

# Working Paper

Working Paper 50

ROLE OF LEADERSHIP IN COOPERATIVE  
MANAGEMENT OF NATURAL COMMON POOL  
RESOURCE A COLLECTIVE GOODS THEORETIC  
PERSPECTIVE

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A COLLECTIVE GOODS THEORETIC PERSPECTIVE

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OF NATURAL COMMON POOL RESOURCES : A  
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Abstract

Most of the natural resources of land, water, forests and fisheries in India that are used in common by people, i.e. the natural common pool resources (CPRs) suffer from what Hardin called "the tragedy of the commons". One of the reasons of their tragedy is lack of well-defined property rights in them and absence of any mechanisms/systems of coordinating and regulating their use. In this paper, it is argued that creation and enforcement of cooperative property rights in natural CPRs or, in other words, cooperative management of CPRs holds high promise as an instrument of avoiding their tragedy.

But cooperative management is a sort of collective good and according to the well-received theory of collective goods such goods are always under-provided. Deducing from the theory of collective goods and drawing upon five case studies in cooperative management of natural CPRs, the authors examine the roles of leaders in organising CPR users and thereby providing the "collective good", i.e. cooperative management of CPRs.

## Introduction

The natural resources of land, water, forests, and fisheries are important determinants of development in most developing countries of the world including India. They provide the basic necessities of life such as food, fuelwood, fibre, raw materials for housing/shelter fodder for animals, and so on. Quite a significant proportion of India's natural resources is used in common, i.e., they are common pool resources (CPRs) (Singh, forthcoming: 7-9). Most of the natural CPRs in India suffer from what Hardin (1968) called "the tragedy of the commons", One of the reasons of their tragedy is lack of well-defined property rights in them and absence of any mechanisms/systems of coordinating and regulating their use. In other words, this means that, unfortunately for society, most of the natural CPRs in India are not managed.

However, fortunately, being biological in nature, most of the renewable natural resources are amenable to management, i.e., their natural stocks and flows can be augmented by human intervention. For example, natural productivity of land can be increased through adoption of appropriate soil and water conservation measures and use of balanced fertilizers. Similarly, groundwater aquifers can be artificially recharged; both the stock and flow (catch) of marine fishes can be augmented by artificial breeding and feeding; and natural stock and yield of forests can both be increased through planting saplings in vacant spaces, protection of trees from pests and diseases and application of fertilizers. Broadly speaking, there are three alternative management regimes or systems that are advocated by scholars for managing natural CPRs. They are privatisation, nationalisation, and cooperative/collective management. Each of the three regimes has its merits and demerits and none is ideal for all situations and for all times (Singh, forthcoming: 47-68). In this paper, it is argued that creation and enforcement of cooperative property rights in natural CPRs or, in other words, cooperative management of CPRs holds high promise as an instrument of avoiding their tragedy. But cooperative management is a sort of collective good and according to the well-received theory of collective goods, such goods are always under-provided.

In the paper, we first define and characterize collective goods and show why cooperative management of CPRs is a collective good. Then we present a brief exposition of the theory of collective goods. Next, we briefly narrate and analyze five cases of cooperative management of CPRs in India. Finally,

deducing from the theory of collective goods and drawing upon the case studies, we discuss the roles of leaders in cooperative management of CPRs.

### Cooperative Management as a Collective Good

Before we present an exposition of the theory of collective goods, a rigorous definition of pure collective goods (also known as public goods) and pure non-collective goods (also known as private goods) seems in order. We define them as follows (Singh, 1994: 22): .

$$\begin{array}{l} X^1 = a_1 X \\ X^2 = a_2 X \\ | \\ X^n = a_n X \end{array}$$

Where  $X$  is the total quantity of the good  $X$  and  $X^1, X^2 \dots X^n$  are the quantities of the good consumed by persons 1, 2, ...,  $n$ , and  $a_1, a_2 \dots a_n$  are the proportions of the good consumed by persons 1, 2, ...,  $n$ . For pure collective goods,  $a_1 = a_2 = a_n = 1$  and for pure private goods,  $a_1 = a_2 \dots = a_n = 0$ , except for one individual ( $a_i$ ) whose proportion equals 1, i.e.,  $a_i = 1$ . In simple words, a pure collective good is one that can be consumed/used simultaneously by many individuals without any adverse effect (subtraction) of consumption of any one of the individuals on the consumption of the others. A mixed collective good is one which, like a pure collective good, is used in common and from whose use free riders cannot be easily excluded, and whose use, like that of a non-collective or private good, is subtractable. In other words a mixed collective good has one characteristic each in common with pure collective goods and non-collective goods.

For cooperative management of a CPR, it is necessary that the CPR users are organized into some form of organisation such as a cooperative society or a company. A CPR users' organisation is a sort of mixed collective good in the sense that it possesses some characteristics of a pure collective good and some characteristics of a private good. First, like a pure collective good, once an organisation is established and operational, marginal cost of serving additional CPR users is zero. Second, as in the case of a pure collective good, all members of the organisation can simultaneously use the natural CPR or

appropriate its benefits but, as in the case of a private good, the use is subtractable, i.e. use of the resource by one member reduces the quantity available to the other users. Third, as in the case of a pure collective good, exclusion of free-riders/non-members from access to the resource, is very difficult and expensive.

### The Theory of Collective Goods

Since a collective good is, by definition, used in common by a group of people, the group should have a common interest in providing it. The theory of collective goods seeks to explain why a group having a common interest in a collective good does or does not work to provide it.

The market system of a nation is a complex social organisation that performs many economic functions. Like any other organisation, it performs some of the functions very well (efficiently) and some other functions not so well. Besides, there are some functions which it cannot perform at all. For example, the market system cannot provide such collective goods as national defence, police protection, national highways, wildlife sanctuaries and so on. The main reason for the failure of a market system to provide a collective good is the prevalence of the phenomenon of free riding in the use of the collective good. By free riding we mean the use of the resource without paying for its provision/production and maintenance. The phenomenon of free riding is made possible because of difficulties in excluding non-members/non-purchasers from the use of the resource. Exclusion of free riders may not be possible due to a variety of reasons such as physical characteristics of a resource, e.g., ocean fisheries cannot be partitioned and fenced; or lack of clearly defined property rights in the resource, e.g., groundwater aquifers; or the cost of exclusion could be very high. Whatever the reason for its occurrence, free riding makes it uneconomical for any individual/firm to produce a collective good. The reason is simple. The producer of a collective good has to bear all the cost of providing the good but he cannot appropriate all the benefits from the provision of the good - some of the benefits are appropriated free of cost by free riders. This means that the private benefits from the provision of a collective good are less than the total benefits that a society gets from its provision. So according to the well-received *theory* of the firm, a collective good will not be provided by a firm/producer if the total cost of provision exceeds the total benefits. If the total

cost of provision is less than the total benefits, the collective good may be provided but in that case the amount provided will be less than the socially optimal amount.

Olson (1971) has challenged a generally held view that groups of individuals having common interests usually work together to achieve them. He argues that "unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, rational, self-interested individuals will not act to achieve their common or group interests" (Olson, 1971: 2). Benefits from cooperative management of CPRs are mixed collective goods, much like such activities of a nation state as defence, police protection etc. which, once produced, are available to all the members of the organisation. Other types of organisations also provide mixed collective goods to their members. For example, labour unions bargain for higher wages and better conditions for their members which, once granted, become a mixed collective good; all workers - members as well as non-members - engaged in similar jobs enjoy the benefits irrespective of whether they have or have not contributed to the collective bargaining. But, given a certain finite wage fund, use of the collective good (higher wages) is subtractable.

Just as a state cannot support itself by voluntary contributions, neither can other large organisations support themselves entirely without coercing their members to pay for the mixed collective goods that they provide for them or without some attraction or incentive that will motivate the members to contribute to the establishment and survival of the organisation. The individual member of a large group, like his counterpart tax payer in the state or a firm in a perfectly competitive market, is too small an entity to have any significant impact on his organisation by contributing or not contributing to the maintenance of the organisation, however, he can share in the benefits of the organisation even if he has not contributed anything to bring them about. In other words, free riding (on the back of those who contribute) is possible in all large organisations (Olson, 1971: 15-6).

In general, the larger the group, the less noticeable the actions of its individual members, the higher the transaction costs of bringing them together, and hence the higher the tendency among its members to free ride. Besides, in a large group, the private benefit to every individual member of the group ( $V_i$ ) is less

than the total cost (C) of providing the good. Large groups are, therefore, likely to suffer without the collective good because free riding is difficult to control and because no individual member of the group will have any incentive to provide the good privately. That is why a CPR jointly used by a large group of people is often over-exploited and degraded, i.e., the group fails to derive the optimum rate of output (collective good) from the CPR.

In an appendix to the 1971 edition of his book, Olson (1971: 174-8) also discusses the possible role of the political entrepreneur in promoting collective action. According to him, a political entrepreneur is an individual with a combination of such traits as leadership, the trust of the community or its fear, the ability to discern the motivations of others, and the desire to organize, the group for collective action. Olson suggests that the success of the political entrepreneur will be related to his ability to utilize selective incentives to motivate participation in collective action. In our opinion, in the context of CPR management, another important role of the political entrepreneur is to provide needed assurance to CPR users that expected benefits from collective management would, in fact, accrue to them and that the benefits would be equitably distributed among them. To organize CPR users and to assure them of the intended benefits, a leader should be able to create an organisation, often spending his own money and time, nurture it and see that it is managed professionally.

### The Cases of Cooperative Management of Natural CPRs

In this section, we review five case studies in cooperative management of natural CPRs, where leadership has played an effective role in organising CPR users and evolving cooperative management procedures, rules, and regulations. These case studies were done by us and our colleagues at the Institute of Rural Management, Anand at various periods of time.. First, we present brief profiles of the cases and then we identify and discuss the role of leadership in management of the natural CPRs involved. The salient features of these natural CPR users organisations are given in Table 1.



Table 1 : Salient Features of the Sample Natural Resources Management Organisations

Particular	Dharmaj Fodder Farm	Gambhira Coop Farming Society	Van Panchayats in UP Hills	Mohini Water Coop Society	Amrutvahini Lift Irrigation Coop Society
Location	Kheda Gujarat	Kheda Gujarat	Nainital, Almora Pithoragarh Pauri Garhwal and Chamoli districts of U.P.Hills	Surat District Gujarat	Ahmednagar Maharashtra
Resource	Gauchar land	Bhatta land	Class I Forest land	Surface Water	Ground/ Surface water
Total no. of members	2000 households	291	50-60 households	149	54
Size of resource (acres)	48	526	234*	1287 **	200 **
Form of organisation	Panchayat	Coop society	Panchayats constituted under the Indian Forest Act 1927	Coop society	Cooperative society

\* Approximately average size of Van Panchayat forest land per village. Size of van panchayat forest land varies from village to village, from a minimum of few acres to sometimes even over 10,000 acres of land. The total area under Van Panchayats forest is about 11,73,315 acres.

\*\* Cultural command area.

## Bfaarmaj Paochayat Fodder Farm (Shah, 1989)

The Dharmaj Panchayat Fodder Farm is located in Dharmaj village of Kheda district in Gujarat. The history of the farm goes back to around 1949 when a local leader, Jashbhai Goverdhanbhai Patel mooted the idea to develop the vast *gauchar* land - a CPR - of the village into a fodder farm to support upcoming dairy business in the village.<sup>1</sup> The response to his idea in the village was not encouraging. The *rabaris* (shepherds) who depend solely on *gauchar* land for their animals reacted strongly, and many villagers feared that if they sought government permission to develop the *gauchar* into a fodder farm, they might lose it altogether. Consequently, the idea could not be translated into action.

The idea of Jashbhai Patel was again revived in 1968 by the then Sarpanch Chimanbhai Kishorbhai Patel who mobilized Rs.30,000 and arranged for bulldozers and other implements required to develop the *gauchar* land into a fodder farm. About 67 acres out of 137 acres *gauchar* land was thus developed. Of this, 20 acres was used up in roads, paths and other structures and the remaining in fodder farm divided in 2 acre plots. Initially, an oxidation pond constructed to store sewerage of Dharmaj village was to be used as a source of water for the farm. But soon after the project was launched, it was observed that the waste water drained into the oxidation pond seeped almost immediately and consequently the pond could not be used as a well.

Chimanbhai with active support and cooperation of a few Panchayat members installed a tube-well at the cost of Rs. 1,00,000 of which a quarter was later subsidized by the Government. Thus, the fodder farm came into being and started producing fodder. However, the *rabaris* started complaining against the scheme again on some ground or the other. After prolonged discussions and negotiations with the leaders of the *rabari* community, Chimanbhai and the Panchayat made a deal that an 8 acre stretch of levelled land would be set aside for exclusive use by the *rabaris* and the panchayat would provide, seeds, fertilizer and water free of cost. As a compromise the *rabaris* agreed to stall-feed their animals and did not do any damage to the fodder farm.

The fodder farm was further expanded in 1982 when Amul asked the Dharmaj Panchayat to take over the 25 acres of the fodder farm that it had developed on the *gauchar*. A part of the fodder farm (about 10 acres) was converted into a mango orchard. By any standard, the Dharmaj fodder farm has had an

impressive record of success consistently since its inception. Once the fodder production began, Chimanbhai and other Panchayat members also evolved innovative and efficient systems of fodder marketing and distribution. The Panchayat awarded two contracts to private parties; a contract for cutting, weighing, tying and loading and a carting contract for carrying the fodder from the fodder farms and door-to-door delivery to consumers. A system of checks and balances was established which made cheating by any one involved difficult.<sup>2</sup>

Gambhira Co-operative Farming Society [Shah and Ballabh, 1986, and Singh 1994 (a)]

The origin of the Gambhira Society is traced to the response of an enlightened and dedicated social worker, Chhaganbhai M Patel, to the crises arising from frequent flash floods in the Mahi river. In 1951, with a view to helping the flood-affected cultivators, the Gujarat Government, on the request of Chhaganbhai, granted 246 acres of *bhatha* land (riverine/riverbed land), which was a property of the government, to 176 cultivators from four villages of Gambhira, Kathiakhad, Nanisherdi, and Bilpad situated in the flood-affected area. The grantees cultivated the granted land individually in small fields of one acre or so. This helped them little because (i) the *bhatha* lands granted were saline and had very low productivity; and (ii) the grantees, being resource poor persons, had nothing to invest in reclaiming these lands and had to take water for their crops from the owners of water pumping plants in return for half the crop produce. Thus, the Government effort to rehabilitate the distressed cultivators by granting them *bhatha* land had failed. Moved by the pathetic condition of his fellow cultivators under distress, Chhaganbhai suggested to the government that the flood-affected grantees of the *bhatha* land be organised into a co-operative collective farming society. Chhaganbhai was a Gandhian social worker in Ms early fifties then and he had worked with Dhawalbhai Mehta and other Gandhians who pioneered co-operative farming in Gujarat. He belonged to the Patel community, a land-owning upper caste in Gujarat, had some land, and was educated upto the fifth standard. Above all, he himself was not a member of the society and had nothing to gain from it. The government accepted Chhaganbhai's suggestion and the Gambhira Society was registered under the Co-operative Societies Act on October 10, 1953.

The society's jurisdiction extends to the four villages of Gambhira, Kathiakhad, Nanisherdi and Bilpad all belonging to the Borsad taluka of the Kheda district. The area of the land granted to the society originally was 246 acres, with the initial membership as 176, By 1960, the society's total membership increased to 291. At this time a decision was taken to close the membership of the society. In 1990, the society had 526 acres of land and during the last 10 years there has been no change in the total area under the jurisdiction of the society (Table 1).

The powers of governance of the society are vested in the Management Committee which is composed of eight members seven of which are elected from amongst the members of the society and one is nominated by the Co-operative Department of the Government of Gujarat. All management and policy decisions are taken by the Management Committee. A salient feature of the society is that three of the seven elected members and one nominated chairman who constituted the first Management Committee continued until 1990. There have been no formal elections, the members are informally re-elected term after term. In that sense the Management Committee has been quite stable for over four decades.

The society has evolved a unique method of operational management and group decision making which combines private incentives with collective strength.<sup>3</sup> The society supplies seeds, manure, fertiliser, pesticides, irrigation facilities to all the groups; the members of the group in turn provide labour, bullock power and services of their implements. Almost all groups grow tobacco and food grains. The marketing of all tobacco output is undertaken by the society on an aggregate basis by an open auction process. Of the sale proceeds of foodgrains and tobacco, each group retains 60% and the society retains the remaining 40% towards the cost of inputs. The amount retained by each group is distributed to all the members equally but with adjustments made for labour and bullock power supplied by different members. However, after meeting all these costs, the society is left with substantial surpluses of which 70% is distributed equally among the members as bonus. Thus, the society is a rare example of an ultra-stable and successful cooperating farming society in India.

## Van Panchayat in U.P. Hills (Ballabh and Singh, 1988)

Van Panchayats in U.P. hills could be considered as an organisational innovation in the field of forest management. They were born out of the conflicts and compromises that followed the settlements and reservations of forests in the hills at the turn of the last century.<sup>4</sup> In response to these agitations, Government set up a Committee, Forest Grievances Committee for Kumaon, to look into the forest problems. The Committee recommended reclassification of forests and formation of Van Panchayats to manage the forests in areas where local demand was heavy. Accordingly, the forests were reclassified as class I (non-commercial) and class II (commercial) forests and villagers were allowed to form Van Panchayats on class I forests which thus become a CPR. The first legal Van Panchayat was formed in U.P. hills in the year 1931. Since then, their number has grown to over 5,000. They occupy approximately 15 per cent of the total forest lands in the U.P. hills. The management of the Van Panchayat forests has been vested in the Village Van Panchayat Committee (VPC) headed by an elected leader called Sarpanch. The VPC is the sole arbitrator for the management of Van Panchayat forest. The Committee has two major responsibilities: (i) to protect the forests from indiscriminate felling and fire and prevent encroachments in the forest land; and (ii) to regulate and distribute the forest products for domestic consumption among the right holders. Each Van Panchayat has evolved its own mechanism and mode of utilisation of forest produce.<sup>5</sup>

In recent times, the authority of Van Panchayats as protector of the forest has been eroded. But a number of seasoned observers have reported that where good leaders and Sarpanchas exist, forests under Van Panchayats are well protected. These Sarpanchas adopt their own mechanisms of monitoring and control. For example, in Parwara village in National district, to control free-riding a sum of Rs. 7,000 was imposed as fine in the year 1987 by the Van Panchayat Committee. Although the then Sarpanch was considered as autocratic by most villagers, no one doubted his intentions and integrity. He was both feared and respected by the villagers. In contrast, Kandolia Van Panchayat in Pauri Garhwal district employs two forest guards to protect the forest and a market mechanism has been evolved to distribute the forest produce. According to the Sarpanch, this system was adopted to reduce the conflict among members over the question of distribution of the forest produce. Where Van Panchayats are unable to revise their rules and regulations in response to technological,

social and economic changes overtime, their deterioration is certain (Vidyarathi, 1987).

### **Mohini Water Co-operative Society [Singh, 1994(b)]**

The Government of Gujarat was the first in India to initiate the organisation of irrigation co-operative societies in the canal command areas in the state. By the end of June 1986, some 656 co-operative irrigation societies including lift irrigation societies had been organised in the state. MWCS is one of the successful surface water co-operative societies organised in the state and the first of its kind of India (Mandalia and Charan, 1989: 288).

The origin of the MWCS is traced to the year 1978 when Laljeebhai Chauhan, the then Area Development Commissioner (ADC), Ukai-Kakrapar Command Area Project, Surat, proposed the idea of forming a water co-operative society to a progressive farmer and social worker, Bhikhubhai B Patel, who was then *Sarpanch*, Mohini Village Panchayat, Chairman, Khedut Seva Sahakaxi Mandali (Farmers' Service Co-operative Society), Mohini, and a Director of Mohini Village Milk Producers' Cooperative Society. Being a progressive farmer and a local leader, Bhikhubhai was aware of the problems in canal water management and the need for organising an irrigators' co-operative society to resolve them. But he was not sure whether the society would be financially viable, particularly in the initial few years. So, he expressed to the ADC his hesitation in going ahead with the idea. The ADC assured him that the Government would pay to the society a managerial subsidy of Rs. 500 per month for a period of initial three years to meet the cost of salary of the staff of the society and would also bear the operating losses, if any, in the initial three years. He asked him to go ahead and start enrolling members of the society. With these assurances and with this directive, Bhikhubhai launched a campaign to educate and convince the irrigators about the benefits of the proposed society and to enroll them as members of the society.

In a short period of time, he was able to enroll 145 members and collect a paid-up share capital of Rs. 7,900. In this work, he got full co-operation and support from the local Member of the (Gujarat) Legislative Assembly, Thakorebhai M Patel, Thereafter, MWCS was registered on an experimental basis in September 1978 under the State Co-operative Societies Act of 1961 with the

total membership of 145 and the paid-up share capital of Rs. 7,900 (Table 1). It was based in Mohini village in Choryasi taluka of Surat district. It started its operations in April 1979. The society has been doing well financially except for a few years when due to crop failure some of its members could not pay their water dues to the society. But the society has been paying its water dues to the Irrigation Department regularly since its inception.

The day to day affairs of society are looked after by the Management Committee, which is composed of 10 members including President. The members of committee are supposed to be elected by the General Body. However no election takes place and members are selected by consensus. Bhikhabhai was its President for over one decade. To run its affairs, the society has six salaried employees. The society has evolved suitable procedures for assessing the demand for water, securing the needed supply of water from the canal authorities, delivering water as per demand, and collecting and remitting the water charges to the Irrigation Department as per the agreement.

#### Amrutvahini Lift Irrigation Co-operative Society (Thomas, 1992)

The Amrutvahini L.I. Cooperative society is located in village Jakhori of Ahmednagar district (Maharashtra). The village lies in the drought prone area of the district, Although the village is located on the river bank, the villagers could not lift water until a political leader Shri Bhau Sahab Thorat who had a big say in the running of cooperative institutions in the district and state and who had been a patron of the people of Jakhori for long promoted the idea and actively supported it. It was he who arranged for a loan from the Ahmednagar District Central Co-operative Bank, and the nearby sugar factory. He is also instrumental in resolving internal and external conflicts of the society and in liaising with various other organisations. The society has 54 members (Table 2); except for two, all of them are Marathas. The members' initial contribution was a membership fee of Rs. 75.00 and voluntary contribution of labour for digging the well and trenches for the pipeline.

The day-to-day management is carried out by the Management Committee which in its monthly meetings also decides on the number of watering per share to be permitted. This in turn depends upon the supply of water to the river from the Bhandardara reservoir, which is built upstream in the neighbouring Akola

Table 2 : Leadership Functions in Cooperative Management of Natural Resources

Leadership Function	Dharmaj Fodder Farm	Gambhira Coop Farming Society	Van Panchayat in UP Hills	Mohini Water Coop Society	Amrutvahini Lift Irrigation Coop Society
Generation of idea	xxx	xxx	--	--	xxx
Motivation of group	x	xx	--	xxx	x
Acquisition of resource	xxx	xxx	x	x	NA
Negotiation with govt and other agencies	xxx	xxx	x	xx	xx
Mobilisation of resources	xxx	xxx	--	x	xxx
Development of management System	xxx	xxx	xx	xx	xxx
Conflict resolution and enforcement of rules	xx	x	xx	x	x

xxx, xx, x show degree of relative importance of the functions performed by the leaders.



district. This reservoir is controlled and managed by the Irrigation Department.

To ensure free and fair distribution of water to its members, the society has appointed a water distributor whose duties are to keep the records of when the motor was started, for how long it had worked and whether there was any mechanical defect of any kind. Besides, he has also to ensure that there are no complaints about water distribution. When a field is watered, the water distributor issues a credit memo to the members about the total water charges payable to the society. Members are required to deposit water charges before the next watering. Those who fail to do so are prohibited from taking water from the society.<sup>6</sup>

A unique feature of the society is that in its fifteen years of existence as many as 36 members including the only two non-marathas, out of the total of 54 have been elected to the Management Committee. And it appears that a sense of collective leadership has developed in management of Amrutvahini Lift Irrigation Cooperative Society.

#### Discerning Leadership Functions in Co-operative Management of Natural CPRs

Deducing from the theory of collective goods presented earlier in this paper and drawing upon the cases in cooperative management of natural CPRs profiled in the preceding section, we now identify and discuss the roles of leaders in CPR management.

The basic question in organizing CPR users is : how and under what conditions can the resources required for it be mobilized and applied? Any attempt to establish an organisation must recognize that individual interests and organisation's interests can be conflicting and therefore effective mechanisms - incentives and/or sanctions are required to reconcile the conflicting interests and to facilitate group action. When weighing his participation in a co-operative effort, an individual can be expected to consider the following four factors (Popkin, 1988:251) : (a) his expected private costs in terms of money, time and energy; (b) his expected private benefits; (c) probability of his action/participation leading to the provision of the collective good; and

(d) leadership viability and trust. Of these four factors, leadership is, in our opinion, most important. That is so because in the absence of good leadership, the other three factors, even when they are congenial to co-operative action, may be rendered inoperative. Good leadership having both credibility and capability can enhance the probability of success in providing the collective good for the group and reduce the uncertainty in the minds of individuals as to : (a) whether the expected benefits from the collective good will in fact accrue to them; (b) whether the benefits will be distributed equitably among the contributions; and (c) whether the non-contributors or free-riders will be excluded from appropriating the benefits. Thus, credibility and capability of the leader or, in the words of Olson (1971), "political entrepreneur" has a crucial role in establishing CPR users' organisations. It is important to realize in this context that leadership itself has aspects of collective goods (and evils) for a group. Identifying potential leaders, nurturing them and improving their knowledge and skills can increase benefits for all participants. Hence, the justification for investment in leadership development.

We now attempt to define leadership and drawing upon the case studies presented in the preceding section discuss its role in management of natural CPRs. Although there is no universally acceptable definition of leadership, many scholars view leadership as the performance of those acts which help the group achieve its preferred outcomes. Such acts may be termed as group functions. In theory, leadership functions may be performed by one or many members of the group (Cartwright and Zender, 1968). In the context of natural resource management, leadership means the performance of those acts which help avert "the tragedy of the commons".

Based on the case studies reported in the preceding section, we identified seven critical roles that leaders played in the cooperative management of natural resources (Table 2). These are (i) generation of ideas; (ii) motivation and inspiration of people to implement the idea and enlisting their participation; (iii) acquisition of resources around which an organisation is to be established; (iv) holding negotiations with governmental and non-governmental organisations; (v) mobilisation of resources; (vi) development of management systems; and (vii) conflict resolution. All these functions were neither equally important in all the cases, nor all the leaders played them all equally effectively. Some roles and functions were more important than others and were largely determined by local issues and factors. In the cases of the Dharmaj Fodder Farm and Gambhira

Cooperative Farming Society, ideas were generated by leaders, but in Gambhira farmers had already realized the need for cooperation but were helpless acting individually. When such an offer was made, they immediately agreed to participate in cooperative joint farming. In contrast, Dharmaj Panchayat took upon itself to manage and develop the fodder farm and people agreed to contribute resources in terms of money and labour. This is in sharp contrast with Mohini Water Cooperative Society, where the idea came from the well-meaning Area Development Commissioner, and the initial role of leader was to motivate and inspire the people that such an idea was workable. In Amrutvahini Lift Irrigation Cooperative Society, what prevented people from organising themselves was lack of resources (Thomas, 1992). Hence the leader did not only propose the idea and inspire the group but also mobilized resources. A similar role was played in the cases of Dharmaj Fodder Farm and Gambhira Cooperative Farming Society.

The Van Panchayats in U.P. hills have come a long way and at present, the issues they face relate to the distribution of forest produce, control of free riding and conflict resolutions. They have to address these issues within the framework prescribed under the Van Panchayat rules enacted under the Indian Forest Act 1927, Section 28 (B). Be that as it may, we observed significant differences in performance across Van Panchayats. One of the reasons for such differences is leadership (Ballabh and Singh, 1988). The forests which have been protected and maintained well always had honest and articulative leadership.

The conflicts may arise at various stages of resource management and organisation development. They could be among members and between members and non-members and could relate to such issues as sharing of produce/benefits and costs and responsibilities for protection and management. The literature is replete with studies which highlight the importance of conflict resolution in forest, land and water resources management. However, the successful cases analysed in this paper reveal that almost all successful leaders had tried to evolve management systems which avoided conflict and free riding. Yet, when conflicts occurred they resolved them through negotiation. For example, Dharmaj Panchayat gave away 8 acres of *gauchar* land to the *rabaris* for their exclusive use (Shah, 1989). In spite of this, the *rabaris* continue to have access to fodder produced at the farm. Similar in-built mechanisms were

developed in Gambhira society by making sub-groups and in Mohini and Ararutvahini societies by insistence on payment mechanism.

### Leadership Styles, Social Environment and Traits

There are three important issues related with leadership: (i) behaviour of leaders; (ii) social environment in which leaders work; and (iii) traits/characteristics of leadership. Most of case studies reported in this paper are drawn from homogeneous areas where variation in social structure was not prominent. Further, in almost all the cases, people believed the leaders of their cooperatives were honest, benevolent and dedicated social workers. In the literature on leadership, it is mentioned that it is difficult, if not impossible, to inculcate such traits among leaders through training or otherwise which improve the leader's effectiveness (Cartwright and Zender, 1968). Moreover, attempts to discover the traits that distinguish leaders from non-leaders have been disappointing. The only conclusion that receives good support from empirical studies is that leaders excel non-leaders in intelligence, scholarship, dependability and responsibility, activity and social participation and status.<sup>7</sup> Therefore, our focus should be more on leadership style and the social environment than on leadership traits.

Now, we shall try to discern the style of leadership and their performance. Broadly speaking, leaders behave in one of these three ways: (i) democratic; (ii) authoritarian; and (iii) laissez-faire (White and Lippitt, 1968). Authoritarian leaders are those who determine policy by themselves, dictate tasks, techniques and methods and receive personal praise for the work accomplished. In contrast, democratic leaders encourage group discussion and members are usually encouraged to make decisions. Usually such leaders are objective and fact minded. Laissez-faire leaders provide complete freedom, are non-participative until asked for, make no attempt to appraise or regulate the course of action (White and Lippitt, 1968).

By and large, the leaders of our five cases have been democratic in their approach. At every stage of organisation and development of their cooperatives, the leaders allowed participatory approach. Not only that, they also tried to build mechanisms which ensured that democratic process remained an integral part of their cooperative organisation. These leaders remained

democratic, encouraged participation and established systems which assured members free and fair deal. All these helped them to enlist cooperation and participation of their followers. Ideally, this process should lead to the creation of collective leadership and development of prospective leaders to fill the vacuum whenever it is needed. If one evaluates the sample cases from this point of view, it appears that the sense of collective leadership has developed in only Amrutvahini Lift Irrigation Cooperative where 34 out of 54 members had once or more become members of the Management Committee. In others, for example, Gambhira Cooperative Farming Society and Mohini Water Cooperative Society, the majority of the members continue to hold office since their establishment.

This raises doubts about their success in absence of their leaders. For example, Chhagan Bhai Patel of Gambhira society was over 90 years and people had raised doubts about the continued success of the society when he is no more (Shah and Ballabh, 1986). Dharmaj Fodder Farm and Van Panchayat Forests, in contrast, were managed by people's representatives formally elected through democratic systems. The members of Van Panchayat Committees had been replaced by the people when they found their performance unsatisfactory and their integrity doubtful. For example, sometimes Sarpanchas or members of Van Panchayat Committees do favours to some people. So long as such acts of favouritism remain unknown to the villagers, there would be no problems. But once known to the village people, erring sarpanchas and members of Van Panchayat Committee are removed. This happened once in Parwara, where the villagers called a special General Body Meeting to remove the sarpanch who according to them was corrupt (Ballabh and Singh, 1987).

Following a democratic style does not necessarily mean that the leaders are weak. It has been observed that village sarpanchas are usually soft with their friends and supporters as they have to face elections every five years. This has been cited as one of the reasons for the village sarpanchas in Gujarat not taking over village woodlots developed by the Forest Department on village *gauchars* (Singh and Ballabh, 1989). However, if leaders are honest and effective, they could also afford to be strong, i.e., they could afford to say 'no' when it is needed (Shah, 1989).

## Concluding Remarks

Based on the theory of collective goods reviewed and the experiences with selected cases analyzed in this paper, we can conclude that cooperative management of CPRs requires creation of CPR users' organisations and that credible and capable leaders are a pre-requisite for creating and nurturing such organisations. Their main roles include conscientising and organizing CPR users expending their own time, energy and in many cases money; securing and providing relevant information to CPR users; mobilizing and utilizing the resources of CPR users; controlling the problems of free-riding, ensuring fair and equitable distribution of benefits from cooperative management; protecting the organisation from being sabotaged and/or exploited by vested interests; and liaising with various governmental and non-governmental organisations, It is also important that after a CPR users' organisation is established it is managed professionally.

## Notes

- 1 Jashbhai Goverdhanbhai Patel was impressed by a popular scientific article on green fodder and dairy production in China (Shah, 1989).
- 2 The farm manager would issue a memo for the amount of fodder carted in each trip. The delivery man has to collect from each buyer an equal number of coupons. All the buyers have to buy coupons from the Panchayat in advance. Any number of coupons could be bought by a prospective buyer (Shah, 1989).
- 3 The total membership is divided into 30 groups of 8-16 members; each group is allotted plots of land in proportion to its size at a rate of 1.5 - 2.34 acres per member depending upon the quality of land. Each group chooses its own leader whose responsibility is to draw up a crop plan and work schedule, to distribute work among members, to indent requisite amount of bullock labour and to provide overall supervision in addition to his share of work as a member. For additional work, the leader is paid a bonus in proportion (0.75%) to the group's overall productivity (Shah and Ballabh, 1986; Singh, 1994 a).

- 4 For details see Ballabh and Singh 1988, Guha 1985
- 5 The method of utilisation varies across Van Panchayats and rights of people appear to diminish as the resource availability becomes less and less. These methods have in-built mechanisms to distribute forest produce fairly and equally (Ballabh and Singh, 1988).
- 6 The water distributor is supposed to indicate to the members exact time when water would be released to their fields and how much time is allocated to each member. Members are supposed to reach their fields well in advance and therefore, hardly any free riding takes place. However, if and when free riding is reported, the matter is discussed in the Management Committee and appropriate action is taken to prevent further occurrence of such incidents (Singh, 1994 b).
- 7 Despite disheartening conclusions about the possibility of their inculcation, some leadership traits are important for organisation development and maintenance, e.g., honesty and integrity. Sometimes even perception of people affects leadership effectiveness (See Dubey and Shah, 1993).

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