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Rural Management Systems Series
Paper - 5

MINI WATERSHED MANAGEMENT SYSTEMS IN PIDOW - GULBARGA

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INTRODUCTION :

From the reactions of the PIDOW Team and the members of the Watershed Associations to the workshop and paper on Credit Management Groups, it is clear that there are difficulties in reconciling some aspects of the watershed approach with the underlying principles of community participation as practiced by MYRADA. For example :

1. How do we reconcile three major features of our Sanghas (Credit Management Groups) namely **small**, **homogeneous** and **socially functional** - with the **area** development approach which characterises a watershed programme and which requires Watershed Management Associations which are often:

   (a) **large**, making full participation of all members difficult. Further, in large groups, the tendency to elect representatives to do the work usually prevails. A representative body clings on to power and further inhibits effective participation of all the members.

   (b) **heterogeneous**, where issues of injustice cannot be tackled. For example, when unjust wages are paid to the poor, how can this issue be solved within a heterogeneous association which includes both the poor and their employers?

   (c) and flowing from the above characteristics, the association is mainly **socially non-functional** ; - large, heterogeneous groups do not operate effectively to meet the needs of all members.

   These issues will be discussed in **Chapter I**.

2. The second area where difficulties arise is in the effort to reconcile the demands for utilising lands in the watershed according to the topography with the needs of the people. For example, marginal farmers who own lands which are on slopes

where agricultural practices result in heavy erosion or on lands on the upper reaches of the watershed which should have tree cover may want to continue cultivating these areas to meet their food requirements rather than opt for horticulture or forestry which would help stabilise the upper reaches of the watershed, but where returns, if at all, are only in the long term. There are several other areas where similar conflicts have arisen which will be described under **Chapter II**.

We are seriously concerned with resolving these issues, not only to develop a replicable strategy for micro watershed development but also because the Mission of MYRADA which is focussed on the poor may clash with the objectives of the watershed approach where all the farmers (big and small) directly benefit in some programmes like land development measures as well as in land use; for example, if a large farmer's land on the upper reaches is not cultivated and the watershed plan requires that this area be provided with tree cover, it is obvious that the value of the land will increase if trees are planted and protected by the people of this land.

Can we see our way through these and other emerging incompatibilities in our community organisation strategy under PIDOW ?

CHAPTER I

SANGHA VS. WATERSHED MANAGEMENT ASSOCIATIONS

The Credit Management Group concept which is the core of the Sangha as a rural management institution has been explained in an earlier paper (Rural Management Systems - Paper 3). After two years of field experiences, reflection, and analysis of the behaviour patterns of these groups we have identified certain basic structural features which are required for a group to be socially functional and effective. Three of these features are:

(a) the **size** of the group (it must be small).

(b) **Composition** - (it must be homogeneous i.e. not a mix of people whose basic needs and interests conflict with one another's) and

(c) it must be **socially functional**, namely, it must work as a group; all poor families are not necessarily able to or willing to work together because they are poor; the same is true for tribals; there are often 2 or 3 socially functional groups in one tribal village.

In Rural Management Systems Paper-6 (`P' in PIDOW) these issues have been dealt with in the context of the Watershed Associations in the Gulbarga PIDOW project

(Participative Integrated Development of Watersheds). The initial process involved in forming appropriate groups in the mini watersheds has been described. These issues were urgent and were discussed in a workshop held with the staff and people's representatives in Gulbarga; the findings of the workshop have been incorporated in the Rural Management Systems: Paper-6 and need not be repeated here. There are certain concepts, however, which we feel need to be reflected on further. PART I will deal with these concepts.

(a) Size of a Group :

A group larger than 30 members even in a mini watershed, finds it difficult to function. True there may be a few groups which are homogeneous and where the members are aware of their responsibilities, but in general, participation of each member in such groups is inhibited. Most members are shy or diffident and can talk and function only in small groups. This is a feature that is common in all our seminars or workshops where ten to twelve is the maximum number allowed in a group. Where a group meets not only to discuss issues but to **mobilise, manage** and **monitor** common resources, it is even more imperative for every member to participate and to do so effectively, which means, not just being physically present; the dynamics of the group's functioning should **encourage** each and every member to talk and decide without inhibition or fear. In a larger group this is difficult if not impossible. Size is therefore a **structural feature** which has to be given importance.

The Watershed Management Association, on the other hand tends to be large - structurally - because a micro watershed in Gulbarga covers a village and often a neighbouring Tanda (tribal settlement) as well as families not living in the watershed but who have lands in it. The size of a group therefore ranges from 50 to 90 families. The Association must include **all** the members living in the watershed (with or without lands) as well as those **with** lands in the watershed but staying outside the watershed area. All the members living in the watershed (with or without lands) have to be involved in managing lands which includes lands under agriculture, grazing, trees, uncultivated lands, homestead plots, village public spaces, roads and drains, gullys and ravines, rocky patches and tanks. Those who are **landless also have to be members of the Watershed Management Association** since they are usually poor and depend on the **resources** of the watershed for their livelihood; by resources we mean trees, shrubs, grasses, leaves, dung dropped outside the cattle shed, farm waste and raw materials where and when available, . It is clear that the poor use every resource which they find available in the watershed; very little of the product goes waste; this is a feature which we find in our cities as well, where the collection from garbage bins and dumps sustains a large economy; glass and paper are reprocessed and metal reshaped into usual items. This is also true of the poor in a watershed; the only difference is that they use natural resources rather than manufactured. Use of such resources however, has an impact on the ecology. Grasses are dug out

exposing the soils, leaves and farm waste are not available for humus, dung is burnt, fallow areas are overgrazed, shrubs uprooted leading to soil erosion. Coupled with this use of resources is a situation where the poor are paid unjust wages which in turn forces them to exploit even more the natural resources of the watershed in order to survive.

The Watershed Management Association must therefore include, **all** who live in the watershed with lands and landless as well as those living outside who have lands in the watershed in order to manage land, water and other common resources. However, it is important to limit the roles and responsibilities of these large Watershed Management Association to certain activities; they cannot, unlike the Sanghas, be expected to undertake all the activities required to meet all needs of all members.

The Watershed Management Associations in Gulbarga have undertaken several responsibilities; they have **acquired** the land required for check dams or gully plugs; they have **taken on contract** the construction of contour bunds and the labour for stone works so that the profit is ploughed back to the Association; they have **entered into agreements** with large farmers who leave their lands uncultivated to plant trees on these lands (especially where these lands are on the high reaches and are overgrazed or where grasses are removed which adds to erosion lower down. These agreements enable both the owner and the community to benefit from trees or grasses that grow on the land as a result of protective measures); they have **lobbied** with Government for facilities like schools, health, roads, drinking water, veterinary care etc. **The Association therefore decides on the proper utilisation and management of lands, water and other common resources in the watershed**. They could, in the long run, provide the daily needs of families cultivating on upper reaches of the watershed who opt to put the lands under horticulture or fuel and fodder trees; but this is in the long term and perhaps idealistic, we may be allowed to have a few privileges - dreams are not yet a taxable commodity.

All these responsibilities can be handled by the Watershed Management Association even though it is large, provided adequate education and motivation is provided and certain steps taken to ensure that power does not accumulate in the hands of a few. Its size, infact gives it power to lobby with and pressurise Government agencies and people holding political office. The steps required to ensure participation of all have been described in Rural Management Systems Paper 5.

(b) Heterogeneity of a Group :

As discussed in an earlier paper (Rural Management Systems Paper - 3) it is clear that a heterogeneous association like the Watershed Management Association cannot manage **all** the activities that are required to be promoted in a watershed for a balanced development of the area. For example, such a large Association is structurally unsuitable to manage the **credit** needs and **inputs** of the **poor**. If credit or other inputs are channelled through such an association, which is not only a large but **heterogeneous**, they will not **filter down** to the poor. On the other hand if, in such a situation credit and inputs are provided by an outside agency like MYRADA, directly to poor individuals they will filter upwards because the group being heterogeneous, existing relationships of patronage and control of the consumer and production economies by the richer class will syphon inputs upwards. This direct provision would also make the poor dependent on the outside agency and establish a relationship of borrower - lender which undermines the growth of self-reliant groups. To manage these inputs like credit, the poor need to form **small, homogeneous** voluntary groups as described in the Rural Management Systems Paper on Credit Management. These groups, apart from cultivating the skills to manage these resources, will protect the resources from filtering upwards. The effectiveness of these groups, however, depends on the time and attention given to them by our staff through meetings, training, awareness building and participatory exercises. They will also overcome one of the major problems faced by large groups - namely the lack of effectual participation by every member.

The mistake we could make, therefore, is to project the Watershed Association as the only and single body in the village which has to manage all activities and include all sectors including the poor and the women. (In a traditional society dominated by man, PIDOW considers the women an oppressed sector; separate groups have been formed with them.

Several types of groups are required. The management patterns of these groups will obviously be different. It will depend on the activity undertaken and on the asset managed. A society managing milk has a typical management pattern which cannot be applied to one managing seed or money. A group of women will not function in the same cultural and physical climate as a group of men. The poor will have to form small, homogeneous groups to mobilise and control credit and other input needs. These groups will have to raise their own resources which could be supplemented by an outside agency through MYRADA. As their credit needs are basic and often the cause of building and sustaining a relationship of dependency and patronage we have focused on the mobilisation and management of credit by these small groups; moreover money is a basic need; a familiar commodity with which they deal daily. These groups however, have other functions as well. For example, to provide opportunities to each member to acquire the skills required to participate effectively.

(c) Social Functionality :

It is not enough if the group is small and homogeneous, it must also be socially functional, it must be able to function as a group. All the poor families in a watershed or village may form a homogeneous group but it may not be a functional one. It requires time, regular meetings, awareness generation education and action programmes to identify and build a socially functional group. It is possible that in a mini watershed, even if a group is not homogeneous it could still be functional; but great care is required to ensure effective participation and to create a culture and ideology where the poor are given priority. **On the other hand to adopt a stand that the village or watershed is one, or must be organised as one group, because all are one community or can be motivated to become one, is a stand that is based on an ideology that requires too much effort directed to one village and often the continuing presence of an outside catalyst**. Such an approach does not take into account the situation in the rural areas where self-interest groups even of the poor are emerging, and if the poor are not organised into functional groups which gives group power to all of them, those at the bottom will be even more oppressed.

There are a few other issues to be considered. What happens when the interest of the small groups of the poor clash with those of the large farmers who usually dominate the Watershed Management Association? This could well happen in the matter of wages - when fair wages are not paid to the poor. The strategy to cope with this situation falls within MYRADA's overall approach. This consists of the following stages :-

- make the poor **aware** of their rights.

- help them to **organise** into effective groups.

- provide them with the skills required to manage and maintain these groups.

- provide them with opportunities to mobilise resource from other **income generation activities**.

- help them to establish institutions which can provide them with basic credit needs including consumption needs through the credit management group concerned.

- exert group pressure on vested interests - the group will work out a strategy of action.

The poor must attain a degree of self sufficiency in order to obtain their social rights. For example, we have observed that if they are able to meet their consumption needs from their own resources (skills, small income generating

schemes, group support) for seven to eight months in a year, then they are prepared to take risks which may lead to their losing jobs with the richer farmers.

Group pressure is an important factor together with a degree of self sufficiency and the ability to plan a strategy and implement it. To resort to violence in the initial stages will be counter- productive. Tension there will be and it should be fostered as well as managed; it is an essential element for growth; tension is creative, but for it to develop in this way requires a package of measures mentioned above; the process is not simple, it requires mature and fearless participation for all those involved, or else it will be used by a few to gain power for themselves.

One worry however remains. Will the groups of the poor find support from the political system at the micro level namely at the Mandal and Zilla Parishad? This support is essential for their effective bargaining and success. The Zilla Parishad system has resulted in a decentralisation of power - a notable achievement; will it also help in giving the poor a better deal? We are told to wait - we will. But it must be understood that decentralisation of power and the removal of poverty are two separate (though at times inter-linked) objectives, which require differing strategies. The Zilla Parishads are dominated by the new middle class which has risen to power all over the country. This class speaks a different language, has different and often conflicting habits and minimum inter-relations and communication but it has common interests. The new middle class understands power at the micro level and uses it; it has no concern for programmes to protect and recreate the environment and forests which are essential components of watershed management. This class factor is a **structural hurdle** to efforts supporting the poor. It brings into the **process once again the forces which obstruct the trickle down process** and puts back the efforts taken to mount a `direct attack' on poverty.

The second structural hurdle is the situation of `**scarce resources**'; our resources are not adequate to cover all the needs and to meet the demands of all the groups in the system; as a result, choices have to be made, and these choices, given the power equations, will not be made in favour of the poor.

This is the reality; the decentralised system of the Zilla Parishad needs to be balanced by the organisations of the poor in small homogeneous groups which are based on common interests. Where the interest of various groups coincide they can unite. This essential dimension of the political system can be introduced by committed, professional and innovative people who are willing to work with the people especially to help them build their institutions.

The second area where difficulties arise, is in the attempt to reconcile the demands for scientific development, management and utilisation of lands in the watershed based on topography, soil classification, land use etc., which may not synchronise with the emotions, needs, customs and practices of the people.

During Phase I, PIDOW made efforts to reduce the speed and quantum of rain water run off from land within the watershed (particularly from highly sloping lands and lands on the upper reaches of the mini water- shed) by encouraging farmers to protect and restore them with :-

i> **Protective biological** measures like tree and grass cover. Where the lands belonged to small farmers who were growing cereals and pulses, the problem arose of reconciling their daily need for food with the long term demands of managing the watershed which required the land to have tree cover including orchards. In the case of large farmers who had left their lands fallow, they would benefit by tree planting and protective measures undertaken by PIDOW which the poorer farmers and MYRADA would find difficult to accept.

ii> **Protective non-biological** measures like bunds (field, contour, graded) gully plugs, gully checks and nalla bunds. Here too several conflicting situations arose as described below. In each case solutions were attempted, some of which have proved suitable and successful so far and others which do not as yet seem appropriate or acceptable.

NOTE : Described below in Part II are the systems that have been developed and adopted by people (with varying degrees of success) to resolve conflicts; the **processes underlying** the emergence of these systems will be dealt with in another Rural Management Systems paper, though brief references are also made here. This paper takes a snapshot of the situation during January to June 1988 in the on-going process of creating mini- watershed management systems.

1> Soil and Water Conservation Measures :

A. BUNDS

In the case of soil conservation bunds, two types of conflicts have so far arisen.

(a) Contour bunds vs. field bunds (ownership bunds):

Here the conflicts arose, because upto now, there was a tradition of farmers fields being bunded by them along ownership boundaries and not along contours. Introduction of contour bunding would entail the super imposition of another structure amidst already existing field boundaries, thus creating the problems of carrying out cultural operations in plots of irregular shapes and sizes. Farmers prefer the age old practice of ploughing in square or rectangular plots and are reluctant to change.

Attempts to Resolve and Results :

In larger expanses of land and in degraded uncultivable waste holdings, farmers were more willing to have contour bunds. In small to medium plots and holdings, however, farmers wanted to continue with their ownership bunds.

(b) Boulder Bunds vs. Soil Bunds :

In this the issue was the building of earthen bunds by the Government Soil and Water Conservation Department wherever bunds were supposed to be built, irrespective of the fact that in some places stones and boulders were available in abundance nearby, and in others, soil depth is minimal - 2-3 inches only. Farmers contested the Departments Policy on these grounds and also pointed out the loss of cultivable area in each field due to scraping off top soil for the purpose of bund construction. The Soil and Water Conservation Department on the other hand did not have a system of payment for boulder bunds. The official payment rate upto now was based on measuring the size of the excavated pit and the distance it was transported (quantity x distance).

Attempts to Resolve and Results :

The issue was resolved successfully after a series of discussions (initiated by PIDOW) between the farmers and the Soil and Water Conservation Department. The Department System has changed to a more acceptable approach of constructing bunds with whatever material is more readily available. A system of payment acceptable to Government was worked out during the discussions. In addition, experiments with live bunding with agave and vetiver and custard apple are being tried out in the hope that one more option would be available.

Further the question of contour ploughing is still to be resolved. Contour ploughing to be effective requires to be highly precise. This our PIDOW experience shows is not possible due to several factors including the fact that the ploughing is done by bullocks on steep slopes. **Faulty contour ploughing aggravates erosion by acting as channels which drain water into already existing gullys**. Farmers prefer to follow their existing system of cross ploughing (along and across the slope) as this is said to conserve more moisture if not soil. These practices and the problem of contour ploughing are being studied and analysed with the communities, in order to gather more information on these aspects.

B. GULLY CHECKS AND GULLY PLUGS :

Conflicts :

Maintenance was a major issue; to desilt or not. When desilting was done who bears the cost of continued maintenance (for example - raising of the height of the gully plugs/checks from time to time). These issues of maintenance were not considered in usual Government programmes. The people on the other hand at first expected the Government to do the job.

Attempts to Resolve and Results :

Farmers were involved during siting of the gully checks/plugs and in their construction. It was possible to reach agreements in some watershed groups where by the farmer in whose field the gully checks/plugs falls is responsible for the maintenance and removal of silt after every monsoon. This practice is now spreading and has to be encouraged.

C. NULLA BUNDS :

Conflicts-Objectives of the MWS Sangha vs. needs of the individual farmer on whose land the nulla bund is sited.

- The issues of siting, benefits, compensation and the question of maintenance of these structures.

- The issues of cost, technology and appropriateness of design of nulla bund.

In the I Phase of PIDOW, 5 nulla bunds were constructed as follows:-

Bandankere Mini Watershed	:	2
Bhagwan Tanda Mini Watershed	:	1
Wadigera Mini Watershed	:	2

Three sites - one in WGMWS and two in BKMWS belonged to big farmers. The remaining two sites - one in WGMWS and one in BTMWS belonged to small/marginal farmers. In all the 5 cases conflicts arose regarding location construction and maintenance of the nulla bund. None of the farmers were willing to give up a portion of his land for nulla bund construction and the accompanying inundation (pond).

Secondly, once the nulla bunds were constructed, questions arose as to who should desilt the pond and how this silt was to be shared. In all the 5 cases the conflict was resolved but in different ways as described below:

In case of the 3 nulla bunds which fell on sites belonging to big farmers (two in BKMWS and one in WGMWS) the mini watershed group was able to lobby with the farmers and obtain their consent in writing for constructing the nulla bund **without compensation**. The fourth site in WGMWS belonged to a small tribal farmer. He initially refused to give his consent for the construction of a nulla bund on his land. The WGMWS group had several discussions with the farmer and arrived at a suitable figure for compensation for the land which the farmer would lose. The group mobilised 50% of the amount from its own resources and requested PIDOW to provide the balance. In the case of the fifth site in BTMWS the MWS group worked out a compensation package of wherein each of its members would make a contribution of 5 kgs. of grain (Jowar) to compensate the farmer whose land was being inundated. The farmer however decided on his own that the silt he was harvesting was sufficient compensation. He used this silt to apply to his remaining land.

In respect of actual construction of the nulla bunds upto now we have experienced two situations. In one (ex. Limbu Tanda) farmers have constructed nulla bunds by piling up boulders. This has taken place over generations and the result has been a substantial amount of soil harvesting leading to terrace formation, wherein rainfed paddy is grown every monsoon.

The other situation is that of construction of nulla bunds under the normal Department programme. These involve inputs in the form of technology, cement, etc., which has to be brought in from outside. These are often costly ventures as the designs are based on situations other than those prevalent locally - including the fact that the communities that we are dealing with are marginal ones. This issue is under scrutiny with the idea of developing suitable low cost structures which can be built and managed by the people.

D. BIOLOGICAL TREATMENTS :

This consists of vegetative cover of the upper reaches of the watershed by means of establishment of perennial vegetation (fodder grasses and legumes, shrubs and trees). To achieve this, a combination of measures have been initiated; the most notable one being **natural regeneration** of local species of trees and grasses. This was achieved through protection by means of stone walls, of blocks of degraded land and supplementing this effort by **directly seeding** different species of trees and grass and legume fodders and also by **scattered planting** of saplings of various tree species, in vacant spots in the protected area.

The stone walls were constructed out of rubble and boulders available every where in vast quantities in the badly eroded PIDOW area.

Conflicts :

The need for scientific land use in integrated watershed development which required the restoration of perennial vegetation on the upper slopes come into conflict with the farmers needs, especially the marginal, who have lands on upper reaches, and need them for food grain production and grazing.

Arising out of this were the following issues.

1. **FOOD PRODUCTION FOR SUBSISTANCE VS. REVEGETATION:**
   i.e., when the land to be brought under revegetation belongs to SF & MF how does this **need for revegetation** reconcile with the farmers **needs for food production**.

2. **INVESTMENT FOR THE HAVES**
   i.e., when the land requiring treatment belongs to a big farmer, how do we **justify the investment** on his plot whether it is in terms of cash, kind, technical assistance, supervision and protection (either through watch and ward, fencing or organisation of a social fence).

3. **SUPPORTING THE HAVENOTS**
   i.e., how do the **landless benefit** from the programme?

4. **GRAZING VS. REVEGETATION**
   How do we reconcile the **need for grazing and fuel** gathering with the need for protection of the areas under the treatment (upper slopes).

5. **PROTECTION**
   Mechanical/Biological fencing vs. Social fencing.

Attempts to Resolve and Results

In the attempt to resolve the various conflicts that have been emerging in the forestry programme, a number of solutions/measures ideas have emerged. Some of these can be adopted straight away, others need to be developed still further, with the active involvement of the community. In this note we first address the conflicts that have emerged, in the context of revegetation of the upper slopes, whether through protection (natural regeneration block plantation) or direct seeding.

In the case of situation 1, farmers are not averse to switching over to tree farming or horticulture on the upper slopes provided the conversion is done in stages, by alley planting with various tree species in rows 6 metres apart to start with gradually filling up the gaps as the earlier trees start giving returns. Returns, as our experience shows is possible as early as from the 3rd year itself through plantation of **Zizypus SP** (Ber) and **Acacia Holosericea** and can be planned in such a way as to be cumulative over the years (depending on the species), one more measure that is being advocated is that such farmers also should be supported in terms of subsidised input and maintenance cost to some extent. This compensation has been worked out on the basis of a number of surviving plants each year upto the 5th year and is given in the form of seeds and fertilisers which he can use on his remaining land - thus maintaining production at the original level.

Introduction of a form of "Perma culture" which encourages Zero till age, is yet another idea that is being tried out.

In situation 2, the land belonged to big farmers in 3 out of 4 cases. Investment for protective fencing of these big farmers plots was carried out after the Watershed Management Associations obtained agreements under which the beneficiaries would be eligible for forestry inputs provided they undertook to share 1/3rd of their produce with the associations. Thus this agreement made it possible for the landless and other weaker sections to gain access to some of the returns. As these were the first agreements, they were difficult to negotiate. The Watershed Committees now feel that the owners of the lands especially if they are large farmers should agree to hand over 50% to 75% of the produce; future agreements will try to obtain these proportions. In one case, 90 acres of the upper reaches constituting 25% of the watershed area; which were left fallow, were marked for revegetation; the land belonged to a single farmer. In this case apart from the above mentioned agreement the MWS Association also negotiated the following :-

i> He should pay 1/3rd of the cost of the treatment.

ii> He should part with 2-3 acres of land from his plot, which would then be redistributed to the 2 landless families within the sanghas.

At present this still is under negotiation and afforestation work has stopped on this farmer's field. Apart from this PIDOW has succeeded in promoting a process wherein individual property resources in all the watersheds have become atleast in part common property resources of the community sangha.

In case 3, the question of how the landless benefit is answered in part by what is mentioned above, i.e., access of landless to common resources/assets. For example, in WGMWS, the 2 landless families within the association were benefitted by the sanctioning of the loans from the MWS Associations common fund. They were helped in starting a laundry and a petty shop respectively. In another case in BTMWS, 8 landless were allowed to harvest and sell a portion of the fodder they grew in the protected area. In yet another case the rights of usufruct of the fruit bearing trees like mango and tamarind have been given to 11 landless families. Though in the short term, all landless families have benefitted from employment in the revegetation programme, in the long run, it is felt that the rights to minor forest produce such as some fodder, fruits, honey, etc., could provide them with some measure of economic stability.

In the case of 4, the question of grazing and fuel gathering rights being affected is addressed.

Grazing has not yet become a major problem as the extent of land that has been taken out of grazing use is still not significant. Only one case in BTMWS where the land belonged to 13 families, did they feel that their grazing **rights** and **availability** of fodder grasses.

They repeatedly broke the protective stone wall to assert their rights. They were gradually made aware that indeed there was no real threat to their grazing rights. In fact they realised that they would benefit more from the programme by co-operating in the protection of this block of land, than by not. Protection of this plot, re-seeded with grasses and legumes (cenchrus and styloganthus) would greatly enhance the availability of fodder, which could be cut and fed, rather than grazed. Apart from serving the purpose of protection of the upper slopes, a greater quantity of fodder would become available to all, as the BTMWS group had decided on an equal sharing basis.

However, the pressure on grazing lands will increase as the forestry programme gains momentum. In anticipation of this situation several measures are being taken up simultaneously.

a> Augmenting the availability and supply of fodder in the existing grazing grounds (including road sides) by re- seeding with rainfed varieties of grasses and legumes (suitable to Gulbarga conditions).

b> Advocating grass harvesting and stall feeding rather than grazing directly.

c> Advocating rotational grazing.

d> Encouraging the use of indigenous long stalked varieties of sorghum (the major crop in the area) which also yield more fodder.

e> Advocating reduction in the number of animals, to an optimum level-based on the carrying capacity of the watersheds.

In the case of fuel requirements, the alternatives being promoted are community woodlots of **Prosopis Juliflora** on the banks of the nullas and other sites which are lying unutilised.

Protection

In respect of protection of areas earmarked for revegetation several measures were tried. The most effective so far has been the protective stone wall. This has created confidence among the people who now feel that it is indeed possible to regenerate degraded areas in this way. There are signs also of communities who are prepared to take initiatives in this programme (Limbu) and bear a portion of the cost.

In PIDOW's experience in regard to social fencing we have found that so far it has not been possible due to complex reasons beyond our capacity at this point of time to solve. One attempt again at Limbu has been interesting though the results would have to be observed carefully. In this case, the Limbu watershed community has dedicated a block of 70 acres to their Deity and have been helped to build a temple to the same.

All these measures involved constant contact, and discussion with the people and among the people themselves in order that alternate, appropriate improved and sustainable systems may develop.

No definite approaches have emerged as yet to the resolution of these conflicts. However, we see a few possibilities which would have to be tested and tried out before they can become recommended approaches. Further a solution that works in one watershed may not work in another given the differences in social configuration, leadership, community organisers, land holdings, etc., and so we continue in our search for answers.

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