# FACTS against MYTHS

VIKAS ADHYAYAN KENDRA #4, 2017-18 INFORMATION BULLETIN

## Mega Dams for Development, or, Underdevelopment?

## The Myths behind the Sardar Saravor Dam Project

**Comment:**

The history of large dams parallels the history of development beginning in the 50s right through the 60s; and considered a unilinear way to progress. They epitomized the project of modernity and were central to notions of growth, and, energy-security its overriding concern. At the turn of the century, though, development followed a people-centric, rights-based approach – to be equitable, just and enhance people's choices — executed through a trickle- down approach. At the same time, a booming economy and ever-increasing demand added to pressures on energy and resources.

This vision of development considered hydro-electric power as the most viable source of power generation. Indeed, with a massive untapped potential in the country's river systems, power generated through hydro-electric plants can be possible to meet a huge amount of the demand. In 2006-07, 17 per cent of the total power was generated by these power plants. Yet, this is far less than the projected potential of 148701 MWs of power, as underlined by the National Hydro Power Corporation. Only 19.9 per cent of this has been harnessed till date![1] So, this begs the question: Is hydro-electricity actually sustainable in the long run?

An enormous amount of effort has since gone into gauging the socio-economic impact of dams especially with respect to forced displacement and re-settlement. Their direct and indirect impact — on the lives and livelihoods of rural communities – their power and employment opportunities – is also well recognised. However, unlike other infrastructure projects their impact is greater as they entail major changes not merely in the socio-economic and cultural spheres but also on the whole eco-system. Changes also include those in the immediate environment, including local family units, community and kinship patterns of life, as well as to natural resources.

Above all, these changes have been marked by one serious lacuna, namely, the question of gender. These changes are very much gendered but have not received the necessary attention; much less on how gender and dams are inter-connected![2] Mega projects like the Narmada or for that matter the Bhakra Nagal Dam, etc., affect men and women in a number ways. Indeed, gender has been the missing link in the impact assessment of large dams! This dimension – along with the costs-benefits links – has been missed altogether. The skyrocketing costs, economic value, etc., of these projects is also a serious concern.

The situation today is exacerbated by the issue of global warming and climate change whose impact is widespread and rising frequently. In mountainous States like Bhutan, for instance, the effect of glaciers is a common and unsettling experience. Geologists have shown photographs

of serious glacier retreat. With temperature rise, melting glaciers have increasingly formed unstable lakes on mountain tops resulting in floods. Engineers, scientists, among others have rushed towards devising flood preparedness; early warning systems including efforts to lower the level of dangerous glaciers lakes. They have also desperately tried to reinforce the plan so it can survive potential hits caused by glaciers.[3]

Similarly the question of land. In Northeast India, land is at a premium, and where two-thirds of the area is made of hills and mountains. With less than 3 per cent cropland, the State of Arunachal Pradesh is India's most sparsely cultivated area. Of the few patches of fertile alluvial soil, the most priceless are the lower banks of the Siang River. Incredible as it is, a huge 2,700 MW hydroelectricity project has been under construction on the lower Siang. This will drown 51.51 sq.km. including valuable paddy fields.[4] Above all, 150 more dams are to be built in the State; the dams will also compound the impact of climate change in a number of river basins in various other parts of the globe.

These illustrations however are merely tip of the iceberg. Unpredictable weather conditions becoming the norm disturbing questions are being raised, as well as to the legitimacy of mega projects as models of "development". The global climate crisis has forced a rethink of all such technological development innovations — mega dams, nuclear power, inter-linking of rivers, fracking, etc. — responsible in bringing planet earth to such a dire state. There is after all only One Earth! The urgency thus is to think of a new but viable mode of development thinking — towards a more sustainable and holistic mode of development — if humankind is to survive.

**MYTH:** India's massive river systems is a huge reservoir of untapped energy resource which when tapped, through hydro power plants, will meet the energy needs of the whole country

**FACT:** Undoubtedly, hydroelectric power is the most viable source of power generation.

However, hydro-electricity in the long run is not at all sustainable.[1]

The acute need for power generation is obvious. But with any kind of production there are always huge costs, often hidden. The question is, how much is the cost, and who is paying it? Are those enjoying its fruits, paying back in the same proportion of it as well?

Indeed, dam-construction is highly costly matter plainly in financial terms. Often, current expenditure will only revenue after a minimum period of 5 years. It takes even longer for such ventures to turn profitable. There are also cost-overruns, which means that final expenditure is more than what was initially allocated.

There is also the major concern in the environmental cost that most mega dams (any dam over 30 m. in height) incur. "Dams do not significantly impact gross or net irrigated area in their own district, because of submergence and degradation of land around the reservoir, but do increase irrigated area downstream by 1.1 per cent. Cultivated area also decreases substantially in the district and marginally in downstream districts, due to loss of land to submergence, canal building, water logging and salination."[1] Mega dams have been estimated to have flooded around 37,500 sq.km. of land, a lot of which is very fertile but is now rendered useless.

Furthermore, there is large number of people displaced and disposed, especially those living in the catchment area, which gets submerged. These estimates vary from 21 to 40 m. but in the absence of proper records, could even be a lot higher. "The inequitable distribution of risks and risks that large dams bring, have thus forced people to look into the actual viability of such projects. For the benefit of the bigger cities and a growing industry, the upstream population, which is largely rural, is paying".[1]

There is also a question of political representation. Why are such mega projects carried on, sometimes even without the required environmental clearances and with such powerful opposition against it? Obviously, cities, even after being a minority, are more strongly represented, than the rural sections of the country?!...Decision makers do not even consider the range of non-monetised displacement and environmental effects of infrastructure projects.

**MYTH:** The Narmada Dam Will be a source of clean and cheap renewable energy

**FACT:** On the contrary! The Narmada like other dams is also far from green. This dam also comes with several negative impacts; reservoirs submerge tropical soil and vegetation – organic matter, as it decomposes, emits significant greenhouse gases.

## THE SARDAR SAROVAR DAM: A Brief History

*Adapted from Express Web Desk, New Delhi, September 17, 2017*

On occasion of his 67th birthday, Prime Minister Narenda Modi inaugurated the Sardar Sarovar Dam on the Narmada river. Having a length of 1.2 kms and a depth of 163 metres, the dam is expected to be shared among the three states of Madhya Pradesh, Maharashtra and Gujarat.

The Sardar Sarovar project was a vision of the first deputy prime minister of India, Sardar Vallabhbhai Patel. The foundation stone of the project was laid out by Pandit Jawaharlal Nehru on April 5, 1961 after carrying out a study on the usage of the Narmada river water that flowed through the states of Madhya Pradesh and Gujarat and into the Arabian Sea. The dam however was not the Dam of today! It was for a much smaller dam of 162 feet height. A project report prepared for the dam led to much dispute over the means of distributing the Narmada water among the three states. As the negotiations bore no fruit, a Narmada Water Dispute Tribunal (NWDT) was created in 1969 to decide the fate of the project.

After having studied a large number of reports and studies made by the three states, the NWDT gave its verdict in 1979. Accordingly, the 35 billion cubic metres of water available for consumption from the dam, Madhya Pradesh would receive 65 percent, Gujarat 32 percent and Rajasthan and Maharashtra would be eligible for the remaining 3 percent. The Planning Commission finally approved the project in 1988.

As the planning of the project was on its way, it became clear that the dam failed to meet the required environmental and social conditions as meted out by the Ministry of Environment and Forests. Incidentally the dam was first challenged when it was first proposed under the banner of Nimad Bachao Andolan in the 60s.[5] A more serious critique of the dam was from Medha Patkar who first visited the site of the dam in 1985. Alongside her, other notable public figures made a strong case of protest against the Narmada — Baba Amte, Arundhati Roy , Aamir Khan. On the 3rd day (July 30, 2017) of the indefinite fast of Medha Patkar the world renowned American linguist, social critic and political activist, Noam Chomsky also registered his protest.

The consistent struggle to dismantle the project built a huge amount of pressure on the World Bank and a bank commissioned panel was set up to review the project. On concluding the fact that inadequate assessment had been made by the Indian government and the World Bank prior to sanctioning the project, the government on March 31, 1993 cancelled the loan authorised by the World Bank.

After several years of much deliberation, however, the Supreme Court allowed the construction of the dam to proceed, provided it met with certain conditions. The foremost condition placed by the Court was that all those displaced by the increase in height of 5 metres be satisfactorily rehabilitated and that the process be repeated for every five metres increase in height.

Currently the height of the dam has been raised to 138.68 meters with a usable storage of 4.73 million acre feet of water.

Dams power the generation industry, whose mines bring more infrastructure development. And the industrial waterways make possible by other dams would promote large scale agriculture and commerce, which would drive further deforestation. They not only lead to both deforestation and climate change, but will also suffer the consequences of these establishing forces. As droughts become more frequent and rainfall decreases the river flow will likely decrease significantly and become more variable.

With dams unlikely to reach their installed capacity or provide reliable power generation as a result, the economic case for investment in such technology is greatly weakened.

## Timeline of Narmada River Events

*An account of the displacement of villagers in rural India, through the construction of dams such as Sardar Sarovar, funded by the World Bank*

| Year | Key Events |
|---|---|
| 1940s | Preliminary investigations into possibility of damming Narmada River for hydroelectricity and water redistribution. Justification is for irrigation and power for development. Irrigation projects would help Gujurat and Rajasthan, two water-scarce areas. |
| 1947 | Indian Independence from British. Jawarhalal Nehru calls dams the 'Temples of Modern India' |
| 1948 | Nehru addresses villagers whose homes will be submerged by various dams on the Narmada: "If you are to suffer, you should suffer in the interest of the country" |
| 1957 | Navagam site recommended for Sardar Sarovar Dam |
| 1958 | Nehru becomes more cautious about big dams when speaking to the Ministry of Irrigation and Power: "We want to show that we can build big dams and do big things ... but the idea of having big undertakings and doing big tasks for the sake of showing that we can do big things is not a good outlook at all." |
| 1961 | Nehru goes ahead with Sardar Sarovar plan |
| 1964 | Prime Minister change, Nehru no longer in power. A series of other leaders are voted in, Indira Gandhi (in 1966) |
| 1979 | Sardar Sarovar Dam is announced as going ahead. |
| 1980 | Foundations laid for Sardar Sarovar. The World Bank shows interest in funding the project |
| 1983 | World Bank sets up a new department to deal with re-settlement issues around dams. NGOs from around the world, unhappy with World Bank loans and their impacts on environments and societies in developing countries, band together to form a campaign against funding of various Narmada dams |
| 1984 | Global attention is brought to protests against the dams |
| 1985 | World Bank agrees to finance Sardar Sarovar with a contribution of $450 million, without consulting the Adivasi communities that would be displaced. Their goals are to a) further the progress of India's long-term power plan, b) bring potentially valuable agricultural land in Gujarat and Rajasthan under irrigation, and c) supply domestic, municipal and industrial water for Gujurat |
| 1987 | Sardar Sarovar construction begins |
| 1989 | Narmada Bachao Andolan (NBA or Save the Narmada Movement) is officially formed. |
| 1991 | 21 day standoff between police and NBA, with NBA hunger striking. As a result, the World Bank agrees to an independent investigation into its financing criteria and practices. |

*contd.* >

< *contd.*

| | |
|---|---|
| 1992 | The independent report is released, showing that the World Bank has violated its own policies in funding Sardar Sarovar and stating: "The Sardar Sarovar Project is flawed. Resettlement and rehabilitation of those displaced is not possible under the prevailing circumstances and the environmental consequences have not been properly considered". NGOs in developed countries including England and the US write an open letter to newspapers demanding that their governments withdraw funding from the World Bank if they continue to finance Sardar Sarovar |
| 1993 | World Bank withdraws funding for Sardar Sarovar because of pressure. The Indian Government continues however, and Manibeli is the first village in Gujarat to be fully drowned because of the dam during the monsoon. This caused the NBA to promote 'sacrifice by drowning' or *jal samarpan* as a way of protest. |
| 1994 | Work is halted on the project because of legal disputes |
| 1999 | The Supreme Court rules that work is to be resumed on the dam |
| 2005 | The Supreme Court acknowledges that the resettlement and rehabilitation was inadequate |
| 2006 | Project application for further work on dam. NBA launch hunger strike again. Dam continues to be built taller while resettlement and rehabilitation projects fail. |

On the widespread claim of cheap electricity. Hydroelectricity is indeed very cheap to produce – once dams are built. The major problem however is the enormous cost of building dams and the long time it takes to build them. For instance, the Itaip Dam cost over $18 b. and took over 18 years to build. Dam designers, engineers, etc., are always overly over-enthusiastic on how much power dams will produce but often fail to take into account the impact of natural and manmade disasters like droughts. This means that dams often produce less power than promised. (The Itaip dam generates around 20 per cent less electricity than what was earlier claimed.)

When these high costs, delays and risks of low river flows are factored into the required calculations of the costs of electricity, it can be noted that hydropower is now an expensive form of power generations. Besides, it should not be considered as clean power because of the destruction of river eco-system and its various related impacts.

This fact has since been corroborated by researchers and scientists. In 2014, the Oxford University found in its study that actual construction costs of such mega dams were too high to field a positive result. This trend observed from 1934 to 2007—has not improved over time according to their study on 245 large dams from 65 countries.

**MYTH:** Stored water in dams (on being released produces electricity at any time) fills the gap created by renewals (i.e. when the wind stops blowing or the sun's energy is interrupted)

**FACT:** These industry viewpoints, backed by the International Hydropower Association (IHA), downplay the critique that dams generate very heavy methane emissions. They also falsely argue that pre-existing carbon emissions at dam sites along with human activities are un-related to dams; hence must not be calculated in a dam project's carbon footprint.

However, experts in their studies have shown that the carbon footprints of dams have not been thoroughly or completely studied and there is under-accounting of the climate impact of dams. In 2012 a study by a Singapore group further showed that the GHG emissions were indeed underestimated.

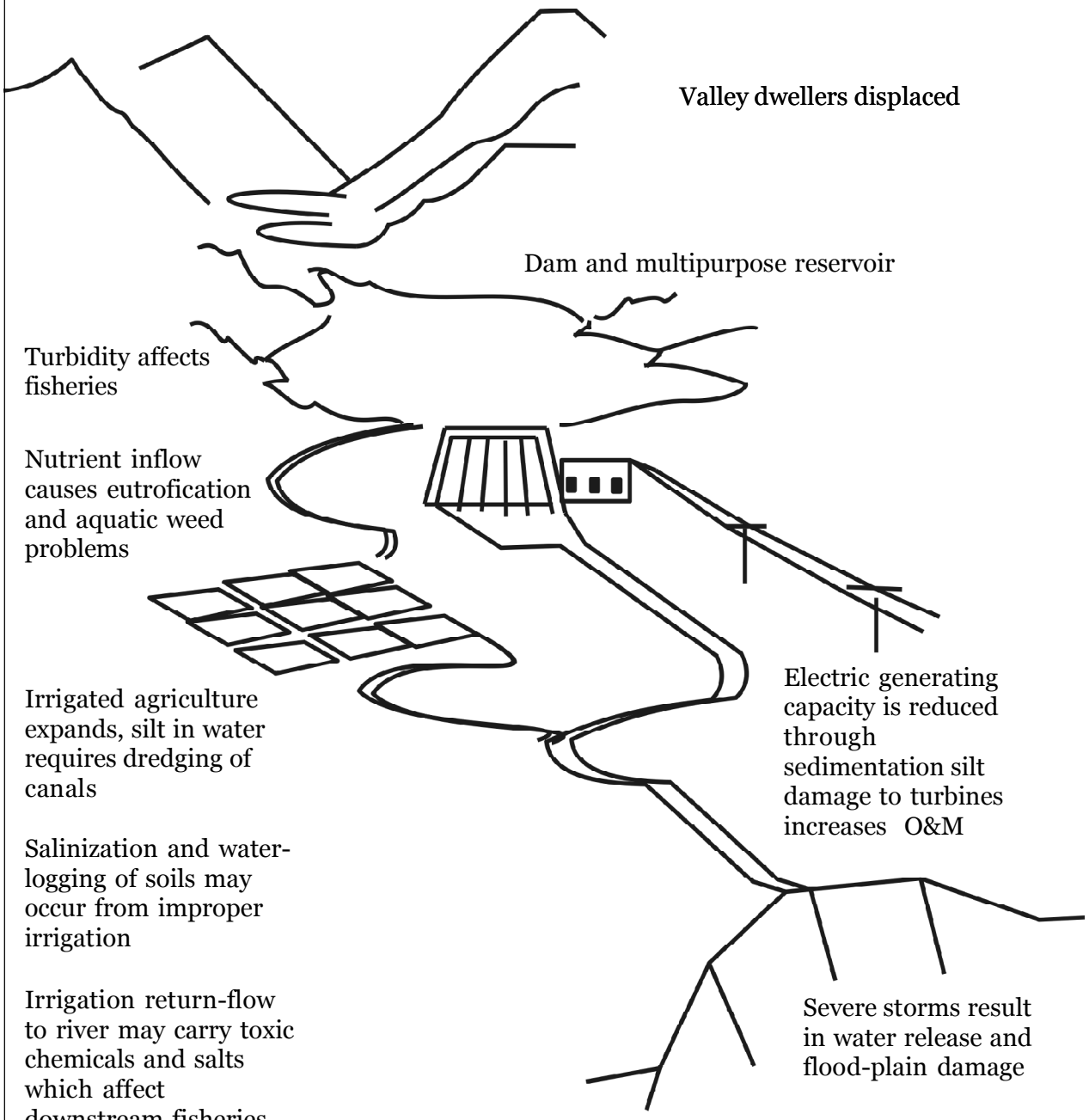
Another relevant point is that the UN agency, the Intergovernmental Panel on Climate change, failed to include in its inventories the GHG emissions of hydroelectric dams in tropical countries where dams emit more methane than

## Impacts of Multipurpose Dam Projects

Upland activites (farming, forestry, agroforestry, roads and settlements ) cause soil erosion, silt, and chemical pollution of streams. Sediment is stored in delivery system awaiting storm events.

Migrants add to population pressure on marginal lands, increasing soil erosion.

Sediment from eroded soil is deposited in reservoir and reduces storage capacity



those in temperate zones [6] The actual amount of emissions is not reflected because factors such as turbines, the decaying of trees surrounding the dams and underestimated methane concentrations in tropical forests compared with low vegetation areas in higher regions are not taken into account.

They explain that GHGs from hydroelectric dams are released from the stratification of reservoir water when anoxic water or water that has little oxygen stays at the bottom of the reservoirs along with other organic matter which then forms methane that eventually bubbles its way up to the atmosphere. The findings of this study has since been confirmed by a French study on the Laos Nam Theum 2 reservoir[6] noting that the dry season caused the rise in methane emissions around the Laos dam.

To conclude, the experts warn that until and unless the impact of hydropower, in tropical countries, fail to consider the need to reduce GHG emissions then the UNFCCC's negotiations will fail to achieve its target of limiting global warming to below the 2 degrees Celsius threshold.

**MYTH:** The Narmada dam will displace and dispossess the adivasis but this is an unavoidable reality as it is the price that people must have to pay for the sake of the Nation's development and it is, anyway, far too late to stop the construction of the dam.

**FACT:** This myth begs the question: who constitutes the "people" and the "Nation"?

From the claim, the answer is only too clear. They do not include the adivasis or the rural poor, who invariably have to bear the cost of such "Development Projects"!

On the other hand, the ultimate beneficiaries will be

* the rich cash-crop farmers;

* the big monopoly houses of the Ambanis, the Indian Petro Chemical Corporation Ltd, among others who are desperately dependent for the Narmada waters;

*the hotel and tourist industry apart from other vested interests like the dam contractors.

Further, citing the data around the water utilization, distribution, and incomplete canal network and massive escalation of costs, she said that the Sarda Sarovr Dam is primarily for the corporate interests. The way water has been diverted and allocated to the car industries, coca cola factories and Delhi Mumbai industrial corridors, it can be only be paid that the farmers and those in parched areas of Kutch will not get the water.[8]

To the question – whether it is too late to halt the construction of the Narmada Project. Way back in 1986 the then Ministry of Environment and Forests conveyed its unequivocal stand to abandon the Project (ref: in the case of the Tehri Dam Project). It was specifically pointed out that the money already spent has been taken into account. In 1992, the Report of the Independent Review on the Narmada had noted equally clearly. "No one wants to see this money wasted. But we caution that it may be more wasteful to proceed without full knowledge of the human and environmental costs".[7]

## References:


1. Manibo, M. Are Mega Dams a Solution or Burden to Climate Change? International Rivers, Berkeley, May 4,2016, USA

2. Srinivasan, B. & Lyla Mehta. Balancing Pains and Gains. A (Draft). Perspective Paper on Gender and Large Dams, World Commission on Dams, (WCD), Cape Town, 2000

3. Liu, C. Can Big Dams Prove Sustainability? Scientific American, December 4, 2013

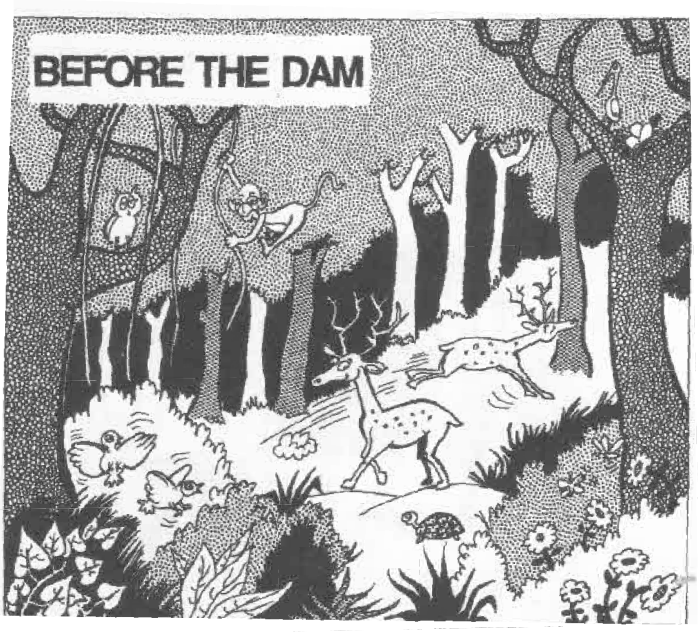
4. Mazoomdar, J. Losing the best croplands to Dams, Tehelka, June 8,2013

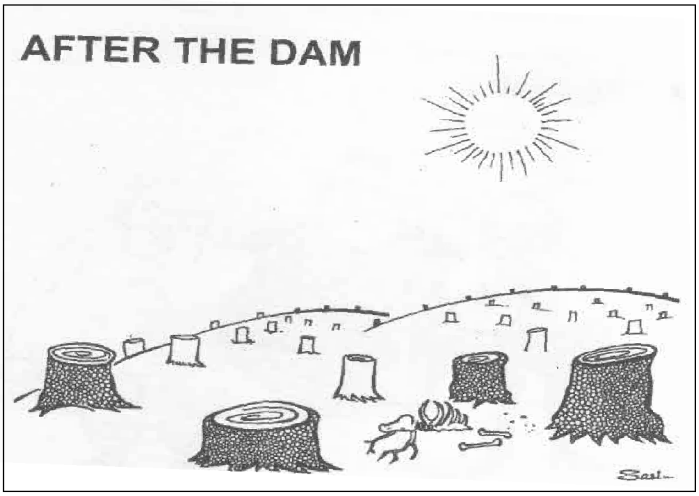
5. The Dedication of Sardar Saraovar Project Remains Incomplete, BBnCC@googlegroups.com September 18,2017

6. Large Dams and Related Controversies in India, The View Paper.net, March 28,2010

7. "Dedicating" Sardar Sarovar Dam to the nation: It's time to revist India's develpmental model, Counterview.org, September 22 2017

8.. Dogra, B. "Large Dams and Nuclear Power Plants", in The Encyclopaedia of Development Evironment and Welfare, New Delhi, 1995




The graphic (above) is from the VAK publication, "In posters A Social Commentary through Cartoons" by K.P.Sasi, counter-culture activist/alternate documentary film-maker.

Next Issue:

Hunger and Starvation



*Facts against Myths is a bi-monthly bulletin of factual information on a number of development myths and fallacies, etc, including information against alien development models, paradigms and false concepts on caste, creed and gender.*

*Produced and Published by:*

**Vikas Adhyayan Kendra,** D-1 Shivdham, 62 Link Road, Malad (W), Mumbai 400 064, INDIA
**Phone :** +91 22 2882 2850 & 2889 8662 **Fax:** +91 22 2889 8941
**Email :** vak@bom3.vsnl.net.in **Website** : www.vakindia.org

*Printed by:* Sudhir Joglekar for
Omega Publications, 2 & 3 Emerald Corner, Maratha Colony, Tilakwadi, Belgaum 590006
Cell : 09886203256