



Community-based resource management in the Western Himalaya: historical practices, governance structures and economic sustainability

Karam Singh, Rupesh Thakur & Shashi Kumar

ABSTRACT

The Western Himalayan region, comprising present-day Himachal Pradesh and Uttarakhand, has long depended on locally devised institutions to govern forests, irrigation water, pastures and village common lands. This paper pursues three objectives: to trace the historical practices through which mountain communities organised access to kuhl irrigation, forests, shamlat commons and devta land custodianship; to examine the customary and statutory governance structures that have mediated the relationship between state and community; and to assess the economic sustainability of these arrangements amid climate change, out-migration and market integration. Using a historical-institutional methodology grounded in colonial gazetteers, settlement records and post-independence policy documents, the analysis applies Ostrom's (1990) eight design principles, supplemented by Agrawal's (2001) emphasis on socio-political embeddedness. On the first objective, historical practices, the kuhl and devta custodianship are shown to have survived through continual rule revision rather than fixed tradition. On the second, governance structures, these institutions meet most of Ostrom's internal design criteria but fail on two concerning the state's role, recognition of rights (DP7) and nested institutions (DP8), visible in the unresolved overlap between JFM committees, Gram Panchayats and devta committees. On the third, economic sustainability, the picture is one of real but constrained viability: climate variability, out-migration and weak NTFP value chains place genuine pressure on these arrangements, falling most heavily on women, who carry out most practical resource management but hold the least formal authority over it. Policy implications for decentralisation under the 73rd Constitutional Amendment are discussed.

Keywords: *Western Himalaya, Ostrom design principles, Joint Forest Management, Kuhl irrigation, Shamlat land.*

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Introduction

Background

The Western Himalayan tract, spanning Himachal Pradesh and Uttarakhand and historically connected to the hill regions of undivided Punjab, offers a useful setting for studying how communities manage shared resources over long periods. The terrain is demanding: steep gradients, small and scattered landholdings, short growing seasons, and a near-total dependence on forests, pastures and gravity-flow irrigation for subsistence farming meant that hill communities had to work out detailed rules about who could use what, when, and how, well before the colonial state arrived to impose its own ideas. What emerged were not open-access systems where anyone could take anything, but what the commons literature calls common property regimes: arrangements in which a defined group of users manages a resource collectively, with rules of access and exclusion that are distinct from both private ownership and state control (Ostrom 1990: 30).

Three resource types gave these arrangements their shape. Irrigation water, carried through earthen channels called kuhl from perennial streams to terraced fields, was the first. Forests, used for firewood, fodder, timber and non-timber forest produce (NTFPs), were the second; rights to these were eventually recorded in colonial settlement documents. Grazing land, in the form of village commons (shamlat) and high-altitude summer pastures, was the third. Running alongside these resource-specific systems was a further Himachali institution: the practice of recognising a local deity (devta) as the customary proprietor of village land and forest, with human custodians acting as the deity's agents in decisions about land use or transfer.

What sets the Western Himalayan case apart is not that community resource management exists here, as it does across the broader Hindu Kush Himalayan region, but the specific layering that has built up over time. Colonial forest settlements, post-independence land reform, the Joint Forest Management programme and constitutional decentralisation under the 73rd Amendment have each changed the rules without ever fully displacing what came before. Today, customary arrangements, colonial-era records and constitutional bodies all operate at the same time, over the same pieces of land, without any clear hierarchy between them. That overlap is the central governance problem this paper addresses.

The paper has three aims. First, to trace the historical practices through which Western Himalayan communities organised access to forests, water and pasture, and to show what changed under colonial rule. Second, to examine the governance structures, old and new, through which community control over resources has been exercised and disputed, with particular attention to how JFM committees and Gram Panchayats now relate to each other. Third, to assess

whether these community-based systems remain economically viable under the combined pressure of out-migration, climate variability and market integration.

Review of literature

The theoretical base for this paper is the distinction Ostrom (1990: 30–33) drew in response to Hardin's (1968: 1244) well-known argument that shared resources are inevitably degraded by individual self-interest. Hardin's conclusion, that commons must be either privatised or placed under state control, treats them as if they were always open-access. Ostrom's empirical response was to show that communities around the world had long been governing shared resources through their own rules, without waiting for markets or state agencies to step in (see also Wade 1988: 188; McKean 1992: 256; Baland and Platteau 1996: 297).

Ostrom's (1990: 90) more lasting contribution was to identify what makes some community rules durable and others fragile. Her eight design principles, covering clear membership boundaries, rules that fit local conditions, mechanisms for users to modify rules, monitoring, graduated sanctions, accessible dispute resolution, recognition by higher authorities, and nesting within broader institutional systems, have since become the standard checklist for evaluating commons governance. This paper applies all eight to the Western Himalayan evidence. The picture that emerges is mixed: the institutions reviewed here do reasonably well on the internal design criteria, but they fall short on the two principles that concern the state's role, specifically DP7 (recognition of rights) and DP8 (nested institutions).

Agrawal (2001: 1652) qualified the design-principles approach in ways that matter here. His comparative work on forest management in the Indian Himalaya showed that focusing only on internal institutional features can hide how much their performance depends on outside forces: colonial history, market pressures, and inequalities of caste, gender and land ownership. Agrawal and Yadama (1997: 448) showed how forest panchayats in Kumaon adjust to market and population pressures, while Agrawal and Ribot (1999: 480) argued that real devolution requires mechanisms to hold local decision-makers answerable, not just a formal transfer of authority. Both points bear directly on the JFM and panchayati raj discussion below.

Baker (2005: 149) studied the Kangra kuhls in detail and found that their durability owed less to any fixed design than to the capacity of kuhl communities to renegotiate arrangements over time. Ballabh, Balooni and Dave (2002: 2161) compared Van Panchayats with Forest Protection Committees and found that institutions with firmer legal standing tended to outlast those operating as conditional arms of the Forest Department. Guha (1989: 121) showed that the Van Panchayat was not a concession freely granted by the colonial government but something extracted through prolonged local protest against the commercialisation of Himalayan forests, a reading that puts both the

Van Panchayat and JFM in a rather different light. Jodha (1986: 1172) documented how heavily the rural poor depend on common property resources, a finding directly relevant to the shamlat and nautor discussions below. Misra and Kant (2004: 238) then showed, from a production-theoretic perspective, that JFM's incentive structure is less efficient than arrangements where communities hold secure tenure: when the Forest Department keeps ownership of the land, community committees have weaker reasons to invest in its long-term management.

The literatures on kuhls, Van Panchayats, JFM, shamlat and the devta system have mostly developed separately. This paper brings them together within a single analytical frame, treating the region's governance arrangements as historically produced systems that have changed alongside the state, the market and the environment over more than a century and a half.

Research objectives

Drawing on this literature, the paper pursues three objectives. First, to reconstruct the historical practices through which Western Himalayan communities organised access to forests, water and pasture, and to trace what colonial intervention changed. Second, to examine the governance structures, customary, colonial and post-colonial, through which community control over these resources has been exercised and contested, with particular attention to how JFM and the 73rd Constitutional Amendment sit alongside pre-existing customary institutions. Third, to assess the economic sustainability of these arrangements under the pressure of out-migration, climate variability and market integration.

Methodology

This study is based on a qualitative, historical-institutional synthesis of existing secondary scholarship, government records and legal-policy documents concerning community resource governance in the Western Himalaya, with the focus on Himachal Pradesh. No new field data were collected. This approach is well established in Himalayan commons scholarship: when the aim is to understand how governance arrangements have evolved and what drives their current performance, historical-institutional analysis is generally more appropriate than household surveys or statistical methods (Agrawal 2001: 1655; Baker 2005: 22). The paper's contribution is synthetic and interpretive rather than primarily empirical. Five categories of source material underpin the analysis. The first is peer-reviewed academic literature on common property resources, Himalayan Forest and irrigation governance, and pastoral livelihoods, including the foundational works cited in the literature review above. The second is government and legislative documents: the Himachal Pradesh Village Common Lands Vesting and Utilisation Act, 1974 (as amended); the National Forest Policy of 1988; the Constitution (Seventy-Third Amendment) Act, 1992;

and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. The third, and central to the historical reconstruction of the kuhl system in particular, is colonial administrative and settlement literature: the Punjab District Gazetteers for Kangra, which record village-level irrigation and forest entitlements at the point of colonial settlement; Barnes and Diack's Settlement Reports for Kangra district, which contain the earliest systematic survey of kuhl command areas, water-sharing schedules and the kohli system; Anderson's Forest Settlement Records for the Kangra and Kullu forest divisions, which document the demarcation of reserved and protected forest and the customary rights recognised or extinguished in that process; and surviving judicial and police records of water-disputes and grazing offences from the same period, which show how the rules recorded in the settlement documents were actually enforced, or were not, in practice. The fourth is institutional and technical reports from bodies including The Energy and Resources Institute and the International Institute for Environment and Development. The fifth is field-based case studies and district-level journal articles on specific HP localities, transhumant communities and JFM committees.

Analytical framework

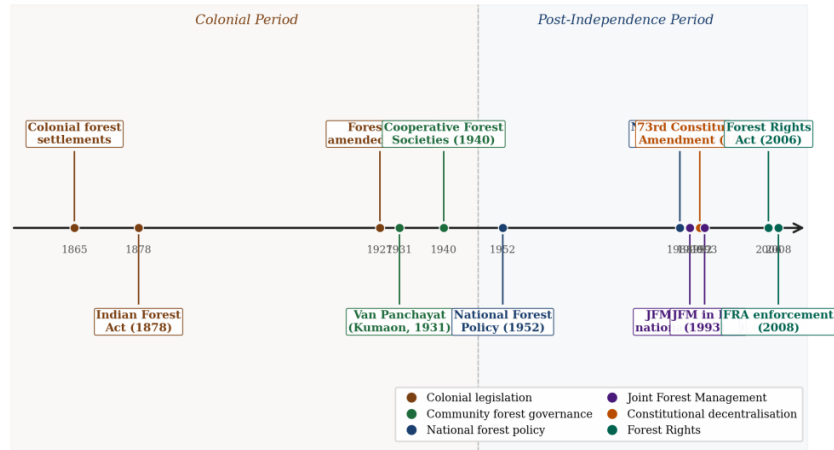
Materials were organised under three themes matching the paper's three objectives: historical practices, governance structures, and economic sustainability. Within each theme, the analysis uses Ostrom's (1990: 90) eight design principles as a structured checklist, supplemented by Agrawal's (2001: 1652) emphasis on socio-political context. Where a design principle concerns the historical period, the colonial gazetteers, settlement reports and forest records described above are read directly against that principle, rather than treated as general background; the Governance Structures sub-section and Table 2 show this in detail for the kuhl system. Two summary visualisations accompany the analysis: a heatmap scoring each design principle across four commons regimes (Figure 4), and a chart comparing the weight of exogenous pressures across three resource systems (Figure 5). Both are based on the authors' reading of the secondary literature reviewed in this paper; the scores represent qualitative judgements about the balance of evidence and should be treated as an analytical aid rather than as independently collected data. The geographical focus is Himachal Pradesh, with reference to the Kumaon and Garhwal divisions of Uttarakhand where the institutional comparison is relevant. Because this is a literature synthesis, the findings are limited by the coverage and currency of the sources consulted. Where the secondary literature reports findings from specific districts or time periods, this is noted in the text rather than generalised across the entire region.

Results and findings

Historical practices of community-based resource management

Resource governance in the Western Himalaya did not change in one clean break. What actually happened was a slow accumulation of legal and institutional layers, running from the colonial forest settlements of the 1860s through to the enforcement of the Forest Rights Act in 2008. Figure 1 maps the main milestones, providing the chronological frame for the five resource-specific practices discussed below.

Figure 1
Timeline of institutional evolution in Western Himalayan commons governance, 1860-2008.



Note. Compiled by the authors from Guha (1989: 121–140), Ballabh, Balooni and Dave (2002: 2153–2167), and Government of India (1988, s. 4.6; 1992, art. 243G; 2006, s. 3). The dashed line marks Indian Independence in 1947. JFM = Joint Forest Management; FRA = Forest Rights Act, 2006.

Kuhl Irrigation Systems: Water as a Managed Commons

The kuhl system of gravity-flow irrigation in the Kangra valley is the most thoroughly documented community governance arrangement in the Western Himalaya, and it is also the resource system for which the colonial documentary record is richest. Kuhls are earthen channels, typically two to five kilometres long, that divert water from perennial streams to terraced fields, serving several villages arranged along the channel. Baker’s (2005: 149) historical and ethnographic study of Kangra kuhls showed that their persistence across more than a century of political change owes less to any fixed design than to the willingness of kuhl communities, organised under an elected kohli, to

renegotiate labour obligations, water-sharing schedules and decision-making authority when conditions change.

Applying Ostrom's design principles to the kuhl system in detail, rather than at the level of general description, requires the colonial documentary record rather than secondary commentary alone. The Punjab District Gazetteer for Kangra recorded, village by village, which households held rights to which channel and in what proportion, giving DP1 (clearly defined boundaries) a concrete historical basis: boundaries were not informal understandings but entries in an administrative register that the colonial revenue system itself relied upon. Barnes and Diack's Settlement Reports go further, setting out the kohli system, the rotation of irrigation turns (locally termed *bari*), and the labour obligations attached to channel maintenance in enough operational detail to assess DP2 (congruence with local conditions) directly against the documentary baseline rather than against later ethnographic reconstruction. Where Baker (2005: 152) describes the Sunday-labour adaptation of the 1980s as evidence of institutional flexibility, the Settlement Reports supply the earlier baseline against which that later adaptation can be measured: the labour schedule recorded by Barnes and Diack in the late nineteenth century was itself already a negotiated compromise between agricultural and ritual calendars, not a fixed point that the 1980s shift departed from.

Anderson's Forest Settlement Records, compiled for the Kangra and Kullu forest divisions during the same period, are less directly about kuhls but matter for DP1 and DP8 because they show how the colonial state demarcated forest boundaries that fed the catchments on which kuhl flow depended, without any formal coordination between the forest settlement process and the separate irrigation settlement process recorded by Barnes and Diack. This is an early instance of the nesting failure (DP8) that this paper argues persists into the present: two colonial administrative processes, forest settlement and irrigation settlement, operated over the same watershed without being linked to each other, a pattern that recurs in the JFM/Gram Panchayat overlap discussed under Customary Institutions in the Contemporary Legal Setting, below.

Surviving judicial and police records from the same districts, covering disputes over water theft, unauthorised channel diversion and grazing trespass, provide direct evidence for DP5 (graduated sanctions) that secondary literature alone cannot supply. These records show that customary penalties for water theft, ranging from a warning by the kohli to formal exclusion from the next irrigation turn, were treated by colonial courts as a matter for the kuhl committee in the first instance, with police and judicial involvement only where the customary process had broken down. This division of labour between customary and state enforcement is itself a form of the graduated sanctions Ostrom's design principles call for, and the records show it operating with reasonable consistency through the early twentieth century. What the documentary record does not

show, because the relevant records have not survived in usable form for the more recent period, is whether this same graduated structure has held up since independence; this is one of the gaps identified in the Conclusion.

The remaining four design principles can also be read against this same body of colonial evidence, though the documentary record speaks to them with varying degrees of detail. DP3 (collective-choice arrangements) is visible in Barnes and Diack's account of the kohli's election and removal procedure: the Settlement Reports record that a kohli who failed to maintain the channel fairly could be replaced by a vote of the user households, a mechanism that meets Ostrom's requirement that those affected by a rule can participate in changing it. DP4 (monitoring) is documented less formally: the Gazetteer and the Settlement Reports both note that water theft was typically detected by neighbouring cultivators rather than by any appointed official, consistent with the social monitoring that Baker (2005: 160) found still operating in the twentieth century. DP6 (conflict-resolution mechanisms) is the principle for which the judicial and police records are most directly informative beyond the sanctions evidence already discussed: the same records show a two-step pattern in which the kohli or village council heard a dispute first, with the colonial courts hearing an appeal only if the customary forum's decision was rejected by one of the parties, giving the kuhl system an accessible, low-cost first-instance forum of the kind DP6 calls for. DP7 (recognition of rights by higher authorities) is where the *Riwaj-i-Abpashi* mattered most directly: by codifying kuhl water rights in a formal settlement record, the colonial administration gave the kuhl committee's authority a degree of legal recognition that the JFM committee, discussed under Post-Independence Forest Policy and Joint Forest Management, above, has never received in comparable form. Taken together with the DP1, DP2, DP5 and DP8 evidence above, the colonial documentary record supports an assessment against all eight of Ostrom's design principles for the kuhl system specifically, rather than the more general treatment of community irrigation that earlier accounts of this case have offered.

The colonial state complicated the kuhl system's flexibility when it began recording customary irrigation entitlements in the formal settlement documents described above, most notably the *Riwaj-i-Abpashi* (record of irrigation customs). Writing the rules down gave them legal weight, but it also froze them at a particular moment, making later adaptation harder, a tension visible in the gap between what Barnes and Diack recorded in the 1880s and what Baker (2005: 152) found still operating, in modified form, a century later.

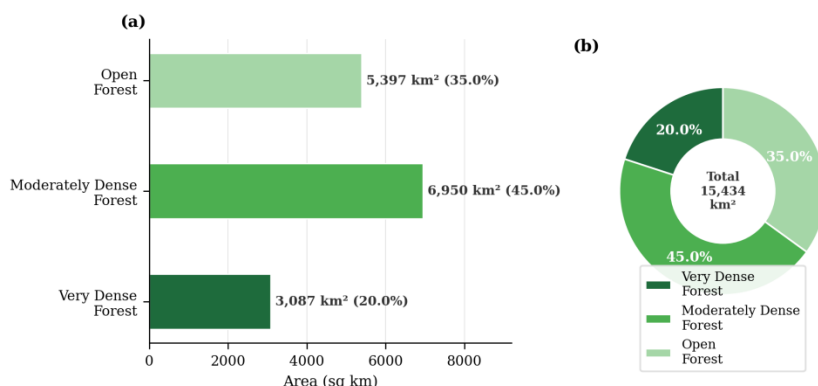
Customary Forest Use and Colonial Settlement Records

Before the colonial Forest Department arrived in earnest, hill communities in the Western Himalaya exercised a wide range of customary rights over forests: firewood, fodder, timber for construction and implements, grazing, and a variety of non-timber products including medicinal plants, wild fruit, resin and fibre.

The resource base over which these rights operated remains large. According to the Forest Survey of India (2019a: 12), Himachal Pradesh has 15,433.52 km² of recorded forest cover, equal to 27.72 per cent of the state's total area of 55,673 km². Figure 2 shows how this is distributed across very dense, moderately dense and open forest categories.

Figure 2

Forest cover of Himachal Pradesh by canopy density class: (a) area in km²; (b) proportional distribution.



Note. Data from Forest Survey of India (2019a: 12–14). Total recorded forest cover 15,433.52 km² (27.72% of state area of 55,673 km²). Areas are approximate: Very Dense Forest 3,087 km²; Moderately Dense Forest 6,950 km²; Open Forest 5,397 km².

The colonial forest settlement process, which ran through the hill districts roughly from the 1860s to the 1920s, produced two key documents for each village: the Wazib-ul-Arz (customary rights register) and the Naqsha-Haq-Bartan (record of rights of use). Anderson's Forest Settlement Records, discussed above in relation to the kuhl catchments, are the fullest surviving account of how these entitlements were recorded and, in many cases, narrowed during the settlement process. Both the Wazib-ul-Arz and the Naqsha-Haq-Bartan remain legally relevant in Himachal Pradesh today. The Indian Forest Act of 1878, and its 1927 successor, then divided forests into reserved, protected and village categories, steadily transferring control of the better timber land to the state. This provoked widespread resistance, most visibly in the Kumaon and Garhwal hills that Guha (1989: 121) documented, but also in the Kangra hills of what is now Himachal Pradesh, where the Punjab Gazetteer records repeated petitions against the restriction of grazing and fuelwood rights through the early twentieth century.

Village Commons, Shamlat Land and the Practice of Nautor

Alongside forests and irrigation channels, most Western Himalayan villages maintained an area of undivided common land called shamlat, used for grazing, threshing, fuelwood collection, and a customary practice called nautor. Under nautor, a cultivator could, with community sanction recorded by the revenue patwari, bring a piece of waste or common land under the plough. For many landless and marginal households in a terrain where flat cultivable ground was scarce and land markets offered little to those without capital, nautor was how their families had come to hold any land at all (Jodha 1986: 1172).

The Himachal Pradesh Village Common Lands Vesting and Utilisation Act of 1974 (Government of Himachal Pradesh 1974, s. 3) upended this by vesting all village common and waste land in the state government. Overnight, long-standing nautor occupants became unauthorised encroachers on government land. The 2001 amendment to the Act restored some rights to existing occupants, but the basic pattern has held: every few years the legal status of shamlat land is renegotiated through the legislature, with outcomes that differ sharply depending on caste, landholding status and local political connections.

Faith-Based Land Custodianship: The Devta System

The devta system has no close equivalent in the mainstream commons literature. Across much of Himachal Pradesh, customary practice treats the local deity, called a devta, as the proprietor of village land and forest. Human custodians, variously called kardars, khunds, or members of a devta committee, act as the deity's agents in decisions about how that land is used, leased or transferred. Legal ownership in the conventional sense gives way to a collective, ritually sanctioned guardianship: no individual, household or even the village as a whole is understood to have final authority over the land.

In practice, this functions as an informal consent mechanism. Development proposals and land transactions that formal law might treat as straightforward, such as land acquisition for a road or a hydropower project, require negotiation with the devta committee in many villages. There are documented cases in which government agencies have approached devta committees through customary channels alongside formal land acquisition proceedings, suggesting that the two systems coexist in ways that have practical consequences for how land is actually governed.

Transhumant Pastoralism and Seasonal Resource Use

Vertical transhumance, the seasonal movement of livestock from low-altitude winter pastures to high-altitude summer grazing grounds, has been both a livelihood strategy and a governance institution across the Western Himalaya for centuries. The Gaddi community of Chamba and Kangra has organised this movement around customary rights to specific alpine pastures called bugyals and dhar, with migratory routes, seasonal timing tied to snowmelt, and inter-

group scheduling arrangements that allow pastures to regenerate during the rest period (Bhasin 2013: 91). Pastoral and sedentary communities were historically linked by a simple exchange: animal manure for temporary grazing access on agricultural terraces.

Governance structures: from customary institutions to statutory co-management

Table 1 lists the principal governance institutions that have operated over Western Himalayan resources from the pre-colonial period to the present. The sub-sections below trace how they developed and how they relate to each other today.

Table 1

Principal resource governance institutions in the Western Himalaya: period of origin, resource governed and locus of authority.

Institution	Period of origin	Resource governed	Locus of authority
Kuhl Committee (Kohli system)	Pre-colonial; codified in settlement records, 1860s–1920s	Irrigation water	Kuhl-user community; kohli as elected channel manager
Wazib-ul-Arz / forest settlement rights	c. 1860s–1920s	Forest produce; grazing	Individual and village entitlements recorded by the colonial state
Van Panchayat	1931 (Kumaon); later extended to parts of HP	Community forests	Elected village forest council of 5–9 members; statutory recognition
Cooperative Forest Society	1940 (Kangra, HP)	Forests (degraded tracts)	Society under Forest Department supervision; no vested tenure
Devta committee / kardar / khund	Pre-colonial; continues to operate	Village land; forest tracts	Village deity as notional proprietor; human custodians as agents
JFM Committee / Sanjhi Van Yojana	1990 (national); 1993 (HP)	Degraded forest land	Joint: Forest Department and village committee; Department retains land title
Gram Panchayat / Gram Sabha	1992 (73rd Constitutional Amendment)	Devolved subjects including some forestry functions	Elected panchayat and village general assembly; constitutional standing

Note. Sources: Guha (1989: 121–140); Baker (2005: 88–152); Ballabh, Balooni and Dave (2002: 2153–2167); Government of India (1988, s. 4.6; 1992, art. 243G; 2006, s. 3); Government of Himachal Pradesh (1974, s. 3–4). HP = Himachal Pradesh; JFM = Joint Forest Management.

Colonial-Era Institutional Experiments

The local resistance to colonial forest law that Guha (1989: 121) documented was not without result. In the Kumaon division, the Kumaun Panchayati Forest Rules of 1931 created the Van Panchayat: an elected village body of five to nine members with authority to manage a demarcated forest tract that the state handed over for community use. Colonial forest records from the period noted that forests under Van Panchayat management were often in better condition than adjoining state-reserved forests, an observation that gave early, if anecdotal, weight to the idea that community management could outperform centralised administration.

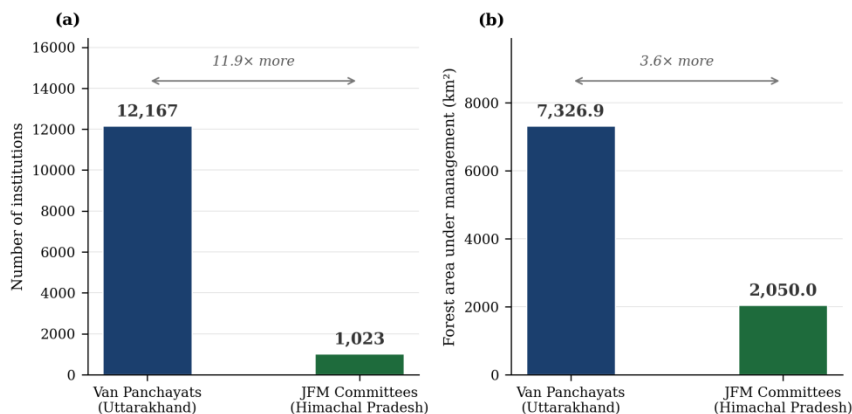
In the Kangra district, then part of Punjab province, a parallel experiment produced the Cooperative Forest Society in 1940. The design was different. Unlike the Van Panchayat, which was a statutory body with vested land, the Cooperative Forest Society operated under closer Forest Department supervision and without secure tenure over the forest it managed. The Van Panchayat has since expanded to over 12,000 units in Uttarakhand; the Cooperative Forest Society has remained a limited and locally bounded institution. This difference in trajectory is consistent with Ballabh, Balooni and Dave's (2002: 2161) finding: institutions with firmer legal standing tend to outlast those that depend on continued departmental goodwill.

Post-Independence Forest Policy and Joint Forest Management

The National Forest Policy of 1988 (Government of India 1988, s. 4.6) was the first post-independence policy document to commit the Indian government in explicit terms to community participation in forest management, stating that "growing requirements of fuelwood, fodder and small timber" should be met through schemes "involving the close association of the local communities." The Joint Forest Management (JFM) programme followed in 1990, reaching Himachal Pradesh in 1993 and later reinforced through the state's Sanjhi Van Yojana of 1998. Under JFM, village-level institutions, called Village Forest Development Committees or Village Forest Development Societies in HP, are supposed to manage degraded forest land jointly with the Forest Department, sharing the usufruct benefits that result. By the early 2010s, HP had around 1,023 such committees managing roughly 205,000 hectares of degraded forest, or about 13 per cent of the state's recorded forest area (The Energy and Resources Institute 2016: 34). Figure 3 sets this scale against the Van Panchayat record in Uttarakhand.

Figure 3

Comparative scale of statutory community forest institutions: (a) number of institutions; (b) forest area under management.



Note. Van Panchayat data from Forest Survey of India (2019b: 9). JFM committee data from The Energy and Resources Institute (2016: 34). The gap in both institution count and managed area reflects the Van Panchayat's longer history and stronger statutory standing rather than differences in forest endowment alone.

Field assessments of these committees paint a consistent picture: low awareness among village residents of how the committees work, weak links between Forest Department officials and committee members, unreliable funding, insufficient training, and benefit-sharing arrangements that often favour better-off households. Misra and Kant (2004: 238) provided a production-theoretic explanation for why this outcome might be expected: when the Forest Department retains ownership of the land being managed, community committees have a weaker stake in its long-term productivity than they would if they held secure tenure. Under JFM, authority is delegated rather than vested, which matters for how much effort communities put in.

Panchayati Raj and Constitutional Decentralisation

The 73rd Constitutional Amendment of 1992 established a three-tier Panchayati Raj system across most Indian states, with the Gram Sabha, the village general assembly, as the basic unit of local self-government. Article 243G, read with the Eleventh Schedule, gave state legislatures the power to devolve specified subjects, including “social forestry and farm forestry” and “minor forest produce” (Government of India 1992, art. 243G, sch. 11, items 6 and 7), to Panchayati Raj Institutions. In Himachal Pradesh, fifteen departments including forestry were nominally decentralised from the mid-1990s.

In practice, the devolution of forest powers has been slow and contested. The result is a situation where two formally constituted bodies, the JFM committee

and the Gram Panchayat, both claim some authority over the same forest tract, with no formal rule about which body takes precedence. Neither is nested within the other in the sense that Ostrom's eighth design principle requires, a continuation of the same uncoordinated overlap between colonial forest settlement and irrigation settlement noted earlier in the discussion of the kuhl system. This is not a minor administrative inconvenience: it means there is no clear accountability chain for day-to-day forest management decisions, and no agreed mechanism for resolving disagreements between the two bodies.

Customary Institutions in the Contemporary Legal Setting

Despite more than a century of statutory intervention, customary institutions have not been replaced by their statutory successors. They persist alongside them. The Forest Rights Act of 2006 (Government of India 2006, s. 3), enforced from 2008, was intended to restore individual forest rights and community forest resource rights free of Forest Department discretion, but its implementation in Himachal Pradesh has been limited: many long-standing occupants of forest and shamlat land still lack secure legal tenure (Himdhara Environment Research and Action Collective 2021: 4). Devta committees, kardars and khund functionaries continue to make land use decisions in numerous villages, operating alongside the Gram Panchayat and the Forest Department rather than being replaced by them. This co-existence of customary, colonial-derived and constitutional governance is not transitional; it is the durable condition of resource management in the Western Himalaya.

Economic sustainability of community-based resource management

Contribution to Rural Livelihoods

Community-managed resources still matter for rural livelihoods across the Western Himalaya. Firewood and fodder collection, timber use under customary entitlement, NTFP gathering, resin tapping, basket-making and wool-working remain important for households without much access to irrigated land. Sharma, Sharma and Devi (2019: 310), in an economic study of NTFP-dependent households in the high hill temperate zone of Himachal Pradesh, found that the income people actually receive from forest produce depends less on how much the forest contains than on how the trading chain is organised: those who control storage, processing and marketing keep most of the value, while collecting households receive a relatively small share. Among the Gaddi communities of Chamba and Bharmour, transhumant pastoralism remains the primary livelihood base, though field-based research consistently finds that fewer young people are willing to take on the physical demands of seasonal migration and that climate-driven shifts in snowmelt timing are disrupting established movement patterns.

Forest-Based Employment and Unrealised Potential

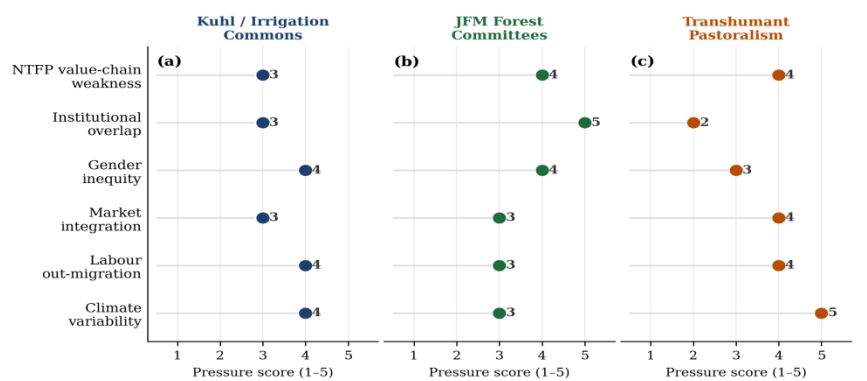
JFM has created seasonal employment in HP, mainly through plantation work, protection patrolling and forest restoration activities, which the Energy and

Resources Institute (2016: 34) estimates in the range of several lakh person-days annually. This is not trivial for households near JFM-managed tracts, but it is seasonal and supplementary rather than a primary income source. Several assessments note that much more income could in principle be retained locally if NTFP processing happened in the hills rather than in distant markets, but limited infrastructure, poor market connections and the dominance of intermediary traders have so far prevented this from happening at scale (International Institute for Environment and Development 2008: 9).

Climate Change, Out-Migration and Institutional Strain

Three pressures are bearing on the economic viability of community resource institutions across the region. First, declining and erratic winter precipitation is reducing the stream flow that kuhl/s depend on and shifting the snowmelt timing that governs Gaddi migration routes. Second, sustained out-migration of working-age men toward urban employment is reducing the number of people available for collective maintenance tasks, increasing the burden on women who remain, and in some cases weakening the social ties on which kuhl committees and JFM committees depend. Third, deeper market integration is changing what people want from forests and pastures, sometimes reducing extraction pressure but also reducing the proportion of households with a direct stake in collective management. Figure 5 summarises how these pressures bear differently on each of the three resource systems examined in this paper.

Figure 5
Exogenous pressures on community resource institutions in the Western Himalaya: (a) kuhl/irrigation commons; (b) JFM forest committees; (c) transhumant pastoralism



Note. Authors’ qualitative assessment based on secondary literature reviewed in this paper. Scores (1 = low pressure; 5 = high pressure) summarise the weight of evidence across sources and are a synthesis aid rather than independently collected data. NTFP = non-timber forest product.

Gender runs as a thread through all three pressures. Women in Himalayan communities generally carry primary responsibility for firewood and fodder collection, water fetching and much of the daily work of farming. They are, in a practical sense, the people who manage these resources from day to day. Yet they hold a minority presence in the formal bodies, kuhl committees, JFM committees, devta committees and Gram Panchayats, that make the rules under which resources are managed. Policy provisions for women's representation in JFM committees exist on paper; in practice, field assessments consistently find that formal inclusion has not translated into substantive decision-making power.

Discussion

What the design-principles assessment shows for the kuhl system

The Kuhl Irrigation Systems sub-section above set out what the colonial documentary record, the Punjab Gazetteer, Barnes and Diack's Settlement Reports, Anderson's Forest Settlement Records, and surviving judicial and police records, shows about the kuhl system against each of Ostrom's eight design principles in turn. Brought together, the picture is more precise than a general claim that the kuhl system is a well-functioning common. DP1 (boundaries), DP2 (congruence with local conditions), DP3 (collective-choice arrangements), DP4 (monitoring), DP6 (conflict-resolution mechanisms) and DP7 (recognition of rights) are all supported, in varying degrees of strength, by specific documentary evidence rather than general inference. DP1 and DP2 are the most strongly supported: the Gazetteer and Barnes and Diack's reports show that command areas, water-sharing turns and labour obligations were documented in enough operational detail, more than a century ago, that present-day practice can be measured directly against a historical baseline rather than inferred from oral tradition alone. DP5 (graduated sanctions) is supported in a more qualified way: judicial and police records confirm that a working two-tier system of customary and state enforcement existed in the colonial period, but the documentary trail for the post-independence period is much thinner, so this paper cannot say with the same confidence that the same graduated structure still functions today. DP8 (nested institutions) is where the historical and the contemporary evidence converge most clearly on a weakness: the uncoordinated relationship between forest settlement and irrigation settlement visible in Anderson's records under colonial administration reappears, in a different institutional form, in the unresolved relationship between JFM committees and Gram Panchayats today. This is not a coincidence of two unrelated administrative failures a century apart; it points to a structural pattern in how Himachal Pradesh's resource governance has been built, in separate, parallel administrative tracks that were never required to coordinate with one another. The Kuhl Irrigation Systems sub-section sets out the corresponding evidence for DP3, DP4, DP6 and DP7, completing the eight-point assessment for the kuhl system specifically.

What the design-principles assessment shows across all four regimes

Applying Ostrom’s (1990) eight design principles to the wider Western Himalayan evidence, as summarised in Table 2 and shown in Figure 4, produces a pattern consistent with the kuhl-specific finding above. The region’s commons institutions do reasonably well on the principles that concern internal community organisation, particularly DP2 (fit with local conditions) and DP4 (monitoring). They do poorly on the two principles that concern the state’s role: DP7 (recognition of rights by higher authorities) and DP8 (nesting within larger institutional systems). The implication is direct: the main constraint on Western Himalayan commons governance is not a shortage of community capacity or local knowledge. It is the state’s failure to provide the legal recognition and institutional architecture that community bodies need to work properly, a failure with roots that, as the kuhl evidence shows, extend back into the colonial administrative record itself.

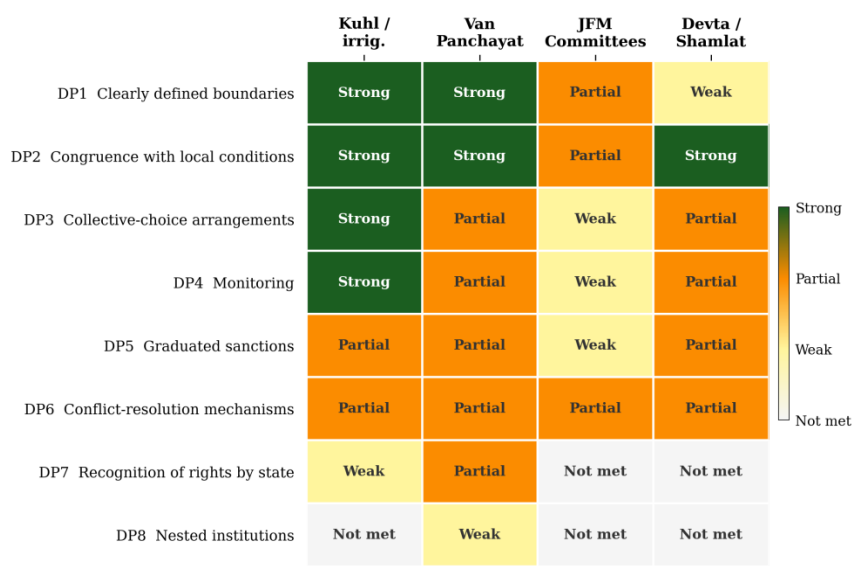
Table 2
Evaluation of Ostrom’s (1990) design principles in the context of Western Himalayan commons institutions.

Ostrom’s (1990) design principle	Assessment	Evidence and constraints
DP1: Clearly defined boundaries	Partially met	Kuhl command areas recorded in Barnes and Diack’s Settlement Records; Van Panchayat tracts demarcated under Anderson’s Forest Records; shamlat boundaries disputed after the 1974 HP Act
DP2: Congruence with local conditions	Met, at least historically	Kuhl schedules follow crop cycles; Gaddi migration routes track snowmelt; devta protocols align with seasonal ecology
DP3: Collective-choice arrangements	Variable	Kohli elections work; JFM committee participation skewed by caste and gender; devta deliberation is inclusive but informal
DP4: Monitoring	Working but largely informal	Kuhl users watch water flows socially; JFM patrolling is underfunded; devta ritual inspection adds a layer of oversight
DP5: Graduated sanctions	Weakening	Customary fines for water theft persist in kuhl systems, as recorded in colonial judicial and police records of water disputes; formal JFM sanctions are applied inconsistently
DP6: Conflict-resolution mechanisms	Layered but overlapping	Village councils, revenue courts, devta mediation, JFM hearings and Gram Panchayat all operate without clear boundaries between them

DP7: Recognition of rights by higher authorities	Contested	Van Panchayats have statutory recognition; JFM committees operate under conditional departmental permission; FRA 2006 implementation in HP has been limited
DP8: Nested institutions	Largely absent	JFM committees and Gram Panchayats operate in parallel without any formal nesting arrangement; the most persistent structural gap in the region

Note. Authors’ assessment based on the secondary and colonial-era sources reviewed in this paper, including Barnes and Diack’s Settlement Reports, Anderson’s Forest Settlement Records, and surviving judicial and police records for the kuhl system specifically. DP = design principle. Evaluation criteria follow Ostrom (1990: 88–102) and Agrawal (2001: 1649–1672). HP = Himachal Pradesh; JFM = Joint Forest Management; FRA = Forest Rights Act, 2006.

Figure 4
Ostrom’s (1990) design principles assessed across four Western Himalayan commons regimes.



Note. Authors’ qualitative assessment based on the secondary and colonial-era sources reviewed in this paper. Scores (0 = not met; 1 = weakly met; 2 = partially met; 3 = strongly met) represent the authors’ reading of the balance of evidence across sources and should be treated as a synthesis aid rather than independently collected data. DP = design principle.

This finding sits alongside Agrawal’s (2001: 1652) critique: an exclusive focus on internal design can hide how much a community institution’s performance depends on the political and economic context around it. The kuhl system,

which scores well on most design criteria, is under real pressure from climate change and out-migration that no redesign at the village level can resolve on its own. The conflict between JFM committees and Gram Panchayats similarly cannot be fixed by communities; it requires a deliberate policy decision about which body holds precedence.

JFM in comparative perspective: what the van panchayat record shows

Table 3 and Figure 3 compare Van Panchayats and JFM committees across nine dimensions. The comparison is not flattering to JFM. On statutory basis, tenure security, decision-making authority, scale of coverage and benefit sharing, the Van Panchayat model consistently offers communities more than JFM does. Forest Survey of India data place the number of Van Panchayats in Uttarakhand at 12,167, jointly managing 7,326.88 km², against 1,023 JFM committees managing roughly 2,050 km² in Himachal Pradesh (Forest Survey of India 2019b: 9; The Energy and Resources Institute 2016: 34). Part of the difference reflects the longer history of the Van Panchayat, dating to 1931 against 1993 for JFM in HP, but part reflects the Van Panchayat’s stronger legal standing and its clearer separation from departmental control. For HP policymakers, the Van Panchayat experience suggests that community forest governance works better when communities hold secure tenure and real decision-making authority rather than conditional roles under departmental supervision.

Table 3
Comparative analysis of Van Panchayat (Uttarakhand) and Joint Forest Management committee (Himachal Pradesh) across nine institutional dimensions.

Dimension	Van Panchayat (Uttarakhand)	JFM Committee (Himachal Pradesh)
Origin	1931; community resistance to colonial forest law led the colonial government to concede limited self-governance	1990/1993; government-initiated programme; Forest Department-led
Legal basis	Kumaun Panchayati Forest Rules, 1931; strong statutory standing	State government circulars; weaker and more conditional legal basis
Land tenure	Forest tract vested in the Van Panchayat	Land remains with the Forest Department; community holds conditional usufruct
Decision-making authority	Van Panchayat makes primary management decisions	Forest Department retains final authority; community role is conditional

Scale (c. 2019)	12,167 councils; 7,326.88 km ² (Uttarakhand)	1,023 committees; approximately 2,050 km ² (Himachal Pradesh)
Benefit sharing	Community keeps timber and NTFP sale proceeds	Usufruct is shared; the state retains a significant share of timber revenue
Gender representation	Weak historically; slowly improving under 73rd Amendment provisions	Policy provisions exist; actual decision-making influence remains limited
Relationship with Gram Panchayat	Generally cooperative; the two have coexisted for decades	Overlapping jurisdiction; no formal agreement about which body has precedence
Durability	High: over 90 years old and expanded to 12,167 councils	Moderate: dependent on continued departmental support; institutionally fragile

Note: Sources: Ballabh, Balooni and Dave (2002: 2153–2167); Forest Survey of India (2019b: 9); The Energy and Resources Institute (2016: 34); Misra and Kant (2004: 229–248). Scale differences between the two states reflect both the longer institutional history of the Van Panchayat and its stronger statutory standing.

Caste, gender and who actually benefits

Throughout this paper, a recurring problem with the governance arrangements under review is that they are nominally collective but not equitably so. The shamlat case shows this most clearly: who got nautor rights, who became an encroacher in 1974, and who benefited from the 2001 amendment were all shaped by caste hierarchies and local political networks rather than any neutral principle. JFM committee participation data from several HP districts show the same pattern: general-category households are more active participants than Scheduled Caste, Other Backward Class or Scheduled Tribe households, even where formal membership rules make no such distinction.

The gender dimension is, if anything, more pervasive. Women do most of the work that depends on these resources, firewood collection, fodder gathering, water fetching, daily farming. In that sense they are already managing these commons, informally, every day. But they hold few formal seats in the bodies that set the rules. The gap between who does the work and who makes the decisions is not a minor equity concern; it is a governance failure that weakens the institutions themselves, since decision-making processes that exclude the people with the most direct knowledge of resource conditions are less likely to produce good management outcomes.

Policy Priorities

Four priorities emerge from the analysis. First, the jurisdictional overlap between JFM committees, Gram Panchayats and devta committees needs a formal resolution. A workable approach would be to give the Gram Sabha formal precedence over natural resource management decisions within each village, with JFM committees reporting to the panchayat rather than operating alongside it. Second, the intermediary-dominated structure of NTFP value chains deserves attention in its own right. Investment in local processing, cold storage and collective marketing could do more for household incomes in forest-dependent communities than changes to extraction rules. Third, the genuine inclusion of women in committee decision-making, beyond formal reservation provisions that often result in proxy representation by male relatives, needs to be treated as an institutional design question rather than a welfare add-on. Fourth, the customary tenure records, the Wazib-ul-Arz, the Riway-i-Abpashi and the devta custodianship arrangements, need formal documentation and legal recognition before development pressure erases what remains of their practical authority.

Conclusion

This paper set out to do three things: trace the historical practices of community resource management in the Western Himalaya, examine the governance structures that have shaped them, and assess their economic sustainability. Taking each in turn shows what the evidence in this paper actually supports. On the first objective, historical practices, the record is now considerably more concrete than a general claim that these institutions are old and adaptive. The Punjab Gazetteer, Barnes and Diack's Settlement Reports, Anderson's Forest Settlement Records, and surviving judicial and police records together show that the kuhl, the customary forest settlement, the nautor right, devta custodianship and transhumant pastoralism were never static customs. They were documented, contested and revised within the colonial administrative system itself, long before independence, and they have continued to be revised since. Baker's (2005: 152) account of the Kangra kuhl is the clearest illustration of this continuity: the institution has endured through selective adaptation, not through resistance to change, and the nineteenth-century settlement records give that claim a documentary baseline that secondary literature alone could not provide.

On the second objective, governance structures, applying Ostrom's (1990) design principles to this combined historical and contemporary evidence gives an unambiguous answer about where the weaknesses lie. Western Himalayan commons institutions do reasonably well on the internal criteria: their rules generally fit local conditions, monitoring works through social networks, and dispute-resolution mechanisms exist, as both the colonial records and the present-day evidence confirm. Where they fall short is on the two principles that

concern the relationship with the state: DP7, recognition of rights by higher authorities, and DP8, nesting within larger institutional systems. The kuhl evidence traced above shows that this is not a new problem created by JFM; Anderson's Forest Settlement Records show the same uncoordinated, parallel-track pattern operating between forest and irrigation administration under colonial rule. Resolving the present confusion between JFM committees and Gram Panchayats, and giving community forest bodies the kind of statutory security that Van Panchayats in Uttarakhand have had since 1931, would address both shortfalls at once. On the third objective, economic sustainability, the evidence points to real but constrained viability. Climate variability, out-migration and structural weaknesses in NTFP value chains are placing genuine pressure on these institutions, and that pressure falls most heavily on women, who carry the largest practical burden of resource management but hold the least formal authority over it. Institutions that exclude the people with the most direct stake in resource conditions from decision-making are weaker for that reason, regardless of how well they score on other design criteria.

This study is limited by the scope of the secondary and archival literature consulted, and in particular by the thinness of the post-independence documentary trail for kuhl enforcement noted in the Discussion. Primary research, including household surveys across multiple HP districts, longitudinal monitoring of specific kuhl and JFM committees, and field study of how devta custodianship is adapting under development pressure, would test and extend what has been argued here. What this paper can say with confidence, against all three of its stated objectives, is that these institutions are not relics in the process of being replaced by more modern arrangements. They remain the practical basis of resource governance for a large number of people in the Western Himalaya, their historical record is more fully documented than earlier accounts of this literature suggested, and the question of how well they are supported by law and policy is a real and current one.

References

- Agrawal, A. (1996). The community vs. the market and the state: forest management in the Indian Himalayas. *Journal of Agricultural and Environmental Ethics*, 9(1), 1–15. <https://doi.org/10.1007/BF02291817>
- Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World Development*, 29(10), 1649–1672. [https://doi.org/10.1016/S0305-750X\(01\)00063-8](https://doi.org/10.1016/S0305-750X(01)00063-8)
- Agrawal, A., & Ribot, J. C. (1999). Accountability in decentralization: A framework with South Asian and West African cases. *Journal of Developing Areas*, 33(4), 473–502.
- Agrawal, A., & Yadama, G. (1997). How do local institutions mediate market and population pressures on resources? Forest Panchayats in Kumaon, India. *Development and Change*, 28(3), 435–465. <https://doi.org/10.1111/1467-7660.00050>

Anderson, J. (1886–1900). *Forest settlement records, Kangra and Kullu forest divisions*. Punjab Government Forest Department.

Baker, J. M. (2005). *The kuhls of Kangra: community-managed irrigation in the Western Himalaya*. University of Washington Press.

Baland, J.-M., & Platteau, J.-P. (1996). *Halting degradation of natural resources: Is there a role for rural communities?* Food and Agriculture Organization of the United Nations / Oxford University Press.

Ballabh, V., Balooni, K., & Dave, S. (2002). Why local resources management institutions decline: a comparative analysis of Van (Forest) Panchayats and Forest Protection Committees in India. *World Development*, 30(12), 2153–2167. [https://doi.org/10.1016/S0305-750X\(02\)00136-X](https://doi.org/10.1016/S0305-750X(02)00136-X)

Barnes, E. C., & Diack, A. H. (1889). *Settlement report of the Kangra district, Punjab, 1865–1872 and 1889 revision*. Punjab Government Press.

Bhasin, V. (2013). Pastoralists of Himalayas. *Journal of Biodiversity*, 4(2), 83–113.

Forest Survey of India. (2019a). *India State of Forest Report 2019, Volume II: Himachal Pradesh*. Ministry of Environment, Forest and Climate Change, Government of India. <https://fsi.nic.in/isfr19/vol2/isfr-2019-vol-ii-himachal-pradesh.pdf>

Forest Survey of India. (2019b). *India State of Forest Report 2019, Volume II: Uttarakhand*. Ministry of Environment, Forest and Climate Change, Government of India. <https://fsi.nic.in/isfr19/vol2/isfr-2019-vol-ii-uttarakhand.pdf>

Government of Himachal Pradesh. (1974). The Himachal Pradesh Village Common Lands Vesting and Utilization Act, 1974 (as amended by Act No. 20 of 2001).

Government of India. (1988). *National Forest Policy, 1988*. Ministry of Environment and Forests.

Government of India. (1992). The Constitution (Seventy-Third Amendment) Act, 1992.

Government of India. (2006). The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.

Guha, R. (1989). *The unquiet woods: ecological change and peasant resistance in the Himalaya*. Oxford University Press.

Hardin, G. (1968). The tragedy of the commons. *Science*, 162(3859), 1243–1248. <https://doi.org/10.1126/science.162.3859.1243>

Himdhara Environment Research and Action Collective. (2021). *Forest Rights Act in Himachal Pradesh*. <https://himdhara.org/forest-rights-act-in-himachal-pradesh/>

International Institute for Environment and Development. (2008). *Community forestry and livelihoods: Policy influences in Himachal Pradesh, India*. IIED.

Jodha, N. S. (1986). Common property resources and rural poor in dry regions of India. *Economic and Political Weekly*, 21(27), 1169–1181.

McKean, M. A. (1992). Success on the commons: a comparative examination of institutions for common property resource management. *Journal of Theoretical Politics*, 4(3), 247–282. <https://doi.org/10.1177/0951692892004003002>

Misra, S., & Kant, S. (2004). Production analysis of collaborative forestry using the example of Joint Forest Management in India. *Forest Policy and Economics*, 6(3–4), 229–248. [https://doi.org/10.1016/S1389-9341\(02\)00126-7](https://doi.org/10.1016/S1389-9341(02)00126-7)

Ostrom, E. (1990). *Governing the commons: the evolution of institutions for collective action*. Cambridge University Press.

Sharma, K., Sharma, R., & Devi, N. (2019). Non-timber forest products (NTFPs) and livelihood security: an economic study of high hill temperate zone households of Himachal Pradesh. *Economic Affairs*, 64(2), 305–315.

The Energy and Resources Institute. (2016). *Green growth and forestry in Himachal Pradesh*. TERI.

Wade, R. (1988). *Village republics: economic conditions for collective action in South India*. Cambridge University Press.