

INSTITUTIONAL ARRANGEMENTS FOR INVESTMENT
IN COMMON PROPERTY RESOURCES: EXAMPLES FROM INDIA

William Stewart
Department of Forestry and Resource Management
145 Mulford Hall
University of California, Berkeley
Berkeley, CA 94720

Abstract

Nearly half of India's productive land is under some combination of open access, state or common property resource regimes. Many of these resources are degraded and require controls on use or new investment to maintain productivity. Historically, local institutions managed these resources with a hierarchy of protection, use regulation, and development rules. A comparative study of eight different common property resource regimes illustrates some of the major determinants for more "successful" approaches. Under low levels of external involvement, the evidence suggests that relatively autonomous village institutions are the most effective approach. If higher levels of external involvement are required for capital investment or over-riding social goals, more sophisticated institutions are required.

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In the broadest sense common property resources (CPR) in India could cover most of the non-private land not under year round control. Historically, the control of much of this land was dominated by definite groups of users such as villages, specific tribes, specific castes, and lineage groups. Over the past century many of these arrangements broke down as successive governments and individuals appropriated parts of the resource. During the past decade there was a resurgence in interest in reviving common or local control of resources - especially if they had become seriously degraded from use by ever expanding rural and urban populations.

A wide array of institutional arrangements have been tried to assure a sustainable flow of products from non-private lands in India. From the famous Chipko movement in the Himalayas to the thousands of community woodlots initiated under social forestry projects local and external leaders have initiated many different forms of management and control. In most cases, the traditional mores have not simply been revived and new arrangements have been tried. To date the success of these new institutions has been mixed. While many community woodlots have grown well, there have been serious difficulties in transferring responsibility to local institutions which will be efficient and equitable (e.g Arnold and Stewart 1990, USAID/World Bank 1988). The failure of many projects and policies to live up to expectations has led to a re-examination of what forms of local institutions can be effective in managing local forest and grassland resources.

While issues ranging from constitutional law (Singh 1986) to intra-household allocation of rights (Agarwal 1988) are useful for analyzing the situations, this paper focuses primarily on the institutional arrangements necessary for maintaining a sustainable flow of goods from the commons. In the last decade there have been numerous external programs to "induce" the creation of new institutions to manage CPRs. In other cases, villages or sub-groups within villages have organized to defend and protect common property resources. The following eight case studies illustrate a range of approaches used in a variety of government and non government programs. By comparing the examples it is possible to shed further light on the questions of what types of institutional rules will support common property resource management under different circumstances.

The larger frameworks - history, agroecology and legal tenures

During the colonial and post independence periods, the uncultivated lands of India which had been used as common property resources progressively shrank. Much of the better quality land has been privatized for agricultural crops or pastures. Forested areas were brought under the control of the Indian Forest Service, first by the British and later by the post colonial government. Many of the formal or informal institutions governing common property resources (CPRs) which remained after Independence have weakened or collapsed due to increasing population pressure,

greater commercialization, certain public policies, technological change, and floods and droughts. Open access rather than effective common property management has become the more typical pattern of governance. Although the area managed under effective common property resource management regimes is small the area that could be is not. The combined area of open access, state forests, and true common property resources makes up 46% of the cultivable land area in India. Although there are different estimates, a 1986 publication lists 142 million hectares (m.ha.) of cultivable land, 67 m.ha. of forest and 55 m.ha. of fallow, culturable waste, pastures and fallow (GOI 1986).

Although degraded, CPRs still play an important role in the livelihood of rural Indians, especially those with little or no private land (Jodha 1986). Recent droughts and a decade of ambitious social forestry projects have focused attention on CPRs and revived interest in increasing their productivity. While there is general agreement that known technologies could significantly increase the yields of many products there is considerably less agreement on how this process could be managed at the local level.

Before dealing with the local level institutional aspects it is useful to briefly summarize some of the larger frameworks within which these small resources and villages fit (see Arnold and Stewart 1990 for more detailed summaries of these frameworks). The role and importance of resources harvested from CPRs varies substantially across the different agro-ecological regions of India. Four of the case studies come from semi-arid regions where rainfed agriculture and animal husbandry are the dominant pillars of the local economy. Irrigation is typically only available on a limited scale and risks of crop failure and loss of animals is relatively high. Two of the four case studies from forested regions are in areas where the villages are surrounded by forests and two come from areas where the forests abut predominantly agricultural areas.

How "common" the resource is varies and is closely related to the strength of state claims to different forms of government lands. Unlike many other countries the Indian government has exercised significant control over non-private lands for decades. The codification of rights and privileges for villagers to resources dates back to British and princely administrations. Since Independence these powers have been passed on to various state and local departments. Forest departments, revenue departments and local governments often employ professional staff and guards or lease out what were once commons to contractors. Challenges to state control on site and through the courts are common and sometimes successful (e.g. Brara 1987, Singh 1986), but the general trend has gone against local control.

A Local Institutional Paradigm for CPRs

Although land use patterns, legal standing and economic and demographic trends are probably the most important factors influencing CPRs across India, the specific institutional rules are more amenable to experimentation and change. Following the approach of Jodha (1989), institutional rules are grouped in three major categories – protection, use regulation and development.

Protection rules refer to security of tenure rights to a specific group of users. In most cases it involves the demarcation and defense of the boundary of the resource and the protection against privatization of the basic physical resource. The legitimacy of the organization responsible for designing and implementing rules is also considered as part of the protection rules. These rules must identify the specific rights of users or members and define what if any access will be allowed to outsiders.

Use rules cover quotas, user based fees, royalties, and quantity based fees for all products that are harvested. The system of use rules must also address how to punish infractions, how to divide commercial and long term benefits and how to address equity issues. A key aspect of use regulations is the ability to design and alter use rules when necessary.

Development rules involve concerns for long term sustainability. In some cases the only development rules necessary are a control on the level of annual harvest – and leaving sustainability to natural regeneration. In other cases, significant amounts of labor or capital are required. For new projects, these are the rules which should accompany any new investments if the state department plans to turn over long term management responsibilities.

Many external projects begin with an investment package accompanied by a pre-designed set of development rules. Procedures for developing appropriate use regulations are often non existent and many of the legal changes necessary for protection lag behind the ambitious hectare targets (Arnold and Stewart 1990). In most cases, this leads to serious problems in terms of long term management and sustainability. A review of formal and informal CPR management systems suggests the need for a different approach. All successful systems have well defined protection rules ensuring security of tenure. Systems of use regulations are not always fully developed but the capacity to alter the rules if they are ineffective is there in most cases. Development rules are the least common, in many cases because natural regeneration is the main method of "investment".

CPRs amongst rainfed agriculture

Common property resources in semi-arid regions now occupy only

a small percentage of village area in much of India. The breakdown of most of the institutional systems which historically had managed these lands has resulted in most of these CPRs being managed essentially as open access resources. Detailed research by N.S. Jodha (1986,1989) and others highlights the two most important functions of these often degraded resources. First, they fill crucial gaps in the resource and income flows from other resources, primarily rainfed agriculture and animal husbandry. Without these inputs, such as off season fodder and dry season water supplies, these other activities would be much more tenuous. Second, they are often a major source of support for the poorest at times of greatest vulnerability, such as at the end of the dry season or during prolonged droughts. In his study of 86 villages across the India's semi arid tropics, Jodha estimated that poor villagers (agricultural workers and households with less than 2 hectares of land) got 66 to 84% of their fuel, 69 to 84% of animal grazing and 14 to 22% of their cash income from the CPRs. All other villagers, on the other hand got less than a third of their fuel and grazing and less than 3% of their cash income from CPRs.

Whether these CPRs can continue to provide these resources over time depends strongly on the strength of the formal or informal institutions which can control these resources. Jodha (1989) probably provides one the best estimates of the percentage of CPR systems which are effectively managed, as opposed to simply being used. In his study of 176 common property resources in 80 separate villages across the semi-arid region of India, only 10% of the original rules governing CPRs were still in effect. He further noted that

the bulk of the management events are by-products of other developments such as factional quarrels in the village or specific conditions of government grants to the villages. From this perspective, the management or future of CPRs is tied to their utility for satisfying other considerations rather than the interest in CPRs. For instance to the extent CPRs help villages to qualify for specific grants for development and drought relief, they try to keep their areas intact. (Jodha 1989)

The most important determinants of whether the CPRs were being managed related to the relative isolation from socio-economic change, market centers and government patronage. Better management was also associated with villages that were able to maintain traditional social sanctions, stay free from serious factionalism within the village and have small and visible CPRs.

Unfortunately, it is often hard to find villages which meet all of these conditions. It will be even more difficult to maintain or promote the factors which promote more effective CPR management. Jodha (1989) also pointed out that only 10% of the cases of CPR intervention were motivated by a genuine concern and

action to reverse degradation. The following four case studies are taken from areas where markets, external Intervention and caste or socio-economic differences within the villages are pronounced. The experiences compared in the following cases illustrate some of the possible outcomes when local institutions are "induced" to strengthen because of external pressure.

All of the original authors reported similar institutions in villages other than the ones which were studied in detail. Wade (1988) reported that every village on black soils in the area he was working in had Village Councils or at least some of institutional characteristics described in the table. Brara (1987) noted Committees of Mukhias in all 22 villages she surveyed in the Sikar district of Rajasthan. The fodder farms analyzed by Shah (1989) have been promoted in the most of the major dairy districts of Gujarat. By 1988 more than 60 fodder farms were in operation and the Government of Gujarat was developing a scheme to provide 50% subsidy to new fodder farms. District dairy cooperatives will also provide financial and technical assistance. In 1989 the Aga Khan Rural Support Programme was supporting 12 fodder farms and 15 wasteland development projects along the lines summarized below.

Table 1 summarizes the basic characteristics of the four case studies. Table 2 summarizes the generic institutional rules of each study area. The most significant grouping of the case studies is the level of external involvement. In the villages studied by Wade and Brara the state had no involvement with the CPRs and the villages took great lengths to keep this division. The two examples from Gujarat, on the other hand, exhibit a high degree of external involvement. In both cases, the external agencies are not part of the state but do have access to significant technical and capital resources. Much of the actual money the two organizations invested came from programs funded by the state government.

Village Commons in the Shadows

Although the legal status of the CPRs was quite different in Wade's and Brara's areas, there are a number of important institutional similarities. The CPRs in Brara's village are historic village commons. In a number of cases the state government has attempted to change the legal definition of the parcels to state revenue lands. In the villages studied by Wade, the commons were off season crop lands. In both sets of villages the council or committee is a parallel structure with no direct ties to the official local government. Both organizations are dominated by the elite and powerful households of the village but are not strict caste panchayats as the membership cuts across some caste boundaries to include most major landowning households. Astute leadership has been very important in protecting the benefits of the CPRs from state authorities but there do not appear to be any direct financial rewards accruing from leadership. Compared to official panchayats there seems to be a much greater

level of awareness and discussion concerning actions to be taken by the village. Wade (1988) comments that the "rules are simple in terms of the amount of information they require, which makes them easy to remember and enforce" is applicable to both regions.

In both cases, no privatizable benefits are allocated by the council or committee. Numerous checks and balances were used to protect the relatively large sums of money collected from the auctioning of the right to harvest the CPRs. In Brara's case the profits all go to community assets, the local school or religious practices. The auctions for the loong (highly nutritious leaves of the kheiri trees which can be harvested when other green fodder is in short supply) are highly competitive and most of the economic surplus over and above the value of resource goes to the committee rather than the purchaser. In Wade's examples, the benefits of animal manuring from the outside animal herds are allocated through highly competitive auctions open only to village members. Funds for guarding are raised from collective resources rather than household or private property based taxes in both cases. On the other hand, cooperative irrigation in Wade's villages is paid for by a per acre tax collected at harvest when it is difficult for any farmer to delay payment.

Fodder for Profit

The examples from Gujarat represent a very different approach to the management of fodder resources. The major difference is that these projects take common lands and use them to develop an increased flow of privatizable goods. Maintaining the equity bias while producing privatizable goods is one of the most unique aspects of these two approaches. Following a pattern developed for organizing dairy cooperatives in Gujarat. External organizers, known as the spearhead teams, go into villages with the explicit aim of creating new village institutions which will be able to take over the project in a few years. The fodder farm and wasteland development project are treated very similarly to the development of dairy cooperatives. The external organizers often get their initial entry into the villages through one or more influential leaders but must rapidly build a broad base of support among households of all socio-economic classes if the project is to succeed. The relatively high investment costs were not borne by the villagers but maintenance, operation and reinvestment costs came out of the net surplus of the project. The benefits of both schemes was substantial and allocated by selling the right to hand harvest grass or purchase bundles of grass cut by the farms. This approach was proportionally more favorable to households who did not have their own sources of grown fodder crop or agricultural residues. The managerially simpler system of annual leases to relatively large tracts of the fodder producing areas was attempted and dropped in both fodder farms and wasteland development projects. When this was attempted the benefits were cornered by relatively better off households as there were few bidders for

expensive yet difficult to estimate future yields.

The specific rules developed in each externally catalyzed project vary tremendously. In all cases they were more complicated than the rules in the villages described by Wade and Brara. Even within one site, rules have often changed from year to year and even within one year. The external organizations often play a major role in suggesting or arbitrating rule changes. In comparison, the ability to alter distribution rules for efficiency and equity gains is rare in most government projects where the benefit distribution rules are fixed at the national or state capital and are difficult to change by participants themselves even if they are not working. In these cases, the rigidity of the system is that rules must be made, discussed and evaluated. There is great flexibility in the size of the total project and the distribution rules themselves.

For both the fodder farms and the wasteland development project the major benefit is dry grass or green fodder with a significant collection cost. Stall fed animals are owned by households from all socio-economic classes and are the primary end users in both cases. While richer farmers use comparatively more grass or green fodder than poorer households they do not dominate the project outputs as they usually have their own cheaper sources. Strict rules are used in both cases to protect against an alternate method of rapidly and crudely cornering the products - open grazing by large herds of animals. Although the effective distribution rules for grass are biased in favor of households with less private resources, the organizations provide other benefits in proportion to the size of private resources. Household benefit from membership in milk cooperatives is a function of the amount of milk produced. The AKRSP directs much of its effort towards improving the productivity of the currently degraded private agricultural lands. The subsidized services for land and water conservation, input credit and group marketing all go up in proportion to land ownership. In addition the most mature institutions were also diversifying by investing in other assets such as fruit orchards and tubewells for selling irrigation water. Both the fodder farms and the wasteland development schemes exhibited institutionalized interdependency in a manner broadly similar to the patterns exhibited by successful dairy and sugar cooperatives in Western India (Atwood 1988).

Common property on state lands

Indian forest lands are legally owned by the government and were classified by the British colonial forest service as reserved, protected or unclassed (primarily village) forests. Forty million of India's 75 million hectares of forest land (GOI 1981) are classified as reserved forests where the state has complete and exclusive rights over all products. In the protected forests (22 million hectares), villagers have rights to all products for which

they Forest Department did not previously claim rights. On the remaining 13 million hectares the vast majority of the rights rest with households, villages or panchayats. The actual rules in the books and on the ground vary from region to region and exhibit varying degrees of control by the different parties. Absolute control by one group is rare when all forest products are taken into account.

While the categorization was originally drawn up to provide government revenues as well as meet local needs for forest products, the on-the-ground situation is often quite different. Although the Forest Department has rights to most timber, grass, and other non-wood forest products in reserved and many protected forests it may not enforce these rights if it is too expensive or difficult. For many protected and village or community forests, there is little control over which villagers harvest the resource. No matter what the official tenure, many of these lands are more accurately described as open access resources.

Across much of India, the combination of high levels of state approved extraction and local use has led to significant resource degradation. Social forestry programs, which attempt to draw off local use by increasing the production on forest products on non-forest lands (GOI 1976), have improved the situation somewhat but the community woodlots still exhibit numerous institutional problems (Arnold and Stewart 1990, USAID/World Bank 1988, SIDA 1987, SIDA 1988).

The following examples represent the other end of the spectrum, where the forest department and specific villages reorganize the de facto and de jure rights to forest lands. Although the forest departments maintain the dominant position in terms of legal control over most of the land and capital, rule setting, and dispute resolution the situation is intermediate between community management and state management. To distinguish these approaches from pure community management or pure state management, the term joint management will be used. In two of the examples, significant amounts of new investment is made in the forest area (but not limited to investments in tree planting). In the other two examples, the major change has been a devolution of control over the forest land. Tables 3 and 4 summarize the characteristics and institutional rules of the four systems. Information was collected from field visits, governmental records and other published research.

Although each case is unique there are a number of similarities. In all cases the forest department had legal control over large tracts of degraded forests but was unable to increase the productivity. Villagers, on the other hand, had great difficulty in securing the forest products they need for direct consumption and as inputs to agriculture and animal husbandry. To get out of the seemingly intractable problem of too many demands on

too limited a resource, local control was increased under agreements whereby villagers would get a much larger share of future produce if they managed present use to allow for regeneration. In some but not all cases, external funds and assistance were also provided to assist the regeneration process. Although successful in many cases, this approach is at odds with some of the present forest policies. The village, rather than the larger and official rung of local politics – the panchayat, was chosen as the user group. In some respects new rights have been created when protected and reserved forest land is involved in the agreements. Unlike rights such as Nistar which refer to specific quantities of products, these new rights apply only to a share of new incremental production. The Van Panchayats originated in 1930's and are a fully accepted legal organization. The institutional arrangements in the other states are more recent and legal and financial arrangements are still being worked out.

Forests to the users

The Van (forest) Panchayats of the hills of Uttar Pradesh and the Forest Protection Committees in West Bengal represent the most extensive examples of joint management. In 1986 Van Panchayats covered 628,000 hectares (Saxena 1987) and Village Protection Committees were active over 155,000 hectares in West Bengal (Palit 1989). In both areas, local systems of forest management often predate or parallel these state approved agreements (e.g. Guha 1985, Gadgil 1985, Gadgil 1989, Moench 1988, Bhatt 1988, Chandra and Poffenberger 1989). The social and political rationale for the creation of these joint management schemes were considerably different. Van Panchayats were introduced by the British colonial civil government in the 1930's. The Forest Protection Committees, on the other hand, developed from a Forest Department pilot project and were extensively promoted by the Forest Department before state and federal governments approved of the changes (Banerjee 1989, Arnold and Stewart 1990).

The challenge to scientific forestry

Van Panchayats were initiated in the 1930's in response to high levels of social unrest towards a trend of greater and greater state control of hill forests. Government plans to manage the Himalayas for timber production were being seriously threatened by an essentially unstoppable campaign by villagers to burn the forests (Guha 1990). In an attempt to satisfy the state's claim of control and the villagers' need for fuel, fodder, fertilizer and timber large areas of the forests which had been nationalized a few decades earlier were redefined as Van Panchayats, "forest councils", which would be attached to specific villages.

Many authors have written on the Van Panchayats and the following is only a summary of the main points relating to aspects of institutional design (see Guha 1990, Vidyarthi 1987, Tripathi

1987, Majumder-Bisht 1987, Ballabh and Singh 1988, Gadgil 1985). With the advent of Van Panchayats, villages were re-given substantial control over forests which were usually isolated, already harvested or of relatively poorer quality (Guha 1985). The better quality and more productive forests were kept by the government as production forests (Guha 1985).

Compared to the plains, hill villages are more homogenous and have similar needs for fuel, fodder, fertilizer and small timber from the forest (Guha 1990, Saxena 1987). Within these newly created Van Panchayats, villagers of specific villages were allowed to harvest annual products such as grass, green fertilizer for their fields, fuel and some small timber. In addition many of the forests were still managed for long rotation chir pines which are tapped for resin. The contracting and revenue procedures for the resin and timber were controlled by the Forest Department with the net profits going to the villages.

Of all the examples in this paper, the Van Panchayats have the strongest legal foundation. Parcels and respective villages are clearly demarcated. However, weaknesses in village level institutions coupled with a significant control of the revenue generating aspects by the forest and revenue departments often lead to less than effective management. Village level case studies seem to suggest that the frequency of village meetings to discuss the Van Panchayats is a good proxy for the actual effectiveness of the local institution (e.g. Ballabh and Singh 1988, Vidyarthi 1987).

The more successful Van Panchayats exhibit a wide range of use regulations for different products (Ballabh and Singh 1988, Majumder-Bisht 1987, Tripathi 1987). Although there appears to be a strong correlation between a good physical resource and effective use regulations, Tripathi (1987) illustrated a number of cases where the villagers imposed strict harvesting restrictions which will yield benefits only after a few decades. The distribution systems seem to involve increasing levels of management as the resources get scarcer and all try to insure that resources are distributed relatively equally. All the successful Van Panchayats have guards (paid in grain or cash) or rotate the responsibility among households. Villages which can not support a guard have great difficulty in preventing theft, open grazing and encroachment. The system of rotating guarding responsibility is locally referred to as Muasawari and was reported to be fairly common by Ballabh and Singh (1988).

Where the level of annual use is kept to a reasonable level, natural revegetation has led to significant improvements in the productivity of Van Panchayats. In many cases, however, the high demand for forest products has simply been shifted to other forest areas. Development of Van Panchayats to increase the sustainable level of production is necessary if the ever increasing requirements for local forest products are to be met. Although

significant funds for tree planting exist the physical achievements appear to be far below potential. The Forest Department maintains the control over the scheduling of resin tapping and timber harvesting but much of revenue officially belong to the Van Panchayats. Prior to 1976, 100% of the net revenue was supposed to go the Van Panchayat. These rules were revised so that only 40% of the revenue goes to the Van Panchayats. Furthermore, these revenues are immediately deposited in bank accounts which require numerous approvals by different government departments for release. The trend towards greater centralization and patronage appear to weaken the ability of villages to enter into true joint management approaches.

West Bengal's land reform in the forest

The Forest Protection Committees of West Bengal have little in common ecologically with the Himalayas but represent the most recent example of bureaucratic innovation regarding common property resource management. The programme currently covers over 155,000 hectares, primarily in the upland lateritic areas in the western part of the state (Banerjee 1990). Most of the land was previously a sal dominated mixed forest but had been substantially altered by heavy cutting and more recent plantations. Over 1250 Forest Protection Committees have been organized in response to Forest Department offers to provide preferential rights to certain tracts of degraded forests to specific villages (Palit 1989). Originally the villages were chosen by the Forest Department alone but the selection process has gradually given a greater voice to local panchayats who have gained considerable power in recent years.

The success of the approach is visually apparent as the jointly protected areas often have stands of sal and other trees five or more meters tall. The surrounding forests, on the other hand, often consist of scattered one meter tall bushes. The success of the projects stems from a combination of new forest department policies, existing concern and support from villagers, and the biological capacity of the forests to rebound. Although the program is relatively recent and by 1990 was not fully approved by state and national governments, a number of institutional lessons can be drawn from the experiences to date.

The Forest Department has been most successful with this approach in villages bordering extensive tracts of degraded forest land where the ratio of forest land to households is higher. Where the forest area to household ratio was over 1 hectare, most of the projects appeared to be off to successful starts. Where the population density was higher and the ratio was less than 0.5 hectare per household, it was considerably more difficult. The Forest Department links specific parcels of state forest to villages or hamlets. Guarding is very necessary as most of these forests are accessible by road and hence commercial firewood cutters. It is accomplished by rotating responsibility among

groups of villagers. As more and more of the forest goes from open access or weakly guarded state forests to specific CPRs, conflict between different the new and old users are becoming more frequent.

Use regulations have evolved significantly since the initial experiment in the 1970's. Originally the use regulations centered on the village agree to "no use" for five years to allow regeneration and then only limited fuel and fodder collection. The benefit offered was wage employment within the forest. When the Forest Department saw how significant the harvest of small timber was from this arrangement, they offered the village 25% of the net revenues. A list of all villagers who participated in the scheme was drawn up and each was supposed to get an equal share.

During the expansion phase, it became clear that the harvest of non timber forest products such as tendu leaves for bidis, sal leaves for plates, tasar cocoons for silk, and sal seeds for oil could also be substantially increased with controls on access and harvesting. This development increased the flow of benefits which occur annually and go towards the poorer households. Initial information suggests that this approach could be more productive than the timber based model in many regions (Chandra and Poffenberger 1989).

One of the most unique aspects of this approach is that it was accomplished with no additional investments. Although degraded, much of the forest had significant root stock which responded rapidly to the decrease in the levels of harvest. The critical investment was in the redefinition of security of tenure to specific villages. The Forest Department did re-allocate significant amounts of staff time towards initiating the new arrangements and working with village leaders to achieve the most basic use regulations.

This approach demonstrates a unique three way sharing of investment, responsibility and benefits. The Forest Department has legitimized greater local control over a significant portion of their total lands and has invested considerable staff time and local prestige in promoting the approach. The highly politicized village and panchayat level leadership (Palit 1989) often play a major role in deciding which villages will be chosen for the scheme. Individual villagers, especially women responsible for wood and minor forest product collection, bear considerable hardship in the early years when large tracts of forest are essentially closed for a few years. Benefits, although not yet legally assured, are to be disbursed both by household (long term share of pole harvest) and according to individuals who are willing to engage in fairly low return harvesting operations. The second type of benefits (albeit with a much lower profit margin) more commonly go to poorer women who have both the local knowledge and lower opportunity costs to their labor. Although the more valuable timber related benefits are a number of years in the

future, the impressive guarding by villagers is evidence of the considerable faith they have in the State, the local political bodies, and other villagers holding to the agreements.

Investing to stabilize watersheds

Damage to downstream agricultural lands from upstream land use practices has been a major impetus for much of expenditures in forestry around the world. Usually these projects are undertaken under the rubric of watershed management and usually involve relatively large investments aimed at reducing erosion. Stringent measures such as attempts to depopulate watersheds or maintain plantations are difficult to support - socially, politically or financially. Increasingly, watershed projects use "carrots" to improve land use. Unlike other Asian countries such as Thailand and the Philippines which have granted cultivating rights within the upper watersheds, the Indian government has limited new access to the collection of timber and other forest products. The following two examples illustrate two different approaches for creating new village institutions to alter land use practices in steep watersheds.

Stopping the Shivaliks from rolling down

The Hill Resource Management Societies (HRMS) in Haryana are an outgrowth of nearly twenty years of work by state departments, external organizations and poor villages in the hills behind Chandigarh, the capital of north Indian states of Haryana and the Punjab. The Shivaliks are a band of highly erosive hills just north of the most productive agricultural areas of India. In an attempt to slow siltation into a large lake in the state capital government scientists offered to build small reservoirs in certain villages if they would stop open grazing in the watershed of the capital's lake (Mishra and Sarin 1987). From the original concept of social fencing "whereby villagers decide to protect the hills from grazing through self restraint" (Mishra and Sarin 1987) the process gradually evolved to one of joint management. Traditionally, the forest department leased out much of the reserved forest land in the Shivaliks to contractors who harvested the bhabbar grass (used for rope making) and sold the remaining fodder grasses to local villagers. Beginning in a few villages, the forest department offered a multi year lease to neighboring villages at the average of earlier three bids as long as they would strictly prevent open grazing. Instead of paying monthly fees to outside contractors the village now had to raise up front costs with a per household levy. Hand cutting fodder grass is more labor intensive than open grazing but also prevents erosion caused by the animals on the steep slopes. The ban of open grazing was not as serious as it would have been a decade earlier because the increased availability of more crop residues (from irrigation from the new reservoirs and other sources) had started a significant shift towards water buffaloes which can not be grazed on the steep

slopes in any case (Stewart forthcoming). After taking into account the labor costs, the net value of the grass collected in 1986 was from two to four times of what the contractor originally paid the Forest Department (Chopra et. al. 1989). In addition to benefitting from the reduced fees, the villages have shown considerable innovation in developing and revising the rules governing grass harvesting. In Sukhomajri, for instance, the Society waived fees for widows and families facing economic hardship.

Compared to other CPRM systems in the hills, the approach of the HRMSs involves the greatest use of auction values and fees to legitimize user group control over a certain area. The total value of the land leases is much less than the very large investments made by the Forest Department in irrigation projects in the same villages. Regulation by the villages is closely linked to the need to raise substantial sums of money to pay the auction related value of the grass. In addition to extracting significant amounts of money from relatively poor villagers, the high degree of commercialization is a mixed blessing as there are numerous problems in collecting the fees (especially for the more valuable bhabbar grass) and examples of a few villagers organizing to pay the below market rate fixed by the Forest Department and then immediately resell the grass cutting rights to outsiders.

The original need for village level organization was related to irrigation management. A major innovation attempted but not always fully instituted was to replace the regionally typical system of warabundi (rotation of irrigation time according to land parcels) with a system where each household, no matter how much land they owned, would have equal water rights. In actual practice the patterns observed are a mix of the traditional systems with some of the land poor households using their new found political power to press for a better share of a variety of common property resource rights within the village (Stewart forthcoming). Institutional rules for managing a variety of forest based products are still at a relatively immature stage compared to the more successful Van Panchayats. A significant new attempt to strengthen the forest product based leasing system to villages, and in some cases even sub-village user groups, is currently underway (Poffenberger 1990).

The integrated rural development approach

The Village Development Committees (VDC) of the Indo-German Dhaludhar Project in Himachal Pradesh represent a major institutional experiment within an integrated development project. While the majority of the project focused on improving private resources, a significant attempt was made to induce local institutions which could manage projects on degraded forest department and village lands. The state took over the legal ownership of most traditional village or user group lands in the

1970's as part of a large land redistribution program (Singh 1986) and much of the land is under dispute. Under the project a wide range of groups and committees were organized and gained official recognition. They are then eligible to receive government funds for certain activities. Where these different groups had matured, the project also fostered the creation of an unofficial union of these groups, the Village Development Committees. One function of these organizations was to manage new projects on forest and revenue lands where the villagers would take certain responsibilities in return for a share of the new products. The most common initial approach was to allocate grass rights equally among the households (similar to most Van Panchayat rules) and plan to use the profits from the potentially more lucrative orchards only for community assets like the villages described by Brara (1987) and Wade (1988). Institutional arrangements for longer term forest products such as fuel and small timber or if the user groups will be responsible for repaying some of the investment had not yet been agreed upon.

Unlike the other three case studies for forest areas, little information exists on how local institutions are faring after the initial pilot project stage. During the initial phase, only a minority of the villages achieved the desired level of institutional maturity. The villages that organized typically had a more homogenous social structure and more active leaders (Czech 1986). How many of the VDCs will survive after the removal of the extensive subsidies and organizing input of the project will be an important test of this approach.

Conclusions

I began this paper by exploring different common property resource institutions which were created explicitly to preserve or increase the flow of products from the base resource. All of the examples illustrate a high degree of induced institutional change. In this respect the examples are quite different from the situations in the 80 villages documented by Jodha (1986, 1989) or other examples of traditional systems which have weathered the test of time without explicit involvement from the government. In some cases informal institutions coalesced to defend local resource against the State or non-local groups. In other situations, the State explicitly subsidized or implicitly allowed the formation of semi-autonomous organizations which then exercised greater control over certain resources.

A hierarchy of rule sets for common property resource management

Developing policies to improve the sustainability of the commons will involve explicit or implicit decisions regarding the order in which problems must be dealt with. When project financing is available, the forest or grassland resource is visibly degraded, and little is known about the local institutional situation, it is

often common for the first step to be large development investments. Hopefully institutions will gradually develop so that the resource can be 'handed over' when no external professional involvement is required. The experiences of many community woodlots in India suggests that this approach leaves much to be desired. Moreover, the examples presented here suggest that local institutional strength may be a more important goal than initial growth rates of the planted trees or grasses. The problems and successes imply a hierarchy of institutional rules, with protection rules being the most important, followed by use rules and finally rules governing and supporting development and investment.

Protection rules

Unquestionably the most important rules relate to protection and the security of tenure of a specific group to a specific resource. This is what fundamentally differentiates a common property resource from an open access resource (e.g. Ostrom 1986). In some cases villages are able to enforce these boundaries without the official sanction or even knowledge. In most cases, security of borders requires significant legal and bureaucratic support. While barbed wire fencing is the typical project translation of this "protection", physical barriers often do not radically change use patterns by themselves. Delineation and protection of boundaries requires explicit dealings with the State government who usually has the legal tenure as well as various non-resident groups who have interests in using the resource. This issue can be especially problematic where resources have been used by both local villagers and nomadic or transhumant groups of grazers.

Use rules

Once the security of tenure exists, the next most important set of rules relate to use. Use regulations are key to any management system where the demand is considerably greater than the supply of a product. While independent users can coordinate fairly simply to defend the borders, a more sophisticated institutional structure is necessary to define and revise use regulations for members. This is especially true as villagers have increasing ability to market whatever surplus they are able to produce and therefore have very good reasons to want more of any certain commodity. The differences among the case studies that is impossible to a priori identify all good and bad use regulations. However, it is possible to make a number of conclusions regarding the pattern of usage regulations. More complex sets of rules require more investment in management and are not invoked unless necessary. The following table lists common usage regulation patterns illustrated in these case studies in order of increasing complexity.

Increasingly complex use regulations for CPRs

1. No privatizable benefits, but significant collective benefits. Protection is also a collective responsibility.
2. Distribution by household quota, collection by household labor and household guarding responsibilities.
3. Charge a price for the product which is greater than the marginal cost of production but below the market rate. Use the money collected to pay for protection and management.

When households have similar needs, labor and land allocations, the equitable distribution by household of benefits and responsibility seems to work well. Many authors (e.g. Guha 1990, Saxena 1987) have suggested that this pattern is common to the Himalayas. On the other hand Jodha (1986) cites enormous differences between the relative importance of CPRs for poor and non-poor in semi-arid regions. Among the case studies used in this paper, hill and forest communities with the were more likely to use the second option while villages in semi-arid areas illustrated the least complex and the most complex sets of regulations. Possibly this difference stems from the underlying patterns of wealth distribution in the regions.

The use of pricing mechanisms appears to be a double edged sword. In many cases it is justified by project organizers to recover the significant financial investments made to increase the productivity of a resource. The welfare effect has, however, been mixed. If traditional users of the commons have other more pressing uses for their limited cash, they may not be able to 'bid' effectively for the outputs. Attempting to price the outputs of fuelwood plantations has generally resulted in poorer households switching to lower quality but still collectable fuels (Bhagaran and Giriappa 1987) or most of the products being sold to urban markets. Early results from the harvests of community woodlots in Tamil Nadu showed that 91% of the total output was sold to urban or industrial purchasers and only 9% was collected or purchased by villagers. (GOTN 1985).

The Gujarati examples from areas where fodder is already widely sold give a more hopeful view. If access to financial credit and marketing channels exist for both the poor and the rich it is possible for the poor to benefit from new resources if they can make some monetary surplus through the purchase of them. Although season-long leases for fodder and other grasses would entail lower management costs they often turn out to be highly inequitable in practice. Greater delays in returns, higher front-end costs and greater protection costs can lead to most of the resources going to the wealthier households. To overcome these problems both examples from Gujarat involved more external management and use rules which required daily or weekly purchases. This increased the overall cost of management but did direct a considerable portion of the benefits to poorer households. The

lower level of external involvement in Haryana was associated with greater equity inefficiencies. In the final analysis, the overall welfare effectiveness of price based distribution is not simply a function of the use of external management (examples of both inefficient and inequitable external involvement are common) but how accessible an efficient market is to poorer households.

This tentative conclusions suggests that we must be very careful in projecting the positive results of pilot projects which are often in areas where capitalistic agriculture is more developed and all households can interact with the market in a relatively fair manner. .

Development rules

In some cases, security and tenure and appropriate use regulations can be a successful development strategy in themselves. If major maintenance or replanting is not required a CPR can be treated like a textbook case of a renewable resource. Such endeavors often depend on a high degree of local knowledge such as where soil moisture lasts the longest during the dry season or how different medicinal plants regenerate. Success is most assured where technology is well understood but only thing lacking was shift in political control. West Bengal FPC's are the most stunning example of how rapidly it appears that this approach can begin to work. Many researchers and activists who have worked with tribal and other resource dependent communities have pushed an expansion of this approach.

A less direct approach is to view CPRs as adjunct to other resource and social systems, and invest in those first. Reductions in open grazing have occurred under a wide range of institutional settings in the neighboring states of Haryana and Punjab. In some respects the increased availability of crop residues associated with irrigated agriculture rather than changes in management of the forests which is most important in reducing the previously high and destructive levels of open grazing. The creation of level irrigation systems in foothill villages has been an effective, although often expensive, catalyst for change in the management of degraded forests. Irrigation or drinking water development projects are in great demand and can have very strong positive effects on the status of CPRs. Brara (1987) documented effective village strategies for using the profits from CPRs to get matching grants for desired village infrastructure and social services. In terms of governance, it appears that villages rather than civil servants can choose the most needed projects. External government or non-government personnel have access to more relevant new technologies and sources of funding but they rarely have better site specific or organizational knowledge than villagers. An added benefit of this approach is that institutions and institutional rules are often already in place and diverse groups within a village will often agree on significant collective benefits.

The final and most difficult case is where first two alternatives are either infeasible or insufficient to address problems. This is the typical problem faced in many watershed, wasteland and regional development projects. External investment such as watershed projects will almost always be accompanied by new decision makers representing another set of institutional goals. In some cases, this will mean a need to produce a cash surplus within the life of the project. In other cases, it may only be a difference in management and political styles. The fundamental issues that will need to be addressed are how to effectively allocate responsibilities, costs, and benefits. This will require the empowerment of institutions and systems to keep the new institutions in check. When pricing is introduced the need for rural institutions and more rules increases dramatically. It is possible and apparently all too common for most of the benefits to be sucked off by those with initial access to capital. The two examples from Gujarat exhibit offer some approaches which appear to avoid this outcome. Unquestionably, this approach will require more planning, bookkeeping, accountability structures and dispute resolution. In both cases the necessary support came from non governmental organizations with a significant core of professional staff.

For forest areas, the approaches used in Gujarat would need to be expanded. First the mix of products and growing patterns are much more complex than for field crops. Much of the complexity relates to the lack of knowledge concerning soils, growth rates, and plant interactions. Although there have been many impressive small trials with grasses and fodder trees in the Shivaliks and Himalayas (e.g. Mishra and Sarin 1987), most of the extensive plantings in watershed projects have emphasized hardy pines which can survive on harsh sites with little care (Mukherji 1985). Unlike hand cut fodder, the outputs required by the villagers are rarely efficiently or equitably allocated simply with pricing mechanisms. And finally, the time and uncertainty of when the project will produce net returns is greater.

Overarching issues; State defined tenure and external involvements

Although it is possible to suggest a basic hierarchy of rules necessary to run successful CPR management in the face of strong external competition, the specific pattern of rules in each case is closely related to the state defined tenure of the resource and the level of external involvement. Figure 2 segregates the eight case studies according to those two characteristics.

Figure 2 Comparison of tenure and external involvement

		Level of external involvement	
		Low	High
Legal Tenure	Forest Dept.	Van Panchayats Forest Protection Committees	HRMS Village Development Committees
	Revenue Dept., Village & fallow	Committee of Mukhias Village Councils	Fodder farms AKRSP

The broadest distinction in terms of tenure is whether the land is with the Forest Department or not. In most cases, the present legal status is a proxy for decisions made decades ago concerning how productive the land was and whether it would eventually be privatized. For forest lands the state and the villagers have strong yet different relative interests on the types of products. The forest department's mandate is typically to produce timber and prevent erosion. During conflicts it is quite common for the pursuit of one group's goals to nearly totally negate the returns which could accrue to the other party. On non-forest land in semi-arid region, the focus of the four case studies was on fodder. In these cases, the state government had neither the expertise nor the interest in controlling these lands for fodder production. The demands of official land distribution schemes, social forestry schemes, grazers from outside the villages, and other parties interested in appropriating the land often slowed their support for local approaches which would increase production. Dysfunctional interaction rather than opposing objectives characterizes the differences between the state and the local users.

A comparison in terms of the level of external involvement provides a set of lessons regarding local institutions and their transactions with state departments. With a low level of external involvement and a resource base under heavy pressure, it is necessary to have a fairly strong system of village leadership if open access is to be avoided. Brara (1987) and Wade (1988) suggest that internal village governance structures can work well if all the profits go towards collective assets and privatization of the benefits is not attempted. On the other hand, the two forest systems allocate most of the output through household quotas or household labor limitations but do not exhibit a strong ability to undertake long term or collective projects. Very few of the Van Panchayats have been able to use their share of the revenue from resin tapping for other projects. In West Bengal, the relatively

strong commitment of the state government to local control may lead to FPCs being in a position to both distribute quotas and be involve in larger collective projects.

Comparisons between the examples with high levels of external involvement present a very different set of institutional lessons. All the projects involved degraded resources which required new investment if they were to become productive. While the simple control of grazing could have increased fodder yields in all the cases, significant investments were necessary to achieve significant and long term increases in productivity. The two forest based systems involve very high subsidies per village but most of the subsidy had little direct role with management of the CPRs. Most of the financial investment went into irrigation infrastructure in Haryana and agricultural development in Himachal Pradesh. In Haryana, an analysis of the cost and benefits of the different components suggests that the relatively low cost investments in forest management had a much higher return than the investments in irrigation facilities (Stewart forthcoming). Across the scores of villages involved in these programs, extremely successful projects were the exception rather than the rule. In some cases, this was due to the lack of strong internal leadership. In other cases the problem was the cornering of most of the benefits by a handful of "leaders". From a governance perspective, the major weakness has been the inability of local institutions to mature and handle the new responsibilities.

The two examples from Gujarat, on the other hand, have a high level of external involvement and a correspondingly high degree of internal institution building. Both use cooperative or project models which require significant local commitment before large technical and financial investments are made. Failed projects are harder to find simply because they would not be started in the first place. Pricing systems were designed which pay off the investment and management costs and do not bias the outputs away from the poorest households. The management of these systems is unquestionably complex and requires the combination of professional skills and political sophistication rarely found the average government employee or local leaders at the village level. Both external organizations are attempting to have village level institutions take over an increasing share of managerial control from the external organization which consistently monitors system level performance. The expansion of this approach would require both a more flexible and results oriented approach from the government and a commitment to use more 'professionals' who understand both the functioning of the governmental and market systems as well as being able to work with the existing village institutions. Bromley and Cernea (1989) also suggest that the investment in human capital for organizing these institutional linkages is crucial for better CPR management.

In sum, institutions that can develop and enforce numerous

types of rules appears to be the key to effective CPR management where both the demand for harvestable products and the government are strong. The most appropriate institutional rules, however, seem to vary considerably depending on the types of products to be distributed, how privatized the "profits" will be, the strength of existing institutions, and the ingenuity of the representatives of external organizations. Pumping in investments without exploring these aspects runs a high risk of failure.

BIBLIOGRAPHY

Agarwal, Bina. 1988. "Who sows? Who reaps? Women and land rights in India." The Journal of Peasant Studies. Vol 15 No 4.

Arnold, J.E.M. and William Stewart. 1990. Common Property Resource Management in India. Occasional Paper. Oxford Forestry Institute. Oxford.

Atwood, D.W. 1988. "Social and political pre-conditions for successful cooperatives: The cooperative sugar factories of Western India." in Who Shares?: Cooperatives and rural development. Ed. by D.W. Atwood and B.S. Baviskar. Oxford University Press. New Delhi.

Ballabh, Vishwa and Katar Singh. 1988. "Van (Forest) Panchayats in Uttar Pradesh Hills: A critical analysis." Research note. Institute for Rural Management. Anand. Gujarat.

Banerjee, A.K. 1987. Microplanning: A tool for social forestry implementation. National Wastelands Development Board, Ministry of Environment and Forests, Government of India. New Delhi.

Banerjee, U. 1989. "Participatory Forest Management in West Bengal," in Forest Regeneration through Community Participation. edited by K.C. Malhotra and Mark Poffenberger. Ford Foundation. New Delhi.

Bhagaran, M.R. and S. Giriappa. 1987. "Class character of rural energy crisis." Economic and Political Weekly. Vol 2 No 26.

Bhatt, Ela 1988. Shramshakti; National commission on self employed women and women in the informal sector. Department of Women & Child Development, Government of India.

Brara, Rita. 1987. Shifting sands: A study of rights in common pastures. Institute of Development Studies. Jaipur, Rajasthan.

Bromley Daniel W. and Michael M. Cernea. 1989. The Management of Common Property Natural Resources; Some Conceptual and Operational Fallacies. World Bank Discussion Paper 57. Washington.

Chambers, Robert, N.C. Saxena and Tushaar Shah. 1989. To the hands of the poor: Water and trees. Oxford and IBH Publishing Co. New Delhi.

Chopra, Kanchan, Gopal K. Kadekodi and M.N. Murthy. 1990. Participatory development; An approach to the management of common property resources. Sage Publications. New Delhi.

Czech, Horst. 1986. The TRUCO concept. GTZ. Eschborn, West Germany.

Gadgil, Madhav. 1985. "Towards an ecological history of India." Economic and Political Weekly. Vol 45, 46, and 47, November.

Gadgil, Madhav. 1989. Deforestation: Problems and Prospects. Foundation Day Lecture. Society for the Promotion of Wasteland Development. New Delhi.

Government of India. 1981. Development of forestry and forest products: country profile India. Ministry of Agriculture, Government of India. July 1981. New Delhi.

Government of India. 1986. Indian agriculture in brief. 21st Edition. Directorate of Economics & Statistics, Department of Agriculture & Cooperation. New Delhi.

Government of Tamil Nadu. 1985. "Consumption of fuel wood harvested from tank bed plantations by rural and urban residents." Tamil Nadu Forest Department.

Guha, Ramachandra. 1985. "Scientific forestry and social change in Uttarakhand." Economic and Political Weekly. Vol 20 No 45, 46 and 47. Special Number. November.

Guha, Ramachandra. 1990. The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya. University of California Press. Berkeley.

Jodha, N.S. 1986. "Common property resources and rural poor in dry regions of India." Economic and Political Weekly. Vol 21 No 27, 1169-1181.

Jodha, N.S. 1989. "Management of common property resources in selected areas of India." ICIMOD. Kathmandu.

Khon Kaen University. 1987. Proceedings of the 1985 International Conference on Rapid Rural Appraisal. Rural Systems Research and Farming Systems Research Project. Khon Kaen, Thailand.

Majumder-Bisht, Sonali. 1987. Forest rights in Kumaon villages; A case study of two villages. National Centre for Human Settlements and Environment. New Delhi.

Mishra. P.R. and Madhu Sarin. 1987. "Social security through social fencing: Sukhomajri and Nada's road to self-sustaining development." Paper for IIED Conference on Sustainable Development. London, England and Business India. November 19-26, 1987.

Moench, Marcus. 1988. "'Turf' and forest management in a Garwhal hill village" in Whose Trees? Ed. by Louise Fortmann and John Bruce. Westview Press. Boulder. Colorado.

Ostrom, Elinor. 1986. "Issues of definitions and theory: some conclusions and hypotheses." in Proceedings of the conference on Common Property Resource Management. National Academy of Sciences. Washington.

Palit, S. "Present Status of Forest Protection Committees", in Forest Regeneration through Community Participation, edited by K.C. Malhotra and Mark Poffenberger. Ford Foundation. New Delhi.

Poffenberger, Mark. 1990. Joint Management of Forest Land: Experiences from South Asia. Ford Foundation. New Delhi.

Saxena, N.C. 1987. "Social forestry in the hill districts of Uttar Pradesh." ICIMOD. Kathmandu.

Shah, Tushaar. 1989. "Collective action on village commons: Community fodder farms in Kheda district, Gujarat." Institute for Rural Management. Anand. Gujarat. (mimeo)

Singh, Chhatrapati. 1986. Common property and common poverty: India's forests. Forest Dwellers and the Law. Oxford University Press.

SIDA. 1987. Evaluation of the SIDA supported social forestry project in Orissa. SIDA. New Delhi, (mimeo)

SIDA. 1988. Forestry for the poor: An evaluation of the SIDA supported social forestry project in Tamil Nadu, India. SIDA. Stockholm. Sweden.

Stewart, William, forthcoming. "Evolving watershed management systems in the Shivalik hills of northwestern India." in Local Institutions and Resource Management. Ed. by Anis Dani and J. Gabriel Campbell. ICIMOD.

Tripathi, Kamlesh Chandra. 1987. "Local Institutions involved in forest management: Panchayat case studies." in Peoples' institutions for forest and fuelwood development; A report on participatory fuelwood evaluations in India and Thailand. Ed. by Richard Morse, Charit Tingsabadh, Napoleon Vergara, Varun Vidyarthi, et al. East West Center. Honolulu. Hawaii.

USAID/World Bank. 1988. National social forestry project mid-term review.

Vidyarthi, Varun. 1987. "Participatory development issues and policy perspectives." in Peoples' institutions for forest and fuelwood development; A report on participatory fuelwood evaluations in India and Thailand. Ed. by Richard Morse, Charit Tingsabath, Napoleon Vergara, Varun Vidyarthi, et al. East West Center. Honolulu. Hawaii.

Wade, Robert. 1987. "The management of common property resources: Finding a cooperative solution." Research Observer. Vol 2 No 2, July. Washington.

Wade, Robert. 1988. Village republics: Economic conditions for collective action in South India. Cambridge University Press. Cambridge.

Table 1

Characteristics and rules	Village Councils Andhra Pradesh	Committee of Mukhias Rajasthan	Fodder farms Gujarat.	Gram Vikas Mandals Gujarat
Original researcher	Robert Wade	Rita Brara	Tushar Shah	Aga Khan Rural Support Programme
Original ecological status	partially irrigated black clay soils	catchments of natural ponds	grasslands and wastelands	grasslands and degraded forests
Original land tenure	private off season agricultural land owned by one major caste	permanent pasture, revenue or forest land	village grazing land or revenue land	village pasture, revenue land or degraded forest land
Social structure of village and organisation	multi-caste village dominant caste controls council	multi-caste village repr of lineages by local power, poor repr of scheduled castes	multi-caste villages Patel dominated Coop external prof, mgt poor are major purchasers	tribal or small caste villages with limited socio-econ differentiation
Main products	stubble for herders manure for farmers	khejri fodder leaves, twigs and branches grazing and thatching grass	green fodder thru whole year	seasonal grass future tree yield
Legal and admin relation with state	private land unofficial village bodies	gram panch or revenue land, unofficial village bodies coopt local elected officials	usually attached to state supported district milk cooperatives land on 7 year renewable lease from revenue dept	village land use appr by sarpanch. revenue land lease from revenue dept development funds from Central NWDB. both by AK
Ability to raise funds	sell grazing franchise of private off season field to outside shepherds, resell liquor license, sell fish in tank. collect commissions on grain sales	auction khejri leaf fodder. auction thatching grass	sell green fodder, sell surplus irrig water, sell fruit	sell annual grasses among members or outside, take AKRSP loan against future plantation harvest
Ability to influence other government activities	organise and bribe to ensure good canal irrig supply	use funds meet govt matching grant req. for schemes	eligible for govt subsidies and loans request irrig water	AKRSP can organise to get village oriented schemes and grants approved
External organisational assistance	totally internal	totally internal	orig Dairy Coop mgr appointed except few w/ orig village leadership	AKRSP spearhead org. team considerable AK-village meetings.
External tech. and financial assistance	none	none	considerable financial & tech support external technical manager	grant, loan for guards, seeds, tech backup and monitoring

Characteristics and institutional rules of community management approaches in dry regions

Table 2

Characteristics and rules	Village Councils Andhra Pradesh	Committee of Mukhlas Rajasthan	Fodder farms Gujarat	Gram Vikas Mandals Gujarat
<u>Institutional rules</u>				
Protection	verbal contract with herders and farmers on providing or paying for village appted. guards	villagers watch for offenders and report them for fines inter village boundaries by mutual agreement	fenced, agreements with trad, grazers in some areas to provide them irrig fodder area in lieu of lost grazing	village guards paid by loan or rotating responsibility
Membership, legitimacy and outsiders	Council consists of leaders from powerful families, all landowners have similar interests, strong rules against free riding	Committee membership reflects village power all land owning castes well repr. poor SC repr. elected officers coopted members to have ear on govt actions, grazing by outside animals by village permission	Any villager can become Coop member. Any villager can purchase fodder fodder sold to outsiders if surplus	Open membership to GVM land access limited by GVM and guards
Use regulations	herders must stay on allotted field for certain time. dif. villages have different rules	cutting of whole trees & bushes forbidden shadow auction aftr nominal amt to gram panchayat. only villagers bid for leaf fodder, fallen twigs and branches collected by villagers. outsiders no access unless related, certain areas closed for harvesting and grazing in certain years	buy green fodder by bundles, daily sales. no open grazing or yearly leases	only hand cutting of grass in first few years some cutting by open season, others by house hold quota, some cut and sold for GVM account
Payoff	individual landowner gets fields manured and stubble removed all financial benefits go to village council no private financial benefits.	rights to profit from auction only if live in village, funds only to be used in village, supports village stud bull and paid for dispenary and domestic water system	different mix between cheap fodder, dividends and reinvestment	grass cut and sold or distrib in village first, surplus sold outside. wages substantial in first year. forced savings which can be used as collateral for inputs, land develop. & Joint marketing.

Table 2

Characteristics and rules	Village Councils Andhra Pradesh	Committee of Mukhias Rajasthan	Fodderfarms Gujarat	Gram Vikas Mandals Gujarat
Development	Manuring increases farm productivity Organisation for irrigation most important function	Presently no reinvestment and few young trees coming up. Leaders would reinvest profits after high priority needs met	Funds for reinvestment set aside. Better farms are diversifying into fruit trees. Maintenance fund also kept	First claim on tree harvest is loans, 2nd is reinvestment, 3rd is profit to members. Use of savings for private land development is most important investment
Broader agenda	Also act together to get better canal irrigation	Develop community assets Protects independence & links by coopting local elected officials	Diversifying income sources Dairy Coop has broader agenda	AKRSP organising local bodies to coordinate actions, get status so GVM can directly get loans and govt. schemes. Development of private agricultural land major priority
Equity rules	Elite have scattered parcels so interest that herder grazing is 100% protected. Only non-privatisable benefits so no chance for corruption	All major strong lineage groups represented in management decisions. Women and scheduled caste have little voice. Profits go into widely desired community assets	vast majority of purchasers are landless and small farmers without private fodder or agricultural by-products. Most benefit in cheap fodder rather than dividends	Chosen villages are poorer than average. Any one can join. Original work and later harvesting is labour intensive so done by poorer. Landless get first option on employment and nursery contract
Expected government role and effectiveness	Major interaction is with Irrigation Dept. Council prefers as little government interference as possible.	Matching grants, village schemes and drought relief programmes are advertised and sought by Committee	State government or district. Coop provides investment Irrigation or electricity hookups often government allocation Tradeoff between government provision of management and excessive domination on structure and control after running	GVM still requires larger AKRSP to clear schemes and loans supposedly targeted to village organisations. Legitimise sharing arrangement for degraded forest Dept land is major demand

Table 3

Characteristics and Rules	Van Panchayats Uttar Pradesh	Hill Resource Mgt Societies Haryana	Village Protection Committees West Bengal	Village Development Committees Himachal Pradesh
Number	4000	40	1250	53
Original ecological status	degraded pine and oak	degraded grass lands and acacias	degraded sal	degraded forest and grasslands
Original land tenure	village forests with curtailed rights in 1920's	reserved or protected forest	protected forests	Forest, Revenue and private land
Area/household	0.3 -3 ha/hh	0.5 -2 ha/hh	0.5 -1.0 ha/hh	0.6 - 1.2 ha/hh
Legal and admin, relations with state	legal units since 1931 or formation	Official or Informal societies with contractual	informal arrangements with FD	Informal body supported by Indo-German Dhaludhar Project. Associated w/ regis. Manila and Yuvak Mandals. agreements w/ FD. Ward panchayat member on VDC executive committee.
Ability to raise funds	per hh tax for guards auction certain products with FD concurrence	collect fees from hh to pay for grass contracts charge O&M fees for irrigation		Rs 2-5/hh per month, fines collected for illicit grazing or cutting.
Ability to influence other government development projects	use of resin fund supposed to be shared by dif levels of local govt. accept or not accept govt plantation plans	request and often get preferential leases for grasses lobby for more irrig benefits official Society Increases ability to get other infra-structure funds	standing only with FD	IGDP provides finances for village assets if VDC functions well and org vol labour. Signif IGDP investments for many private and community assets.
Government technical assistance	Forest Panchayat Inspectors to assist but too few and rarely visit. Forest officers show little interest	FD designs and constructs dams and Irrigation systems FD often implements tree and grass planting in catchment	FD officials provide consid. support and coord policing with VPC large funding plans under policy discussion	IGDP, FD and Hort. Dept provide signif technical assistance.

Characteristics and institutional rules of joint forest management approaches

Table4

Characterisitics and Rules	Van Panchayats	Hill Resource Mgt Societies	Village Protection Committees	Village Development Committees
<u>Institutional rules</u>				
Membership, legitimacy, and outsiders	membership by hh elections and 2-6 meetings/yr req by law previous use by other villagers usually respected for low value products .	membership by residence elections in registered Societies previous users were contractors and few inter-village disputes over rights	membership by hh head beneficiaries sign up on official list new rights strongly defended limit outsiders	All hh In village can Join Leadership is based on trad council of elders with new Involvement of women and youth leaders. Panchayat ward rep. is also member. IGDP supports legitimacy of VDCs. Panchayat or regional residents have no rights to products.
Protection	villagers pay guards w/ monthly fee FD resp for encroach and id of borders boundaries bet villages in '76	some rotational guarding boundaries by FD compartments	rotational, unpaid groups of guards village rights to specific FD tracts boundaries by FD compartments	Some village finance guards. Villagers watch nearby resources. FD provides protection for larger forest areas .
Use regulations	Closure to open grazing full or by compartments specific time for grass harvesting rules for snail wood products Quotas and fees for timber protection of fodder trees fines for unauth use by villagers and outsiders	per hh fee for fodder grass in reserved forest interested villagers raise funds for bhabbar grass lease open grazing in catchment banned FD allows fuel collection in reserved forest	fuelwood cutting limited outside cutters guarded against leaves still collected limited furl planned >4 yrs	Draw by lots or permanent area distribution for pastures. Fines for Illegal grazing or cutting. Grass In forest arrangements differ by village Increased products on private lands all to owners.
Payoff	Resin and timber revenue supposed to be shared with VP and used for community assets annual products are not commercialized and used by all resin Income actually very rarely available	cheaper fodder grass lease bhabbar wholesaled to paper mills at good profit or used to make rope with high valued added but low effective wage Increased de facto access to fuel if keep animals out	can take fuel wood at cheap rate w/o FD harassment DP facto exclusive rights to annual products promised thinnings promised 25% final pole harvest employment if FD Jobs	Orchard profits for community assets. Long term benefits from forest resources not yet fixed and FD expected to develop sustainable management rules in dialogue with VDC

Table 4

Characteristics and Rules	Van Panchayats	Hill Resource Mgt Societies	Village Protection Committees	Village Development Committees
Development	reinvestment in VP if mgt plan drawn up and approved, rare, new plantations financed 100% by govt but poor survival natural reveg w/ controlled use main method of Investment	bhabbar grass planting by FD in some areas natural reveg w/ controlled use main method of Investment	FD plans to plant treeless areas natural reveg w/ controlled use main method of investment	Recent significant Investments are supposed to be managed in sustainable manner.
Broader agendas	use potentially significant resin revenue for local projects	related Irrigation systems are major interest often request further Investment or maint.	Interested in more employment	Major IGDP goal is to catalyse strong village organisation with traditional roots and ability to interact with govt. agencies and depts.
Equity rules	use limited by hh labour, time limitations, and quotas so hard for powerful to overexploit	equal rights to irrig water but diff to enforce fodder grass used is function of animals owned but bhabbar, fish, aromatic plants and fuelwood have potential to be managed by smaller user groups with less private resources stringent equity rules In model HRMS bye-laws	beneficiaries listed by name and will get equal cash shares, of value of the poles, promotion of tend» and sal leaves benefits poorer women collectors	Annual benefits dist equally by household. Large returns from orchards for community assets. Initial work focussed on villages with one predom. social group and limited factionalism by caste
Expected government role and effectiveness good (++) mix w/ good>bad (+/-) mix w/ bad>good (-/+) bad (--)	stop encroachment (--), boundary demarcation (+/-) forest panchayat Inspector visits (--), mgt plans (--). revenue (-/+). legal status (++)	irrig investments (++) , less harassment (++) . fodder leases (+/-) . bhabbar leases (-/+), irrig tech assistance (--), stop Illegal harvesting (++) settles internal disputes (+/-), legal status (-/+)	stop outside firewood cutters (++) , allow village to decide policing systems and annual product use rules (++) , legal status (-/+). new investment (-/+)	initial investments (++) . maintenance and protection (++) . run cattle pounds (++) , legal status (-/+). access to govt grants and loans (-/+)