

Parwara Van Panchayat Forest, India

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1 Part I: Static Analysis - Collective action

The authors Vishwa Ballabh and Katar Singh, first visited Parwara in 1988 to evaluate the factors that enabled collective action by the Panchayat. They continued to trace the impacts of government policies on local resource management (Ballabh et al., 2002; Balooni et al., 2007) in Parwara and neighboring Van Panchayats. Parwara is located in the Nainital district of Uttarakhand, India. Van Panchayats, established under British rule in the early 1900s, are community-based forest management bodies that grant ownership and user rights to local communities. By 2004, 6,777 Van Panchayats collectively managed over 520,000 hectares of forest across Uttarakhand, representing one of the largest community forestry networks in India. Although the system became a cornerstone of participatory forest management, field studies show that forest density and regeneration have declined since the late 1980s due to increasing population, livestock pressure, and weakened enforcement. The history of right to forest resources in India has been fraught with conflict. The formation of Van Panchayats (village forest councils) was an attempt to ameliorate these conflicts and recognize the rights of local resource users. The Government of India reclassified forest land as Class I and Class II forests. While Class I forests have little commercial value, they are important sources of fuel and fodder. The Panchayat enacts and enforces rules for the management of Class I forests and functions under the supervision of the district government officials. The key resource system (natural infrastructure) is the Parwara Van Panchayat Forest (common-pool). The key resources relevant to the commons dilemma faced by the community include green leaves for fodder, dry, fallen leaves for composting, grazing space, fuel wood, timber and poles for construction.

1.1 The Commons Dilemma

The potential appropriation problem/poor coordination of appropriation: The potential appropriation problem was reported by the authors (Ballabh and Singh) as successfully overcome, however they also reported few instances of illicit logging and encroachment by residents of neighbouring villages. The incidents were rare and only suggestive of potential over exploitation of the forests in the future. An increasing local population and resource deprived neighbouring population were seen as potential causes for future over exploitation of the Parwara oak forests.

Enforcement in the Parwara Van Panchayat shifted from effective community control to weak bureaucratic oversight over time. Initially, compliance was maintained through Mausawari (rotational patrolling) and fines imposed by the nine-member Van Panchayat Committee. Serious cases could be referred to the Patwari or Sub-

Divisional Magistrate, but most were resolved internally through social pressure. By the 1990s, fines were rarely paid and came to be viewed as access fees. Although the Panchayat retained the authority to report cases to the Revenue Department, leaders often avoided formal channels due to corruption and delays, leaving most offences unpunished.

After 1988, resource pressure intensified as population and livestock increased. Oak regeneration weakened, ground cover declined to about 49 percent, and encroachments became seasonal. Fines of up to ₹50 lost deterrent value as offenders rarely paid them, viewing them as access fees. Although serious cases could be referred to the Patwari or Sub-Divisional Magistrate, bureaucratic delays, corruption, and limited supervision—one inspector overseeing roughly 180 Panchayats, undermined enforcement. The 1986 revision of the Van Panchayat Act, implemented in 1988, further reduced local access to forest revenues, constraining funds for monitoring and guard wages. Diminished participation and weak enforcement turned once-effective community regulation into a fragile system struggling to control overuse.

The potential under provision of public infrastructure: The potential under provision of public infrastructure was successfully overcome. In 1988, the Van Panchayat was successful in creating rules and enforcing them with the help of village members (soft human-made public infrastructure). Village members depend on the forest for a variety of resources and have strong incentives to participate in local Panchayat meetings, rule making and monitoring adherence to rules. Between 1992 and 1996, the Panchayat registered 956 forest offences, imposing fines of ₹22,953 but collecting only ₹4,877. The revenue decline made guard wages irregular and reduced patrol frequency. By the 2000s, fiscal control had shifted to the state under a 40:40:20 revenue-sharing system among the Forest Department, Van Panchayat, and Zilla Parishad. In practice, Panchayats had limited access to these funds—some accounts held up to ₹1.96 lakh at the district level, while guards were poorly paid, reducing motivation.

1.2 Biophysical Context (IAD)

Natural infrastructure: Parwara is located in the foothills of the Himalayas and forests comprise broad leaf tree species such as oak. Residents of Parwara use the forest for the following resources:

- Green leaves for fodder
- Dry, fallen leaves for composting
- Grazing space
- Fuel wood
- Timber and poles for construction

Hard human-made infrastructure: Public hard infrastructure such as roads and market places allow easy access to bigger towns where farmers can sell their produce.

1.3 Attributes of the Community (IAD)

Social Infrastructure: Homogeneity in caste: Parwara is predominantly populated by Kshatriyas and the Panchayat comprises members of the same caste. Factionalism still exists since two different groups of Kshatriyas try and assert their majority in the Panchayat. A small number of Scheduled Caste and migrant households also hold proprietary rights. This relative homogeneity has maintained cohesion and minimized caste-based conflicts, though minor communication gaps exist between dominant and marginalized groups, whose influence in decision-making remains limited.

Elections to the nine-member Van Panchayat are held democratically, generally by a show of hands, and leadership has remained stable, including periods when a woman served as sarpanch. Meetings are convened regularly, though their exact frequency is not recorded, and participation has gradually declined with weakening institutional authority. Despite this decline, the absence of deep caste divisions has prevented factionalism, allowing the Panchayat to function with relative consensus.

- **Resource users:** All households own roughly the same size of fields and exercise similar rights in the decision-making process. Income and power equality seems to enable collective decision making and action. All proprietary right holders of the village are resource users. Free riding has been a persistent but manageable challenge. A few households, including migrants and non-resident right holders, use forest resources without contributing proportionately to protection or maintenance. However, the large group size, about 140 households, has helped sustain collective management, as enough active members continue to uphold essential functions.
- **Public infrastructure provider:** 1) The Van Panchayat, who have been empowered under the Van Panchayat rules, enforces the rules and regulations of resource utilization and for the protection of the Van Panchayat forest. The Van Panchayats develop their own formal and informal institutional arrangements to protect the forests and to check that the villagers adhere to the rules and regulations (Ballabh et al. 2002, 2161); and 2) Mausawari is a system of monitoring adherence to rules. When financial resources are scarce, and a paid guard cannot be employed, households take turns to monitor the forests. Women's organized roles have expanded beyond collection duties, with their groups undertaking monthly patrol rounds and attending meetings. Their involvement has become an integral part of forest protection and local governance.

Human Infrastructure: In the view of gender division of labor, Parwara Van Panchayat has cultivated women's ability to manage their forests by entrusting women with collection of fuelwood and leaves for fodder. In doing so, women can accumulate the endogenous knowledge of their forests. Over time, their role has extended beyond collection to active participation in forest protection through

organized patrols and regular attendance at Panchayat meetings. This engagement has strengthened local monitoring and facilitated the intergenerational transfer of ecological knowledge. Leadership experience gained through participation and representation has enhanced their capacity to contribute to decision-making and sustain community-based forest management.

1.4 Rules in Use (IAD)

Position Rules

- Sarpanch (head of the Panchayat) and the Parwara Van Panchayat Committee (9 members) are elected by the members of the Panchayat (the Panchas).
- Patwari (village revenue clerk) is appointed by the District Magistrate. The District Magistrate serves as the highest authority, while the Sub-Divisional Magistrate acts as ex-officio Forest Panchayat Officer.

Boundary Rules

- Members of the village who have proprietary rights are determined at the time of formation of Van Panchayat. Proprietary right holders can be added if they have immigrated to the village for over 10 years or if they agree to share the cost of forest protection. A few households also hold rights in more than one Van Panchayat due to migration or shared landholdings with neighboring villages. These overlapping rights create ambiguity over responsibility for forest protection and contribute to uneven participation in management activities.

Choice Rules

- The Van Panchayat can compound an offense up to Rs. 50 and confiscate weapons and instruments used for illicit lopping. They can also catch stray cattle and take them to the cattle pound. Van Panchayats appoint paid forest guards to detect encroachment or illicit felling by proprietary right holders.
- Resource users may harvest dry oak leaves from the forest.
- Households may collect branches and twigs.
- Each household may cut one bundle of grass (around 20-30 kg) each day.
- Grazing is unrestricted except in the 60-hectare planted area, while grass cutting is confined to an 8-hectare zone open for 15 days in September–October at ₹1 per bundle. Dry-leaf collection is permitted between March and May to reduce fire hazards, and green-branch cutting and fodder lopping are prohibited.

Aggregation Rules

- Members of the Panchayat (5- 9) elect their leader, the sarpanch. (+ higher

majority to arrive at a committee/ head).

- Meetings are convened regularly to decide on rule enforcement, forest use, and financial matters, ensuring continuity in decision-making despite reduced participation in recent years.

Scope rules

- Each household can collect a maximum of three head loads of green leaves per day.
- Each household is entitled to one tree for fuel and 10-12 poles.
- No green oak leaves may be harvested.
- No leaves may be harvested between June and February.
- No green twigs and branches may be cut/removed from the forest.
- No grazing and grass cutting shall occur between November and August.
- No harvesting shall occur when the area is not open.

Information Rules

- No evidence was found in the study that knowledge or information was developed and shared, even though the Forest Department had been tasked with 1) providing technical help in marking and auctioning of tress, etc, and 2) preparing developmental plans for Van Panchayats. Women's forest protection groups assist in surveillance and regularly report forest condition and rule violations during meetings, helping maintain local awareness despite limited technical input from the Forest Department.

Payoff Rules

- Each household has to pay Rs.4/head load of green leaves. Households pay Rs. 15/tree and Rs.5/pole.
- Local people and the forest department: Under government by-laws, Van Panchayat forest management by a Van Panchayat entitles it to a part of the income. Regarding the sale of timber and *chir* pine resin, it is completely controlled by the forest department. Under the Van Panchayat Act 1972, 20% of the revenue from timber and resin is given to zilla parishad (district council) for development projects and 40 per cent is deposited with the forest department. The remaining 40 per cent is utilised by Van Panchayats. Between 1992 and 1996, 956 forest offences were recorded, and fines worth ₹22,953 were imposed, but only ₹4,877, about one-third, were collected. The remaining 67 percent went unpaid, as offenders began viewing fines as a routine cost rather than a sanction. In recent years, fines have been imposed less frequently and rarely pursued through formal channels due to bureaucratic delays and rent-seeking, weakening enforcement and eroding the Panchayat's authority.

1.5. Summary

The forest offers diverse resources and the lives and livelihoods of the locals around

the forest are inextricably linked to these resources. Local resource users believe they have a right to use forest resources and are motivated to create a Van Panchayat to devise and enforces rules for the management of the forests. Resource users have a stake in ensuring that rules are adhered to and report any illicit felling or grazing. Clearly defined jurisdiction over local forest use enables the Van Panchayat to create and enforce rules effectively. Infrastructure in the form of local knowledge and novel systems for guarding against encroachment allows for the management of these forests. In earlier decades, the forest maintained dense oak stands with good regeneration and diverse undergrowth. By the late 1990s, continuous grazing, over-logging, and soil erosion had reduced tree density and ground cover. Field assessments from the 2000s recorded an average ground cover of 49 percent and species richness of 7.7 per plot, with oak comprising about 40 percent of trees. Regeneration was poor, and most woody stems were restricted to small diameter classes, indicating stunted growth. Over time, oak decline and the spread of pine reflected a transition toward less diverse and degraded forest conditions, illustrating the link between ecological stress and weakening management control.

2 Part II. Dynamic Analysis - Robustness

This update to the Parwara Van Panchayat forest is based on publications in 1988, 2002, and 2007.

2.1 Update on the Commons Dilemma

Van Panchayats (VP) were vibrant systems once upon a time controlled, managed and devised by the people. (Ballabh et al. 2002, 2165). They were free to make their own rules and regulations about protection, distribution and management of forests. Fines and sanctions imposed by the VPs were treated as final for offences committed within the VP managed forests (Ballabh et al. 2002, 2163). However, Balooni et al. (2007) reports a steady decline in VPs and the forest resources they manage. This decline is associated with a number of community-related factors, complexities in property rights, increased forest use pressure, deterioration of social fencing with increase in free riders, failure of government machinery to realise the ground realities and to act accordingly. This situation is contrary to the past when this institution worked well as the forest use (and population) pressures may have just been lower. (Balooni et al. 2007, 1451). For example, the introduction of the Joint Forestry Management policy (JFM) altered the power dynamics between the Forest department, Revenue department and the Van Panchayat. Increasing control of government agencies over once self-regulated Van Panchayats eroded their authority and capacity to function as autonomous bodies. The increasing control of the Revenue and Forest Departments over these self-regulated and self-enforced institutions is leading to degeneration and erosion of the VPs capacity to manage (Ballabh et al. 2002, 2165). In addition, resin tapping in the Parwara and nearby Van Panchayats underwent a policy change in the late 1990s when the traditional vasula method was replaced by the state-mandated rill method. The new system required Forest Department approval and reduced local income, as yields declined while a 40:40:20 revenue-sharing formula allocated most benefits to higher authorities. This policy change further limited the Panchayat's

economic autonomy and weakened its incentive to manage pine forests.

Boundary demarcation between private holdings and Van Panchayat land also remains unclear and poorly maintained. The absence of physical markers and updated land records has led to disputes and recurring encroachments, especially during agricultural seasons. Weak administrative follow-up and overlapping authority between the Revenue and Forest Departments have blurred property rights, complicated enforcement, and contributed to continuing forest degradation.

2.2 Shocks, Capacities, Vulnerabilities

...to and of the Resource (link 7 to R):

- *Link 5 between PI and resource dynamics (vulnerability):* In recent times, the boundaries (PI) of some VPs have been arbitrarily redefined so that villages (RU) which previously shared have new areas (R) for their exclusive use. In many cases, these new demarcations (PI) did not follow the traditional boundaries (PI) and thus resulted in confusion and disputes among villages. Encroachments and illegal fellings (Resource Dynamics) are the two major problems here (Ballabh et al. 2002, 2164). Encroachment by members of neighboring villages has increased drastically as their forest land continues to erode. Encroachment by outsiders and overexploitation of the resource by village members has resulted in degradation of the forest land. Most trees are confined to small-diameter classes, reflecting poor recovery and continued degradation driven by grazing, soil erosion, and weak management. Population growth and expanding market activities, including orchard expansion and small-scale stone extraction, have intensified pressure on forest resources and contributed to encroachments. The Forest Department also introduced exotic species such as *Pinus caribaea* and *Cupressus* without community consent, altering forest composition and reducing broadleaf regeneration.

...to and of the Public Infrastructure (link 7 to PI):

- No shocks to the public infrastructure were found, however we can speculate that any natural disaster can happen that affects the forest (natural public infrastructure) or roads (human made hard public infrastructure). The introduction of exotic plantations and externally managed reforestation projects under state programmes has modified the natural landscape but failed to enhance local infrastructure or ecological recovery.

...to and of the Public Infrastructure Providers (link 8 to PIP): Two shocks and their results are observed in the Van Panchayat. One of external shocks to the Van Panchayat (PIP) is an increasing control of the Revenue and Forest Departments over self-regulated and self-enforced institutions. This leads to de-generation and erosion of the Van Panchayats capacity to manage (Ballabh et al. 2002, 2165).

- *Link 3 between PIP and PI:* Due to increasing intervention of the government and poor support system, Van Panchayats (PIP) are besieged by several types of conflicts and have difficulty in maintaining their proprietary rights (PI).

- *Link 5 between PI and Resource Dynamics:* Encroachments (Resource Dynamics) on forest lands and pilferage have become common occurrences. This is largely due to delays in resolving these conflicts through administrative and Judiciary departments and involving rent-seeking by government officials (PI). Heavy control by the Forest Departments over these peoples institutions and the loss of autonomy at the grassroots level magnifies the conflict within and between Van Panchayat committees. As a result, the Van Panchayat system is on the decline (Ballabh et al. 2002, pg 2165). Gendered adaptation has, however, provided limited resilience through the formation of Mahila Van Suraksha Samitis in 1996, where women organized patrols, monitored encroachments, and promoted conservation efforts. Their participation helped sustain minimal protection despite declining institutional capacity.
- *Link 8 to PIP:* Government policy is another external shock to the Van Panchayat (PIP). Government imposed a severe restriction on cutting of standing trees for construction timber and fuel wood.
- *Link 3 between PIP and PI:* This policy deprived the Van Panchayat (PIP) of its authority for creating its rules (PI) to self-govern the trees. The problem with this policy (PI) is a lack of concern over the increasing gap for construction timber. The introduction of state-enforced Joint Forest Management (JFM) methods created further tension with the traditional system, as the Forest Department controlled funds, plantation projects, and harvesting decisions, reducing the Panchayat's authority and limiting community input. These overlapping jurisdictions weakened both community motivation and governance effectiveness.
- *Link 5 between PI and resource dynamics:* There is no policy provision (PI) to satisfy construction timber demand whereas government imposes strong regulations of logging on resource users. People can only resort to illegal logging (Resource Dynamics) due to no close substitutes for construction timber in the hills. This directly affects the Van Panchayat because gradually people are becoming disenchanted with this institution (PI) or find it irrelevant because one of their major demands from the Van Panchayat forest cannot be met. (Balooni et al. 2007, pg1448-9).

...to and of the Resource Users (link 8 to RU): Re-allocation of forest land under the JFM program has created a new set of arbitrarily defined boundaries for resource users (RU). Further, local resource users (RU) under the JFM program are no longer active participants of the rule-making process.

- *Link 2 between RU and PIP:* Village members continue to harvest resources in congruence with traditionally defined boundaries and this results in conflicts between village members (RU) and forest guards (PIP) appointed by the Forest Department.
- *Link 6 between RU and PI:* A decreasing autonomy of resource users (RU) led them to believe that the rules (PIP) being enforced on them are unjust. The traditional system of Mausawari (social fencing, PI) has declined and fines

are considered as part of the cost of procuring resources. Population and market pressures, combined with reduced participation and declining trust in enforcement, have increased opportunistic extraction and further weakened rule adherence among resource users.

2.3 Robustness Summary

The analysis of forest management in Parwara illustrates the significant decline in the role and capacity of the Van Panchayat over the course of time from 1988, 2002, 2007 and 2015 has been significant. Increasing control by state departments (primarily the forest and the Revenue Department in Uttarakhand) violates design principles that allowed for successful management of these forests. Unclear boundaries, a set of non-supportive collective choice institutions, and a disregard for the role of local users in managing forests have resulted in eroding the authority of the Van Panchayat and resulted in over-exploitation of forests resources. Ground cover has declined and oak regeneration has weakened considerably, indicating reduced ecological resilience. The introduction of the rill method for resin tapping and exotic species plantations further reduced local benefits and control. Gendered initiatives such as Mahila Van Suraksha Samitis have provided limited resilience by maintaining patrols and community vigilance. However, population growth, market pressures, and administrative inefficiencies have continued to strain the system. The overlapping jurisdictions of JFM and traditional Panchayat structures have blurred accountability, reinforcing institutional decline and weakening the long-term robustness of Parwara's forest governance.

3 Case Contributors

- Ashwina Mahanti, School of Sustainability, Arizona State University.
- Cathy Rubios, School of Sustainability, Arizona State University
- Hoon C. Shin, School of Human Evolution and Social Change, Arizona State University.
- Yamini Yogya, School of Sustainability, Arizona State University.
- Md Arif Chowdhury, School of Human Evolution and Social Change, Arizona State University.