

Equity in Watershed Development

A Case Study in Western Maharashtra

The village of Hivre Bazar in western Maharashtra is now well known in NGO and governmental circles for its social and economic changes following watershed development. This paper discusses the extent to which these changes have been equitable, with a particular focus on equity across different landholding categories. The equity outcome in Hivre Bazar is better than in many other watershed programmes, mainly due to the use of watershed-plus and other attenuating measures. As such, it is a good example of how certain kinds of equity concerns can be taken up and implemented with local initiative. However, there are also limitations in the equity outcome, which raise important questions for future water interventions.

PRIYA SANGAMESWARAN

Typically, in most natural resource management programmes, considerations about collective action, efficiency and sustainability have tended to get primacy over equity concerns. This is in spite of the fact that the importance of equity in all developmental programmes (including those focusing on natural resource management) has now been emphasised in a variety of forums, both for its intrinsic value as well as for its linkages with sustainability and efficiency [Sen 1999; Boyce and Pastor 2001]. In the case of watershed programmes also, adequate attention has not been paid to equity concerns, though in recent times, at least some practitioners and researchers have started working on ways to ensure greater equity [Joy and Paranjape 2004]. This paper attempts to contribute to this process, by evaluating how equity¹ works out in the case of a well known example of watershed development – a village in western Maharashtra called Hivre Bazar, where a watershed development scheme was implemented under the Adarsh Gav Yojana (AGY) of the government of Maharashtra in the mid-1990s.

Inequities arise in watershed programmes due to a number of factors such as spatial location (i.e., upstream versus downstream), differences of class, caste and gender, and choice of technology [Rajora 1998; OIKOS and IIRR 2000; Joy and Paranjape 2004]. In recent times, attempts have been made to mitigate some of these inequities via the use of “watershed-plus” measures. Undertaken after most of the technical work is over, these measures aim to ensure that the benefits of watershed development can continue even after the official programme comes to an end, and that those sections of the population which do not directly benefit from the watershed development programme benefit in some other way [Kerr et al 2002]. These measures have succeeded in meeting these aims to varying extents; irrespective of the degree of success, however, they do not usually explicitly engage with the question of inequities in either initial resource endowments or in the augmented resources such as the increased water [Joy and Paranjape 2004].

In Hivre Bazar, the equity impact is more positive than that of most watershed projects, in part due to the use of watershed-plus measures and in part due to specific measures taken to attenuate the negative impact of particular aspects of the project. However, there are also some limitations in the equity outcome, along the axis of both class and gender. This paper brings out both the positive and negative aspects of the equity outcome in

Hivre Bazar, and indicates the various issues at stake in further addressing questions of equity.

The discussion in this paper uses a combination of primary and secondary data. Primary data was collected in Hivre Bazar village during a three-month stay in the village – from November 2001 to January 2002 – and occasional short visits before and after this period. A combination of semi-structured interviews, participation in some village-level activities, open-ended discussions and direct observation were used. Secondary data about the village were collected from village officials, the village-level organisation involved in the implementation of the watershed development programme, government publications and reports in the local press.

I start with a brief account of the socio-economic characteristics and history of Hivre Bazar in Sections I and II respectively. In Section III, I discuss the extent to which different rules adopted in the village in the course of watershed development were equitable (in terms of both their content and the resulting outcome).² In Section IV, I present a discussion of the distributional impact of two major effects of watershed development, as well as of four watershed-plus measures. Section V discusses the overall equity impact of watershed development in Hivre Bazar and Section VI makes some concluding comments.

I Socio-Economic Profile

Hivre Bazar is in Nagar ‘taluka’ of Ahmadnagar district in western Maharashtra, and is situated at a distance of 28 kms from Ahmadnagar city, the district headquarters. The main occupation in the village is agriculture, though in recent times, many people have taken up a job in the military or teach in schools in order to ensure at least one steady source of income in each family. The main food crops are bajra (millet) and jowar (sorghum), while the main cash crop is onions. Also cultivated are pulses and groundnuts, vegetables such as cucumber, coriander and spinach, and occasionally, fruits.

Of the total geographical area of the village of 976.84 hectares, 795.23 hectares is cultivable. The average annual rainfall in the district is 579 mm, though this is both erratic and uneven [Government of Maharashtra 1991]. The principal form of irrigation in the village is well irrigation (open wells).

The population of Hivre Bazar in 2001 was 1,150. The population is relatively homogeneous in terms of caste, an important factor in facilitating collective action. As in other regions of western Maharashtra, marathas constitute the dominant caste (185 out of the 205 households). Social relations between marathas and the other groups are cordial and everyday interactions take place easily (even though there do exist prejudices on the basis of caste and restrictions in other domains such as marriage alliances); it is this that was crucial in ensuring that caste conflicts did not come in the way of implementation of the project.

Similarly, compared to many other parts of the country, distribution of landholding is relatively equitable, a factor that also facilitates collective action by helping to ensure a reasonable degree of convergence of economic interests. This is particularly true in the case of watershed development, which primarily affects productivity of land; since the majority of the villagers would benefit because they were landed, consensus on the need for watershed development was not difficult to come by. On the other hand, the limited number of landless also meant that they were in a “minority” and hence had a limited say in the project.

Note also that caste and landholding are linked. In Hivre Bazar, all large landholders are marathas. A little over 34 per cent of the non-marathas are landless, while another 27 per cent are marginal landholders. The remaining 39 per cent are dispersed more or less equally among medium, semi-medium and small landholdings. This is important when one considers that watershed development interventions are land-based, so that those who either do not benefit or are adversely affected are also the minority (in terms of caste).

II Brief History

Till the early 1990s (and particularly since the 1970s), Hivre Bazar was a typical semi-arid village. Irrigation water was scarce, and women had to walk long-distances for drinking water. Agricultural productivity was low, and most farmers could just manage one kharif crop (typically bajra) and sometimes jowar in the rabi season. Since employment opportunities within the village were limited, outmigration to the nearby cities of Ahmadnagar, Pune and Bombay became common. The village was beset by social problems such as alcohol addiction and gambling, which resulted in frequent fights, and the village became notorious in the region.

Finally, in 1989, a small group of young villagers, who were tired of the prevailing socio-economic situation, called upon a person (who was originally from the village, but had left it to study outside) to come back to the village and help bring about changes. At that point, Popatrao Pawar had finished his MCom degree and was in the process of searching for a job. Initially he was reluctant to return to the village and work, but he was persuaded by the youth to do so. He contested the gram panchayat elections and was elected as the sarpanch, a post to which he has subsequently been re-elected twice.

While the initial impetus for change as well as the main leadership came from within the village itself, the idea of undertaking watershed development was derived from another community initiative in watershed development, Ralegan Siddhi. As Anna Hazare did in Ralegan Siddhi, Popatrao Pawar started off by initiating non-controversial works such as the repairs of the village temple and the addition of rooms to the then one-room

school. Then the sarpanch consulted the villagers about the most pressing changes needed in the village. The issues with which everyone was most concerned were the availability of water (for both drinking and irrigation) and the low productivity of agriculture. Following a visit to Ralegan Siddhi, the villagers decided to take up watershed development, and hence applied to the AGY scheme of the state government.⁴

In keeping with the requirements of AGY, resolutions were collectively adopted in the gram sabha to start working on the ‘panchasutri’ or five principles (restrictions on free grazing, ban on tree felling, ban on alcohol, adoption of family planning and voluntary labour). An NGO called Yashwant Agricultural, Rural and Watershed Development Agency was set up by Popatrao Pawar in 1993 and the scheme began to be implemented from 1994. An important feature of the Hivre Bazar case is that the implementing agency was not an external NGO, but a village-level organisation that worked closely with the gram panchayat. The village was divided into three micro-watersheds, the first with an area of 612.14 hectares, the second with an area of 123.4 hectares and the third with an area of 241.3 hectares. The principal watershed works constructed include continuous contour trenching and tree plantation (on forest, private and panchayat land), contour bunding, nala bunding,⁵ two percolation tanks and five storage bandharas. In a span of four years, most of the work under AGY was completed.

The most immediate impact of watershed development in Hivre Bazar has been an increase in groundwater and biomass. This in turn has led to socio-economic changes in the village, especially in agriculture and animal husbandry. Increased water and fodder potential has meant that more animals, especially milch animals, can be reared. Hence milk production has increased more than tenfold, and the village now has its own dairy cooperative. Similarly, the increase in the level of water in wells has led to more land becoming irrigated, with the result that both intensity and pattern of cropping have improved (for instance, more people grow wheat and cash crops like onions and flowers), resulting in higher incomes.

The increase in farming activity means that there is an increased demand for labour, and wage labourers no longer have to go out of the village in search of work. In fact, there has been some reverse migration, i.e., people moving back to live and work in the village, either due to greater availability of work (on the farm, or in construction of houses, digging of wells, etc) and/or due to social changes such as the ban on liquor dens in the village.⁶

Both the quality of the technical watershed works and the resulting positive socio-economic changes have now been widely acknowledged in government and NGO circles as well as in the popular media [see, for instance, Varghade 2002]. The village has also won numerous awards such as the National Productivity Award in Dryland Farming in 1997-98.

Table: Distribution of Households in Hivre Bazar across Different Class Categories³

| Category | Operational Landholdings (Hectares) | Total No in Village | Per Cent of Total Population |
|-------------|-------------------------------------|---------------------|------------------------------|
| Landless | 0 | 22 | 10.73 |
| Marginal | Less than 1 | 29 | 14.15 |
| Small | 1 to 2 | 40 | 19.51 |
| Semi-medium | 2 to 4 | 61 | 29.76 |
| Medium | 4 to 10 | 37 | 18.05 |
| Large | 10 + | 16 | 7.80 |
| Total | | 205 | 100 |

Source: Village survey.

My focus in this paper will be on one particular dimension of these changes, viz, equity. More specifically, I consider the distribution of the benefits and costs of the watershed development project across different landholding classes. The reason for focusing on this particular dimension of equity is the linkage between access to land and access to water, which means that the benefits of any water intervention such as watershed development end up being distributed in proportion to landholding, or sometimes even disproportionately in favour of larger farmers. I consider below what the experience in Hivre Bazar has been in the context of the various rules adopted in the course of the project, the two major effects of watershed development – increased availability of irrigation water and increased employment opportunities, as well as the watershed-plus measures. The aim of the exercise is not so much to label the project as “successful” or “unsuccessful” from the point of view of a specific version of equity, but rather to learn from both its positive and negative aspects.

III Distributional Impact of Different Rules

Two of the project conditionalities – the ban on cutting of trees and restrictions on free grazing – are critical for the success of watershed development, and are at least attempted in most watershed programmes. Both contribute to reducing soil erosion in the commons (or gram panchayat land), which are generally in the upper reaches of a watershed and act as the catchment area for water-harvesting structures downstream [Kerr et al 2002]. This in turn, enables the vegetative cover to develop, reduces runoff of water, increases groundwater percolation and contributes to the maintenance of the physical watershed structures themselves.

The restrictions could differ with respect to the duration for which they are imposed (i.e., whether they apply only during the project or after it) as well as with respect to whether they apply only to trees or grass planted in the course of the project or to all vegetation. In Hivre Bazar, restrictions on both tree felling and free grazing apply to all vegetation in the commons, and they continue to be in force after the completion of the project too. This is commendable, considering the difficulties most watershed projects face in implementing these restrictions even during the project.

The other three project conditionalities – ban on alcohol dens, family planning and ‘shramdaan’ – are a part of all watershed projects under the AGY, the rationale being that they are essential for overall socio-economic development.

Apart from the five project conditionalities, two rules of water use were voluntarily adopted by the villagers – restrictions on cultivation of water-intensive crops and on the digging and use of borewells. Although no rules were explicitly adopted for distribution/allocation of irrigation water, the de facto practice was that water distribution followed land distribution.

I now consider equity in content and outcome of each of the above rules.

Ban on tree-felling: In terms of content, both the restrictions on tree-felling and free grazing are usually inequitable. Since the rules apply to all landholding classes, those without any other form of access to fuel or fodder (typically the landless) are likely to be most negatively impacted, especially during the project. Further, the positive effects of successful watershed

development (resulting from these restrictions) generally go only to the landed. The actual outcome in any specific case, however, depends on the extent to which all classes follow the rules and whether any measures are taken to attenuate the negative effects of these rules.

In Hivre Bazar, when the watershed work began and trees were planted as a first step, the question of cutting of trees was brought up. A resolution was passed in the gram sabha to ban cutting of trees or even branches of trees from the commons. People could, however, cut branches of trees from their own fields.

Two positive aspects of the ban on tree cutting in Hivre Bazar are worth noting. These restrictions were imposed uniformly for all uses (fuel and non-fuel), and indigenous varieties of trees (such as babul, tamarind and bamboo) were chosen because they were more suitable to local climatic conditions and likely to survive longer. The revenue from these trees (as well as other product of the commons) goes to the gram panchayat.

However, the ban on cutting of trees has had a negative equity impact to the extent that it has adversely affected the landless, who do not have assured access to other sources of fuel, as well as women of various classes who now have to spend more time and effort to collect fuel; the latter applies even to those with a source of fuel on their own fields, since at least some of them used to collect fuel from the commons earlier (because their fields were too far), but can no longer do so. Some households who currently use LPG as their main source of fuel also claim that they were “forced” to switch from ‘chulha’ to gas because of the ban. While this is not necessarily a negative impact (in the sense that the households would not have been able to make the switch if they could not afford to do so), the switch does create greater urban dependence, as well as increased vulnerability to liberalisation policies (which have resulted in lower subsidies for gas, and consequently higher prices).

The ban on tree cutting thus has had an adverse impact on landless households, and on the women in these and other households; further no measures were taken to mitigate its negative impact (except for occasional informal access given by the landed to their private sources).⁷ However, the successful implementation of the ban has definitely had a positive impact on the watershed work itself.

Restrictions on free grazing: In case of the restrictions on free grazing, the recognition of their potential negative impact resulted in the introduction of two attenuating measures. Firstly, while the watershed works were being constructed, the grazing restrictions were imposed on limited areas at a time, i.e., on a rotational basis. Secondly, once enough fodder was available, people could pay a sum of Rs 100 per year and take a head-load of grass per day (cutting grass with a scythe). In the case of poor households, this payment of Rs 100 was waived.

Rotational grazing seems to have helped during the construction phase of the project, though even then, the problem of additional time spent on grazing by women (especially for owners of small animals), did exist. In the post-project period, having turns on the commons (an option that is used mainly by marginal, small and semi-medium farmers) has further helped to reduce the negative impact of the restrictions on free grazing. However, in the case of households owning small animals such as goats (usually the poorest households from the category of the landless, marginal, and small farmers), there is still some adverse impact. This is either because it is not worth their while (in terms of labour costs) to go to the commons to cut grass (so that they prefer to

take the goats for grazing on others' fields or on roadsides) or because they are working as agricultural labourers (and it is easier for them to take the goats along with them to work). In both cases, there is an opportunity cost involved – in the former case, because of other work that could have been undertaken if the time spent on this task was lesser and in the latter case, due to limitations on the kind of work that can be taken up. For instance, a woman labourer with goats pointed out that she could only take jobs where the owners would allow grazing on their fields and where the work was of a nature that permitted her to simultaneously tend the animals.

On the whole though, the restrictions on free grazing have had a far more positive impact than in most watershed development programmes.

Family planning: Family planning continues to be used as a conditionality in many developmental and natural resource management works in India, although the Malthusian-type logic on which it is based (a growing population perceived as a major cause of poverty and underdevelopment, and of increasing pressure on natural resources) has now been problematised on several grounds, including its bias against the poor and against women [Hartmann 1995].

In Hivre Bazar, the family planning rule was implemented mainly via a system of incentives (the initial incentive being the procurement of funds for the village under the AGY and then the implementation of various development schemes), though there was also some pressure involved. As is typical of family planning programmes elsewhere, the burden of contraception has almost always been on women. Further, women have no choice with regard to the method of contraception followed, and sterilisation seems to be the universally followed practice. A major problem with this method is that women often cannot follow post-surgery restrictions, and the emphasis on family planning has not been made part of broader health concerns, an experience that is common to family planning programmes elsewhere in the country too [Qadeer 1998].

Ban on alcohol: The ban on alcohol is considered an important part of the AGY, mainly in order to break the vicious cycle between alcohol and debt, which is believed to come in the way of any improvement in the social and economic life of villagers. The form that this ban usually takes (and the one prevalent in Hivre Bazar) is that alcohol dens within the geographical area of the village are not permitted.

While the imposition of the ban on alcohol itself could be problematised on a number of grounds, in cases like Hivre Bazar where it has worked, the villagers, and especially the women, are happy about it. They hold that the social atmosphere in the village has improved dramatically following the shutting of the liquor shops, in the sense that there are fewer fights and that women run lesser risks of being harassed. Hence the outcome of this rule is positive for most households, and especially for the women in the households.

There are three households which suffered some loss due to this ban – the alcohol sellers themselves, but counter-measures have also been taken. Since their livelihoods were directly affected, two of these families were given a bank loan (guaranteed by the Hivre Bazar gram panchayat) to enable them to buy buffaloes and sell the milk to earn their living. The third family was allotted money under a government scheme, which they could use to set up a small tin shop to sell candy and assorted items. The alternative livelihood sources have not been entirely effective,⁸ and

they now have to work on others' farms as agricultural labourers (and in one case, also undertake sharecropping). Further, the formerly alcohol-selling households are not well-integrated into the social life of the village because prejudices exist against them, partly because they were alcohol sellers and partly because they are from a "lower" caste (Gopal Samaj). However, this is beginning to change, with the 'upa-sarpanch' of the village being appointed from one of these families (though his actual involvement is limited) and a young man from another family being actively involved in the developmental work in the village. Thus the attempt to attenuate the negative equity impact of the ban on alcohol has had a fair degree of success.

Shramdaan: Shramdaan or "voluntary labour" has become a common practice in many developmental and natural resource management works, although the exact form it takes can differ. The equity outcome of shramdaan is usually negative since contributions are uniform across households, irrespective of their economic position (though landless and single-member poor families are often exempted). Hence those in lower class positions lose the most, because their share of the benefits of watershed development is lower and the opportunity cost of the time spent on shramdaan is higher for them (at least as long as they have other work options that offer them some, even if low, remuneration).

In Hivre Bazar, although shramdaan for the watershed project itself was obligatory under the AGY, it has also been used in other developmental works and social activities both before and after the project. Further, unlike the experience in many watershed programmes, the percentage of contributing households has been high. The typical equity outcome is likely to apply here too; however, a more complete statement of the equity impact of shramdaan in Hivre Bazar is not possible, due to lack of data about the exact contributions of each household as well as about the opportunity cost of each household's contribution (in terms of work and income foregone) and its direct and indirect benefits (such as the feeling of pride that comes from contributing to a collective effort and making one's "presence" felt).

Water rules: Apart from the panchasutri, the other set of rules adopted in Hivre Bazar were related to water. Rules related to water could either deal with distribution of water or with use of water. The rules about distribution of water can be further classified into two kinds: (a) rules that determine the particular set of people who will get access to water; and (b) rules that determine how water will be distributed within this set of beneficiaries, i e, allocation rules.

In Hivre Bazar, all those with land are included in the set of beneficiaries, a practice followed in most water projects, as has now been widely documented [see, for instance, Boyce 1988; Bardhan 1999 and Vaidyanathan 1999]. Within this set of beneficiaries, allocation of water follows ownership of land and groundwater is accessed by privately owned wells. While no explicit rules were adopted to this effect, this was the de facto practice followed. That is, no attempt was made to de-link land and water rights, and the idea of water rights for the landless (over and above water for drinking and household consumption) has not been brought up in Hivre Bazar.⁹

How equitable the above practice should be considered, is open to debate. Given that the link between access to land and access to water (as well as the underlying distribution of land) is considered inevitable by most people (not just in Hivre Bazar but elsewhere too), the fact that water distribution follows land

distribution could be considered equitable, especially if the larger landholders do not get a share of water that is greater in proportion to their landholding. However, one could also raise the broader question of whether public resources (such as state funds for watershed development) should be used for the development of a private resource (such as groundwater) without making any attempt to change the structure of rights over groundwater, especially when access to water is important not just for improved livelihoods but also for greater social and political power. In the Hivre Bazar case, there was at least some attempt to compensate those whose benefits from watershed development were limited. But in cases where there are no such attempts, the above water distribution rules could end up re-enforcing existing land-based inequities.

Unlike water distribution rules, two rules regarding use of water were explicitly adopted in Hivre Bazar about three years after the project commenced – a ban on borewells in agriculture and on cultivation of water-intensive crops (except if cultivated using drip or sprinkler irrigation).

Restricting the manner in which the water resource is exploited and the uses to which water is put is important in order to ensure that it is not over-exploited (by extracting it faster than it can be recharged) and that the increase in water availability achieved by the watershed treatments can be sustained over the long-run. Apart from this sustainability aspect, rules of water use also have an important equity dimension. Preventing over-exploitation means that more water supply is available, and the possibility of it reaching a large number of people is greater. Further, falling water levels generally have the greatest adverse impact on the poor, especially in the short run,¹⁰ since they are the ones who cannot afford the technology to dig deeper. Hence the content of both these measures favours marginal and small farmers.

In Hivre Bazar, the bans have helped to ensure that groundwater use is both sustainable as well as equitable (in the sense that larger farmers do not end up imposing negative externalities on smaller farmers). Further, the rules of water use have been implemented uniformly across all classes. Given the importance of sugar cane cultivation in the political economy of Maharashtra as well as the widespread use of borewells in agriculture in the region, both the adoption and uniform implementation of the rules (especially given that they are not project “requirements”) is praise-worthy.

IV Effects of Watershed Development and Watershed-Plus Measures

In this section, I consider the distributional outcome of two effects of watershed development – the direct effect of increased irrigation water, and the indirect effect of increased demand for labour, as also of the watershed-plus measures undertaken in Hivre Bazar.

Increased irrigation water: The major benefit of watershed development is increased groundwater. Given that there are no pre- and post-project data on the exact levels of the water table or the effect on the aquifer, other indicators of increased water need to be used. I rely on farmers’ own perceptions of whether irrigation water has increased or not. Nearly 64.4 per cent¹¹ of the sample respondents report increased irrigation water post-watershed, while 5.5 per cent report no change in the levels of

water. The three households (4 per cent) who report a decrease in irrigation water in the post-watershed period come from the class of marginal or semi-medium farmers. The reasons for the negative impact are related to the location of the wells in question – too many new wells nearby or uphill in one case, limited watershed work done in one hamlet in another, and lack of proximity to any storage bandhara in the third. The question is not relevant to about a fourth of the respondents, a majority of whom are the landless, but who also include some farmers, especially marginal and small farmers, who have no wells.

Further, the percentage of households benefiting from increased water increases with farm size. This is typical of other watershed development programmes too, where perceived benefits from increased irrigation water are highly correlated with access to land [Kerr et al 2002]. This is principally because groundwater ownership is linked de facto to ownership of the land under which the water is present, as well as to the fact that water is used in conjunction with land.

The outcome of the increased irrigation water in terms of gender is mixed. On the one hand, more irrigation water has meant greater output and income at the household level. Women also benefit from this, as is visible in the increase in personal assets such as jewellery. But intra-household sharing of benefits is not necessarily equitable, and women continue to lack access to important assets such as land. Further, although the greater availability of water has meant that the workload has increased for both men and women, women claim that they have to bear the burden of increased work disproportionately. The reason cited for this is that while increase in farm work is shared by both men and women, women continue to be wholly responsible for housework (which in many cases has increased following watershed development),¹² as also for a disproportionate share of the increased work of upkeep of animals.

Increased employment opportunities: I now turn to the distributional impact of increased demand for labour. To study this, I again rely on villagers’ perceptions about whether or not the availability of work has increased post-watershed (both farm employment, which increased due to increased farming activity, and non-farm employment opportunities such as construction of houses, which increased as a result of people’s improved economic situation).¹³

In all, about 17 per cent of the sample households reported an increase in the availability of work after watershed development. The percentage of people in each class benefiting from increased availability of work is higher for the landless and marginal landholders than for small landholders. The question is irrelevant for most semi-medium, medium and large landholders, either because they never worked as labourers, or because they do not do so after the project, as the returns from their own farms became enough to sustain them. No one claims that availability of work has declined, and only one landless household claimed that there was no change in the amount of work available. Further, the increase in employment opportunities appears to have been experienced by both men and women.

Along with greater availability of work, wages have also increased, at least in nominal terms. In the pre-watershed development stage (i.e., up to the early 1990s), the wage rate used to be Rs 20-30 for women and Rs 50-70 for men. The current rates are with between Rs 35 and Rs 50 for women and between Rs 80 and Rs 100 for men. However, this increase has not been

sufficient to offset the increase in prices; in real terms, the average rate has decreased marginally from Rs 13 to Rs 12.9 for women, and from Rs 32 to Rs 27.2 in case of men.¹⁴

Further, the problem of seasonality of labour work still remains, with summer months being the worst (especially in years of low rainfall).¹⁵ Even though there is more farming in the summer than before, in this period farmers prefer to do as much work as possible with family labour or mutual aid teams, instead of hiring outside labour. Similarly, there continues to be a gender differential in terms of wages; even though both men and women have had greater availability of work since the watershed work was begun, neither the wage differential nor the division of labour on which it is based have been questioned.

This equity outcome of watershed development is not atypical. In most water projects where similar water allocation practices are followed, those with more land are the greatest beneficiaries, although some benefits accrue to those with less land too, via the route of increased agricultural work and consequent higher demand for labour. What is less common is the attempt to try and ensure greater equity via the use of watershed-plus measures. In Hivre Bazar, watershed-plus measures were actively targeted towards those households who either did not directly benefit from watershed development or lost from it in some manner (like giving up land). Four watershed-plus measures were particularly important – developmental schemes, savings groups, improved availability of water for drinking and household use, and improved health and education facilities.

Drinking and household water: Even though drinking water is usually mentioned in the list of objectives of watershed development [e.g. in Government guidelines such as Government of India 2003], it is the technical works involved in watershed development that are given importance in the actual working of projects. The distribution of the increased water post-watershed development (including its distribution across various uses such as irrigation versus water for drinking and household needs) is not something that is explicitly considered. The usual outcome is that people with pre-existing sources of water or the means to construct new sources have access to increased water, while others continue to struggle even for drinking water. It is only in a few cases (such as Hivre Bazar) that communal sources have been built for drinking water.

In Hivre Bazar, schemes for handpumps were among the many developmental projects undertaken in the aftermath of watershed development. Twelve handpumps were constructed at various points in the village to provide water for household tasks and for drinking. This has ensured that the benefit of improved drinking and household water has not been restricted only to those with private sources of water, but has been more widely dispersed with poor and landless households also benefiting.

Further, improved water availability has also meant that there is no dependence on state government tankers in the summer months and the distance that one has to walk for water has considerably reduced. Since it is mainly women and female children who fetch water, they are the main beneficiaries. However,

summer months are still a problem in this regard (especially if rains have been poor), since many of the handpumps have little or no water, and there are long queues at the few handpumps that do continue to have water.

Improved education and health facilities: Educational facilities in Hivre Bazar have improved, with schooling now available until the 10th grade within the village; before watershed development, there was only a primary school in Hivre Bazar and even this was not entirely functional. There are also two anganwadis (pre-school centers) in the village. Books and/or uniforms are provided free or at subsidised rates for those who cannot afford them.

Health check-ups are organised for students twice a year. Medical facilities are still limited, both for human beings and for animals, and as in the pre-watershed period, villagers still have to go to Zakhangaon or Ahmadnagar city¹⁶ for treatment. In the last couple of years, though, a private doctor has started to come for a couple of hours in the morning, and an animal dispensary which provides basic facilities has also been set up.

The above changes are critical for all villagers, but especially for the poorer sections for whom the alternative (of going out of the village to access these services) is more difficult.

Developmental schemes: Post-1994, Hivre Bazar has seen a large influx of government funds, whose benefits went principally to the poorer sections of the village. More specifically, a majority of the housing schemes (80 per cent) and schemes for animals (67 per cent) went to the landless and marginal farmers. Schemes for wells, on the other hand, went to small, semi-medium and medium farmers (40 per cent to small farmers, and 30 per cent each to semi-medium and medium farmers). Large farmers did not benefit from schemes for housing, animals or wells; however, about 22 per cent of other schemes (usually for private toilets and ladies' cycles) did go to them. This distribution of developmental schemes stands in contrast to the usual scenario where the rich or powerful end up being the main beneficiaries of government programmes.

Savings groups: The introduction of savings groups is an important watershed-plus measure, not only because it offers an avenue to benefit the less well-off classes, but also because it can ensure greater participation by women as well as specific benefits to them [Pangare 2002; Kerr et al 2002]. In Hivre Bazar, there are currently three self-help groups (SHGs), one for women below the poverty line (BPL) and two for women above the poverty line (APL). In two of them (the BPL group and one APL group), women make a monthly contribution of Rs 50, while in the other APL group, the monthly contribution is Rs 25.

The APL groups are relatively new (less than two years old) and basically lend the money collected as consumption loans to group members (at a rate below the market rate). The below poverty line group has so far received one interest-free loan of Rs 25,000 from the government of Maharashtra, with which most members bought a goat; the money collected by the group is also lent to the members in the form of consumption loans.

The equity impact of the SHGs has been positive in that it is women from the landless, marginal, and small households who constitute the major members of the BPL SHG. In particular, 10 per cent of the landless households and a quarter of the marginal households in the sample are members of the BPL SHG. It is for these households that the means to tide over temporary shortfalls provided by the SHG is most useful.

However, there are also some limitations in the working of these SHGs. Firstly, there still remain households from the landless and marginal classes who are not part of any SHG.¹⁷ Secondly, none of the SHGs are interested in starting any non-agricultural income-generating activities. In general, the ability of SHGs to satisfy the needs of a particular class are limited by the fact that they often are location-specific for convenience, i.e., members of the same hamlet (or nearby hamlets) form a group, even though they may come from different landholding categories, so that their needs are different. Thirdly, the working of the SHGs does not offer enough scope for women to acquire new organisational skills or to express themselves in public forums due to constraints of time, inadequate infrastructure¹⁸ and social norms.

V

Overall Impact of the Watershed Project

I now turn to an assessment of the combined equity impact of the various rules adopted, the two main effects of watershed development and the watershed-plus measures. The quality of the watershed work undertaken itself is high. The project has also led to at least some improvement in the lives of most villagers. In addition, measures such as the targeting of developmental schemes and provision for fodder via turns on the commons have meant that even those traditionally excluded from the benefits of a watershed development intervention or those losing out from it – usually the lower landholding classes such as marginal farmers, and the landless – have benefited in some way.

Let me consider the impact on the landless in greater detail. Out of the 10 landless households in my sample, wage work is the main source of livelihood for five, and an important supplementary source of income for another two households.¹⁹ Increased demand for wage labour – one of the indirect effects of watershed development – has benefited these seven landless households. The three landless households who are not dependent on wage labour all have non-land based occupations. One household buys and sells buffaloes, another has a shop selling groceries and assorted household items as well as a 'chakki', while a third works in the milk dairy as well as in the gram panchayat office. Of these, the job of working in the dairy was a direct consequence of watershed development; as milk production increased, instead of taking the milk to the dairy of a neighbouring village (the earlier practice), a dairy was set up in Hivre Bazar itself. Running the shop was also indirectly facilitated as a result of the social changes accompanying watershed development. As the shop-owner himself pointed out, the ban on sale of alcohol meant that drunken men no longer threaten him for free provisions.

Further, watershed-plus measures such as better access to health and education facilities and improvement in drinking water facilities have contributed to improving the quality of life of the landless. SHGs provide the means to tide over temporary monetary shortfalls; along with developmental schemes, they may also increase access to assets like small animals. Note that this targeting of the landless and marginal farmers while implementing watershed-plus measures took place without any "demands" for the same emanating from them.

However, there are also limitations in the equity outcome in the village. In the case of the landless, for instance, even with

the improved livelihood situation, the returns from wage work are not sufficient, apart from being uncertain (especially in times of a bad monsoon or in the summer months). There is also the question of whether the indirect gains of watershed development as well as watershed-plus measures offer an adequate substitute for access to significant assets such as water and land. One example of how the gains from current measures are limited, unless accompanied by other measures that provide more significant assets, is provided by the BPL SHG. In April 2002, this SHG was due to receive a second loan of Rs 30,000. The members had planned to buy a cow each with the money, which would be a far more significant asset than the goats purchased with the previous loan. But even though the loan was sanctioned by the government, it was not distributed because of fears that the low rainfall that year and the consequent lack of fodder would mean that the women might not be able to look after the cows properly and repay the loan. While this fear was justified, better access to land and water could potentially have helped the women to deal with the problem of fodder at least to some extent. This question of greater access to assets becomes even more critical to address in cases of watershed development projects where watershed-plus measures are not undertaken in a targeted fashion.

This is not to say that providing access to land and water to those traditionally excluded from access to these assets is easy. For instance, de-linking land rights and water rights and initiating any kind of land reform at the village level alone is difficult, and changes would need to be made at supra-local levels too for there to be any hope of success. In addition, there is also the question of the use to which any additional water would be put and the resources that would be needed for such use. But at least limited changes are possible at the local level, such as increasing the extent of leasing out of land by bigger farmers to the landless, marginal, and small farmers, and to make these sharecropping arrangements more fair and secure. Currently, the incidence of sharecropping among the landless and marginal farmers is low,²⁰ and even where present, it is the less remunerative (to the sharecropper) arrangement that is undertaken – one-third part ('tisra bhaag'), where the produce is shared in the ratio of 1:2 (1 to the sharecropper, 2 to the owner). The owner prepares the field and sows, and all post-sowing operations, i.e., weeding, watering (using the owner's water), and harvesting, are the responsibility of the sharecropper.²¹

Apart from the fact that the improvement in the economic situation of the landless and marginal farmers in Hivre Bazar has been limited, especially in terms of their asset-holding, there has also not been much improvement in their political power in the village. For instance, following watershed development, demand for agricultural labour has increased, and there is a claim that supply is insufficient to meet the increased demand, so that labourers often have to be hired from outside the village. But this high demand for labour has not translated into an improved bargaining position for the labouring class (which would have enabled them to demand increases in wages commensurate with increases in prices), or more secure, year-long availability of work. Thus while there have been more attempts to involve all classes and take their interests into consideration than in the average watershed programme, the kinds of issues that have been taken up are limited.

The aim behind pointing out these limitations is not to detract from the considerable achievements of watershed development in Hivre Bazar. The discussion in this paper shows that Hivre

Bazar is a good example not only of community-based collective action and successful watershed development work, but also of how certain kinds of equity concerns can be taken up and implemented as a result of local initiative. At the same time, recognising the limitations of the case is important because they raise questions for future water interventions, some of which I will briefly indicate in the concluding section.

VI Conclusion

Equity concerns in any single project are influenced by a number of factors such as the differing conceptualisations of equity by the various agents involved, limits to the number of radical concerns that can be taken up any one time, macro-level factors such as government policies and laws on relevant subjects, and the nature of the development process that people are interested in setting in motion. For instance, in Hivre Bazar, the way "family planning" has worked or the association of SHGs with women's empowerment is strongly influenced by discourses constructed at national and international levels. Similarly, the equity potential of government schemes for wells is limited by the requirement that beneficiaries should have a minimum landholding of three acres; while the logic behind this is that without a certain level of landholding, the water in the well would not be optimally used, the result is that marginal farmers find it difficult to avail of the schemes.

But given the constraints within which any project functions, the Hivre Bazar experience stands out, not only in terms of its equity outcome, but also in terms of improvement in livelihoods and the impact on sustainability. The measures to attenuate the negative impact of the ban on grazing, the rules about use of water and the careful targeting of watershed-plus measures have been particularly critical. An important lesson that one can therefore draw from Hivre Bazar is that some of the inequities considered 'inherent' to watershed development projects can be partially remedied by local-level initiative, and it is important to think about ways in which this experience can be used to improve the equity outcome in other watershed development projects. At the same time, it would also be useful to reflect upon the limitations in equity in Hivre Bazar and the questions raised by them about the kind of development one is aiming for, the best way to meet the livelihood requirements of the landless and marginal in rural areas as well as to empower them, and how to reconcile different notions of equity. 

Email: priya@isec.ac.in

Notes

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1 Equity is usually used to mean proportionality of benefits or burdens (with respect to a particular dimension such as needs, contributions, etc) and is distinguished from equality (which would mean equal shares or burdens for all).

- 2 Analysing the equity content of rules helps to bring out which of the diverse interests in the village are represented. Equity in outcome of rules indicates the costs and benefits accruing to various groups affected by the project. One could also conceive of a third kind of equity – equity in various processes such as rule-making and implementation; while it is not considered in this paper, it forms part of the larger work from which this paper is derived [Sangameswaran 2005].
- 3 The classification of operating households used in this paper does not distinguish between irrigated and dry lands, or adjust for differences in productivity, credit relations, etc. It has been used for reasons of convenience and due to limitations of data; however, I also believe that the discussion in this paper will not change substantially even if a more nuanced classification were to be used.
- 4 Introduced in 1992, the AGY aimed at overall socio-economic development of villages, with a special focus on watershed development. The scheme was funded exclusively from state government sources, but jointly implemented by government organisations in collaboration with NGOs.
- 5 Bunds are physical barriers, typically earthen or stone, used to break the speed of water and make it spend a longer time in the area. Nala bunds generally refer to small bunds on streams, whereas contour bunds are on the open land/slopes. Continuous contour trenches forms a kind of girdle around the hill slope at a given contour and are important for water conservation [Paranjape et al 1998].
- 6 This is over and above people moving back to the village after retirement.
- 7 One way in which fuel needs of the landless or marginal farmers could have been met was by undertaking at least some plantation that was geared specifically towards this end.
- 8 For instance, there are not enough buyers for the milk. In the case of the tin shop, the problem is that the family running it consists of an old couple who cannot stock many items or sell tea or other snacks which would fetch better returns.
- 9 There have been attempts at de-linking land rights and water rights in other water projects in Maharashtra, most notable among these being the Pani Panchayat and Khudawadi cases [Paranjape et al 1998]. In Hivre Bazar, though there was some awareness of these efforts, no attempt was made to replicate them.
- 10 In the long-run, of course, all villagers suffer the impact of falling groundwater levels.
- 11 All statistics in this and the subsequent section (Sections IV and V) are based on data collected from a survey of 98 households in the village.
- 12 The pressures of “development” and the label of an “ideal village” have also led to additional work burden for women. For instance, when “important” visitors come to the village, women are given prior intimation so that they can clean the front-yard of their houses and draw ‘rangolis’.
- 13 Two kinds of employment opportunities are not included in the discussion here – short-term employment opportunities (lasting the duration of the project) that increased as a result of various soil and water conservations works undertaken during the project and the occasional employment opportunities (such as cooking for guests who come to visit the village) that are now beginning to be available as a result of the success of watershed development and the resulting ‘developmental tourism’.
- 14 The pre-watershed real wages were obtained by using the consumer price index for agricultural labourers for the year 1992-93 (base year 1960-61). The post-watershed real wages were obtained by using the same index for June 2003 (base year 1986-87). Both indices were obtained from the website of the Labour Bureau of the government of India: <http://chd.nic.in/labor/cpiarmp.html>.
- 15 At such times, there is high dependence on the state government-sponsored employment guarantee scheme.
- 16 Zakhangaon and Ahmadnagar are situated at a distance of 5 and 28 kilometres from the village respectively.
- 17 Part of the problem here is that there are deficiencies in the government classification of households into BPL and APL categories.
- 18 For instance, the work which is most likely to afford a chance for women to step out of the geographical boundaries of the village and to interact with officialdom (among other things), i e, going to the bank to deposit the money and for any other required transactions, is usually done by male members of the women’s families. The usual reason cited for this is that the bank is in a town that is five kilometres away, and public transportation between Hivre Bazar and this town is limited.
- 19 In the case of one of these households, the main occupation is sharecropping and in the case of the other, it is a factory job.
- 20 In general, there does not seem to have been any major increase in leasing out of land after watershed development. Many medium and large farmers who have more land than they can cultivate on their own or with hired labour prefer to keep such excess land barren. The most common reasons given for this are that it is difficult to find “good” sharecroppers or that there aren’t enough family members to supervise the sharecroppers. Fear of losing land could also be a reason.
- 21 The other sharecropping arrangement is 1:1 (or ‘nimma-nimma’). This involves sharing the crop equally, as also all other costs; land and water come from the owner, and the burden of labour is on the sharecropper, including payment to any additional labour hired. While this arrangement is more remunerative, it requires that the sharecropper undertake at least some expenses, which is difficult for landless and marginal farmers to do.

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