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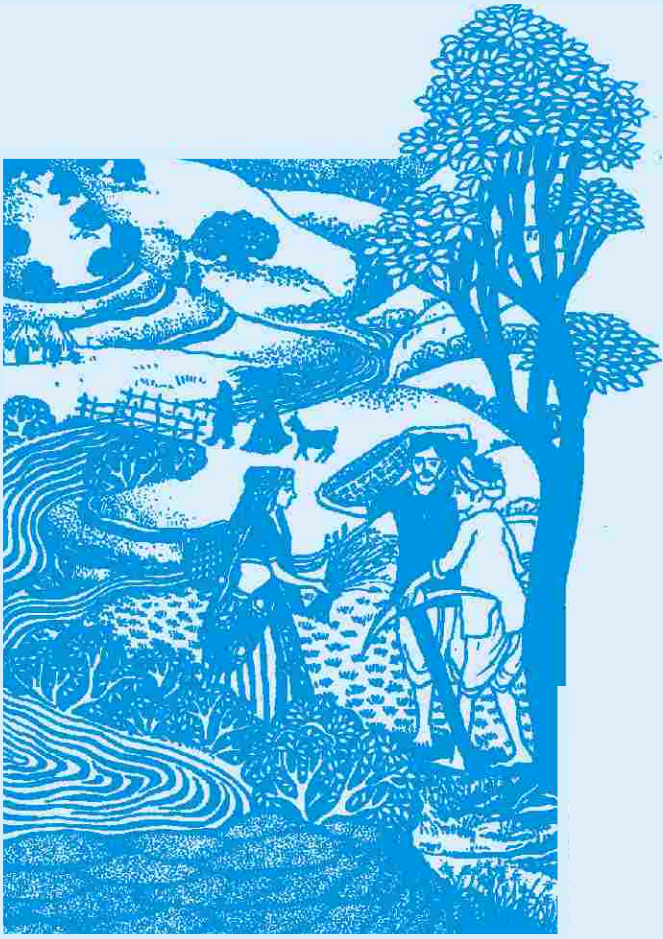
Economic Rationale, Subsidy and Cost Sharing in Watershed Projects:
Imperatives for Institutions and Market Development



Amita Shah

The legacy of a drought-relief measure, step-motherly treatment to drylands, and the delayed, uncertain and social nature of benefits have been the arguments used to justify and defend subsidies for watershed programs. However, the heavy subsidization of investments is unlikely to sustain in the wake of increasing pressure on state resources. Exploring cost-sharing mechanisms therefore becomes critical.

This paper argues that there is a scope for rationalization and shifting of subsidies (a) from private to public resources; (b) from water intensive to water saving devices; and (c) from better-off irrigating farmers to landless and rainfed farmers

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Economic Rationale, Subsidy and Cost Sharing in Watershed Projects: Imperatives for Institutions and Market Development[1]

Research Highlights Based on a Paper with the same Title

Economic rationale underlying a fairly extensive subsidy structure for natural resources (NR) development emanates from the divergence between private and social benefits derived from the use of such resources. Generally, subsidy is justified when social benefit from a particular type of resource use exceeds the private benefits. This often includes incentives for reducing the use (exploitation) of a particular resource. Subsidy is also offered under a situation where, owing to resource constraints, natural resources remain sub-optimally utilized by the private users. Finally, subsidy is also used as a mechanism to mitigate inter-household differences in capacity to invest in and earn from the use of natural resources.

Experience from a large number of the NR-based schemes, including the much debated watershed development programs however suggests that the present subsidy regime is ill-equipped to take care of the sustainability, viability and equity aspects. This is reflected in the fact that often, subsidies are offered for enhancing the resource use rather than the efficiency thereof. Similarly, subsidies invariably become substitutes for good credit support. Lastly, a uniform structure of subsidies, offered to households with unequal capacity to invest, turns out to be regressive rather than equitable.

Against these, evidence from studies on various NR- based programs in India indicates that there are many instances when people, even the poor, are willing to pay for the cost of such programs, especially when private benefits are sure and substantial. Also, there are a number of examples when people have worked out informal mechanisms for cross-subsidization across resources as well as across households. The studies also show a distorted subsidy structure where there are neither financial nor institutional incentives for improving efficiency of the resource use. There are, of course, a few successful examples of administering subsidies in a more effective manner. This paper tries to look into these experiences in the light of watershed development programs (WDPs) in India.

It is the contention of this paper that rationalization of subsidies is critical not only for reducing the financial burden of the state but also for mobilizing effective participation of people and inducing private investment by farmers. Together, these would help in making WDPs more sustainable economically, environmentally, and financially. It is argued that if supported by a more effective subsidy structure, WDPs could unfold new avenues for negotiation among watershed communities thereby strengthening participatory processes for natural resource development across different activities and schemes.

Rationale for Subsidy in WDPs

Prima facie, subsidy for watershed programs can be justified on various grounds as described in Chart 1.

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[1]This highlight is based on an invited paper. Amita Shah is Professor, Gujarat Institute of Development Research (GIDR), Ahmedabad. The original paper is being published in the Economic and Political Weekly.

Chart 1: Rationale for Present Structure of Subsidy for Watershed Projects

Factors	Rationale
Historical	Soil water conservation, the precursor of WDPs, has been undertaken as drought relief measures; the same continues at present
Political	Surface irrigation, yielding sure and substantial economic returns, is heavily subsidized. Keeping a parity with that would justify subsidy for unirrigated agriculture
Economic	WDPs often have low and uncertain economic returns over long gestation periods
Administrative	Jointness of benefits across farms, households and regions; often leading to conflicts
Environmental	Environmental benefits outweigh private benefits

Historically, the watershed development program has its origin in various kinds of soil water conservation (SWC) measures undertaken as relief work during drought years. Subsequently, SWC-measures started getting recognized for their critical importance on the environmental front. As a result, watershed development, in its early phase, became more of 'conservation' oriented intervention rather than productivity focused investment with subsidies sometimes upto 80-90 percent. This scenario, however, has changed since the mid 80s. Given the new perspective, WDPs are expected to play a central role not only in conservation but also in promoting development of natural resources in a manner that ensures sustainable growth in production, increased employment and income, and strengthening of community organizations.

While this is a major breakthrough in terms of setting-up of developmental priorities in favor of dryland/rainfed areas, actual achievements would depend on the effective use of budgetary resources. This is particularly important because of two specific aspects of the WDPs: limited economic benefits and need for continued rather than one-time investments in natural resources to sustain productivity gains in the long run. Moreover, budgetary support, though increasing over time, is fairly small vis-à-vis actual requirements, especially in dryland regions.

Physical coverage of WDPs can be enhanced either by reducing the cost of treatment or reducing the rate of subsidy or both. Experience from a large number of watershed programs suggests that the average cost-norm is quite realistic and reducing it further might affect the quality and/or quantity of work adversely. While there is a fair amount of agreement on the option for reducing the rate of subsidy and reorganizing the existing subsidy structure, a framework within which this issue can be discussed is missing.

Welfare Measures Vs. Productive Investment

As noted earlier, a large part of WDP-related work still continues to be undertaken as relief work where generating wage income during scarcity period is the central objective. This makes it difficult to withdraw or reduce subsidies on similar types of work when undertaken through watershed programs. For a long history of perpetual drought relief programs has created a mind-set among the people (and also among the implementers) that such activities have to be treated as welfare schemes rather than as investment in productive assets. As a result, not only it is difficult to make people pay for such treatments (even when there are significant private benefits), their maintenance is also overlooked. In the process, it sets a vicious circle of low quality of work—low impact on drought proofing—

continued dependence on drought relief programs low level of maintenance—higher incidence of subsidy. Breaking this vicious circle would require linking-up these activities with increased productivity at least during normal rainfall situations and enhancing people's capacity to withstand droughts. Unless this is ensured, withdrawal or reduction of subsidy on a large number of SWC or watershed related activities would meet with strong resistance from people, especially in dryland regions.

While it might make good economic sense to prioritize investments on irrigation because of its higher benefit - cost ratio vis-à-vis WDPs, there is little justification for subsidizing the former and neglecting the latter.

Equity and Political Feasibility

The argument often put forward by the supporters of subsidies for WDPs is that of its parity with the subsidy on irrigation. Viewed from the context of political economy of equity, the argument appears to be fairly valid. For, it raises the issue of the lopsided growth and long term neglect of dryland agriculture in the country. While it might make good economic sense to prioritize investments on irrigation because of its higher benefit-cost ratio vis-à-vis WDPs, there is little justification for subsidizing the former and neglecting the latter. This is particularly true because: (a) about 85 percent of the investment in agriculture has gone into irrigated farming; and (b) investment required for creating irrigation is substantially higher i.e. about Rs. 75,000-100,000 as compared to Rs. 4,000-6,000 per hectare in WDPs. The central point of the argument is that `if farmers in irrigated areas continue to receive subsidies despite higher private returns, there is no justification to cut subsidies received by farmers in dryland region'. This kind of argument, though justified in the larger context of political economy, may lead to a deadlock where one set of wrong subsidization leads to its perpetuation in other set of activities.

Jointness of Benefits: Private and Social

This brings us to the second set of difficulties for designing the subsidy structure for WDPs. To a large extent, this refers to methodological problems and absence of carefully conducted studies on the benefits and costs of different treatments undertaken through WDPs. Problems arise mainly because: (a) large part of the benefits generated through WDPs are in the form of environmental regeneration and therefore difficult to assess and value in monetary terms; (b) impact of watershed development is situation-specific, vulnerable to weather fluctuations and has long gestation periods; (c) benefits often accrue at societal level, hence it is difficult to isolate benefits accruing to individual households/beneficiaries; and (d) benefits arising from different treatments are likely to have strong synergistic effects; making it difficult to decompose the effects of individual treatments and beneficiaries covered by them.

Subsidies provided for the basic investment in SWC-measures have failed to promote private investment by the beneficiaries covered by the project.

Given these problems, the approach generally adopted by government and other funding agencies is to assess economic and environmental benefits, and to work out financial benefit—cost ratio considering the impact on productivity and income. While this is a fairly practical approach for making investment decisions, it does not provide a rationale for identifying the extent, distribution and terms of subsidization across watershed treatments and across households within a project. Also, it does not pay adequate attention to important aspects like private benefits and cost-sharing.

Low Economic Incentives

Together, the above discussion tends to justify the high level of subsidies for WDPs, somewhat on the lines of other natural resource development programs in the country. Besides this, there are certain other justifications for providing subsidies in WDPs in India as well as in other developing countries. For instance, out-migration is found to be closely associated with low investment on SWC measures especially in dryland regions. This may happen because of labor constraints arising out of higher opportunity cost among migrant

workers and preference for leisure during slack season in agriculture. This phenomenon counters the generally held notion about surplus labor and zero opportunity cost. The fact that farmers in a large number of cases do not choose to work on SWC-measures on their own farm even during the lean period suggests that (a) the returns on such measures are not sure or substantial; and/or (b) there is a higher preference for leisure than what is generally thought of in a 'surplus' labor situation. In such a situation, promoting SWC-work would require subsidies that can be justified on the ground of larger social or environmental benefits.

The issue is not whether to provide subsidy or not? Rather, the issue is : subsidy for what, to whom, and how much?

Inducing Private Investments

Notwithstanding the various justifications, experience from a large number of WDPs indicates that subsidies provided for basic investments in SWC-measures have, by and large, failed to induce private investment by the beneficiaries. The only major exception to this is seen in preparation of field bunds and field channels in cases where irrigation facility has been created through the project. Some of the important activities that ideally could have received private investment include mulching, composting, farm forestry, water saving practices including trenching, and improved agronomic practices through additional investment in labor. What is of concern is the issue of maintenance of structures created through the project.

The issue is not whether to provide subsidies or not? Rather, the issue is: subsidies for what, to whom, and how much? Apparently, these issues have rarely been raised among a large number of practitioners who might be over-occupied with the task of convincing village communities to undertake certain activities that might have relatively low/uncertain pay-offs at least in near future. Similarly, questions have been raised about the present structure of subsidies and their poor linkages with expected private benefits, individual's ability to pay, and evolving markets. A number of innovative mechanisms have been evolved to make subsidies work more effectively towards the larger goals of increasing productivity and thereby private investment, enhancing environmental regeneration, and mobilizing people's participation.

Evolving an Effective Subsidy Structure

There are three inter-related aspects having significant bearing on the effectiveness of subsidies in watershed projects:

• **Choosing the technology/treatments for improving productivity and cost-sharing:** Selecting right kind of technology of watershed treatment is very crucial for improving the effectiveness of subsidies. This is particularly true of the subsidy paid for treating private land and/or water resources. In situations where private returns exceed the cost, there is a significant scope for cost recovery. This makes a good case for substituting subsidies by a good credit support. However, shifting from subsidy to credit support would require that the economic viability is fairly well established over time and space.

• **Access to credit:** Secondly, access to credit support is an important pre-condition for increasing cost-recovery and reducing the need for subsidies, especially on the treatments where the expected returns are fairly substantial. It has been demonstrated by MYRADA that if farmers are convinced of the economic benefits they can be made to share as much as 50-60 percent of the cost and even borrow money to pay for such costs.

• **Institutional mechanisms for cross-subsidization and equitable distribution:** Essentially, credit-system and market development hinge on appropriate institutional support. Rationalization of subsidies across ownership pattern (i.e. private-public), households' ability to pay and level of degradation of natural resources need proper calibration while allocating subsidies. Failing to do this might lead to wasteful expenditure, limited benefits, negative

Chart 2: Alternative Trajectories for Watershed Development Programs

Steps	Trajectory I	Trajectory II
Choice of treatments	Wide ranging activities with moderate-high cost and leading to substantial economic benefits	Emphasis on the basic treatment with emphasis on cost-sharing rather than surplus generation
Cost-sharing	Substantial sharing of cost by the beneficiaries in the range of 20-60 percent because of the higher expected returns	Difficulties in mobilizing people's contribution due to low expected returns
Maintenance	People will put their own resources as they have direct stakes in terms of losing a part of the potential benefits	Indifference to the activities and limited time frame for the survival of the treatment
Induced private investment	Moderate high in terms of field bunding on irrigated fields, additional inputs, improved agronomic practices, land leveling, mulching, composting etc.	Only when additional irrigation is obtained through the project
Credit support	Willingness to share cost may lead to higher demand for credit	Borrowing appears to be a risky proposition due to low expected returns
Market development	Credit support can strengthen development of market for various services	Depend mainly on the project and subsidies
Institutional mechanism	More interactive with negotiations	Operates as a post-office to disburse subsidy

demonstration effect and therefore low participation and limited cost-sharing. *A priori*, two types of trajectories can be visualized with respect to the subsidy—structure and its outcome (See Chart 2).

Subsidy Structure and Cost Sharing: Some Experiences

According to WDP—guidelines of the Ministry of Rural Areas and Employment (MoRAE), people's contribution in watershed projects is mandatory. While there is no strictly stipulated norm for sharing of costs, it is expected that people will contribute about 5-10 percent of the cost for treatments on common property resources (CPRs) and about 20-25 percent for treatment of private lands. In actual practice, the extent of contribution is often linked to the approach and experience of the implementing agency. In this context, it would be useful to understand major limitations of the present structure of subsidy (or cost-sharing) mechanism in state supported watershed projects.

• Norms for cost-sharing are fixed on ad hoc basis rather than by working out expected benefits from each treatment.

• Project guidelines make a distinction between public and private resources but not between

treatments on the two sets of resources. Similarly, location of treatment on different elevations on the ridge is also not taken into consideration.

• Choice of treatment is guided more by initial costs rather than after considering the resultant net returns. As a result, many treatments preferred by communities are not included in the plans.

• Sequence of treatment/activities is not properly laid out. It would be better to start with interventions that help improve productivity and also provide incentives for adoption of certain measures that have high economic returns.

• Cross-subsidization across resource/treatments as well as across households is generally absent. This can be ensured through a process of intra-community negotiations.

• In most cases, cost-sharing is notional rather than real. This happens because the cost-norms are based on the stipulated schedule of rates (SOR) for different activities. These are often higher than the actual costs incurred by watershed committees. The difference between the two, at times, is treated as people's contribution. In fact, saving of cost in this manner should ideally provide an opportunity to pass on part of the funds for subsidizing activities where economic returns are low; or to households whose ability to pay is limited.

• Finally, there are certain activities which can help improve the efficiency of resource use. In irrigation, for instance, under the current regime, subsidy is given for using more water rather than for using it equitably and efficiently. The need is to shift the subsidy to the latter.

Concluding Remarks

We have examined the economic rationale for subsidies in watershed projects and have looked at the scope for improvement in terms of cost-sharing and cross-subsidization to ensure better impact (both economic and social) and ensure greater equity. Three important implications emerge from the analysis:

• While the basic rationale for subsidy in watershed projects lies in the larger social (and environmental) benefits, there are also other justifications including considerations of inter-regional and inter-household equity.

• Bringing credit-support prior to watershed activities can go a long way in achieving effective mechanisms for cost-sharing and reallocation (rather than withdrawal) of subsidies. The long-term goal should be to promote private investment in a manner that enhances productivity of land while ensuring economic viability and environmental sustainability.

• There is a need to de-compose the summary estimate of benefit-cost ratio at the level of different treatments and activities undertaken by a watershed project. Once this is done, it gives a fairly good basis to map-out the extent and nature of benefits and beneficiaries. This, in turn, could help to initiate a process of negotiation among households benefiting from different treatments. It appears that there is a good case, and also scope for shifting subsidies (a) from private to public resources; (b) from water intensive to water saving practices; and (c) from better off irrigating farmers to landless and rainfed farmers.

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IWMI-Tata Water Policy Program

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