Alternative Restructuring of the Sardar Sarovar

Breaking the Deadlock

The Sardar Sarovar Project has been the focus of a long drawn-out conflict between the Gujarat government and experts, on the one hand, and anti-big dam activists, on the other. This is a revisiting of the principles behind an alternative that was articulated 10 years ago, but is still relevant today.

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The Sardar Sarovar Project (SSP) in Gujarat is a huge project with a planned service area of 1.8 Mha or 18,000 square km. It has a submergence area of 360 square km, spread largely between Madhya Pradesh, Maharashtra and Gujarat and has been the focus of a conflict from its very inception. The main parties representing the two extreme positions may be summarised as the official establishment, comprising the Gujarat government and experts, and, anti-dam activists, who view big dams generally, and the SSP in particular, as unmitigated environmental, social and economic disasters. In some ways there is also an underlying conflict between the people of the drought-prone areas of Gujarat, who think the Narmada is their "lifeline", and the adivasis in the upstream region, who stand to lose their land and way of life for an abstract "common good".

We believe that there is a third way; an alternative that can effectively reconcile the opposing stands. This alternative (the SJ plan) was put forth in the book, *Sustainable Technology: Making the Sardar Sarovar Project Viable*, published in 1995. Ten years later, the SJ plan itself has become less relevant as the state continues to inexorably raise the height of the dam. The principles behind it however are still pertinent. In what follows we revisit these principles in the context of the alternative restructuring of SSP. We have concentrated on a few of the central precepts and not on the details and, more importantly, have left out of this exposition the energy component, not because it is irrelevant – in fact, it informs the entire argument – but because it needs to be dealt with separately.

A Summary of the Alternative

The alternative proposal ensures a delivery of 9 MAF of Narmada waters to Gujarat, but with a much smaller height and brings down the submergence by over two-thirds the current level. It retains the power benefit at levels very close to that of the present SSP plan and within the same order of cost. It greatly increases the share of Narmada water delivered to the drought-prone regions of Gujarat, without a substantial reduction in the incremental irrigation benefit to rest of Gujarat, and extends the total service area from 18 Mha to 41 Mha. It provides for equitable and sustainable water use in the service area and for permanent tree cover over a little less than one-third of the service area of the project. (For a comparison of salient features, see the table.) This is made possible by a radical change in approach that is presented in the paragraphs that follow:

Integration of Large and Small

Dispersal of storage: The alternative does not see the conflict as one of large versus small, but as a question of the relation between the two. When planned and used properly, large sources can support smaller and local systems and are important in increasing their reliability as well as sustainability. Most large systems are today planned with behind-the-dam storage comparable to the total planned water use. The alternative breaks from this practice and treats dispersed local storages as the main storage element. Consequently, the dam is seen as diverting water for filling and/or refilling local storages, while the

Table: Comparison of Alternative Plan and the Current Plan

No	Item	Alternative Plan	Current Plan
1	Storage level at SS dam	107 m (90 m baseline level)	140 m
2	Total submergence	10,800 ha	36,000 ha
3	Displacement	Drastic Reduction in displacement	1.5 lakh people displaced
4	Rehabilitation	Within the same area with assured share of Narmada water	Uprooted, rehabilitation in new area
5	Upstream service area	More than 1 lakh ha	Nil
6	Gujarat service area (of which)	41 lakh ha	18 lakh ha
	Saurashtra	13.1 lakh ha (32 per cent)	3.9 lakh ha (22 per cent)
	Kutch	4.0 lakh ha (10 per cent)	0.4 lakh ha (2 per cent)
	North Gujarat	14.7 lakh ha (36 per cent)	3.1 lakh ha (17 per cent)
	Rest of Gujarat	8.9 lakh ha (22 per cent)	10.6 lakh ha (59 per cent)
7	New electricity generation	850 MW	1,400 MW
		2,600 MU	3,600 MU
	Consumed in the project	1,646 MU	1,138 MU
	Peak load capacity	1,200 MW	1,400 MW
	Gas-solar hybrid generation	2,00 MW	
	out of saving	1,750 MU	Nil
8	Surplus energy	At least 4,410 MU (26.3 MT) produced as biomass	Not planned
9	Equitable water distribution and sustainable development	Basic issue	Not planned
10	Total cost (Rs crore)	12,920	13,000
11	Expenses on local employment and services (Rs crore)	3,620	Negligible
12	Cost recovery	Based on distinction between basic and economic service	No such plan
13	Gujarat's total share of Narmada water	9 MAF	9 MAF
14	Loss of forest	3,000 ha by submergence and 10,000 ha low grade forest for rehabilitation	13,700 ha substantial prime quality forest
15	Permanent vegetative cover in service area	11 lakh ha (23,000 ha in upstream contiguous to forest area)	No provision

storage behind the dam mainly becomes a regulatory storage. This greatly reduces behind-the-dam storage and consequently greatly reduces submergence behind the dam, yet it allows utilisation of larger quantities of water.

Integration of local and exogenous water: The alternative has a similar approach to local and exogenous water. In fact, the alternative includes the development of local water resources and their integration allowing a doubling of the planned service area. This is a learning from the so-called "system tanks" in Tamil Nadu, which are rainfed tanks that are refilled from large sources, greatly increasing their reliability.

Dual role of small systems: Thus small systems have a dual role; they harness local water resources and act as dispersed buffer storage elements for water from the large source. Taking into consideration that local systems need to be built in their own right, this synergy is the greatest cost saving measure proposed by the alternative. It starts with an integrated view of the large and the small and makes the large system a supporting and strengthening system for the small system.

Feeder canals: The canal network mainly functions as "feeder canals" planned for speedy conveyance to the local storage systems. The system becomes modular, simplifying and rationalising the arrangement and cutting down on top-heavy, centralised aspects.

Local storage potential is very large: Local storages are mainly limited by expected yield rather than actual storage potential. If exogenous water is available it is possible to build larger storages or increase the capacity of existing ones at little additional cost.

The alternative manages to improve on set patterns because it gets away from the conceptual as well as the administrative Chinese wall that separates small and large systems. It starts with local systems as the central concept, strengthens them and integrates large sources with them as supplementing and reinforcing elements.

Run-of-the-river operation of hydropower plants: The second important change proposed in the alternative is in respect of the power from SSP. The reduction of storage behind the dam as well as the reduction in the height of the dam would mean losing the entire power benefit if the hydro plant is operated conventionally as a peak load plant based on behind-the-dam storage. The alternative suggests a run-of-the-river (RoR) operation of the power plant during the monsoon and a pumped hydro operation for peak load, post-monsoon. This fully preserves the peak load benefit from the plant, and comes close to the new energy generation benefit of the present SSP. In fact, adding a monsoon RoR element and post-monsoon pumped storage element to all irrigation projects would lead to a truly large, dispersed generation and peak load capacity for the power sector.

Implication for post-monsoon flows – bound and unbound: One of the important adverse effects of present planning is the post-monsoon drying up of riverbeds downstream of big dams. In the alternative, since feeder canals mainly divert monsoon flows or accumulation and power generation is RoR, the post-monsoon flows are unbound, making for greater riparian health. Similar provision for retaining minimum monsoon flow can also be built in.

Impact on rehabilitation: The alternative, first of all, brings down submergence behind the dam by almost 70 per cent and makes the problem tractable. Secondly, the concept proposes rehabilitation of the oustees in the upstream area itself, in a socio-cultural milieu and sphere that is familiar to them. This is made possible first, by reduction in submergence and second by providing allocation from the Narmada itself for irrigation and livelihood assurance in a contiguous zone of one lakh hectares upstream of the dam within which the rehabilitation is provided.

Equity and Sustainability: Conditions for Providing Water

There is a need to insist that if exogenous water is to become available both the users and the state must fulfil certain conditions in respect of equity and sustainability. These are listed below:

The water will be available to local systems in proportion to the local resources they harvest and harness (for most regions we have proposed 1 cubic metre of Narmada water for every cubic metre of local resource created). This provision ensures that when exogenous water enters an area the local systems will not simply die as happens these days but prosper instead.

(a) Equitable water access or minimum water assurance for all families in the service area irrespective of landholding and protecting livelihood needs before more water is provided as an additional economic service;

(b) One-third of the service area to be brought under permanent cover. Unlike "compensatory forestry" this ensures that minimum upgrading of the environment happens in the entire service area;

(c) Self-management by those who benefit will ensure equitable and sustainable use. This provision is as important as the others because no top-heavy bureaucracy can fulfil these conditions. Only if the people themselves come together and exercise control can these conditions be fulfilled.

The state too has corresponding obligations: (a) providing requisite funds for harvesting and harnessing local resources. In the alternative, minimal watershed treatment that is twice the service area is included in the project cost itself. Provisions (b), (c) and (d) require that the state enable local communities by ensuring appropriate legislation, policies and incentives so that they are sufficiently empowered to satisfy the conditions.

As mentioned earlier, this short paper reiterates some of the themes detailed in the book. The book discusses these issues in some detail and there is an ongoing discussion on many of these issues, which is available in various places. There is a need to continue this discussion and bring it to a point where water users, present and prospective, come to a consensus and jointly struggle for enabling policies. We would emphasise that these aspects of the alternative are relevant, not only to the SSP, but to all irrigation projects in the country, to the water system as a whole.

A Plea for a Pause and a Dialogue

The alternative was planned with a baseline height of 90 m (and a dam height of 107 m) in mind, and we are the first to acknowledge that every extra metre means that the benefits of the SJ plan decrease, though we feel that a remodelling of the SSP along these lines is still possible. It is important that all parties concerned, especially the people of Gujarat, pause and seriously reconsider and review the project, see to it that they devise an optimal plan that satisfies the legitimate interests of people in drought prone regions of the state as well as the adivasis in the Narmada valley. If this does not happen there will be no winners and the SSP will become nothing more than a monument to our colossal callousness. EPW

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