CASE STUDY

When Traditional Stewards of Lands and Forests Become Stewards of their Data

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Indigenous data governance and stewardship in India and Indonesia

The Cadasta Foundation, Waatavaran, and Esri work together to create a **fiduciary and communal data governance approach** based on **Indigenous and traditional knowledge governance** with the aim to secure land and forest rights of Indigenous and local communities in West India and Indonesia. The process covers a stewardship of data model where the local community stewards and owns their data. The case study provides insights into data stewardship, communal data control and ownership, meaningful deliberative participation, and Indigenous data governance.

Background and main challenges

Indigenous Peoples (IPs) and local societies have, for centuries, stewarded lands and forests via governance institutions, cultures, and traditional knowledge systems. Indigenous and community women, in particular, play a critical role in managing and conserving community resources. In many agrarian communities, this governance sustains a close bond between people and nature, emphasizing the interdependence with ecosystems. A sense of collective obligation towards ancestors and future generations permeates the importance of land stewardship.

Research shows that IPs and local communities exercise customary rights to at least 49% (3,115 million hectares) of the area researched in the study—in line with prior estimates that they collectively hold rights to over half of global land. Of these territories, at least 46% have yet to be legally recognized, and half of these are in low- and middle-income countries (LMICs).[1]

Despite the growing awareness, new laws, and civil society organizations at national and sub-national levels, threats to lands and territories are increasing. Legal regimes have impaired Indigenous governance through proprietary systems of commodification and appropriation of resources and extraction, leading to dispossession and environmental degradation. Vulnerable communities with legitimate tenure rights may see their rights subject to stringent means that erode control over land and data. In some cases, conflicts between farmers, forest dwellers, and companies feature disturbing details of land grabbing, violence, and dispossession of local communities.[2] As documented in Lunjuk, a supplier company destroyed farms and homes, forcibly displaced families, and had villagers arrested on dubious charges.

1. The Rights and Resources Initiative, (2020). Urgency and Opportunity: Addressing Global Health, Climate, and Biodiversity Crisis by Scaling-up the Recognition and protection of Indigenous and Community Land Rights and Livelihoods, Creative Commons Attribution License CC BY 4.0.
2. USAID, Policy on Promoting the Rights of Indigenous Peoples (PRO-IP), Objective I,"Failing to account for the priorities of Indigenous Peoples often results in conflict, land grabbing, and destruction of livelihoods, while at the same time missing opportunities to access a wealth of traditional knowledge relevant to development objectives."

The Indonesian government has committed to recognizing 12.7 million hectares of community land as well as allocating 9 million hectares for a planned agrarian reform. The progress on this has been very limited, due to a lack of capacity and coordination, corruption, and overlapping and often contradictory regulations. In India, the legal framework provided by the Forest Rights Act (FRA) is a big opportunity to scale community rights, but to date. barely 5% of the potential for collective rights over 40 million hectares of forest land has been achieved, partly because of strong opposition from conservationists, the forest bureaucracy, and a political economy favoring industrialists and conservation groups to file suits challenging the FRA before India's Supreme Court. Climate change mitigation measures are impeding forest and common lands, neglecting the legal and constitutional rights of communities dependent on them, and making them even more susceptible to climate crisis, food and livelihood security, and conflicts.

In India, an estimated 275 million people depend on forests for at least part of their livelihoods. Members of forest-dwelling Indigenous communities are among the poorest and most vulnerable in society. A World Bank study done before 2005 found that despite making up less than 10% of the population, Indigenous forest dwellers constitute about half of those displaced by big projects.[3] In Maharashtra, 10 million Adivasis live and earn solely from forest-based, non-timber produce and agricultural activities. However, low levels of literacy, poverty, and a lack of technical and leadership skills has resulted in landlessness. Despite the enactment of the FRA, millions of tribal and other communities have not had much success in getting entitlements to their traditional land holdings. In 2019, the Supreme Court ruled to evict millions of tribal peoples whose rights had not been upheld under the FRA. Although the court has put a stay on the evictions, the threat remains. This discourages others from applying for their rights under the FRA.

Smallholders and large farms alike use land that was, until recently, untouched forest and/or claimed by IPs. Many records of land ownership are non-existent, incomplete, or outdated. In Indonesia, the government did not legally recognize its IP until 2012. As a result, the government cannot identify who is using land that was home to Indigenous communities or a forest with many producers. With environmental challenges, like deforestation and urbanization, it is key to ensure land registration benefits IP, smallholders, and residential landholders.

3. World Bank, (2005) India: Unlocking Opportunities for Forest-Dependent People in India, Vol. 1, Main Report. Washington, DC.

Other challenges related to the case study

- A lack of land documentation impedes farmers and others from further development.

- Releasing sensitive information of already vulnerable populations risks further encroachment.

- Land related data is among the datasets least likely to be open.

- Land registration requires many resources and can be time-consuming.

- The climate and biodiversity crises highlight the necessity of protecting the collective land rights of IPs and communities with customary tenure.

- Social, ecological and digital dimensions are interrelated. Efforts need to consider inequalities in rights, limitations and obligations applicable to all—and their impacts on the concentration of power.

- Collaborating with vulnerable communities can be very difficult. Some communities have little knowledge on how to use digital tools. The learning and capacity around data governance is oftentimes short changed and becomes a lower priority.

- In many situations it is still unclear what the implications are for farmers of data sharing.

- Building digitization processes at the community level is difficult, both from an administrative and community angle. Everyone wants to discuss concepts of data policy, however, it is difficult to implement that when there is limited digitisation, capacity and adoption, at the local level.

- How to access and use data to guide macro level decisions, while respecting data privacy and data ownership norms, can be quite difficult.

Digital technologies can help address some of the above mentioned challenges by tracking commodities and verifying supply chains. However, this requires accurate data, which often does not exist for the palm oil sector. Satellite imagery, drones, GPS-enabled phones, and socioeconomic data can help determine farm borders, property history, and farming practices. Evidence of land and use rights is a critical component in creating sustainability in the palm oil sector.

Open and accessible land records make transactions easier, as they: (1) remove barriers to development, (2) allow farmers to access information without authorities gatekeeping, (3) make records more secure and less easy to tamper with, (4) can highlight areas in need of public service, and (5) can be a first step toward certifying a sustainable value chain. When authorities open data, conservationists and communities can see what land is protected and what is threatened. Smallholders gain confidence seeing their rights documented, with many benefits for them and others as a result (e.g., credit from banks). However, this is not as simple as it sounds. While releasing an owner's name in a human-rights-respecting, democratic country can help prevent corruption, revealing the same information in a country with less formal documentation or high rates of inequality can result in the dispossession or displacement of vulnerable communities. This causes huge risks for mass encroachments on their land and illegal evictions.

How are problems solved?

The **Cadasta Foundation**, a U.S. nonprofit, has helped farmers claim their land rights by providing a platform they can use to collect, store, and analyze land ownership data. Since 2019, Cadasta has been working with **Waatavaran** to help secure the rights of forest-dwelling families in India.[4] With Cadasta's training and tools, Waatavaran is mapping and collecting forest and household related data for Indigenous communities (Scheduled Caste and Tribal Communities) living in the forests of Raigad District, in Maharashtra State. Currently, these communities lack any form of formal records or proof of their communal and individual forest rights.

Individuals and communities are provided with advice on governance of land rights and can make use of the proprietary GIS mapping tool (ArcGIS) provided by **Esri**. Cadasta plays an important role in bridging the divide between informal and formal land administration. The Foundation uses partnership agreements with communities, nonprofits, or governments to make use of ArcGIS, and collect and store their data. This includes terms of use on data governance that place the **data ownership within each community**. Cadasta, as the database custodian, aims to collaborate and ultimately empower communities in a way that is participatory, user-centric, and tailored to local project needs. Data on each community is not accessible to other communities. This partnership and system enables and speeds up the otherwise slow processes of data collection, management, and validation.

Individuals and communities can register on the platform, create their workspace, set up a data schema, and choose privacy settings. This is important because they are often collecting personal and sensitive information. Data can be uploaded from an existing source, entered in via a web interface, or sent out through a survey.[5] In Indonesia, Cadasta is working with government agencies that do not want their data offshore. In many other cases, partners want to store the data in the cloud, offshore, to protect it from government encroachment. Cadasta has no claims on any of the data, nor on maps or satellite imagery. Communities never lose access to the data. The question of data use and control depends on the communities' ultimate aim.

Once documented on the Esri-based platform, with its accessible satellite imagery, mobile tools, and digital maps, community and individual claims are submitted to village councils for the first step of approval of formal titles under the FRA. The project aims to document 2,000 households, representing about 12,000 citizens. Land ownership will help to secure identity and dignity, and improve community livelihoods. Waatavaran aims to secure the land rights of one million oppressed and vulnerable Indigenous forest-dwelling communities by 2025 across India, through positively engaging with government agencies, community outreach, capacity and leadership building, data collection, mapping of land parcels, and inculcating sustainable natural resources management practices.

Data stewardship. As part of the Cadasta's data stewardship role, education is key. It is their responsibility and role to educate partner organizations on the value of data, sensible data use, and identifying issues, as well as following up with constant support and training. Waatavaran's data stewardship role extends beyond data collection and gathering evidence to help decision support systems. The goal is to help communities own their data. As a data steward, Waatavaran works with the community to support them and build governance structures that can help use data in a way that

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4. Waatavaran is a grassroots climate-justice nonprofit in West India working closely with vulnerable communities. The Nudge Centre for Social Innovation awarded Waatavaran with funds, and more recently the Canadian Department of Foreign Affairs, Trade, and Development (DFATD).
5. To ODK or GeoODK for use in a tablet or a mobile phone.

informs and benefits the collective good. Trust, education, and development of public goods emerge as key themes for the data steward. A data steward provides a trusted environment within which better access to data is facilitated and is used to inform decision making support systems.

Participation. Waatavaran uses community outreach programs to initiate dialogue among the Tribal community to raise awareness and provide an avenue for everyone to participate in decisions that affect their lives. A visit to a village by Waatavaran staff helps to understand the needs of the community and develop a bond of trust. These relationships are nurtured via personal interactions, focus group discussions, and Gram Sabha (Village Council) meetings. Community engagement, control, and ownership of data is central to here. Ongoing discussion on how to develop processes to facilitate this will take place.

The Tribal community is apprised of the correct procedure to obtain their rightful land holdings via intensive training sessions. These Tribal and local communities, as well as the women who have been empowered through the program, are equipped with the needed knowledge to use the user-friendly platform to map land parcels. The platform works on- and offline and includes the use of multiple regional languages, accuracy in mapping, and the potential to replicate and scale. Waatavaran also helps to transfer knowledge on sustainable livelihoods through the formation of a Farmer Producer Company and by building local governance. Building local land and data governance will help in protection and management of forests and produce, help strengthen the relationship between people and nature, and ensure their peaceful coexistence.

"Community participation is key in the claim-filing process. However, the outcome of these processes to a great extent depends on governments and their agencies that provide an enabling environment. Securing land ownership and building economic capabilities require a co-creating approach. Hence it is quintessential to nurture and develop a strong partnership with local authorities including Gram Panchayat, Revenue & Forest Department, Panchayat Samiti, Sub Divisional Offices and District Collectorate,"

Waatavaran

Indigenous data sovereignty and governance. Pressing problems such as climate change, biodiversity loss, and inequalities call for recalibrating rights with social and environmental obligations. They require moving from material appropriation to land stewardship and learning from Indigenous governance to re-embed rights within notions of Indigenous obligation and responsibility. They also require redressing imbalances in power among and within different groups. Effective reform hinges on clear concepts, careful analysis, and continued monitoring to consider how imperatives shift land and data governance priorities. IPs and customary groups document, map, and analyze community land and natural resources to assert and defend their land claims. This approach uses participatory mapping techniques with specific considerations to women, elderly, and youth, and various interest groups, such as farmers, herders, and forest dwellers.

Facts and figures
Over 80% of earth's biodiversity is found on community-owned and -claimed lands and forests.[6]

- Over 80% of earth's biodiversity is found on community-owned and -claimed lands and forests.
- Community-held lands and forests tend to be better protected and sustainably used—storing more carbon, biodiversity, and generating more benefits—than lands managed or protected by others.
- Clear and secure land rights directly contribute to improved local food security, more resilient supply chains, and reduced impacts on local livelihoods and incomes.
- In Asia, only 6% (9 million hectares) of the total land area held by IPs and local communities (152 million hectares)—outside of China—is legally recognized.
- An area of 300 football fields of rainforest is cleared every hour to make way for palm oil production.
- Indonesia's land ownership is among the most unequal in the world, with 74% controlled by 0.2% of the richest people in Indonesia.
- Indonesia is the world's largest palm oil producer with large areas used for production.
- Approximately 40% of palm oil is produced by smallholders.
- The rights to 70% of the land in low- and middle-income countries remain undocumented.
- 200 million Indigenous and other traditional forest-dwelling communities depend on forests for their livelihood—ranging from shelter to forest produce.

Important factors for an enabling environment

- Many countries have legislation or rulings recognizing the collective rights Indigenous Peoples and local communities to forests, with about 48 LMICs that have legal frameworks to respect these rights.[7]

- The Opportunity Framework—to assess opportunities for engagement and country readiness for investments to secure the land and territorial rights of Indigenous Peoples and local communities—relies on a due diligence protocol on the basis of: (i) the scope of legal frameworks; (ii) the degree of political will and support for tenure reforms; and (iii) the extent to which actors and institutions have the capacities, resources, and relational trust needed to support reforms and the implementation.[8]

6. Recio, E., Hestad, D. (2022) Deep Dive: Indigenous Peoples: Defending an Environment for All, International Institute for Sustainable Development.

7. Rights and Resources Initiative (2018) At a Crossroads: Consequential trends in the recognition of community-based forest tenure from 2002–2017. RRI: Washington, DC.

8. A recent study (September 14, 2022) shows that off the $270 mln. (a small fraction of the total funding dedicated to climate change) only 17% of Indigenous Peoples and local communities tenure and forest management funding between 2011 and 2020 mentioned an Indigenous Peoples and local communities organization, indicating that a low share of funding is under their leadership.

Important factors for an enabling environment cont.

- The Voluntary Guidelines on the Responsible Governance of Tenure — the foremost global instrument on land governance—affirm this coexistence of rights, limitations, and obligations.

- In Indonesia, the establishment of the Working Group to Accelerate the Establishment of Customary Forests, the moratorium on expansion of palm oil concessions, and state commitment to accelerate land redistribution reforms present opportunities to build collective momentum around the tenure.

- The Consortium for Agrarian Reform (KPA), mostly made up of farmers' unions, is attempting to rebalance land distribution by advocating for land redistribution under the Indonesian government's Agrarian Reform program.

- In 2006, the Indian Parliament enacted The Scheduled Tribes and Other Traditional Forest Dwellers Act (Forest Rights Act or FRA). The Act recognizes individual and community land rights of communities who have occupied forested territories without documentation.

- In Indonesia, the Draft Omnibus Law deregulates mining, removes requirements for environmental and social impact assessment, and diminishes penalties for environmental violations.

Business viability and sustainability

While focusing on market viability may not be ideal, there is some opportunity to create revenue, but this is hardly the aim of this initiative. The partners have made it clear they focus on it from a justice perspective, especially for the Indigenous and Tribal communities to whom the state owes a huge debt. This is part of Cadasta's constitutional values. It is imperative not to think of the traditional knowledge of this community in terms of financial viability when education and economic empowerment are slowly reaching the communities.

"This initiative would prove beneficial for tribal communities that have been deprived of education [and] social and economic development. Now that we have realized the importance of forests, it is time to empower the true guardians of the forest. This will help to decelerate climate change and will give us a chance to re-establish balance between nature and mankind,"

Aditi Tatkare
Guardian Minister for Raigad District

What was the impact and what lessons can be learned

- To date, over 1,000 families in West India have been documented on the platform. Waatavaran aims "to secure land rights of one million oppressed and marginalized Tribal and forest dwelling communities by 2025 across India through engagement, capacity building, leadership, data collection and GIS based mapping of land parcels."[9]

- Of those families documented, 38% reported that they are very worried that they could lose their rights to use their property in the next five years, with 22% reporting that it was very likely to happen.

- While meaningful participation is key here, the outcome of these approaches also greatly depend on governments and their agencies that provide an enabling environment. Securing land ownership and building economic capabilities require a co-creating approach. It is quintessential to nurture and develop a strong partnership with local authorities.

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9. For more information see Waatavaran's website FOR_Adivasis.