, wherein players make harvest decisions without communicating with each other, aim at enabling participants realize the impact of individual decisions on the resource condition. Their understanding of the relationship between individual harvest decisions and overall resource conditions was reflected in several statements. Some were 'Cutting more trees is a loss to us', 'Let's cut according to our needs; what will we do with the extra trees?', and 'If we keep cutting at this rate, soon there won't be any left to cut.' This understanding surfaced when the players were able to communicate with each other during the game.

To generate the realization that forest degradation declines with an increase in local enforcement (Chhatre and Agrawal 2008), a rule-enforcing mechanism was introduced. This realisation occurred among players when the total harvest did not match the decision taken as a group. 'Say something and do something else' was the pattern followed in the game. Even though players discussed harvest choices before taking individual decisions, not everybody cut as many trees as they claimed they would. In the rounds where the concept of monitoring and sanctioning were introduced, we encountered instances wherein, players stated, 'We do not need a guard; we know how to manage our forest ourselves.' This initial aversion towards monitoring and sanctioning mechanisms during the game indicated the false notion that monitoring would prohibit access to the forest and lead to a decrease in income. However, in cases where players resolved to monitor and sanction activity, we observed players harvest trees more cautiously and responsibly than in the other two scenarios.

The community debrief that followed the game provided community members a space to articulate their understanding that forests provide both tangible and intangible services. During a debrief in Rajasthan, an elderly community member said that 'cutting trees is a necessity for subsistence needs such as firewood' but also that 'we receive rains because of the trees in the forest'. In another debrief, a woman said, 'We are dependent on the forest, right from the time we are born up to the time we die. We need wood for both our cradles as well as our funeral pyres.' These statements reflect that communities understand the social-cultural and ecological relevance of forests, and that these should be considered in making decisions for forest governance

The potential of the game to trigger action for better forest governance was demonstrated during a community debrief in Gogunda block of Rajasthan,

wherein, after reflecting on the three sets of the game, players noticed how the trees in the forest gradually increased as they proceeded from not communicating to communicating and, ultimately, to monitoring and sanctioning. After reflecting on the dynamics of the game, community members resolved to form a village institution to govern their degraded forest. They decided to collectively contribute money for a guard, who would be appointed from the village itself. The community members also resolved to approach the local governance institution, ‘the panchayat’, collectively to undertake soil and water conservation activities under the Mahatma Gandhi National Rural Employment Guarantee Scheme. This would provide an additional source of income and simultaneously facilitate the process of restoration of their degrading common land.

4. CONCLUSION

The conversations during the game and debrief form a rich source of qualitative data pertaining to the *whys* and *whats* of research; *why* the community thinks in a particular way and *what* makes them think in this direction. Thus, the game as an action research tool provides both the community and facilitation team with insights on aspects such as collective action and incorporating mechanisms such as monitoring and sanctioning, which would need to be focused on for better forest governance. It also provides practitioners with valuable insights, which could enable them to provide informed suggestions to communities about the various schemes or provisions they could resolve to, for forest restoration and conservation. Further, the community debriefs create a space for transfer of knowledge within communities since people of all ages and genders are present during these meetings.

Our experience with this field experiment, therefore, demonstrated its potential to trigger discussion on forest conservation and restoration and emphasised the importance of local governance mechanisms for better resource governance.

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REFERENCES

- Andersson, K. and A. Agrawal. 2011. "Inequalities, institutions, and forest commons." *Global Environmental Change* 21 (3): 866–75.
<https://doi.org/10.1016/j.gloenvcha.2011.03.004>
- Bromley, Daniel W. and Michael M. Cernea. 1989. "The management of common property resources: Some conceptual and operational fallacies." *World Bank Discussion Papers*. World Bank, Washington DC.
<http://documents.worldbank.org/curated/en/548811468740174575/pdf/multi-page.pdf>
- Chhatre, Ashwini, and Arun Agrawal. 2008. "Forest commons and local enforcement." *Proceedings of the National Academy of Sciences of the United States of America* 105 (36): 13286–91. <https://doi.org/10.1073/pnas.0803399105>
- Meinzen-Dick, R., M. DiGregorio and N. McCarthy. 2004. "Methods for studying collective action in rural development." *Agricultural Systems* 82 (3): 197–214
<https://doi.org/10.1016/j.agsy.2004.07.006>
- Ostrom, E. 2010. "Beyond markets and states: Polycentric governance of complex economic systems." *American Economic Review* 100 (3): 641–72.
<https://doi.org/10.1257/aer.100.3.641>
- Pandey, D. 2007. "Joint forest management in Rajasthan—Case studies of two villages in Udaipur district." *Financing Agriculture—A National Journal of Agriculture and Rural Development* January-February: 12–21.
<https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/7145/12-21.pdf?sequence=1&isAllowed=y>