
Susan Visvanathan¹
Jawaharlal Nehru University
New Delhi, India

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SACRED RIVERS: ENERGY RESOURCES AND PEOPLE'S POWER

Abstract

This paper is concerned with the way energy requirements in the last three decades have seen a response from local communities who wish to express their love and longing for traditional occupations. Agriculture is a multi-faceted representation, and riverine civilisations have epitomised the relation between land, labour and production not just as a relation with technology and culture, but also in terms of the symbols of the sacred. With large scale over utilisation of resources and a lack of vision, the rivers are polluted. People's movements draw on the work of scientists and those working in the Arts, including the Humanities and the Social Sciences to draw attention to the way in which petitions and protests communicate that politics is not merely about imposing 'the good vision from above' but is an interplay between the political, the legal, the socio-religious, the secular and the economic. In a democracy, politics is essentially about dialogue, and the rate of industrialisation may well be mediated by the power of the greens and environment movements, which have learnt their lessons from genocide of peasantry and tribals, and the mass exploitation of the resources of nature. The Sociologist attempts to document some of the shifts and evolving positions in this ongoing debate in India.

Keywords: rivers, hydroelectricity, pollution, save Ganga movements, phage, Benaras, Tehri, Kerala, Tamilnadu dam resistance and colonialism, socialism, people's movements, capitalism and conspicuous consumptions

The question of water and land have become the politically most sensitive questions today. Rivers are recognised to be ancient embodiments of the gods as well as sites of civilisation. The last hundred years have transformed the way we think about rivers and embankments. In Kerala, the Mullaperiyar, with its source in the border of Kerala and Tamil Nadu, which was once called Madras Presidency, faced many public battles regarding not just the use of the water, but the age and viability of the dam. The Malayalis have seen apocalypse in the

¹ E-Mail: susanvisvanathan@gmail.com

eroding dam and have led processions and marches till they received assurance that the 19th century Mulla Periyar would be repaired, and a new dam built further downstream by their own state government. Anand Pandian writes of a colonial engineer called Major John Pennycuick who built the dam, and to whom a Tamil ode has been written, extolling his virtues in changing the drylands of Madurai into a silken quilt of green, where women, who were previously used to famines, now bedeck themselves and dance like peacocks and swans. Major Pennycuick who invested his own money in the building of the dam, and requisitioned finances from local people is also thought to have thrown his second wife, pregnant with child into a crack, to seal the dam. There is a famous tantric tradition of human sacrifice to stabilise the new building, which the colonist seems to be implicated in, by which he becomes the cultic embodiment of the artificially created fertility of a once dry area. Is this to say that no sacrifice is sufficient when it comes to the building of dams? Pandian writes, "The severe famine of 1876-'78 temporarily suspended any administrative attention to the project, but the Famine Commission constituted in its wake specifically recommended the plan to help secure grain production in the hard –hit plains of Madurai. Major John Pennycuick was ordered to assume full responsibility to the proposed project in 1882, and in the same year he submitted a detailed plan that was ultimately sanctioned. The plan called for a thick rubble masonry dam that would eventually rise 176 feet above the riverbed to impound its waters in a large reservoir - water held here would be led through a tributary stream-bed to a mile-long tunnel blasted through the granite mass of the Western ghats, emerging east to tumble down to the plains of Madura. An agreement was signed with the Government of Travancore to lease the necessary lands in 1886, and work on the dam commenced in 1887. The first waters passed out of the tunnel in 1895" (Pandian in Baviskar 2003:14) Interestingly, this is very close to the time the Vice-Regal Lodge in Shimla was electrified after much debate, since the question of coal and gas was being discussed and electricity was seen to be an urgent substitute. (Visvanathan 2006) Anand Pandian uses A.T. Mackenzie's *History of the Periyar Project* (1899) to describe the making of the dam. There were tropical forests, wild animals and leeches, half the year was monsoon, and malaria and cholera killed off thousands of workers who found working at 3000 feet tiring enough. "Hundreds of these labourers perished due to accidents, contagious diseases and climatic exposure – camp hospital registers tell only part of this story as many sick workers went back to their native villages never to appear again at the construction site." (ibid 14-15) Pandian comments that the British commemorated their own dead with grave stones, but the Indian workers graveyard remains unmarked and overgrown with scrub. Ecologically, it is significant that many lower caste communities buried their dead in the land allowing for the earth to rejuvenate. British ideas of sedenteriasation of agriculture in Chingleput have been well discussed by Eugene Irschick in "Dialogue and History" where he suggests

for Chingelput that a rural population was created in order to put in place the idea of village society for taxation purposes in the 18th century, where the temple festivals were supported in order to make way for a co-operative and mutually supportive village society. (Irschick 1994:79) Dams would have a similar place in Modern India, except that, displacement would be the key symbol of re-organisation of society for the creation of the modern metropolis as the hub of political decision making, where a pampered middle class would be led to believe that they were the beneficiaries of the policies of the Nation state, and the rest of the population silent witnesses to transformation.

In 1964, Yashoda, the family maid servant, told me that they buried dead ancestors in the yam gardens, and I thought, then, from a eight year old's perspective that was great proximity indeed. My father's brother's wife laughingly said that our jackfruit tree produced such excellent fruit because it was fed from the water of not just the Pamba which flowed by our field, but by the trapped rain water that passed the adjacent graveyard, which had been land gifted from my grandfather's property to the church. This contiguity to river and water is what makes farmers families so alert to the warp and weft of life and death, to subsistence and continuity which are such essential tropes in green movements. India has never stated the problem ideologically as "agriculture vs industrialisation" till very recently, for Gandhi's influence in Nehruvian real politic is very well known. Secularism had its own enchanted spaces. Nehru's fascination for Buddha and Advaitism in the same breath is worthy of analyses. Diana Eck quotes Nehru,

My desire to have a handful of ashes thrown into the Ganga at Allahabad has no religious significance, so far as I am concerned. I have no religious sentiment in the matter. I have been attached to the Ganga and the Jumna rivers in Allahabad ever since my childhood and, as I have grown older, the attachment has also grown. I have watched their varying moods as the seasons changed, and have often thought of the history and myth and tradition and song and story that have become attached to them through the long ages and become part of their flowing waters. The Ganga, especially, is the river of India, beloved of her people, round which are intertwined her racial memories, her hopes and fears, her songs of triumph, her victories and her defeats. She has been a symbol of India's age-long culture and civilisation, ever-changing, ever-flowing, and yet ever the same Ganga. She reminds me of the snow covered peaks and the deep valleys of the Himalayas, which I have loved so much, and of the rich and vast plains below, where my life and work have been cast." (cited in Eck In Baviskar 1993:30,31)

One of the most brilliant depictions of the Ganges is the work of Michael Aschauer, the Austrian photographer, who had done river length, slow motion studies, of the Danube, the Nile, and went on to photograph the Sacred River in Benaras, using a stably placed camera on the roof of a boat as it travelled, along the rim of the holy city.

In Benaras, the questions raised about river pollution have been steadfast. Sacred concerns and scientific ones are mutually supportive, and the activists and the human rights petitioners have used shared resources to fight their battle. The question of Narmada too has always been read as a political and spir-

itual battle: there has been no conflict in understanding the support that believers receive from secular intellectuals. (Baviskar 1993) Amita Baviskar in "The belly of the River" has posed very significant problems of Nation State bias towards industrialisation, and the productivity of tribal's and peasants vis a vis the assumption that poverty rules, by using agricultural statistics and markers of grain production and self reliance. This data is then juxtaposed with the substitution of the Red Revolutions of the 1950s to 1970s, by the Green Movements in the 1990s, as a symbol of middle class activist preoccupation with the survival of tribal and peasant communities. Milind Ghatwai on the other hand writes that protest movements delay the projects and quotes M. N Buch. "He (Buch) says the "jholawala brigade' opposes everything from nuclear to hydel to thermal power projects." (Buch also says that)"Those who benefit should be made to share the spoils with those who are displaced or deprived of their livelihoods, but projects must go on." Ghatwai also writes, " What started as a struggle against the Sardar Sarovar Project in the 1980s now encompasses every dam on the Narmada in Madhya Pradesh." (Ghatwai 2012:9) Speaking on behalf of People's right of life and work, on the other hand are Suvarat Raju and M.V Ramana,

Contempt for democracy is as old as democracy itself. The British liberal, John Locke, wrote in 1695 that for 'day-labourers and tradesmen, the spinsters and dairy maids....hearing plain commands, is the sure and only course to bring them to obedience and practice. The greatest part cannot know, and therefore they must believe.' The Indian ruling classes have evidently taken these medieval ideas to heart. They are simply unable to acknowledge anywhere in India, that farmers and working class people may have a valid and independent perspective on infrastructural projects that must be respected." (Raju and Ramana 2012:10)

Ideologically, the plank of development as an industrial representation of so called "dead villages" being replaced by the metaphors of spatial re-organisation is well captured by the book "Village Matters" (ed Mattison) Here several authors show that traditional systems of irrigation or the preoccupation with small dams is the right of the peasantry, insomuch as these have been creative spaces where they are able to live their lives in harmony with nature. David Harvey, the Marxist geographer who sees the relationship to Nature as a problematic of theory as ideology writes " I've spent a lot of time trying to persuade engineers that they should take the idea that knowledge, including their own technical ingenuity, is still socially constructed. But when I argue with people from the humanities, I find myself having to point out to them that when a sewage system doesn't work, you don't ring up the postmodernists, you call in the engineers – as it happens, my department has been incredibly creative in sewage disposal." (Harvey 2001:18)

The petition, accompanying the protest, the inscribed voice of the human rights activist, has been one of the most important ways in which the battle over the future of India with regard to waterways has been fought. Along with this are people's meetings, confrontation with Banks, including the World Bank,

and representatives of the Nation state. The use of internet technology and the impact of personalised or collective web dissemination through the Blog has been considerable. Clearly, the penultimate forum is the Court, and the belief that petitions can be formalised and submitted to the judges for coming to a resolution.

The Ganga has always been a site of myth and riverine subcultures, it's reach so phenomenal, that even its tributaries are considered sacrosanct. Diana Eck wrote compellingly about the myths of the Ganga, showing that these myths evolve because of love and attention that people give to the river, and that nature worship integrates the indigenous yaksha and naga tradition.

It is a view in which the universe, and by extension the land of India, is alive with interconnections and meanings and is likened to a living organism. There is no nature 'worship' here, but a sacramental natural ontology. In an excellent essay, Betty Heimann writes: "In India the veneration of Nature has never been discarded as outdated and primitive. On the contrary, primitivity is here appreciated in its productive ambiguity with inexhaustible potentialities. Nature cult is the fundamennt of the earliest form of Indian religions and remains the basis of even the highest and most exalted speculations of Indian philosophy." (Eck in Baviskar2003: 33)

However the enthusiasm with which pilgrims throw plastic into the river, or factories their effluents is perhaps the greatest detriment to River cleaning efforts. In their report, Emerging Contaminants in Ganga River Basin with Special Emphasis on Pesticides, Manoj Babu et al argue that,

The active ingredients in a number of PCPs (personal care products) are considered bioactive chemicals. This implies that they have the potential to affect the flora and fauna of soil and aquatic receiving environments. In some cases, bioactive ingredients are first subject to metabolism by the consumer and the excreted metabolites and parent components are then subject to further transformation in the receiving environment. Personal care products differ from pharmaceuticals in that large quantities can be directly introduced into receiving environments (air, surface and ground water, sewage, sludge and bio-solids, landfills, soils) through regular use, such as showering, bathing, spraying, excretion or disposal of expired or used products. Because of this uncontrolled release, they can bypass possible treatment systems. As a result, PCPs are referred to as pseudo-persistent contaminants (Barceló and Petrovic, 2007). (pg 3 of J. Manoj Babu report)

The authors also detect steroids in the municipal wastewaters and live-stock farming and streams which flow into the river. On a visit to Mathura in 1994, my daughters and I were astounded to see the filth that flew through the streets into the sacred river. Two pundits accompanied us, and one of them jumped into the boat that we took, and then casually took water for us to drink with a cupped palm, exhorting us to drink it, filled though it was with ash and sludge. It turned out he was one of the petitioners in a court case demanding the cleaning of the river in Mathura. All over India, there are people who petition the court to hear their case over the most dramatic of cases, and the spirituality of these places is never denied, though the law is secular. Bharat Jhunjunwala, a former Professor at the Indian Institute of Management, was attacked early this year for

petitioning against damming the Ganges, and his activist colleague Vimalbhai, has started a website. In Kerala, sand river mining has become so acute, that the rivers are drying up, and the reclaimed land is silting up rapidly with foliage and trees, so that people used to bathing and worshipping at the sarpu kavus or snake groves, now find that they are literally without a river in the summer months. That rivers have holy value is a visible aspect of our geo-morphology. People of all religions accept this quality, and infact their own stories of origin are related to the sacred river. The St Thomas Christians of Kerala have many stories of floods, floating crosses, and establishment of churches and Christian hamlets wherever such holy emblems were found, as in the case of Niranam where St Thomas is supposed to have made his first Brahman convert. Farming communities have a long history of living in contiguity with each other regardless of their religious differences. Kalpathy River, a sacred river to the Hindus in Kerala, and a tributary of the Neelam and Bharatapuzha, has an annual festival where Muslim and Christian traders have been setting up shops for several centuries according to tradition. Sacred rivers are not only physical manifestations of the divine spirit cleansing people of all castes and religions, for the flowing water does not carry the weight of distinctions, but it also reproduces on its embankments the architecture of it's mythic representation. So, Kalpathy temple in Pallakad Kerala, recreates the steps of Benaras, because the origin of the temple is from the 14th century when it is believed, a Brahman widow walked to Kashi with her husband's ashes and brought back a stone lingam from there, and received the King's patronage in the establishment of a temple at the site where she placed the lingam. Kalpathy, which is now called a Heritage Village, (with laws regarding repair and renovation of it's streets and houses) is a settlement of Smartha Brahmans who lived by their traditional occupations of Astrology, Ayurveda, Accounting, Temple Management, Music and Mathematics, Vedas and its dissemination and ofcourse a very rich food culture. They were not tillers of the soil, so when the land distribution occurred in Kerala, in the 1950s, they lost much of their wealth and property, and since they had been the backbone of the colonial clerical and bureaucratic structures in the Presidency towns, they were able to enter the professional enclaves of modern India very early. One of the fearsome aspects of the river is that since it dries in summer when the Mallapuram dam is shut, and water released for farmers every three days, sand mining is frequently seen as not just predatory but criminal by the local residents who are afraid to speak out, as threats of murder then follow. (See Visvanathan 2012)

The Case of Tehri Dam

For the farmer, however, the sacred river stands for agricultural prosperity. An activist has summarised the Neeri Report of 2005 to say that, The Tehri dam "is also likely to capture around 65% of the total sediment carried by Ganga at present." In his summary, the Report is thought to valorise the quality of the water for a specific utilitarian purpose, without taking into account how the destruction of algae and phage. I now provide the summary of the Neeri Report sent to me on request, by Dr Bharat Junjunwala.

- *Twenty sampling points were identified in the stretches from Gomukh to Rishikesh and from Badrinath to Devprayag. Maximum five sets of samples were collected from identified sampling points of the rivers (Bhagirathi, Bhilangana, Alaknanda, Mandakini and Ganga) during September 2002 to August 2003 for assessment of different abiotic, biotic and microbiological parameters.*
- *Application of water quality index (WQI), which is based on nine parameters, viz. DO, pH, BOD, temperature, total solids, turbidity, total-P, NO₃, and fecal coliform, at various stretches of the river water revealed that water quality of the river between Tapovan and downstream of Uttarkashi was good (index value 70 – 90) throughout the period of study, while water samples of other areas were ranging medium and good during the same period. An exercise further revealed that WQI values would have been excellent (90 – 100) throughout the study area, if fecal coliform values were eliminated from the 9 parameters used for WQI calculations.*
- *Based on the irrigation water quality classification, water quality of all the sites of the entire stretch was determined and found to fall under the desired category of C₁S₁. The irrigation quality of water having C₁S₁ category is beneficial for growing plants like: Eucalyptus robusta, Acacia nilotica, Casuarina sp., Prosopis tuliflora, Dalbergia sissoo, Azadirachta indica etc.*
- *It has been observed that water samples from different rivers contained specific types of phages. Different types of hosts were required for their detection. The experimentation done at NEERI revealed that Ganga/ Bhagirathi sediment has the capability to adsorb coliphages and induce their proliferation. The coliphages adsorbed to the sediment appear to be responsible for predating coliforms in the overlying water column when the sediment and water co-exist in a container under static condition. The Bhagirathi water to be stored in a dam mimics such static condition and, therefore, shall in no way deteriorate the water quality of the river downstream of the Tehri dam.*
- *The release of copper and chromium under static condition and the synergistic effect of chromium on the bacteriostatic/ bacteriocidal property of copper appear to be the factors which keep the water free from coliforms and other bacteria responsible for putrefaction of water when left for a long time under static condition.*
- *Quantification of U₃O₈, ThO₂ and percent K in sediment samples and comparison of these parameters with those present in other river sediment samples and freshwater lake sediment samples show that Bhagirathi/ Ganga sediments collected between Gomukh and Rishikesh are more radioactive than others though it could not be established as to whether the radioactivity observed could be bacteriocidal. However, possibility of*

existence of synergistic effect of radioactivity on the antibacteriocidal activity of Cu and Cr, in combination, cannot be ruled out.

- *It can be concluded now that the uniqueness of river Bhagirathi/ Ganga lies in its sediment content which is more radioactive compared to other river and lakewater sediments, can release Cu and Cr which have bactericidal properties and can harbour and cause proliferation (under static condition) of coliphages that reduce and ultimately eliminate coliforms from the overlying water column. This is possible as the dam is going to retain practically all the sediment load of Bhagirathi as particles of size of >0.01 mm are likely to be retained in the dam. Thus, Tehri dam is not likely to affect the quality or self preservation property of river Bhagirathi/ Ganga, as it mimics a static container which is conducive for conditions responsible to maintain the water quality. The NEERI study has honed in on coliphage as the source of the self-purifying capacity of River Ganga. There are two types of bacteria in the river water—coliform are harmful bacteria while coliphage destroy the coliform and are beneficial bacteria. Usually a particular species of coliphage destroys one particular species of coliform. There are innumerable species of both coliphage and coliform. Speciality of Ganga lies in the fact that the coliphage are ‘wide-spectrum’—one coliphage destroys many species of coliform.² This helps keep the river self-purify itself more easily.*

Bharat Jhoonjhoonwala's comment on the Neeri report is useful:

The coliphage are absorbed in the sediments after having been created. They lie dormant in the sediments—even for many years—and get revived when coliform enter the water. NEERI has found that coliphage are present in the river water downstream of Tehri Dam up to Rishikesh. Moreover, NEERI has assessed that 10 percent release of sediments from Tehri Dam, plus sediments being added by Alaknanda River at Dev Prayag, will be sufficient to supply the sediments required for the coliphage to survive and multiply hence there is no negative impact of Tehri Dam on the self-purifying capacity of the Ganga.

The special quality of Ganga waters is also due to minute (but high) levels of Thorium, which is radioactive, and high levels of copper and chromium in its waters:

It can be concluded now that the uniqueness of River Bhagirathi/Ganga lies in its sediments content which is comparatively more radioactive compared to other rivers and lake water sediments investigated, and can release Cu and Cr which have bactericidal property and can harbour and cause proliferation (under static condition) of coliphages which reduce and ultimately eliminate coliforms from the overlying water column (NEERI 2004: 107).

These beneficial elements—Thorium, Copper and Chromium—enter the river water from the rocks against which the water rubs during flow:

The metal ions, originally derived from breaking of rocks, are controlled by several river valley conditions—physical as well as chemical (NEERI 2004: 74; NEERI 2011: iii).

This absorption takes place in two ways—chemical- and mechanical weathering. Rain water contains minuscule amounts of acid. This acid breaks the rocks and loosens the metals therein which then flow into the river. This is called chemical weathering. Secondly, metals are directly absorbed in the river water as the water dashes against the rocks containing these metals. The difference in metal composition of the river is said to be due to this difference in the weathering regime:

² This was mentioned by scientists of NEERI during personal discussion with Dr Jhunjhunwala, at NEERI on 18 February 2010. This is not mentioned explicitly in the two NEERI reports.

The striking feature of the radium isotope data is the distinct difference in the ^{228}Ra and ^{226}Ra abundances between the highland and lowland rivers. The lowland waters are enriched in ^{228}Ra , while the highland waters contain more ^{226}Ra . This difference mainly results from the differences in their weathering regimes (NEERI 2011: 169).

The problem is that if upstream river is diverted into tunnels for generation of hydropower then the water will not rub against the stones and not absorb the beneficent metals. It is to be noted that bumper-to-bumper dams have already been made upstream of Tehri Dam except the uppermost 135 km; and are planned on the entire 300 km flow of Alaknanda except the lowest 30 km stretch. Thus it is likely that the coliphages will be deprived of the sediments on which they survive. The metals loosened by chemical weathering due to the rains may seep into the dry river bed and also not get carried by the river.

Conclusion is that the single project of Tehri Dam may not adversely affect the sediments because the sediments have already been created during the upstream flow or are being added from other rivers. However, a cascade of projects which prevents weathering in upstream reaches will prevent absorption of the beneficent elements in water and remove the base on which the coliphages survive. The conclusion that Tehri Dam will not affect the self-purifying capacity of Ganga waters may possibly be correct on a stand-alone basis; but this cannot be extrapolated to other projects especially when a cascade is being built which will almost totally divert the upstream river waters into tunnels and prevent weathering.

Creation of coliphages

The NEERI study does not give any indication of the reasons of creation of the wide-spectrum coliphages. There is an oblique suggestion that this may be due to the minuscule amounts of beneficent radioactivity on the river water. However, this is not substantiated. If this were so, it should be possible to replicate their creation under laboratory conditions by exposing water of other rivers to same small levels of radioactivity. NEERI agreed to this suggestion for further research but expressed inability to undertake this in absence of another sponsored project (NEERI 2010).

It is possible that the vibrations of sages in the area may be leading to the creation of these coliphages. Or a unique combination of flow velocity, weathering, algae, temperature etc. may be leading to their creation. It is wise to apply the 'precautionary principle' until we know the precise conditions under which these special coliphages are created. It is best to leave the river in its pristine conditions till then.

Algae

River water has small micro-organisms that are food for bacteria. These are called 'phytoplankton'. The quality of aquatic life substantially depends upon the availability of variety of phytoplankton. NEERI has calculated the diversity indices of phytoplankton in Ganga waters. These are reproduced below:

SI No	Sampling Location	Counts/ml	Shannon Weiner Diversity Index (SWI)	Palmer's Index
7	Tehri upstream (Bhagirathi)	0	0	0
8	Tehri upstream (Bhilangana)	46	1.55	2.0
9	Tehri downstream (Bhagirathi)	22.75	0.68	0.75

Table: Average Density, Diversity and Composition of Phytoplankton at different Sampling Points of the Rivers/Tributaries in the Study Area (September, 2002 to August, 2003), Source: Table 17, NEERI 2004.

A reading of above table shows that the Tehri upstream shows complete absence of phytoplankton and diversity Index of 0. This may be due to upstream hydropower projects which cause almost all the water of the river to flow through tunnels, deprive micro-organisms of sunlight and air that are necessary for their development.

The table also shows a major decline in the count as well as the diversity index between upstream Tehri (Bhilangana) and downstream Tehri (Bhagirathi). These data indicate a negative impact of Tehri Dam on micro-organism. NEERI has not assessed the implications of this decline. (all material in italics is from an activist's Summary of the Neeri report, used with permission)

The Phage in Ganga

It is interesting that the role of the phage as available in sediment, is the most emphatic aspect of a river's life and sustenance. Ravi Nandan Singh, in his path-breaking work on Benaras and the river Ganga (unpublished theses submitted to JNU 2010) writes of these phage as disappearing because of the irrevocability of plastic, both as reality and as a metaphor, which replaces the theological idea of the immortal soul. Singh writes that the Ganga Action Plan was set up in the domain of a particular affectual politics where Rajiv Gandhi saw his role as expiatory, after the assassination of his mother in 1984 and the criminal elimination of five thousand Sikhs (the number is disputed by activists who believe the number to be much larger) in the capital city of Delhi. To quote from Singh's doctoral work, submitted to JNU in 2010 and titled *Representations of Death in Benaras*,

The extent of the river's pollution cannot be gauged by the abstract quantified measures of scientific results of chemical experiments or moral-religious damning of the people. The extent of the pollution can be properly estimated by locating how people's lives have been failed by liberal democracy in certain domains, water being one major component of it, but not the only one. Badiou similarly does not consider the liberal humanitarian capitalistic democracy itself as to be the evil. He argues that what is evil is that it is posed as the greatest possible Good. He also argues that Evil could only be conveyed when Good is clearly represented. Thus it would be useful to locate both these idioms in Badiou's own words. In delineating Good he poses event, fidelity and truth to be the three registers:

The event, which brings to pass something other than the situation, opinions, instituted knowledges; the event is a hazardous, (hazardous) unpredictable supplement, which vanishes as soon as it appears; the fidelity, which is the name of the process; it amounts to a sustained investigation of the situation, under the imperative of the event itself; it is an immanent and continuing break; the truth as such, that is, the multiple, internal to the situation, that the fidelity constructs, bit by bit, it is what the fidelity gathers together and produces (2001: 67-68) (Badiou cited in Singh 2010:181)

Singh uses the work of Veer Bhadra Mishra, the mahant, who combines his religious belief with scientific principles to clean the Ganga . He writes that,

He (the mahant) observes that the machineries installed at the ghats do not work, so the only way to 'save' Ganga would be to apply a plan which runs without electricity. In his plan of 'Integrated Wastewater Oxidation Pond System' based on 'biological control' it is a 'return to the bacteria'. (Singh 2012:214)

Singh traces the history of the discovery of autophage to Felix D'Herelle,

and others, such as Ernest Hanbury Hankin and Frederick Twort. (*ibid* 220) Singh quotes D'Herelle's 1921 work,

The difficulties of exposition of the subject will readily be comprehended if we realize that up to the present time Bacteriology has been considered as a 'problem of two bodies', bacterium and medium, whether the medium be the organism parasitized or a culture fluid. And this problem of the two bodies has been indeed complex. But it is of necessity much less complicated than the "problem of three bodies" with which we must now be concerned, where we must recognize the interactions between the medium-culture medium or organism parasitized, - the bacterium parasitizing this medium, and the ultamicrobial bacteriophage parasitizing the bacterium (D'Herelle 1921:6) cited in *ibid* 221)

The interesting problem for the Sociologist is ofcourse that the relationship of the State to it's people has changed dramatically. T.K Oommen's work "From Mobilisation to Institutionalisation" was concerned essentially with the way in which land reforms could make a difference to how the poor benefitted, or did not benefit as much as was hoped, from bhoodan and redistribution. The problem of land displacement has been foremost in the minds of social scientists for the last several decades. For the generation that grew up with the idea of dams as the symbol of a secular and rational citizenship, the real problems came with the questions around the latter. Amita Baviskar writes in Riverlines (2003) that,

Dams and bombs stake out the territory of Indian modernity; Nehru's temples now serve to glorify the Hindu rashtra (nation), trailing displacement and death in their wake.

Sacred rivers have been profaned in more ways than one. How can one talk about Indian rivers without acknowledging their appalling pollution? Far too many of them deserve Huysmans's condemnation of the Bievre in Paris:

That strange river, that dumping-ground of filth, that bilge which is the colour of slate and melted lead...starred with muddy spittle... The river is nothing but a moving dung-heap. (Baviskar 1993:xiii)

Rashid C.A has in his Mphil dissertation, titled "Industrial pollution and people's struggle: a case study of Eloor, Kerala" (JNU 2010), argued forcefully for riverine rehabilitation. In a note he prepared for circulation, he says that,

For the past two decades, social anthropological research on environmental issues has been part of a broad public sphere that has witnessed a sharp increase in environmental decay like, contamination of ground water, degradation of flora and fauna, genetical disordering and livelihood problems e.g decline of fishing wealth and the fertility of agricultural land, on the banks of the Periyar river due to large-scale emission or affluence of manufacturing, biochemical industries. The associated people's struggle and industrial and state discourses attract sociological investigation.

Sustainable development is the bases of the people's movements on the banks of the Periyar in Kerala, and following the pioneering work of T.K. Oommen, Rashid C.A believes that people's movements are essentially innovative and creative. My work on the fisherpeople in Alappuzha in the 1990s showed that river and sea movements were becoming linked across India, as fisherpeople believed that they had the right to protect the earth: Tom Kocherry and the nuns and priest of the radical liberation theology movements essentially be-

lieved that they would link up with Medha Patkar in order to provide a catalyst to the Ecological movements of the 1990s to give a framework, within which grass root leaders could represent the occupational choices of men and women in the country. (Visvanathan 1994, 2000). David Harvey in the "Spaces of Capital" (2001) argues that ideology defines the way in which space is transformed in the relationship established by migration, between town and country. He writes,

The history of cities and of thinking about cities has periodically been marked by intense interest in the transformative role of urban social movements and communal action. Such movements get variously interpreted, however, depending upon historical and geographical conditions. The Christian reformism culminating in the social control argument of Robert Park and the Chicago School of Urban Sociology (evolved during the inter-war years in the United States and exported around the world in the post war years as standard fare for urban sociologists) contrast, for example with both the pluralist 'interest group' model of urban governance favoured by Robert Dahl and the more radical and revolutionary interpretations arrived at (mainly in Europe and Latin America) during the 1960s and the 1970s (culminating in Castell's magnum opus on The City and the Grassroots.) (Harvey 2001:188)

Harvey suggests that, "the sense of possibility and desire for change in political and intellectual circles, often expressed as utopian dreams of alternative city forms on the one hand and the need to identify political agents – such as proletariat or urban social movements – capable of realizing such dreams on the other" represent potential points of disjunction. (ibid 189) While the bourgeoisie represent Commonwealth Games and Walmart as the symbol of their consistent desire to be westernised, the farmers' movements have essentially located the earth and their articulate position on it, in the use of symbols, as their anchoring point. When Khandwa farmers immersed themselves in their inundated fields for a fortnight till their MPs and Chief Minister responded we see just such heroism, unrelenting because farming was their life. Gandhi wrote in the 1920s and 1930s in Young India, that the poor are committed because they have nowhere else to go. Patriotism then becomes the very lifeblood of such movements. While Germany and Japan have said "No!" to nuclear energy, the Indian Nation State pulverises the survivors of the Tsunami in Kudankoolam, but the protest of the fisherpeople is essentially about water, pollution and right to life and work. Whether it is the 48 rivers that flow into the sea in Kerala, or the state of the Coovam as it represents the sludge of Chennai, activists have made rivers the essence of existence for both town and country. The rivers are the veins of the cosmic egg, the seas the inner waters, as Diana Eck reminds us.

Was citizenship a basic human right? The difference between the rhetoric of the 50s and the loss of dialogue in the 21st century is because there has been a radical shift away from the redistribution model to the idea of the liberal economy, where the bourgeoisie get to make the rules, regardless of political party. The obstacle to a shining India, or to the development paradigm are the farmers, , the rural stakeholders in agriculture. The State's interest in agriculture then, unfortunately for such people, as farmers with small land holdings, be-

comes represented as Food Security, Scientific Temper, Industrialisation of Agriculture, Bt technology. The ideology of capitalism then locates itself in the questions of ruling the masses, the so called 80 percent of our population, which now is drawn into the cities as cheap labour during floods, famines and drought. The riverine economies which are ancient and self sustaining are now problematised as essentially out of sync with the real ambition of Indians, which is colonisation of extra terrestrial space, and missile warfare, as the art of hoarding, self defense and power mongering.

In a talk given at Centre for Historical Studies, JNU on 14 September 2012, at the Sarvapalli Gopal Memorial Lecture, Christopher Bayly spoke of the friends of Nehru who influenced him, and these were G.B Pant, A. R Gadgil, Mahalanobis and Radhakrishnan. Pant brought the sense of village India, influenced as he was by Malaviya and Gokhale; A.R Gadgil believed that co-operatives were a mid way towards industrialisation; and differed in this from Gandhi, who believed that rural development was an end in itself; Mahalanobis was concerned with the ethnographic role of the State, and Radhakrishnan thought that Vedanta could bring people appreciably closer. (Bayly 2012) There is another map, though, I wish to argue, and that is the way in which we understand how the Congress Socialist party in the 1930s, brought about a great dialectic in the way we think about peasantry. This was essentially to use associations and the printing press during colonialism to actually work a new map of rights and duties for the farmers, which would include wages, prices and consumption. These kisan sabhas as Acharya Narendra Dev saw it, were an integral part of the vision of how the peasantry would define its own place in the birth of the nation. In a paper written for presentation at the Benaras Hindu University at the Exclusion and Inclusion Cell in 2009, I argued that today, the farmers need to define their orientation to land, water resources and food in terms of the debates which make them representative stake holders, in how India is perceived by them. (See Visvanathan 2009) The theoretical premises which were discarded in the tension that arose between the CSP and the Congress during the freedom movement have to be re-visited. An "intelligentsia of the people", which is essentially what activists are, have to present the very terms of the argument in terms of the practicality of their world views. Freire encourages Scientists to learn from the people.

The right to life, and the right to speech is one of the key areas that the activists who fight for Gangajee and the free flow of her waters define as the primary aspect of their struggle. However, given the vested interests of the MPs, MLA, traders and their goons, the activists who wish to oppose the building of dams for Hydroelectricity have a very hard task. When Bharat Jhunjhunwala was attacked in his home, the activist Vimalbhai sent out a petition, on June 26th 2012. His first language is Hindi, in which his blogs are written, but for the benefit of English speakers who do not read Hindi, he wrote as follows,

Dear friends

as you know about the attack on Bharatji by goons of dam company. as many of us are active and doing something in different way. now i think there is need of a

coordinated effort.or divide the work. I have some thoughts in my mind which i am sharing with you.

- Petition to NHRC on the roll of state govt. (need to make a draft, i am trying to find out possibilities form lawyer)
 - mass letter writing to CM and to PM my letter is with you, English translation can be done.
 - Delegation to power Ministry--demanding black list the company and contractor
 - Delegation to MOEF asking them to follow their own rules and committee recommendations.(on a larger issue related with dams on gangaji we can work on that)
 - letter or a Delegation to PM as he is the chairman of NRGBA with all the member of NRGBA
 - statements form different district of Uttarakhand (i am doing that and some other groups are also active)
- Best vimalbhai

The blogspot matuganga.blogspot communicates the urgency of the matter. In 1942, when Gandhiji came out of jail, he communicated that the cotton farmer could survive only if he/she learnt to multi-task.(See Visvanathan 2009) They would have to be spinners, weavers, dyers and also learn to sell their cloth. The activists of the River protection communities are essentially learning that if their concern with wholistic living is to be the signature of their life and work they will have to be visible, not just numerous. The interesting aspect of the bourgeoisie is that they cannot see the people, except as functionally in servitude to them. Popular movements dispel the idea of the invisibility of the masses, as the peasants of Khandwa and the fisherpeople of Tamilnadu have shown with regard to nuclear energy which potentially and vehemently changes the horizon of their daily lives. The Gandhian prerogative of "doing without" becomes the leitmotif of these movements... It is a choice they make, and as citizens they have a right to those choices. When America returned and state decorated Dr Jhunjhunwala, a former faculty member of the IIM, who chooses to live in a village in Uttarakhand, writes to intellectuals, petitioning for support,he says,

Many dams on Ganga River have been held up because the Supreme Court has asked for a study of cumulative impacts of dams on river ecology. Now Ministry of Environment and Forests has given a study to IIT Roorkee. Our study indicates that this study will be a whitewash. We have written a note on the topic which is attached for your kind perusal. We intend to circulate it widely among all faculty members of IIT Roorkee, and more. We have sent a similar note to Ministry of Environment and Forests already. We would be very happy if you would endorse this petition and also help us obtain endorsements by academicians past and present- and persons who can help us.

JP Debral, one of the intellectuals who was asked to mediate between World Bank officials and activists' opposition to WB loan wrote on 7.4.2012

Come what may. We will have to accept reality. RR issues will remain the most important issue for the affected people. This is also sure that once they get the money many of them will not oppose the dam. But then they have nothing to lose if they oppose the dam after getting the compensation. Let us keep this opportunity

open. Let them say what damage has happened or is likely to happen after taking the compensation. We cannot be choosers at this stage. We will have to continue to fight at every front. Those who are opposing the dam at the ground should be encouraged to do so. The dam authorities or the government must face resistance from every quarter. We cannot be selective here. If Bharat Bhai wants to interact at the policy level we must encourage and support him. He is doing it at the Rajya Sabha, Planning Commission, Courts, WB and Government levels. Every level has to be dealt with. I think Vimal Bhai, Madhu Kishwar, Bharat Bhai and Thariyalji have already made their positions clear. Let us respect their commitments. I do not want to pitch the wisdom of one against that of the other.

Together we can think of bringing change. A few inches gained by each of them will make a feet of progress. What is important that in the end the policy changes. Regards JP Dabral

Activists have their perspectives which arise from their orientations and training. Biographically, they may have points of departure. The energy that one person has is a result of many hundreds of people in the movement, providing him/her with a stabilising position. Weber's theory of charisma as a form of social action is useful for us to understand, since activism often depends on the power of the collectivity to recognise this individual as a catalyst for social change. The networks that form may run in time span of decades, as in the case of Tehri, including in its fold, new members according to context. On December 10th 2011, an activist wrote that,

We had filed a Writ Petition in Uttarakhand High Court, regarding the Dhari Devi Temple, which is to be uplifted for Srinagar project. The High Court asked us to approach Archaeological Survey of India. If ASI fails to protect the monument then we may approach the HC again. The temple is not currently protected under the Ancient Monuments Act. Please let me know if you know someone in ASI who can help.

Elsewhere, in my work "The Children of Nature" (2010) I have shown how secular scholars and devout believers have engaged with the question of the greening of the Annamalais and specifically the Holy Mountain, called Agnisthal or Arunachala, in Tiruvannamalai, Tamil Nadu. The Madras High Court has accepted petitions on behalf of Arunachala, thought to be the embodiment of Shiva and Parvati in unison. So also, the concern that believers have shown in the protection of Ganga is allied with the concern of Ecologists, Scientists and activists of various political hues. When Bharat Jhunjhunwala was attacked, the noted activist Vimalbhai sent a letter to share the pain of the event, on 25.6.2012

Dear friends

You might know on 22nd June 2012, a mob of about 40 people including employees and contractors of JVK, a company building a large hydropower dam in Uttarakhand, India, barged into the house of Environmentalist Dr Bharat Jhunjhunwala and threatened him to withdraw his legal representations against the dam. This is a breach of personal safety, freedom of speech and democracy. The Government of Uttarakhand must ensure that perpetrators of this attack are brought to courts and tried. The administration so far has taken no initiative to arrest them. Law and order in the state remain at the mercy of Political leaders and powerful police officers. Daughter of Dr Bharat Jhunjhunwala, started a online petition to gather support for his right to lead a knowledge-based agitation in favor of his beliefs.

We all friends of Bharatji support this petition. The support from all the concerned citizen is not only solicited to

support and declare solidarity to Dr Jhunihunwala but also the cause to protect the fundamental right of "Right to Speech".

The attack against the Bharatji is not only against that particular individual but in fact this is an attack to suppress the voice of the people in favor of environment and peoples rights by the dam builders. The attack shows the attitude of total disregard of environment issues and peoples rights and the dam builders want to construct the dam with any hook and crook.

(http://www.avaaz.org/en/petition/Action_against_attack_on_Environmentalist_Bharat_Jhunjhunwala/?fRgZjdb&pv=0)

We request you to spare some time to read this petition to Chief Minister of Uttarakhand state in India and sign to support the cause.

Vimalbhai & Rajendra Negi -- Matu Jansangthan Visit our blog<matuganga.blogspot.com> some films on youtube, just type --bandh katha For Correspondence only:- D-334/10, Ganesh Nagar, Pandav Nagar Delhi-110092 We associate with National Alliance of Peoples' Movements (<http://nапм-india.org/>)

The whole process of building opinion to save sacred rivers takes time, energy, money, and involves legal help and publicity. Yet, those who care about the legacy of a five thousand year civilisation, often feel they have the time and the commitment of the people who dwell in these riverine communities. In that sense, they are optimistic, because their notion of time is not apocalyptic, it is essentially ordered by their faith either in the divine or in the rational secular order of the Constitution as it is enshrined in the common knowledge of ordinary people. Activists seek to rewrite the contexts of modern geography by the play of interstices in how cartography becomes an emotional space for these actors. To the reified space of maps as authoritatively represented as an idiom of the nationstate, they use local grammars and every day practice to rewrite the plans of Centralised Government. This affectivity is seen to be essentially problematic, and is voiced or represented by partisans of Nation State and local communities in different ways. "Do you think Development will not happen" asks one side acerbically "just because the jholawallas do not want it?" On the other hand intellectuals who are concerned with the rights of peasants and tribals to speak in post modern democracy will write on the behalf of local communities. Maps are therefore not just artistic productions (see Baviskar 1993) explaining where places are, their contiguity to forests, lakes, mountains and railway lines, but as Martin Dodge, Rob Kitchins and Chris Perkins et al argue (2009) in their book *Rethinking Maps*

Maps do not then emerge in the same way for all individuals. Rather they emerge in contexts and through a mix of creative, reflexive, playful, tactile and habitual practices, affected by the knowledge, experience and skill of the individual to perform mappings and apply them in the world. This applies as much for mapmaking as for map reading. As such, the map does not represent the world or make the world" it is a co-constitutive production between inscription, individual and world; a production that is constantly in motion, always seeking to appear ontologically secure. Conceiving of maps in this way reveals that they are never fully formed but emerge in process and mutable (they are re-made as opposed to mis-made, mis-used or mis-read). (Martin Dodge

et al 2009:21)

Jane Beckett, while describing the transformation of the rural landscape in the 19 century in Netherlands, through industrialisation, shows that its muse-umisation was an ongoing process. She writes that the transformation involved both the diversification of agriculture under capitalism as well as the use of fertilisers and pesticides replacing animal manure. Potatoes replaced the small scale garden, where vegetable production and dairying had previously been standard livelihood practices. In Kerala today, where small dams have been accepted by the people, the State Government has made it very clear that the people must have recourse to agriculture even though the lands lie fallow due to migration for work in Gulf Countries, Europe or America. Shaju Philip writes, "Last week saw politicians up on arms over a suggestion by Planning board Deputy Chairman Montek Singh Ahluwalia that Kerala not worry about food security but instead focus on cash crops. His suggestion must have been prompted by the large tracks of paddy fields lying uncultivated in the state for years because of lack of labour hands – both outward migration from middle class agri-families and shift from food crops to cash crops hit the fields." (Philip 2012:20) The Kerala politicians however know that the State's interest in organic farming as expressed in the success of Ezhimayur in Pallakad has to be reduplicated in other parts of Kerala. (Visvanathan 2009) The political position represented by all parties, including the ruling Congress party that the State is not ready to hand over to monopolists is a legitimate claim to make. Beckett writes that "Michel Foucault has noted that 'a whole history remains to be written of spaces – which would at the same time be the history of power...from the great strategies of geo-politics to the little tactics of habitat.' (Beckett 2001:64)

The moral claims that people make to the past may involve geological time, and mythic time, as well as the way in which industrialisation can make a famine struck, drought prone, water logged in the monsoon desert like Barmer in Rajasthan, suddenly turn into an oil field, with luxury hotels and modern roads, with farmers selling off their lands rapidly, or conversely mythographers continuing to search for the River Saraswati. The polemics of industrialisation may suddenly replace the mythological impetus, and this is something that Sociologists urgently need to work on, since their task is essentially that of documentation and analyses.

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Сузан Висванатхан

СВЕТЕ РЕКЕ: ИЗВОРИ ЕНЕРГИЈЕ И ЉУДСКА МОЋ

Резиме

Овај рад се бави начинима којима се енергетски захтеви у последње три деценије виде као одговор локалних заједница које желе да искажу своју љубав и припадање традицији. Пољопривреда је вишеструко представљана и речне цивилизације су обележиле однос између земље, радне снаге и продукције али не само као однос између технологије и културе, већ и у симболима светог. Са већим обимом кориштења ресурса и недостатка визије, реке су загађене. Покрети људи који се ослоне на рад научника и оних који раде у области уметности, укључујући и хуманистичке и друштвене науке, покушавају да скрену пажњу на начин који петиције и протести утичу на то да политика није само 'упостављање добре визије одозго' већ је игра између политичког, правног, друштвено – религијског, секуларног и економског. У демократији, суштина политике је у дијалогу, а стопа индустрализације може бити посредована преко утицаја зелених покрета и покрета за очување околине, који су научили лекцију из геноцида над сељацима и племенима, и масовне експлоатације природних ресурса. Покушај социолога је да документују ту промену и развијају позиције у овој актуелној дебати у Индији.

Кључнеречи: реке, хидроелектрицитет, загађење, покрет спасавања Ганга, Бенарас, Техри, Керала, Тамилнаду дам отпор и колонијализам, социјализам, људски покрети, капитализам и упадљива потрошња

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