

# **CORPORATE HIJACK OF WATER**

**How World Bank,  
IMF and GATS-WTO  
rules are forcing water privatisation**

Dr. Vandana Shiva  
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**Navdanya**

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# The deepening water crisis

The Fresh Water Conference which took place in Bonn, brought together about 3000 representatives from 130 countries. They were told that the water soon will be sold like oil through pipe line and tankers and the 21<sup>st</sup> century wars will be over disputed water sources. Over 1.3 billion persons lack safe water and some 2.4 billion are denied sanitation. This silent emergency kills 6000 people each day, comparable to those who died on 11 September, 2001 attack on Twin Tower in New York. Forecasts indicate that by 2015 population growth and migration will place an additional 1.6 billion persons in need of water and two billion in need of sanitation. Humanity's demand for water will exceed supply by a staggering 30 per cent

If you get the water situation right, then all the other dimension of sustainable development will also be alright. Water for drinking represents the smallest- percentage of total demand, yet it dominates a survival issue.

In India, the situation appears to be worse than many other countries as following few example reveal the catastrophic dimension of the water scarcity.

- An acute scarcity of water sparked off a riot in the Rohtak Road area near the Delhi Haryana border, leaving about 15 persons including three police officers injured and several passing vehicles damaged.
- Two persons were injured in a water riot that acquired a communal overtone in Gokulpuri in East Delhi. Residents belonging to two communities exchanged blows sparked by a water shortage.
- In Rajkot, people left the 'dead body' on the road side as soon as they saw the water tanker. The reason is not far from to seek. The funeral may wait, but not the water tanker.
- In North India, no marriage ceremony is complete, without performing worship at a well (kuan Poojan) by the bride. Unable to find any well, even the abundant one, women in Delhi have started worship at water tank of the Municipal Corporation.
- In a village in Ajmer district of Rajasthan, three children burnt were alive when the lantern fell down. There was no water available in the village to extinguish the fire.
- 'Water battles' are fought almost daily in some parts in the big cities, where people have to sacrifice their night sleep and rise as early as three or four in the morning to collect water from the Municipal taps. The situation becomes so acute that in December 1999 in Jamnagar police had to open fire to quell water riots resulting in the death of three person.
- Bizarre reports of water riots have become common.

While speaking at a meeting organized by the Federation of Indian Chamber of Commerce and Industries (FICCI) at New Delhi in March 2001, the United Nations General Secretary Mr. Kofi Annan warned that it is extremely important for all the countries around the world to manage water particularly drinking water properly without which it might lead to a serious war like situation among various countries.

The Mahabharat Epic says that water is a better gift than food as it is an element essential for very existence of life. There is no gift greater than that of water and who ever desires to acquire spiritual wealth for himself should always give water to those who need it.

Ninety seven percent of our planet's water is contained in the oceans and seas, 2.5 percent is bound in snow and ice, and only 0.5 percent is at all accessible. Even this meagre quantity is very unevenly distributed with a large portion falling in the great lakes bordering in United States and Canada. Canada has more than the lion's share of fresh water resources. It is this skewed distribution of fresh water that has given rise to water scarcity hotspots and flash points of conflicts in several parts of the globe. Growing population, industrialization and urbanization will only make the problem more and more intractable in coming years.

No where has the situation assumed such alarming proportion as in India. According to a United Nations Study, the availability of fresh water in Asia is only 3000 cubic meters (cu.m) per person per year, the lowest figure for any continent. In India, the availability is put at 2500 cu.m. and the dire prognosis is that India may reach a state of water stress (that is when, average annual per capita availability falls to 1000 cu.m and below) before 2005. Rapid population growth coupled poor water management has led to this unenviable situation.

Farmers are induced to grow water guzzling crops that are environmentally disastrous; wherever water consumption exceeds rainfall, the water table falls apart. Drinking water wells are the first to run dry, hitting the poor the most. As the water table keeps falling, shallow tube wells run dry, hitting small farmers. Cheap centrifugal pumps can no longer work and expensive, submersible pumps are needed. Ultimately, only the deepest tube wells, owned by the richest farmers have access to ground water. In Saurashtra, tube wells irrigation exhausted aquifers and led to the infiltration of seawater in coastal areas, ruining the aquifer permanently.

Canal systems are also collapsing all over the country, where canal water does get through, farmers at the canal head grow water guzzling crops. So no water is left for farmers at the tail end of canal. If instead water is used for coarse grain, the same water could reach million more of farmers.

It is a pity that some 200 million Indians still do not have access to safe and clean water; an estimated 80 percent of the country's water sources are polluted with untreated industrial and domestic water. Yet the issue of need and greed are not really addressed as solutions ranging from privatization of water services to using biotechnology to grow more drought resistant plants. The issue of privatization is particularly relevant in the Indian context as several states, such as Karnataka and Andhra Pradesh move towards privatizing public utilities.

The move is justified on several counts. One that poor people in any case pay as much as 12 times more for water than the middle classes because they do not have access to Municipal water supply and end up buying water from private vendor. This anomaly can be corrected, some believe by correcting system of accountability that the entry of private sector would necessitate. It is also argued that as Government are inefficient and bureaucratic, they should not be in the business of service delivery. It is assumed that a profit driven private sector will be more efficient. The problem with the solution offered to is that it does not address the central problem of equity, poor people in cities do not get municipal water because the areas where they live are not serviced by water and sewerage infrastructure. It is pointless talking of making public water available to all.

If private companies invest in such infrastructure, they will want to recover investment through much higher water charges. Just because the poor do pay more at present does not necessarily mean that they are able to do so. This money comes out of constrained household budget and cuts into other basic necessities. Thus, setting prices according to what people actually pay, rather than what they can afford to pay, is callous in poor and unequal societies such as ours.

Water is already big business in the industrialized countries. According to information collected by the Council of Canadian, an NGO, four of the top 10 water companies – RWE from Germany, Vivendi from France, Suez Lyonnaise des Eaux also from France and Enron from the U.S. are ranked among the 10 largest corporations in the world. In the U.S., although most of the water

services are publically owned private water corporations, such as Enron generate \$ 80 billion a year – four times the annual sales of Microsoft.

Despite such huge profits, there is no guarantee of quality. In July 1999, Northumbrian Water, a subsidiary of Suez Lyonnaise, was declared the second worst company in the U.K. by the Drinking Water Inspectorate. Once water services are privatized, local governments often lack the clout needed to ensure that water quality and pollution standards are met and the corporation penalized who fail to meet the tests. Several of the top 10 water companies have been charged and even convicted of bribery corruption and other offences.

Some of these facts are particularly relevant to the Indian context. Despite hundreds of big and small dams, many parts of India are without water. In every drought we hear the stories of cattle death due to fodder scarcity and human toll because of food shortage. The day is not far when we will see picture about people dying due to the unavailability of potable drinking water.

Corporate Globalisation includes the privatization of one of the most vital natural resources of the people of the earth – water. Non-ecological use of water has led to a severe crisis in the availability of this resource worldwide, and a growing disparity between water availability in different parts within nations. Climate change – reflected through increasing drought, cyclones and other “natural disasters” – brought about through the emission policies of the developed world, is creating an unprecedented water crisis particularly in Third World countries. The present water crisis is reflected by the following examples:

- About 40 countries and one billion people will not have adequate water supplies in the near future. By 2025, it will be 2.3 billion people.
- Today 6 billion human beings compete for this scarce resource and by 2050, 10 billion will go thirsty.
- About 38.38% of urban population in India, who are below poverty line, have no access to water.
- In 1985 there were 750 villages with no water sources. In 1996 these were 65,000.
- Areas affected by drought are on the increase.
- It is estimated that if tanks are built over three percent of India's land area, they can store about one fourth of the rainfall the country receives.
- Groundwater is being non-sustainably exploited, particularly in Andhra Pradesh, Gujarat, Haryana, Karnataka, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh. In areas with extensive monocropping, such as Punjab and Haryana, this exploitation has reached 100% in some districts. In Mehsana, Gujarat, the rate of groundwater exploitation has increased by 145% between 1984 and 1992.
- The national cost of fetching water is 150 million woman days each year, causing a national loss of Rs.10 billion per year.
- 90 million days are lost every year in India due to water borne diseases.
- 80% of the children of India suffer from water-borne diseases. Of these, 7,00,000 die each year.
- 44 million people suffer from problems related to water quality – the presence of fluoride, iron, nitrate, arsenic, heavy metals and salinity.

The crisis is real and urgent. The strength of India is the growing decentralized democratic system. It has facilitated people such as Mr. Rajendra Singh and Mr. Anna Hazare, their experiments must be allowed to flourish and replicated, supported and scaled up. Replacing the big government with big private companies is hardly a workable or just solution in a society with dark disparities.

# Privatisation of water:

## The role of world bank, IMF and WTO

The privatisation of water has been preceded by state control over water through World Bank loans and other aid agencies. First State monopolies and centralized control of the State over people's common water resources was established. State monopolies are now being transformed into corporate monopolies through so called private public partnerships.

However, public is not just the state, it is also the community. And private is not just corporations, it is also citizens and people.

Public	Private
State	Corporations
Community	Citizens

World Bank and the new globalisation agenda however leave out the community and citizens.

### WATER-RELATED PROJECTS OF THE WORLD BANK\*

Project Name	ID	IBRD/IDA amount received in million USD	Product Line	Sector	Status
Karnataka Rural Water Supply and Sanitation Project (02)	P050653	151.6	IBRD/IDA	Water Supply & Sanitation	Active
Karnataka Watershed Development Project	P067216	100.4	IBRD/IDA	Agriculture	Active
Kerala Rural Water Supply and Environmental Sanitation Project	P055454	65.5	IBRD/IDA	Water Supply & Sanitation	Active
District Poverty Initiatives Project	P010505	100.48	IBRD/IDA	Agriculture	Active
Tamil Nadu Urban Development Project	P050637	105	IBRD/IDA	Urban Development	Active

<b>Project Name</b>	<b>ID</b>	<b>IBRD/IDA amount received in million USD</b>	<b>Product Line</b>	<b>Sector</b>	<b>Status</b>
Uttar Pradesh Diversified Agriculture Project	P035824	129.9	IBRD/IDA	Agriculture	Active
Andhra Pradesh Irrigation Project (03)	P035158	325	IBRD/IDA	Agriculture	Active
Andhra Pradesh Hazard Mitigation and Emergency Cyclone Recovery Project	P049301	150	IBRD/IDA	Multisector	Active
Uttar Pradesh Rural Water Supply and Environmental Sanitation Project	P010484	59.6	IBRD/IDA	Water Supply & Sanitation	Active
Orissa Water Resources Consolidation Project	P010529	290.9	IBRD/IDA	Agriculture	Active
Bombay Sewage Disposal Project	P010480	192	IBRD/IDA	Water Supply & Sanitation	Active
Tamil Nadu Water Resources Consolidation Project	P010476	282.9	IBRD/IDA	Agriculture	Active
Hydrology Project	P010485	142	IBRD/IDA	Environment	Active
Madras Water Supply Project	P010461	275.8	IBRD/IDA	Water Supply & Sanitation	Active
Uttar Pradesh Water Sector Restructuring Project	P050647	149.2	IBRD/IDA	Agriculture	Active
Rajasthan Water Sector Restructuring Project	P040610	140	IBRD/IDA	Agriculture	Active

\* Many other projects of the World Bank listed under Agriculture and Poverty Alleviation Sectors also include a water component

Other World Bank aided water supply and sanitation projects include

<b>Name of the Project</b>	<b>Central/State</b>	<b>Total Cost in crore rupees</b>	<b>Terminal Date of Disbursement</b>
Integrated Rural Water Supply and Environmental Sanitation Project	Karnataka	497.00	
3907-IN IInd Chennai Water Supply Project	Tamil Nadu	546.31	31.12.2001
Integrated Rural Water Supply & Environment Sanitation Project	Punjab	620.00	Yet to be sanctioned
World Bank Aided Water Supply & Sewerage Project	Punjab	462.50	Yet to be sanctioned



**EXTERNALLY AIDED WATER PROJECTS**

<b>Sr. No.</b>	<b>Name of the Project</b>	<b>State Name</b>	<b>Amount of Assistance (in US \$ million)</b>
<b>(A) WORLD BANK SUPPORTED PROJECTS</b>			
1	Andhra Pradesh Economic Restructuring Project (Irrigation Component)	Andhra Pradesh	142.000
2	Haryana Water Resources Consolidation Project	Haryana	209.700
<b>(B) ASSISTANCE FROM EUROPEAN ECONOMIC COMMUNITY</b>			<b>(in ECU million)</b>
3	Minor Irrigation Project	Kerala	11.80
4	Sidhmukh and Nohar Project	Rajasthan	45.00
5	Minor Irrigation Project	Orissa	10.70
6	Tank Rehabilitation Project	Pondicherry	6.65
7	Maharashtra Saline Reclamation Project (Phase II)	Maharashtra	15.50
<b>(C) BILATERAL ASSISTANCE</b>			
<b>JAPAN</b>			<b>(in million)</b>
8	Modernisation of Kurnool-Cuddapah Canal	Andhra Pradesh	Yen 16049
9	Rajghat Canal Major Irrigation Project	Madhya Pradesh	Yen 13222
10	Rangali Irrigation Project	Orissa	Yen 7760
<b>NETHERLANDS</b>			
11	Community Irrigation Project	Kerala	Dfl 6.71
12	Andhra Pradesh Ground Water Project (APWELL)	Andhra Pradesh	Dfl 37.00
13	Bundelkhand Integrated Water Resources Management Project	Uttar Pradesh	Dfl 2.79
<b>FRANCE</b>			
14	Ground Water Exploration Project in North West of Imphal, Manipur	Manipur	FF 4.53
15	Hydroplus Fusegates system on 8 ungated Schemes	Gujarat	FF 34.74
<b>GERMANY</b>			
16	Maharashtra Minor Irrigation Project	Maharashtra	DM 45
17	Lift Irrigation Project	Orissa	DM 55

## PROJECTS IN THE PIPELINE

### A. PROPOSALS FOR WORLD BANK ASSISTANCE

1	Rajasthan Water Sector Restructuring Project	Rajasthan	832.00
2	Uttar Pradesh Water Sector Restructuring Project	Uttar Pradesh	4787.00
3	Gujarat Water Resources Consolidation Project	Gujarat	724.00
4	Gujarat Salinity Prevention Project	Gujarat	1160.00
5	Karnataka Tank Improvement Project	Karnataka	1000.00

### B. PROPOSALS FOR BILATERAL ASSISTANCE

#### JAPAN

6	Rehabilitation of Minor Irrigation Tanks for Tamil Nadu Rural Development	Tamil Nadu	270.00
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#### GERMANY

7	Minor Irrigation Project	Himachal Pradesh	140.00
8	Minor Irrigation Project (Phase II) Rajasthan	Rajasthan	57.73

#### FRANCE

9	Jaykwadi Irrigation Project	Maharashtra	31.25
10	River Basin Studies on Sabarmati Basin	Gujarat	13.77

Asian Development Bank's (ADB) which also provides loans for privatization of water, come under different project heads. Some of these include:

### SOCIAL INFRASTRUCTURE

	PROJECT	TYPE
29047-01	Taj Mahal Environmental Improvements Project	LOAN
29466-01	Calcutta Environmental Improvement	LOAN
29120-01	Rajasthan Urban Infrastructure Development	LOAN
31588-01	Urban and Environmental Infrastructure Facility	LOAN
30303-01	Karnataka Urban Development and Coastal Environmental Management Project	LOAN
32300-01	Sustainable Urban Development and Poverty Reduction in Kerala	PPTA
32254-01	Integrated Urban Development in Madhya Pradesh	PPTA
29466-01	Calcutta Environmental Improvement	PPTA

### Finance

	PROJECT	TYPE
34262-01	Private Sector Infrastructure Facility at State Level (IL&FS)	LOAN

### Multi sector

	PROJECT	TYPE
35068-01	Gujarat Earthquake Rehabilitation and Reconstruction Project	LOAN
29051-01	Madhya Pradesh Public Resource Management Program	LOAN

Since World Bank, ADB and DIFD are the primary funders of water privatization, an example of the conditionalities that these financial institutions lay on countries is evident from the following table based on IMF conditionalities.

**COUNTRIES WITH IMF-IMPOSED WATER PRIVATIZATION AND COST RECOVERY POLICIES**

Country	IMF Program	Loan Condition	Summary of Policy
ANGOLA	Staff-monitored program	<b>Structural benchmark:</b> Adjust electricity and water tariffs in accordance with formulas agreed with the World Bank. Reduce accounts receivables of the water and electricity companies to one month of sales revenue	Adjust water tariffs periodically to recover costs, including a reasonable return on capital.
BENIN	Poverty Reduction and Growth Facility	<b>Other measure:</b> After the revision of regulatory framework, the government expects to complete the privatization before the end of the third quarter of 2001	Privatize the water and electric power distribution company (SBEE)
GUINEA-BISSAU	Post-Conflict policy	<b>Structural benchmark:</b> Transfer of electricity and water management to private company	Transfer of electricity and water management to private company
HONDURAS	Poverty Reduction and Growth Facility (PRGF)	<b>Other measure:</b> Approve framework law for the water and sewage sector by December 2000	To facilitate private concessions in the provision of water and sewage services, approve the framework law by December 2000.
NICARAGUA	Poverty Reduction and Growth Facility (PRGF)	<b>Structural benchmark:</b> Continue adjusting water and sewage tariffs by 1.5% a month. Offer concession for private management of regional water and sewage subsystems in Leon, Chinandega, Matagalpa, and Jinotega.	Adjust water and sewage tariffs to achieve cost recovery and offer concession for private management in key regions.
NIGER	Poverty Reduction and Growth Facility (PRGF)	<b>Other measure:</b> Divestment of key public enterprises, including the water company, SNE.	Privatization of the four largest government enterprises (water, telecommunication, electricity & petroleum) have been agreed with the World Bank with the proceeds going directly to pay Niger's debt.
PANAMA	Stand-By Arrangement	<b>Structural benchmark:</b> Complete plan to overhaul IDAAN's (state-owned water company) billing and accounting systems, allow to contract with private sector operators, determine need for tariff increase and possible rate differentiation among clients.	Overhaul the water company's billing and accounting systems, allow it to contract with private sector operators, review the tariff structure.
RWANDA	Poverty Reduction and Growth Facility (PRGF)	<b>Structural benchmark:</b> Put the water and electricity company (Electrogaz) under private management by June 2001.	The water and electricity company (Electrogaz) will be put under private management as a prelude to its privatization.

Country	IMF Program	Loan Condition	Summary of Policy
SAO TOME AND PRINCIPE	Poverty Reduction and Growth Facility (PRGF)	<b>Structural benchmark:</b> The new adjustment mechanism for public water and electricity rates will be brought into operation by decree. The price structure will cover all production and distribution costs as well as the margin of the water and electricity company. The accounts will balance consumption and resources without recourse to government subsidies.	In May 2000, the government conducted a study of alternatives for the future of the water and electricity company (restructuring, leasing, concession or full privatization), with assistance from the World Bank. By December 2000, it will select one of the options and adopt a financial restructuring plan, and strengthen the revenue collection procedures.
SENEGAL	Poverty Reduction and Growth Facility (PRGF)	<b>Other measure:</b> Regulatory agency for the urban water sector will be created by end-2000. Transfer the recurrent costs of water pumping and distribution equipment to the communities. Increase the involvement of private sector operators.	Encourage the involvement of private sector operators in the water sector. Assess the possibility of private sector operation and financing of the infrastructure required to meet Dakar's long-term water needs.
TANZANIA	Poverty Reduction and Growth Facility (PRGF)	<b>Condition for HIPC debt relief:</b> Assign the assets of Dar es Salaam Water and Sewage Authority (DAWASA) to private management companies.	Assign the assets of Dar es Salaam Water and Sewage Authority (DAWASA) to private management companies.
YEMEN	Poverty Reduction and Growth Facility (PRGF)	<b>Structural benchmark:</b> Implement adjustments in water, wastewater, and electricity tariffs to provide for full cost recovery.	Implement formulas for automatic adjustments in tariff rates to ensure full pass through of product prices and full cost recovery; establish regional water authorities with private sector participation and independence to set regional tariff structures.

Source: Letters of Intent and Memoranda of Economic and Financial Policies prepared by government authorities with the staffs of the International Monetary Fund and World Bank.<sup>1</sup>

### Hydrology Project

The Hydrology Project is being implemented with International Development Association (World Bank) assistance of SDR 90.1 million (US \$ 142 million equivalent) under a credit agreement with Government of India. The total cost of the Project is estimated at US \$ 180.9 million comprising IDA component US \$ 142 million; Government of India component US \$ 21.5 million; and Dutch Grant US \$ 17.4 million. The base cost of the Project as approved by CCEA is Rs.455.78 crore. The Credit Development Agreement and Project Agreement was signed with the World Bank on 22<sup>nd</sup> September, 1995 for six year project operation (1995-96 to 2000-2001) and credit effectiveness of the project began on 20.12.95. The Government of Netherlands is providing a grant-in-aid of DFI 29.9 million (US \$ 17.4 million) in the form of technical assistance under

a bilateral Indo-Dutch agreement. A sum of SDR 15 million was cancelled from the project with effect from August 10, 2000. This cancellation became necessary because of the rise of rupee parity to dollar from Rs.32.00 at project commencement to Rs.45.00 (approx.); the decline of unit prices of computers from appraisal; and liberal provision for training at project appraisal stage.

The Project is being implemented by eight States viz., Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa and Tamilnadu and five Central agencies viz., Central Water Commission, Central Ground Water Board, Central Water & Power Research Station, National Institute of Hydrology and Indian Meteorology Department.

## The expanding water market

Privatisation of water is being pushed through by both the WTO and the international financial institutions of World Bank and IMF.

At stake is the growing global thirst that represents a huge potentially multi-billion dollar market for corporations trading in water.

The 'global market for environmental technology' industries, is expected to experience an unprecedented boom in the next five years. The entire environmental engineering and waste disposal market, currently estimated at US \$550 billion is expected to grow to approximately US \$700 billion by 2005, with the EU providing a market of about US \$190 billion, and developing countries providing the rest. Eight years ago, the EU, Japan and the USA comprised of 90% of the global environmental technology market. By 1996 Asia had also become a major market, and is forecast to increase its market share from 4% in 1996 to 14% by 2010.

### TOTAL 'ENVIRONMENTAL' MARKET (\$ BILLION) IN VARIOUS ASIAN COUNTRIES

Country	1995	2000	2005*
South Korea	3.06	4.11	5.05
China (without Hong Kong)	2.62	4.03	6.08
INDIA	4.35	8.00	14.03
Indonesia	0.36	1.08	1.94
Malaysia	0.91	1.34	2.04
Thailand	1.05	1.74	2.09

Source: Indo German Chamber of Commerce- \* Projection

The reasons given as most important for the growth of the market in water is population increase from 5.3 billion in 1990 to 8.54 billion in 2030, leading to growing urbanization on the one hand, and of agriculture (which consumes 70% of the global water available) on the other hand. Thus, it is expected that even as demand for water increases, water shortages will occur. However, this forecast does not take into account the non-sustainable use of water in manufacturing and in industrial agriculture.<sup>2</sup>

In addition, for the water merchants, the major incentive is the projected increase of the use of water in industries.

### RISE OF WATER USAGE (IN PERCENTAGE) (1980-2000)

Region	Agriculture	Private Household	Industry
Europe	14	17	4 – 55
Asia	15	127	171 – 188
Africa	33	200	362 – 438
North America	18	36	22-26
South America	29	67	233 – 267
Australia	25	34	114 – 150
Former Soviet Union	15	74	20 – 28
<b>Total</b>	<b>17</b>	<b>74</b>	<b>52 – 72</b>

Source: Bernbeck A.V., Deutsch Bank AG Environmental Technology Team, The Global Water Market – Overview, presented at the First European Congress on Participation in Global Infrastructure, Jan 23-24, 2001

## Role of WTO and World Bank in water privatisation

The Global Water Market today is seen as one with need of high investment, that has natural monopoly and a lack of serious international players. Added advantages to the corporate sector are the growing market volumes, the high barriers to the entry of competition, and the imbalance between competition and the potential rates of return.

Corporations have estimated that the global total water market is 500 billion Euro. The emerging market in water in India is estimated to be over US \$ 2000 million, of which 1/3<sup>rd</sup> will be water provisioning, 1/3<sup>rd</sup> municipal water treatment, and 1/3<sup>rd</sup> industrial water treatment.

A World Bank Policy Paper of the mid '90s on water recommended the creation of "markets to tradeable water rights". It was argued that rights to delivery of water can be freely bought and sold, farmers with new crops or in new areas will be able to obtain water provided they are willing to pay higher rates than existing users, and established users will take account of its sale value in deciding what and how much to produce.

The WTO 's General Agreement on Trade in Services (GATS) is forcing countries to privatize water through the introduction of "Environmental Services" – a euphemism that covers creation of commodity markets in water. The Trade and Environment Section of the Doha Declaration presses for including water in national commitments, so that countries like India will be forced to provide national treatment and market access rules to benefit MNCs.

### The 'water and sanitation market' in India

- The market in India for environmental business in pollution control equipment is estimated to be growing around 10-12% per annum. It was estimated that the value of the total Indian environmental market in 1997 was around \$5 billion and has grown to about \$8 billion by the end of year 2000.
- India's current spending on environmental protection is approximately to the order of 0.5% of its GNP as against 1-3 % in developed nations. The total environmental market in India was estimated to be around US \$8 billion in 2000 and is expected to grow to approximately US \$ 13-14 billion by year 2005.
- The private sector is being increasingly involved in implementation of projects on BOOT (Build Own Operate and Transfer) and BOO (Build Own Operate).

### TOTAL MARKET POTENTIAL IN INDIA (\$ BILLION) FOR ENVIRONMENT TECHNOLOGIES IN DIFFERENT ENVIRONMENT SEGMENTS

Segment	1995	2000	2005*	2010*
Water/ Wastewater/Sludge treatment	4.00	7.05	13.00	22.03
Waste treatment(municipal/ Industrial/ Hazardous), bio-remediation	0.07	0.15	0.08	4.04
Air Pollution Control	0.03	0.06	0.02	0.42
Energy saving techniques	0.18	0.03	0.04	0.56

Given that the biggest water giants globally are from Europe, the European Commission is putting particular pressure through WTO on Third World countries. The leaked EC documents have a special section on water, and the commitments EC expects from India.

The reforms being undertaken by the Indian government seem to toe this line of thought. It has identified the following areas/segments as the most promising business opportunities in the environmental goods and service sectors:

- Air pollution control (removal of gaseous and particulate emissions from air using process and prevention technologies)

Excerpts from the European Commission document leaked in April 2002

### **ENVIRONMENTAL SERVICES European Commission Request to India**

This sector has not been committed. **European Commission request:** Take commitments as follows, based on the EC proposal for the classification of environmental services:

- A. Water for human use & wastewater management  
Water collection, purification and distribution services through mains, except steam and hot water  
Waste water services (CPC 9401)
- B. Solid/hazardous waste management  
Refuse disposal services (CPC 94020)  
Sanitation and similar services (CPC 94030)
- C. Protection of ambient air and climate  
Services to reduce exhaust gases and other emissions and improve air quality (CPC 94040)
- D. Remediation and cleanup of soil & water  
Treatment, remediation of contaminated/polluted soil and water (part of CPC 94060)
- E. Noise & vibration abatement  
Noise abatement services (CPC 94050)
- F. Protection of biodiversity and landscape  
Nature and landscape protection services (part of CPC 94060)
- G. Other environmental & ancillary services  
Other environmental protection services not classified elsewhere (CPC 94090)

For each of the above sub-sectors :

Modes 1 (where technically feasible), 2 and 3 : Take full commitments, i.e. schedule "none" under MA and NT.

Mode 4 : Commit as referred to in the section "Horizontal Commitments".

- Water and waste water treatment (includes technologies to purify drinking water, clean sewage and remove pollutants from industrial waste water)
- Waste management (collection, disposal, recycling and treatment of domestic wastes, industrial wastes and hazardous wastes)
- Contaminated land remediation (assessment and cleaning up of contaminated land)
- Energy management (systems and technologies to make efficient use of both conventional and renewable energy)
- Environmental monitoring (physical monitoring of environmental standards using instruments and analytical services)
- Environmental services (consultancy and laboratory)
- Noise and vibration control
- Marine Pollution Control

#### **SECTORAL BREAK-UP OF OUTLAY OF Rs. 8.5 BILLION IN THE ANNUAL PLAN 2000- 2001**

Sr. No.	Sectors	(Rs. Billion)
1	Environment	2.30
2	National River Conservation Dte.	2.10
3	Forests & Wildlife	2.58
4	National Afforestation and Eco-development board	1.52
<b>TOTAL</b>		<b>8.50</b>

The Indian National Water Policy underlines, quite literally, its commitment to handing control over water to the private sector.

**Financial and Physical sustainability** (11). Besides creating additional water resources facilities for various uses, adequate emphasis needs to be given to the physical and financial sustainability of existing facilities. There is, therefore, a need to ensure that the water charges for various uses should be fixed in such a way that they cover at least the operation and maintenance charges of providing the service initially and a part of the capital costs subsequently. These rates should be linked directly to the quality of service provided. The subsidy on water rates to the disadvantaged and poorer sections of the society should be well targeted and transparent

**Participatory Approach to Water resources management** (12). Management of the water resources for diverse uses should be done by adopting a participatory approach; by involving not only the various governmental agencies but also the users and other stakeholders in an effective and decisive way in various aspects of planning, design, development and management of the water resources schemes. Necessary legal and institutional changes should be made at various levels for the purpose duly ensuring appropriate role for women. Water Users' Associations and the local bodies such as municipalities and gram panchayats should particularly be involved in the operation, maintenance and management of water infrastructures / facilities at appropriate levels progressively with a view to eventually transfer the management of such facilities to the user groups / local bodies.

**Private sector participation** (13). Private sector participation should be encouraged in planning, development and management of water resources projects for diverse uses, wherever feasible. Private sector participation may help in introducing innovative ideas, generating financial resources and introducing corporate management and improving service efficiency and accountability to users. Depending upon the specific situations, various combinations of private sector participation in building, owning, operating, leasing and transferring of water resources facilities, may be considered.





# The water giants

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## The big corporate players

The global water market is dominated by the Top 5 – Vivendi Environment (France), Suez Lyonnaise (France), RWE/Thames Water (Germany/UK), Saur (France) and Severn Trent (UK). Other big players are Anglian Water, Bechtel, and in India, Monsanto and Enron. The total investment of the Top 5 by the number of projects for the period of 1990 – 97 amounted to US\$ 32 millions with Suez Lyonnaise leading (28 projects, investment of US\$ 16,153).<sup>3</sup> Since then, the Top-5, through mergers and joint ventures, are taking over the rest of the world's water. Not only are they investing in water and wastewater supply and management, but also in gas utilities, media and advertising. In fact, Vivendi has become the biggest media corporation. Hyder PLC has taken 100% control over the British Payroll Services that provides payroll services to NHS trusts at undisclosed terms. Aguas de Barcelona, working closely with Vivendi and Suez Lyonnaise, has taken over the Information and Retrieval services called 'Briefing' in Spain, again at undisclosed terms. Aurix Corporation, with its affiliation to Enron, is taking over the water resources of the US as well as Mexico. Enron itself has been the cause of the financial disaster of the year, and is credited with having stolen billions of US taxpayers' money. Its entry into the Indian power sector through Dabhol was controversial in itself, with central and state governments violating the 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendments giving local panchayats the power to decide over their natural resources. Enron's clearly stated objective was to get a captive market for their power generation, at prices far higher than their competitors were offering. The corporation is today clearly looking at the Indian government to bail it out at the cost of the Indian tax payer.

## Profiles of the top water giants in India<sup>4</sup>

### VIVENDI

#### Main Divisions of Work

*Vivendi Environment (42% owned by Vivendi Universal) – "No. 1 worldwide in environmental services"*

#### Water

Vivendi Water (includes *US Filter*, Vivendi's key U.S. water corporation, as well as *General-des-eaux*, its largest international water corporation). For further details on international mergers see Table *Water and Utilities Acquisition Activity*.

Present in India as:

- Vivendi Water and Vivendi Universal (in its French Multination guise)

- Vivendi Water's arm US Filter Corporation has taken a controlling stake in *Johnson Filtration System India Ltd.*, following the takeover of Wheelabrator (which holds 51% stake in Johnson) by US Filter. After Wheelabrator exits from Johnson Filtration, its 51 per cent stake will be transferred to IP Holding, US, which is the holding company for US Filter. Johnson Filtration is engaged in the business of filtering and purifying machinery for industrial units. The company was set up in 1994, with a paid-up capital of Rs 5.88 crore.
- US Filter Corporation/Envirex collaborate with *Triveni Engineering & Industries Ltd* to provide turnkey solution to water management and effluent management for municipal corporations and industries.

Some Indian Projects:

- **Bangalore.** Consortium of Vivendi and Suez signed agreement with Karnataka for operating India's first model in delegated water management for Bangalore Water Supply & Sewerage Board in September 2000. Since mid-1991, the project is embroiled in controversy, and currently the state legislature has leveled charges of corruption at the level of state ministers for awarding the contract to Vivendi and Northumbrian,
- **Jamshedpur.** In advanced talks with Tata Steel to manage the town water system, has proposed a river-to-river system (Subarnarekha and Kharkai) for the town, to tap the river water, purify it and recycle waste back to the river, after necessary treatment. The average water consumption in Jamshedpur is 200 litres per person per day, much higher than the national average of 160 litres.
- **Agra.** As Triveni, setting up a 144 MLD water treatment plant with World Bank financing.
- **Calcutta.** Working with Calcutta Municipal Corporation to improve the city's water supply system through maximizing the potential of existing assets.
- **Chennai.** Consultant to the Chennai Water Board for the entire water management cycle – both water supply and waste water.
- **Delhi.** As Triveni, has two sewage treatment (160MLD) plants in Delhi for Municipal Waste Treatment
- **Vishakhapatnam.** As Triveni, commissioned one of the largest wastewater treatment plants in the Indian steel sector treating about 184 MLD waste water from the steel plant

### **Energy - Dalkia**

In energy, Vivendi operates as Dalkia

### **Waste Management - Onyx**

Present in India as

- **CES Onyx**, a subsidiary of Onyx Asia Holdings Pvt. Ltd, which in turn is a subsidiary of Vivendi.
- **Triveni**

Some Projects in India

- **Chennai.** Onyx has a 7 – year agreement for the municipal solid waste collection including household and commercial garbage and demolition debris for three of Chennai's 10 zones namely Zone 6, most of Triplicane; Zone 8, most of Kodambakkam; and zone 10 includes

### **Vivendi's Organisational Profile**

Vivendi Universal, ranked by the 2001 Fortune Global 500 as the 91st largest company, is a very broad based company with two seemingly different divisions. One is Vivendi Environnement, which is involved in water, wastewater, energy, and transportation services, with aims at privatizing public services in these areas. The other is its communications, audio-visual, and entertainment division which is made up of some of the world's largest companies, including Universal Studios, Universal Music, and USA Networks.

However, in 2002, due in large part to the vast scope of the company, Vivendi began to fall into some serious financial difficulties. Investors began to believe that Vivendi was overstretched, causing a major sell-off and drop in Vivendi's share price. They had to write off almost \$17 billion dollars in the first quarter of 2002 and they had to take a \$4.85 billion charge on their 2nd quarter earnings statement, because their assets had become worth much less after the stock tumbled. In amongst all this Vivendi's CEO Jean Marie Messier was fired and Vivendi's new CEO began shopping around various parts of the company, selling off major chunks of the media and publishing section of the company. There still massive debt at Vivendi, and questions abound as to what course they will take, with the sell off of Vivendi Environnement still a distinct possibility.

T. Nagar, Tiruanimayur, Adyar and extends into Velachery). Combinedly, these three zones cover about one-fourth of the city's 8 million population. CES Onyx has further subdivided these three zones into 26 sectors. The company had to clear at least 1,000 tonnes of garbage per day for which it received Rs 648 per tonne per day in the first year. It received Rs 712 per tonne per day during the second year, which would subsequently be raised by 5% every year. The Chennai Corporation's 2,500 employees on the rolls of CES Onyx, whose average salary is Rs 2,500 a month. Most of the cleaning equipment has been imported from France, barring front bodies for compactor trucks, which are locally made to facilitate easy repairs and sourcing of spare parts. Onyx's equipment inventory includes 31 compactor trucks, 30 hooklift trucks, 180 auto rickshaws, 800 modified bicycles, four sanitation vehicles, five bobcats (specially meant for clearing building debris). Besides there are more than 5,300 mobile garbage bins with lids. The garbage collected by Onyx Staff is stored in an intermediate depot where after checking the tonnage on two computerized weighbridges, the garbage is reloaded and transported to the landfill at Perungudi – the ultimate destination for all Chennai's refuse. The Chennai Corporation will soon be floating tenders for recycling and landfill maintenance contracts and Onyx will be likely bidder for this business too. Besides, Onyx is showing keen interest in industrial waste disposal. Since the present contract does not preclude it from taking up independent industrial cleaning contracts even if a particular company or industry falls within the area of the present contract. As such, Tidel Park on Taramani Road, falling in Zone 10, is likely to be targeted by CES Onyx, since it houses most of the software majors in Chennai.

- **Chandigarh** – Vivendi has taken up study of the city at the request of the Municipal Corporation for comprehensive cleaning
- Some projects of the Triveni-Vivendi combine for waste management and effluent treatment include:
  - Durgapur Steel Plant
  - National Thermal Power Corporation at Gandhar and Vindhyachal
  - Distillery at Salem, Amravathi
  - National Dairy Development Board (Plants at Rajpur, Kolhapur, Khurda)
  - Milk Food (plants at Gurgaon, Bahadurgarh)
  - Sugar at Khatauli, Deoband.

### **Transport – Connex**

In transport, Vivendi operates as Connex.

### **Food & beverages**

In food and beverages sector Vivendi has taken over *Seagram Company Ltd.*, manufactures of wines and spirits.

### **SOME INTERNATIONAL SUBSIDIARIES FOR VIVENDI ENVIRONMENT**

<b>VIVENDI Subsidiary's Name</b>	<b>Country</b>
Advanced Environmental Services	USA
Agefred	Spain
Aguas de Oviedo	Spain
Aguas del Valle	Argentina
AHS Emstar	UK
AMNIR (A.E.S.)	Israel
Aquiris	Belgium
ATERVINNING OCH Miljo AB	Sweden

<b>VIVENDI Subsidiary's Name</b>	<b>Country</b>
ATICS-ONYX	Mauritius
Aubine - ONYX	France
Barraqueiro	Portugal
C.C.L. (Ciudad Limpia)	Colombia
CGC	France
CGC (Italy)	Italy
CGC (Sofia)	Bulgaria
CGC (UK)	UK
CGC Ekotherm	CzechRepublic
CGC Energie	Germany
CGC Termotech	Slovakia
CGEA - ONYX Direction Régionale	France
CGEA (Chile)	Chile
CGEA (Colombia)	Colombia
CGEA (Perth)	Australia
CGEA (Philippines)	Philippines
CGEA (Sydney)	Australia
CGEA Asia Holdings PTE Ltd	Singapore
CGEA Brasil	Brazil
CGEA Connex Asia Pacific Holdings Pty Ltd	Australia
CGEA Connex NORGE AS	Norway
CGEA Onyx	France
CGEA Polska	Poland
CGEA T(Perth)	Australia
CGEA TUNISIE	Tunisia
CGS Macau	China
Chennai Environmental Services	India
Coinca	Chile
Collex	Australia
Comatec UK	UK
Connex	France
Connex Finland Oy	Finland
Connex Melbourne	Australia
Connex Polska	Poland
Connex Southtrans	Australia
Connex Transport AB	Sweden

<b>VIVENDI Subsidiary's Name</b>	<b>Country</b>
Connex Tunnel-banan AB	Sweden
Connex UK	UK
COTECNICA	Venezuela
CREED	France
Croissant Vert	Tunisia
Crystal	France
CSAD BUS Ostrava	CzechRepublic
CSP - ONYX	FrenchOverseasTerritories
Dalkia Facilities Management AB	Sweden
Dalkia France	France
Dalkia Holding	France
Dalkia International	France
Dalkia Termika	Poland
Deltacom	Argentina
Dixi Sanitary Services	DominicanRepublic
Eco Services Korea	Korea
Ecoserve Limited	HongKong
Enterprise Gournoff	France
Environmental Technologies China Ltd.	HongKong
Enviropace	HongKong
Esys-Montenay	France
FCC	Spain
FCC (Espana)	Spain
FCC Argentina	Argentina
FCC Haute-Saône	France
FCC Mexico	Mexico
FCC Monagas	Venezuela
FCC Tunja	Colombia
FCC Zamora	Venezuela
FCC-CTSA	Spain
FCC-CTSA (transport)	Spain
FCSM Budapest	Hungary
Fertagus	Portugal
Finergja SpA	Italy
Focsa	UK
Focsa Urbano Portugal	Portugal

<b>VIVENDI Subsidiary's Name</b>	<b>Country</b>
Fospuca	Venezuela
Fospuca Baruta	Venezuela
Fospuca Carrizal	Venezuela
Fospuca Libertador	Venezuela
Fospuca Miranda	Venezuela
Fospuca Nueva Esparta	Venezuela
Francaise de Service	France
Fredericton-Monkton Motorway	Canada
Gestión de Residuos Sólidos	Spain
Global Environnement	France
Görlitz Stadtwerke	Germany
Grandjouan Saco SA Direction Régionale	France
Green Valley Landfill	HongKong
Greenfield WMI Transfer Limited	HongKong
Greenhills Landfill Restoration Limited	HongKong
Greenline ONYX Envirotech Philippines, Inc	Philippines
Grupo WMX	Mexico
HIR	Germany
HRKS	Germany
HWS	UK
Ibka Miljoservice	Denmark
IPODEC Ciste Mesto a.s.	CzechRepublic
IPODEC Ireland Ltd	Ireland
Ipodec Onyx (Slovakia)	Slovakia
IPODEC ONYX Bohemia	CzechRepublic
Ipodec Portugal	Portugal
Jydsk Miljoservice	Denmark
KD Offshore	UK
L&CWaste-Tech	UK
Latina Water Consortium	Italy
Leigh	UK
Linjebuss	Sweden
Linjebuss (Denmark)	Denmark
Linjebuss Bénélux	Belgium
London & South Coast	UK
Louisiane	France

<b>VIVENDI Subsidiary's Name</b>	<b>Country</b>
Lovers Rail	Netherlands
Marius Pedersen CR	CzechRepublic
Marius Pedersen Slovakia	Slovakia
Marius Pedersen/ONYX	Denmark
Montenay Cluj Energie	Romania
Montenay International Corp. ONYX	USA
Montenay International Corp. ONYX (Canada)	Canada
Montenay Onyx	USA
Monyx	Hungary
MST	CzechRepublic
Muldenzentrale ag Basel	Switzerland
Multiaseo S.A.	Chile
Norskgsenvinning	Norway
Onyx	France
ONYX - EST	France
ONYX - LORRAIN	France
ONYX - Méditerranée Direction Régionale	France
ONYX - Océan Indien Direction Régionale	FrenchOverseasTerritories
ONYX - Sud-Ouest Direction Régionale	France
Onyx (NZ)	NewZealand
Onyx Aurora	UK
ONYX Auvergne - Rhône - Alpes Direction Régionale	France
ONYX Centre-Soccoim Direction Régionale	France
Onyx Egypt	Egypt
Onyx Engeenering	Switzerland
Onyx Environmental Services	USA
Onyx Gulf	UAE
ONYX Ile-de-France	France
Onyx Industrial Services	USA
Onyx Itusa	Spain
Onyx Morocco	Morocco
Onyx Municipal	UK
Onyx North America	USA
Onyx Total Waste Management	UK
Onyx UK	UK
Onyx Umweltschutz	Germany
Oy Linjebuss Finlande AB	Finland

<b>VIVENDI Subsidiary's Name</b>	<b>Country</b>
PAPKOV	CzechRepublic
Proactiva	Spain
Proactiva Medio Ambiente (Argentina)	Argentina
Proactiva Medio Ambiente, S.A.(Colombia)	Colombia
Prometheus (Hung)	Hungary
PSG	USA
PVK	CzechRepublic
Renovadan Miljoservice	Denmark
RIMSA	Mexico
SARP	France
SARP (Espana)	Spain
SARP (UK)	UK
SELCHP	UK
Sirr Basse Normandie	France
SL Tunnelbanan	Sweden
Societe Automobile	France
Societe d'Exploitation de Dechets	France
Sorimetal Environment	France
Southern Waste Management	Malaysia
STESA	Switzerland
Superior Onyx	USA
Ta Ho	Taiwan
TA-HO Environmental and Technical Services	Taiwan
Tecnoborgo	Italy
TEK	CzechRepublic
TSP - ONYX	FrenchOverseasTerritories
Tyseley Waste	UK
Universal	USA
US Filter	USA
Via Environment	France
Vinci	France
Vivendi Environment (Tangiers)	Morocco
Vivendi Water	France
Vivendi Water (Tianjin)	China
Waste Management (China)	China
WM (Czech)	CzechRepublic
Xfera	Spain



### Suez's Organizational Profile

Stemming out of the original company that built the Suez Canal and the French water company Lyonnaise des Eaux, Suez is involved in energy, water, waste services and, to a lesser extent, communications services. Suez is involved in privatizing the provision of these services at the municipal level, including building and operating. This profile focuses on Suez's push to privatize the provision of water services, with a great number of these agreements helped by the World Bank and other multilateral lending institutions. It is looking to expand its scope in water system maintenance much further in the years to come.

### SUEZ LYONNAISE DES EAUX<sup>5</sup>

As of April 2001, Suez is now the full name of the company, shortened from Suez Lyonnaise des Eaux.

#### Main Divisions of Work

##### Environment

*Municipal and Local*

- **Water Division:** ONDEO
- **Waste Services division:** SITA

##### Industrial

- Ondeo Nalco and others

#### *Presence in India*

As DEGREMONT, the main water treatment subsidiary of the SUEZ Group, has been present and active in India for 30 years. Its first large project was a 1.9 M cubic meters filtration unit near Mumbai. Since then the company realised more than 50 projects in India. Presently it is completing a big water reprocessing unit in Rithalan, Delhi and it recently signed up several projects in Bangalore and Chennai. (See Vivendi)

#### **Energy:- Tractabel**

In energy sector Suez operates as *Tractabel*.

#### ONDEO

As of April 2001, ONDEO is the new name for all of Suez's water efforts. The various divisions have been named as follows:

##### **ONDEO Services**

- water management services to cities (was Lyonnaise des Eaux, now includes United Water [their US water company], Lyonnaise des Eaux and Eurowasser under this banner)

**ONDEO Nalco** – water treatment and process chemicals for industries (formerly Nalco, based in Naperville, Illinois)

*Present in India as Ondeo Nalco India Ltd.* Suez, by virtue of its takeover of Nalco, USA, gained control over Ondeo Nalco India (then Nalco Chemicals India), as it was an 80 per cent subsidiary of Nalco of the US.

**ONDEO Degremont** – water treatment and turnkey engineering

For full details of Suez Degremont's involvement in Delhi, see *Privatising the Ganges to Meet Delhi's Water Needs – The Suez Degremont Story*.

**ONDEO Industrial Solutions** – industrial water solutions

*Working on dams in Gujarat as HYDROPLUS*, a wholly-owned subsidiary of GTM (Suez Lyonnaise des Eaux Group), for the modernization of 8 existing dams. The project will increase the current water storage capacity by 30 percent (50 million cubic meters).

#### **BECHTEL**

##### *Presence in India*

Besides being involved in the Tiruppur Project discussed (see p. 31), Bechtel is present in India as Bechtel India Pvt. Ltd. It is involved through construction and engineering work in the following Indian projects.

### Bechtel's Organizational Profile

**Bechtel Enterprises**, a privately held firm, is the world's largest construction company, having been involved heavily in the US's construction boom in the post WWII period. They are responsible for over 19,000 projects in 140 countries, with operations on all continents (save Antarctica). Bechtel is involved in over 200 water and wastewater treatment plants around the world, in large part through its subsidiaries and joint ventures such as International Water (which is a partnership of Bechtel, Edison of Italy, and United Utilities in the UK). International Water's most (im)famous project is the Cochabamba, Bolivia privatization which, after massive price hikes, caused mass demonstrations and eventually forced the reversal of the privatization.

Bechtel Presence in Various Projects in India	Description of Work
Bechtel International Inc. Dhabol Power Phase-II, Guhagar, Ratnagiri Dist.	High Pressure water jetting of steam service pipelines
Tanda Thermal Power Station	High pressure Water jetting cleaning for surface condenser for 4 x 110 mw plant
GAIL, Aurraiya	Pipeline cleaning with Rotating Hose Device Water jetting
Consolidated fibres & Chemicals Ltd. Durgachak, Haldia, West Bengal	High pressure Water jetting cleaning of Evaporator and Preheater tubes
Indian Oil Corporation. Barauni Refinery, Barauni, Bihar	High pressure Water jetting cleaning of heat exchangers
Supreme Petrochem Ltd. Nagothane.	Chemical cleaning of Heat exchanger and Reactor
Toyo Engg. India Limited	Pre-Commissioning Chemical Cleaning of Naphta Furnaces/Steam Drums Exchangers & Pipeline System at Haldia Petrochemical Complex.
Reliance Petroleum Ltd.	Non Conventional Flushing of small dia & large dia pipeline with hydrojetting & Quick Flush Technology.
Dhabol Power Corp. Ltd. Dhabhol, Maharashtra	Pre Commissioning Chemical Cleaning, Hydro jetting of condensate system.
GAIL UPPC Dist Auriya (U.P.)	Chemical Cleaning and Passivation of Pipeline equipments at UPPC, PATAAuriya
ONGC, BPA BA Platform, South Bassein Field (Through Essar Oil Ltd.)	a) On line chemical cleaning Of cooling water circuits of gas Processing platform b) Chemical cleaning of plate heat exchangers and cooling water receiving console .
Reliance Industries Limited Naptha cracker plant, Hazira	Pre-commissioning of cleaning services using Silent Steam Blowing, Slug Flush and Hydroblasting of Captive Power Plant and NGL/Naptha Cracker Plant
Gas Authority of India Limited Vijaipur, Guna, M.P.	Pre-commision Chemical Cleaning of pipelines & vesselslinked with Propane Refrigeration Compressor of PRU II
Naval Dockyard, Mumbai	Chemical Cleaning of Boiler

Bechtel Foundation is buying goodwill in Gurgaon, near its corporate headquarters in India, by funding a library, a recreational centre in the Government Higher Secondary School in village Khedla and the training of 20 local school teachers. Gurgaon is located in Haryana, where there is intense corporate pressure to private water.

<b>Bechtel presence in various projects in India</b>	<b>Description of work</b>
Mangalore Refineries & Petrochemicals Ltd. Mangalore	Chemical Cleaning of Surface Condensers
Indian Farmers Fertilizer Corp. Ltd., Aonla Unit, P.O. IFFCO, Township	Chemical Cleaning of Syn-loop Boiler Supplied by L & T
Cyprus Petroleum Refinery Nicosia, Cyprus	Pre-commissioning Chemical of 4 Nos. Power Plant Boilers .
National Organic Chemical Industries Ltd. Mumbai	Chemical Cleaning of Boiler, Heat Exchangers during shut down
Dubai Electricity Co.	Post operational Chemical Cleaning of 5 Nos. 500 M.W. Boilers
Hindustan Fertilizers Cooperation Ltd. Namroop, Assam	Chemical cleaning of internalsurface of tube bundles for HFCLon behalf of L&T using Citric Acid
Adarsh Chemicals & Fertilizer	Chemical Cleaning of MaleicAnhydride Reactor
Rashtriya Chemical & Fertilizer Ltd. Methyl Amine Project	a) Pre-commissioning of Chemical Cleaning of Deaerator, Waste Heat Boiler, Feed Water System. b) Pre-commissioning of Chemical Cleaning of Equipment & Heat Exchangers.
Rashtriya Chemicals & Fertilizer Limited - (Ammonia Rehabilitation Project)	Chemical Cleaning of Boilers, Deaerator and Boiler Feed Water System in Ammonia Rehabilitation Project & Methanol Revamping Project
Enron Oil and Gas India Ltd.	High Pressure water jetting & corrosion monitoring & speciality chemicals.
Larsen & Toubro Ltd.	Chemical cleaning
Sterlite Industries India Ltd.	Carbon Brick lining
Nestle	Epoxy Grout
McDonalds	Epoxy Grout
BHEL	Structural Rehabilitation
ONGC	Glass Flake Lining
Reliance	Carbon brick lining
NDDB	Epoxy Grout.

#### **BECHTEL SUBSIDIARIES' NAME**

<b>Subsidiary's Name</b>	<b>Country</b>
Aguas del Tunari	Bolivia
Aqua	Poland
Bechtel (UK)	UK
Bechtel Ltd	UK

<b>Subsidiary's Name</b>	<b>Country</b>
Bechtel Nevada	USA
Bechtel Water Technology	UK
Catchment	UK
Catchment (Tay)	UK
Dabhol Power	India
EDS/Bechtel	USA
Guayaquil Interagua	Ecuador
Intergen	UK
Intergen (China)	China
Intergen (Colombia)	Colombia
Intergen (Mexico)	Mexico
Intergen (Phillipines)	Philippines
International Water	UK
Manila Water Company	Philippines
Samalayuca Power	Mexico
Sofiiska Voda	Bulgaria
Tallinn Water	Estonia
US Water	USA

The other major Water MNCs present in India are Biwater, Saur and Anglian Waters.

### **Coca Cola : stealing water from the poor**

The people of Plachimada village in Palakkad district of Kerala are waging a bitter battle against Hindustan Coca Cola Beverages Pvt. Ltd., the Indian face of the MNC. The company has been extracting excessive groundwater, to the tune of nearly 15 million litres, through 65 borewells, sucking their groundwater aquifers and open wells dry. The struggle against the Plachimada Plant of Coca Cola was launched on 22 April 2002 with a symbolic blockade and an ongoing continuous picketing/dharna by mainly the Adivasis, particularly by women and children, belonging to the Eravalur and Malasar indigenous communities.

The Coca Cola story in Kerala is an example of how people are bypassed to promote privatisation. Coca Cola first arrived in Plachimada in 1998, and entered into an agreement with the local leadership, and not the community for setting up its production and bottling plant. The plant has been set up on a 40-acre plot (previously multi-cropped paddy lands) for which the company entered into an agreement with the local leaders, rather than with the community.

The site is located a few metres from the main irrigation canal from the Moolathara barrage, a few hundred meters from the Kambalathara and Vengalakkayam storage reservoirs, about three kms from the Meenkara dam reservoir, and two kms away from the main Chitturpuzha (river). The effluents from bottlewashing are released without treatment, leading to turbidity and quality loss in ground water. The water turns milky on boiling, is unfit for drinking, bathing and washing clothes. Already a 1000 families, mainly of indigenous communities, have been affected by the water. The shortage of water is forcing them to abandon paddy cultivation.

*Contd ...*

The sludge was earlier dried and sold to unsuspecting farmers as “fertilizer”, and then given to them free. This has stopped after protests. However, the people claim that the company surreptitiously, at night, often dumps the toxic sludge leave the village in search of other employment.

#### **People protest Coca Cola’s theft of water**

The picketing and dharna outside the factory started on April 22, 2002 and it is still continue. On 28 May, 11 activists were arrested at nearby Vandithavalam village, when they were campaigning there. Another 9 were also arrested from amongst the protesters in front of the plant. Coca Cola had approached the high court seeking protection to their property. The struggle committee filed a counter and the high court ordered the police to protect the protesters.

As the message of the struggle has spread in the surrounding areas, with people spontaneous blackening or damage of Coca Cola hoardings in various parts of Chittoor taluk.

#### **Police violence against protestors**

On the 9 June 2002, the agitation against the Coca Cola Plant entered the 49th day. In the evening, a protest rally took place. The peaceful protesters symbolically dumped the extremely foul smelling dry sedimented slurry waste that Coca Cola had been dumping in the surrounding villages surreptitiously in the fields, in front of the Coca Cola Plant. The police officials were continuously attempting to provoke the protesters using abusive language. Then, without any provocation, they beat up a protester, and violently arrested 130 others, of whom 30 were women and 9 were children, mostly babies, in some cases, tearing the clothes of the women. Since then, over 300 protestors have been arrested.

Earlier, on the previous day, members of the party that controlled the political unit of the Panchayat of the village had threatened the protestors with violence.

On 4<sup>th</sup> August, the Coca Cola Virudha Samara Samithy (Anti Coca Cola Struggle Committee) organized a mass rally and public meeting at Plachimada to mark the 105th day of the protest. More than a 1000 people, mainly indigenous people, participated in the rally, including women and children, who led the rally.

#### **Charter of Demands**

1. Immediate closure of the Coca-Cola Factory.
2. Hindustan Coca-Cola Beverages Pvt. Ltd be held fully responsible and liable for the destruction of livelihood resources of the people and the environment.
3. Initiate criminal action against Hindustan Coca-Cola Beverages Pvt. Ltd and made accountable for the ecocide with responsibility to restore the environment.
4. Compensation to all those adversely affected by the Coca-Cola Unit.
5. Withdraw the false cases filed against the protesters and their supporters.
6. Throw out Coca Cola from India.

# Water privatisation in India

## IV

Two stated primary motives of the loans from World Bank and IMF are, as is evident from the following examples, firstly to force the entry of the private industry in the water sector, and secondly form 'user groups' or 'stakeholders' with enough financial ability to bear the brunt of the costs and provide a ready market for corporations.

**1. The Urban and Environmental Infrastructure Facility Project**, covering the whole of India, provides long-term loans to reform-oriented municipal bodies, private sector project sponsors, or microfinance institutions for financing commercially viable urban and environmental infrastructure projects; and supporting, with technical assistance (TA), the integration of microfinance with urban and environmental infrastructure development. According to the ADB,

While the Government has been making efforts to increase financial flows to the urban sector through fiscal concessions, the sector's development is constrained by a lack of long-term funds to match the gestation and payback periods of the urban infrastructure projects, and by legal, institutional, and financial impediments to developing demand-driven projects. The loans will have a demonstration impact on the sector by selectively financing commercially viable urban and environmental infrastructure subprojects in states and municipalities where essential reforms are creating an environment conducive for sustainable sector development. ... The Project will assist the Government in improving urban and environmental infrastructure and encourage cost recovery and other municipal financial reforms.... High priority will be given to subprojects that address basic human needs such as water supply and sanitation....

The total cost of the project is US \$ 390 million, of which the Bank's contribution is US\$ 90 million, which is being routed through the ICICI, HUDCO, and Infrastructure Development and Finance Company Ltd. The rest, US \$ 300 million, is to be borne equally by the 'borrower' or the government and the 'beneficiaries' or the people using the water.

**2. The Karnataka Urban Development and Coastal Environment Management Project**, which covers Kundapur, Mangalore, Puttur, Udupi, Ullal, Ankola, Bhatkal, Dandeli, Karwar and Sirsi, all located in the Dakshina Kannada, Udupi and Uttara Kannada districts of Karnataka State, includes Water Supply Rehabilitation and Expansion (including Water Supply Intake Works, Water Treatment Plants, Water Supply distribution) Sewerage and Sewage Treatment Plants and related transmission mains, Sewerage system distribution, Storm Water Drainage, Solid Waste Management and Municipal Services and Facilities among other things.

ADB is contributing US \$ 93.90 million to a total project cost of US \$ 251.40 million (processed through the Karnataka Urban Infrastructure and Development Finance Corporation). Bids are required to be tendered by voluntarily formed joint ventures from India and foreign firms from ADB member countries.

ADB sees policy and institutional measures that ensure local resource generation and improved cost recovery for water supply as most critical for ensuring Project success and sustainability. Towards meeting this end,

A stakeholder participation approach for selecting subprojects in the project towns was applied; discussions were held with elected officials to ascertain existing problems, constraints, and local development priorities, a sample socioeconomic survey of community residents and extensive consultations with NGOs determined the priorities of beneficiaries, particularly the urban poor and disadvantaged groups, as well as affordability and willingness to pay for improvements; and a consultative workshop was held in each town at which local government and elected officials, jointly with NGOs, reviewed the investment proposals and the necessary policy reform measures.

**3. The Madhya Pradesh Integrated Water Resources Management Strategy** was born of the Water Management Sector Review, conducted by the World Bank and the central government in 1998, which identified several shortcomings in the existing system, including: (i) lack of a comprehensive water management perspective, (ii) insufficient institutional arrangements leading to inadequate cost recovery and operations and management funding affecting sustainability. The WMSR demanded central and state policy reforms, including creating new legislation.

The MP government has since enacted a participatory irrigation Act that establishes a legal basis for water users associations. It has also 'rationalised' irrigation fees and organization staffing. The preparation of draft legislation on the use of groundwater has also been initiated.

#### The Orissa Lift Irrigation Corporation<sup>5</sup>

The Orissa Lift Irrigation Corporation provides a lifeline for approximately 50,000 farming households, the majority of whom are small and marginal farmers, enabling them to produce enough food and remain self reliant in meeting their basic food needs.

Created by the Govt of India, OLIC is instrumental in supplying the agriculture water need to farmers in areas where canal irrigation is not available. However post cyclone the Orissa Lift Irrigation Corporation is just one of the many public sector corporations to face a privatisation overhaul under the combined onslaught of the World Bank, and DFID under the pretext that they are loss making operations.

With Orissa's debt burden amounting to RS 24000 crores, 60% of state revenue goes towards servicing of this debt, leaving only 40% left to meet day to day expenditures on public service.<sup>6</sup> The role of the state government of Orissa has been sidelined to onlooker and of rubbing stamping DFID directives, via the WB's puppet installation of DFID, whose role it has become to oversee the 'proper' utilisation of WB's loans to the state, (i.e. the programme of privatisation through it's conditional lending policy), for which DFID receives a concession of 18% of the loan<sup>7</sup>.

As one of the main employers in the state, (9500 direct and indirect employees of OLIC range from engineers to agriculture labourers) government action has had a devastating effect on people livelihoods. The state government has conducted a moratorium on jobs, wages have not been paid to over 20,000 teachers, salaries have been cut, staff laid off, and millions of people are without the prospect of paid work, all part of the various fiscal and financial measures of the govt in tackling the state's financial crises.

Moreover the claims made by WB and DFID that OLIC is a loss maker does not show the wider picture. For example DFID chooses to interpret limited set of statistics ignoring the fact that OLIC has been providing an essential service to the most effected poor and marginalised farmers. It's role has been crucial in helping farmers to irrigate 435 lakh hectares for agricultural land which produces 16 lakhs Million Tonnes of food grains (valued at 710 crore rupees). This in turn enters the food security system including the PDS (Public Distribution System), giving affordable food to people.

Therefore the cost of water is more than compensated by the amount of food produced. The commodification and marketisation of water will mean that the 50,000 farmers will have no access to food as they will no longer be able to afford to produce food with the increased cost of water

and will be turned from economic producers to an economic drain on the state. Millions of small and marginal farmers will become displaced migrating to cities in search of new livelihoods.

OLIC provides 70-80% crop success for farmers, who depend on OLIC for Rabi (winter) cultivation. The role of OLIC was set up to provide a public service and not to make a profit. This role is being undone in the name of fiscal reforms, which make a mockery of the state govt anti-poverty policies, as laid out in 1998 WB report 'Reducing Poverty in India' and clearly goes against the interest of the poor.

WB reasoning is that water scarcity is a new situation and needs a new approach to water management. Under the heading of 'participatory development', the WB and DFID have abused the concept of local level participation through the setting up of Pani Panchayats. Farmers are anxious in the way that Pani Panchayats are being undemocratically installed, formed with those who have financial social and political clout. Often the groups do not represent the local community, yet take control over the communities water resources, operate and manage it in return for fees paid by the users. (98% of Water Committees have been formed where lift irrigation points are involved). Users have to repay the capital (fixed assets) costs over a period of time, and have to pay immediately in full for the operation and management. In Orissa, the price of lift irrigation water to users has increased almost 10 times since the creation of the Pani Panchayats. Water rates have increased from Rs 750 to Rs 5000 and from Rs1000 to Rs 10,000<sup>8</sup>.

The formation of Pani Panchayats only serves to undermine the activities of small and marginalised farmers to access water, resulting in a collapse in food production for thousands of farming households, as well as thousands of job losses for OLIC employees. Further problems are likely to arise through Pani Panchayats including access to drinking water of which the bulk of rural drinking water is provided meeting the basic water needs of the rural folk.

#### **Coopting cooperative governance systems: The DIFD/WB Pani Panchayat**

By usurping the word 'Panchayat' for creating user groups or 'stakeholders' who pay for water, DIFD, is following the lead of the World Bank, is undermining the concept of community control over this natural resource. The 4 million pound sterling project is being implemented by the Adam Smith Institute, U.K in the Jagatsinghpur and Puri districts of Orissa, the districts that are particularly vulnerable to cyclones. Particular efforts to privatize water are being made in villages that bore the brunt of the Orissa Supercyclone in 1999, where people and agriculture have yet to recover from the calamity. This region was also the recipient of genetically contaminated food aid in the aftermath of the cyclone; the exposure of this added health threat by the Research Foundation for Science, Technology and Ecology spearheaded the Indian Campaign against Genetically Engineered Food as Aid.

The OLIC/Pani Panchayat project of DIFD involves the cooption of NGOs, primarily Unnayan and SEEDS, who have been working in the areas for some time and have established their credibility with the people, is based on the privatisation of the 6,600 Minor Lift Irrigation Projects (MLIP) of the Orissa Lift Irrigation Corporation (OLIC), a public sector enterprise. The water users' group in each village, designated as "Pani Panchayat" or PP, does not represent the village community, but is actually a group of those who can pay Rs. 40/hour for water and is supposed to look after the day-to-day management and maintenance of the equipment. The project designers have ensured that the payment is made in advance through a coupon system so that no credit-sales are done.

The PP has to sign a legal document with UNNAYAN in regards to executing the project and managing the activities and maintaining the assets created under the project. The support provided to the PPs (both for fixed assets and revolving fund) is not considered as grant, rather considered as a returnable grant. In case of fixed assets the fund provided to the PPs will be returned back to UNNAYAN by the concerned PP in a period of 10 years without interest. But as far as revolving fund for each PP is concerned the repayment will start from harvesting of first crop since installing of the MLIP with interest, which will be mutually agreed upon by PPs and UNNAYAN. The amount of interest to be charged from individual member on loan from revolving fund is left to the PPs.

The scheme is being popularized through the Food-for-Work programme, with the government providing rice at a concessional price, distribution of blankets to those who become members of the PPs (euphemistically known as *Relief Work*),



Not only is water for irrigation but even drinking water is being privatised. The government first insists on the formation of water associations and conveniently pass the responsibilities on to these associations. When this proves inefficient, water distribution rights are given away to private contractors. For example, the Orissa government initially stressed on the formation of *Pani Panchayats* (water associations). Later using police the government suppressed these *Panchayats* justifying this by claiming that the villages were not being responsible enough.

Bala Chandra Sarangi from Orissa, a witness at the *Vasudhaiva Kutumbakam : Earth Democracy, National Convention On Community Rights To Natural Resources And The Constitution*, organised by Navdanya in New Delhi, August 10-11, 2002

The change in the National Water Policy to allow the entry of private business into the water sector is being carried out ostensibly on grounds of better governance and getting rid of waste and inefficiency. In fact, privatizing water leads to just the opposite. As can be seen from the table below, the withdrawal and consumption patterns of water in the US indicate a huge amount of wastage as the total withdrawal is much higher than the consumption.

A study conducted by the University of Florida, Institute of Food and Agricultural Sciences, estimated that 2.1 million gallons of water\* are used per acre per year under overhead sprinkler systems in the Apopka greenhouse foliage production area. Eighty percent of this water is unavailable to the root zone, and producers using drip and sprinkler systems over water by an estimated 10 percent, which leads to leaching of fertilizers.<sup>9</sup>

### **The Swajal Project**

(UP Rural Water Supply and Environmental Sanitation Project)

The Swajal or the UP Rural Water Supply and Environmental (URPWSES) Sanitation Project is a World Bank funded project to be established in 1000 villages in 19 districts of UP, 7 districts in Bundelkhand, and 12 Districts of Kumaon and Garhwal of Uttaranchal. The total cost of the project is US\$71 million, of which the World Bank share is 84%, State Government 5% and the community 11%. In addition, the groups have to bear the entire operation and management cost from the inception of the project. Thus, for latrines and other individual assets such as compost pits, each user pays almost 40% of the capital costs, taking sanitation and sustainable agriculture out of the reach.

The project is to be implemented in 4 batches, each covering

a selected number of villages. Shortlisted NGOs, termed *Support Organisations* assist the implementation. The project cycle of each batch has three distinct phases: preplanning, planning and implementation.

The rural water supply (WS) and latrine components provide choices to consumers in terms of type of technology and service level. For WS in the hills, this includes piped water supply schemes, captured springs with handpumps, rainwater harvesting and spring development (including combinations of technologies most suited to local conditions). In the Bundelkhand region and foothills, WS choices piped water schemes from tubewells, surface sources (where required) and handpumps.

\* 622 acres, 0.5 gallons of water per square foot per irrigation.

### **When urban water is privatized: Tiruppur Water Supply and Sewerage Project <sup>10</sup>**

Tiruppur city in Tamil Nadu state is the first of the private-public partnerships in water. With a population of 235,000 in 1991, and nearly 1000 textile units, it is India's largest producer of cotton knitwear, accounting for over three-fourths of the country's knitwear exports. The town also houses thousands of dyeing and bleaching industries for which water is essential. The industries have been mining groundwater, and the area is right now acutely short of surface and ground water. Agriculture in the area is facing particularly severe stress. In 1991, the Tamil Nadu government announced the launch of the Tiruppur Area Development Project, with a SPV being set up composed of the Tiruppur Exporters Association (TEA) and IL&FS. USAID and the World Bank also committed long term aid. In 1994 and SPV called the New Tirupur Area Development Corporation Limited was set up as a public limited company with private sector participation. to implement the project. NTADCL has contracted out the construction and maintenance of the systems to a Build, Operate and Transfer (BOT) consortium, the Mahindra Consortium (Mahindra & Mahindra, United International, North West Water, and Bechtel).

The estimated cost of the project is Rs. 11,630 million. The equity including grants amounts to Rs. 3900 million, and is being contributed by the union government, IL&FS, the Tamil

Nadu Corporation for Industrial Infrastructure Development, The Tiruppur Exporters Association and the Mahindra-led consortium. The project has a debt-component of Rs. 6.98 billion, as well as a subordinate debt of Rs. 750 million. While the return on equity amounts to 21 per cent, the average cost of debt is 17 per cent. These investments will be recovered through a composite water charge, with industry being charged five to six times the amount fixed charged to domestic users. It is obvious where the profits lie, and who will get the water.

Once operational the water project will supply Tiruppur with 185 million litres per day as:(a) a treated piped water supply of 60 million liters per day (MLD) to Tiruppur municipality and 21 adjoining towns and village panchayats; (b) a treated water supply of 100 MLD to over 700 dyeing and bleaching industries within the Tiruppur Planning Area; (c) a sewerage system for Tiruppur; and (d) onsite sanitation facilities for 88 designated slum areas within Tiruppur municipality. The water will be brought to the town from the river Noyyal, where the toxic industrial wastes are also discharged. A private French company has been employed to carry water from yet another river, Bhavani, to the industries.

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In India, the majority of the so-called private public partnership arrangements, many of which are being funded by MNC's and international financial institutions like the World Bank and IMF, Overseas Economic Corporation operations, are being designed to finally hand over ownership to the private partner. Most of these are urban based, where the demand for domestic and industrial water is growing by leaps and bounds. In urban areas, informal sector slum population is growing at 8 per cent. Nearly 32 per cent of the population in the 12 metropolitan cities were living in slums (1990). The percentage of population in slums in large cities is over 35 per cent in Kanpur, Calcutta and Chennai. The proportion of slum population in Delhi and Mumbai are indicated as more than 50 per cent.<sup>10</sup> As the projects are invariably associated with high costs for water use, these large sections of the population will be priced out of the water market.

The privatisers of water envisage that privatisation of even water harvesting. A presentation prepared for IL&FS speaks of taking control over water harvesting.

Another factor that is vital to water privatisers is procuring water for industry. The same document for IL&FS talks of getting bulk offtake commitments for water from industry, and taking over the water sources of 'wayside villages' to provide this water.

Today in the market and greed driven system of globalization and privatization the 'common Resource' of water, scarce and sacred, is being reduced to a 'tradeable' 'profitable' and economic product to

### **Sale of River Bhavani**

The Ganga is not the only river whose water is being privatized to satisfy corporate greed. River Bhavani - an important tributary of Cauvery has been sold by the Tamil Nadu government to Kinley - the brand name under which Coca-Cola sells bottled drinking water. This sale has been effected by the government even while the state is reeling under severe drought, ground water levels have reached depths of over 1000 ft., and water riots and water-related murders have become an everyday occurrence.

The sale of the river, which was a major source of water for the people of the region, has been routed through Poonam Beverages, a new firm belonging to the Coimbatore-based Annapoorna Hotels, who will draw 1,00,000 litres/day to supply it to Kinley, Coca Cola's bottled water. The annual fees that Poonam Beverage has paid the government is a mere Rs. 5,00,000, for which hundreds of thousands of people are being denied a vital resource, that is their natural right, and without which they cannot survive.

## Selling rivers for corporate profits

The villagers have been living beside the semi-perennial Sheonath river near Durg in Chhatisgarh, through droughts and floods. They have watered their crops, and caught enough fish. Ghats, where village folk bathed and washed clothes can be seen along the river. But now, the villagers cannot have access to the river. 23.6 km stretch of the river has been sold to "Radius Water" Ltd (RWL), a company floated by a local person Kailash Soni. The company has the sole monopoly on the supply of water from Sheonath river, through a BOOT arrangement which will be reviewed after 22 years.

Sheonath project is meant for supplying water to the Industrial Estates of Borai, near Durg city. In 2001, Soni was given the contract to build a dam across the river and has full right to the 23.6 km reservoir and the water collected behind it. He has monopoly rights to supply water to the industries around this area. Since the dam has come up, the villagers who used to fish in the river and depended on the river for daily needs have no longer any rights for the same.

The agreement between Soni & the Chhatisgarh government, which was executed on 5th October 1998, has the clause 'Take or Pay'. According to this clause whether there is requirement or not, Government (mainly for industries) will buy at least 4 million liters daily (MLD) water. As there is little demand of water for industries, Government is paying Rs. 1.15 lac per day to RWL. In other words, Government will have to pay more than Rs. 4 crores annually to RWL.

Following are some of the affected villages at the upper stream of Sheonath river.

- i. Rasmara
- ii. Mohlai
- iii. Siloda
- iv. Mahmara
- v. Peepar Chhedhi

Discussions with the villagers of Rasmara and Mohlai revealed shocking facts.

Rasmara and Mohlai are worse affected villages as these villages are located near the dam built by RWL.

- According to farmers of Rasmara and Mohlai villages, they were growing vegetables near the banks of Sheonath, which is no longer possible, as no water supply is available from Sheonath river. Some farmers tried to grow vegetables on the small portion of land, however it was washed away due to the excess release of water by RWL from the dam.
- Sometime due to sudden discharge of water, children and women are at risk of being carried away a long distance by water.
- Farmers who were using pumps to draw water from the rivers have had their pumps forcibly taken away by RWL, which has issued warning of dire consequences should farmers use pumps.

- Farmers are not even allowed to install tube wells within a radius of 1 km from the river.
- A large number of families in these villages were dependent for their livelihood on fish for a substantial part in a year. Now they do not have any income as no fishing is allowed.
- For farmers even rearing the animals is difficult. Now animals are allowed only for few minutes in the river, while earlier, animals particularly buffalos used to remain in river water for hours.
- Bathing at Ghats and washing clothes is totally at the discretion of RWL.
- Rasmara Gram Panchayat used to get Rs. 90,000 per year out of the contract for lifting the sand from riverbank, which now has been monopolised by RWL.

Villagers affected down stream mainly are:

- i. Malood
- ii. Beladeri
- iii. Jewra Sirsa
- iv. Natgaon
- v. Jhejhri
- vi. Pathria
- vii. Samoda

Soni, who claims to have invested Rs. 39 crores to store and sell water is now looking for other revenue sources. His lease covers close to 400 acres of land, which he plans to convert into reservoir, ringed by a tree of plantations, providing him with the additional sources of income: fisheries and timber.

Small wonder, the Ajit Jogi Cabinet has taken a decision that all future dams in the State will be built on the Borai pattern, which means on the pattern developed by Soni at Sheonath river.

Local resentment is turning into opposition and a number of peoples' organization have stated protest actions. They are highlighting not only the take over of people's rights, but also the longer-term issues. The Chhatisgarh Government now wants to privatize the water supply of the capital city of Raipur, and Soni is among the front-runners for this. Price Waterhouse Cooper (CWC) an international consulting firm has prepared a feasibility report for the State Government on water, which recommends the extensive privatization of water in Chhatisgarh.

The huge profits is the driving force behind all efforts of water privatization. According to a joint report of the World Bank, Department of Finance, Government of India for International Development (DFFD of U.K.), Ministry of Urban Affairs, the estimated investment needed to upgrade the urban water and sewerage services in the future is approximately Rs. 30,200 crores per annum at 1996-97 prices. For the rural sector, the report estimated about Rs. 17,000-Rs. 20,000 crores for the rehabilitation of the distressed scheme and about Rs. 2,900 crores annually for its operation.

<b>Infrastructure Type</b>	<b>Innovative user pay Instruments</b>
1. Water Supply	Advance registration charges, Connection charges, Enhancement of water tariff, Water benefit tax/water tax, Betterment charges, Development charges, Utilization from other sources such as octroi, property tax, sale of lots etc. and Chares from water Kiosks.
2. Sewerage	Connection Charges, Sewerage Cess Tax, Conservancy Tax, Sale of Renewable waste, Sale of Sludge and Sale of Nutrient rich wastewater.
3. Solid Waste	Collection Charges, Cess, Sale of Renewable waste, and Fines for dumping waste.

Source: The Indian experience in applying norms of good urban governance, paper presented by MV Suresh at the Hangzhou International Seminar held at Bangalore, October 19-21, 2000

be 'owned' 'overexploited' 'marketed' and 'sold' to whoever can 'pay' for it. HUDCO, which is involved in many of the urban water supply projects, has designed what it calls 'innovative instruments' for financing these projects, all of which will be paid for by the people.

It is obvious that the large percentage of Indian citizens living in slums will be unable to access water in any way. Again, though not specified, the 'nutrient rich wastewater' which will probably be sold for agricultural purposes, will be heavily contaminated not just with disease carrying germs, but also extremely toxic industrial pollutants.

The push to commodify water comes at a time when the social, political and economic impacts of water scarcity are rapidly becoming a destabilizing force, with water related conflicts becoming increasing prevalent and violent around the globe like West Asia and back home the interstate river disputes and growing menace of 'Water Lords' in urban slums.

## **Water privatization in Bangalore**

Bangalore, the capital of Karnataka and the Industrial center of Southern India, is one of the fastest growing cities in the Asian continent. In 2002, with an estimated population of 60 lacs (6 million), Bangalore Urban Agglomeration alone accounts for merely 30 % or one third of the total urban population in the state.

Bangalore has attained the status of the third fastest growing city in the country with decade growth rate of 41.36% during 1981-91. In order to check the rapid growth of the city, both in area and population and its adverse impacts on various infrastructure facilities to be extended normally to the citizens, the state government has adopted a policy not to encourage the

### **IA. POPULATION, POTENTIAL OF SUPPLY AND SHORTAGE OF WATER**

<b>Year</b>	<b>Population (Lacs)*</b>	<b>Required at 150 Ltrs per Capita per Day in (MLD)</b>	<b>Potential MLD</b>	<b>Shortage MLD</b>
1993	44.90	674	509	- 165
1994	46.70	700	705	+ 5
1995	48.50	728	705	- 23
1996	50.30	754	705	- 49
1997	52.10	782	705	- 77
1998	53.90	809	705	- 104
1999	55.71	836	705	- 131
2000	57.50	862	705	- 157
2001	60.00	900	705	- 195

\*(10 lac = 1 million)

**IB. REQUIREMENT, PRODUCTION AND ACTUAL SHORTAGE OF WATER**

Sr. No.	Year	Population (Lacs)	Requirement MLD	Production MLD	Actual Shortage MLD
1	1993	44.90	674	486	-188
2	1994	46.70	700	549	- 151
3	1995	48.50	728	567	- 161
4	1996	50.30	754	551	- 203
5	1997	52.10	782	613	- 169
6	1998	53.90	809	574	- 235
7	1999	55.70	836	594	- 242
8	2000	57.50	862	594	- 268
9	2001	60.00	900	594	- 306

**IC. ESTIMATED PRODUCTION OF WATER AND PER CAPITA AVAILABILITY FOR DOMESTIC CONSUMPTION**

Sr. No.	Year	Population (Lacs)	Potential (MLD)	Estimated Production (MLD)	Estimated Domestic Consumption (MLD)	Per Capita Availability for Domestic Consumption (Itrs)
1	1993	44.90	509	486	307	68.37
2	1994	46.70	705	549	328	70.23
3	1995	48.50	705	567	346	71.34
4	1996	50.30	705	551	343	68.19
5	1997	52.10	705	613	344	66.00
6	1998	53.90	705	574	361	66.97
7	1999	55.70	705	594	353	63.37
8	2000	57.50	705	594	353	61.39
9	2001	60.00	705	594	353	58.83

establishment of a new major industries in and around Bangalore city. Pronouncement of this policy has of course not allowed major industries to come up, but a large number of medium and small industrial and ancillary units have been established during late seventies and early eighties in the industrial suburbs.

Similarly, the city has expanded phenomenally in area from 29 sq. km at the beginning of the century and is estimated to increase to 446 sq. km in 2002 and by 2011, the area of the city will increase to 564 sq. kms. The total network of water supply transmission and distribution pipelines has reached merely 2000 sq. kms. Bangalore water supply and sewerage Board (BWSSB) since its formation in 1964 has augmented the water supply to Bangalore city from 164 MLD to 704 MLD. Until 1964, water was abstracted from Akravathi river, now the major quantity of 540 MLD water is being pumped from Cauvery river from a distance of about 93 kms.

On the basis of population projection from 1993 to 2001 AD, the requirement of water potential, probable supply and the resultant shortage for respective years are shown in the Table IA and IB. The requirement of water has been calculated by taking domestic and non-domestic

## ID. AVERAGE UNIT COST PER THOUSAND LITERS OF WATER

Source	Established during	Distance (kms)	Potential (MLD)	Investment (Crores)	Average unit cost per thousand litres after completion of the project
1. ARKAVATHY					
a. Hessarghatte	1896	18	22.5	N.A.	0.45
b. T.G. Hally	1933	28	143.0	N.A.	
2. CAUVERY					
					After formation of Board
a. Stage - I	1974	98	135.0	35	1.70
b. Stage - II	1982	98	135.0	80	2.70
c. Stage - III	1993	98	270.0	240	4.63
d. Stage - IV					
Phase-I	2001	98	270	1072	
Phase-II	2003	98	500	2400	
	(Planned)			(Estimated)	

N.A. – Not Available

water needs including wastages, at 150 Liters Per Capita per Day (LPCD). Table IC shows the total estimated production and the per capita availability of water for domestic utilisation.

### Water resources and supply in Bangalore

BWSSB claims that Bangalore is one of the few cities in India which has an assured drinking water supply for the last 100 years. The quantity of water available at present from active sources together is 705.50 million liters per day (MLD). But the entire potential is not being utilised, because of non-availability of water in the source due to failure of monsoon. Of the total potential of 705.50 MLD, the actual availability of water per day during the year 1997-98 was only 574 MLD and the utilization of potential available was only 81%. In 1998-99, the average quantity of water available was only 614 MLD and the utilization potential was 87%.

After commissioning CWSS –stage – III, the river Cauvery has become the major source contributing 90% of the total water supplied to the city. The river Arkavathi is also an important source because most of the West and Northern parts of Bangalore are supplied mainly with the water drawn from T.G. Halli Dam, besides Hessarghatta to some extent.

As shown in the Table ID, the average unit cost of water which was Rs. 1.70 per thousand liters after completion of CWSS I stage increased to Rs. 4.63 when stage – III project was completed. Again it can be seen from the Table II that the capital investment in CWSS -I and III stage varies by two folds to bring in the same quantity of water.

Thus the increasing trend in the cost of construction of projects and their maintenance indicate that the cost of bringing **additional water to Bangalore would considerably increase year after year**

With the financial loan of Rs. 1072 crore from OECF (Overseas Economic Corporation Fund) of Japan, a project under CWSS (Cauvery Water Supply Scheme) stage IV phase-I has been started in 1998. The completion of this scheme shall augment the water supply to the city. The quantity of water available from stage IV, phase shall be 270 MLD.

### Water connection in Bangalore

Water users are classified normally into two categories viz. domestic and non-domestic. Consumers using water for house hold purposes, such as drinking, cooking, bathing, washing etc. are classified as domestic. Non-domestic category includes water used for commercial purposes, construction activity, industrial purposes, hotels, urinal halls etc. Conversion from domestic to non-domestic and vice-versa is permissible. It has been observed that the large percentage of conversion is from non-domestic to domestic category.

### **Bangalore water privatization in controversy**

The attempt made by the Karnataka Government to privatise water supply in Bangalore ran into trouble due to political reasons as well as the stiff opposition by the employee's union. At present, the proposal for privatisation is postponed. The Bangalore Water supply and sewerage Board (BWSSB) roped in two companies French companies – Vivendi Water and Northumbrian Water group to manage supply in two pilot areas, with each having a population of one million., Of two companies, Vivendi being the leading partner.

Vivendi is yet to have a proper office place and presently being run from a small cabin sharing with the firm of Solicitor and advocate, which is adjacent to Al-Ameen Hospital, 3 Miller Tank, Bund Road, Opposite Cunningham Road. Presently Mr. D. Roy is the only person in the company working as a liaison officer.

Memorandum of Understanding (MoU) was signed between the Karnataka Government on September 29, in 2000. The financial aspect could not be identified. BWSSB will identify the two areas and sign a five year agreement with the companies. BWSSB personnel handling the supply system, billing and collection of charges in the two contracted areas will be functioning under the management of the these Companies. Depending upon the success of the exercise, BWSSB would give a 30 year contract for the entire city.

According to M.N. Theppeswamy, Chief Engineer; Corporate Planning BWSSB; BWSSB will review the success of the short-term (five year contract) measure periodically and explore the possibility of privatising the entire supply system in the city for a 30 year period.

The privatisation of water supply become necessary because of existing Government Machinery was not able to streamline the system and prevent loss of water. About 35 to 40 percent of water is being lost, resulting in shortage in supply of potable water. With an efficient management in place, this loss could be minimised.

The privatisation move is a part of the BWSSB ongoing Master Plan under the AUS – AID programme whose objectives among other things include complete privatisation of the water supply system on Build-Operate-Own (BOO) and Build-Operate-Own-Transfer (BOOT) basis. The AUS-AID programme being taken up with an assistance of Rs. 18 crores from the Australian Government, aims to streamline the water supply system in the city to meet the requirement for the next 25 years.

Privatisation of water supply, as has been the experience world wide, would create a natural monopoly as it is not practically feasible to duplicate water distribution lines. Each operator gets an area to service. This calls for stringent monitoring to negate the ill effects of monopolistic situation.

According to one senior officer, who earlier was the Commissioner of Bangalore Municipal Corporation, Vivendi shall be mainly involved in the water distribution system. As and when the privatisation taken place, the rate of water shall increase, there will be some component of subsidy.

While stage IV phase I is implemented with the financial assistance from OECF of Japan, at the total cost of Rs. 1072 crores, the stage IV, Phase II through private sector participation on BOOT ( Build, Operate, Own and Transfer ) basis. After going through the process of short listing of prospective bidder and inviting bids from among the short listed bidders, bids have been received from M/S Bi-water and M/S GVK-CGE. M/S Bi-water from Malaysia has been selected as the preferred bidder and the negotiation are being held.

### **Indore: Privatizing drinking water through bottling**

In Indore, though no private company is involved in Water Distribution System, however city has to quench the thirst through water bottles and pouches paying around Rs. 40 crore per year. This is illustrated below :-

- A. Total Water Requirement of the City = 70 Million Gallon Per Day
- Total water supply to the city = 42 Million Gallon Per Day



B. Main Source

1. From Narmada - 32 Million Gallon Per Day
2. Yashwantsagar - 6 Million Gallon Per Day
3. Remaining from 1400 tube wells owned by the Indore Municipal Corporation

In emergency, Municipal Corporation hires about 250 tankers of 9000 liters capacity. Two types of tankers are hired.

1. With engine - at the rate of Rs. 825 per day
2. Without engine - at the rate of Rs. 680 per day

In addition, 1 liter diesel per 3.5 km is supplied by the corporation, and 30 liters diesel is supplied by the corporation to lift the water.

**POUCHES:** Following are the common brand of water pouches of 250 ml supplied by the private companies in Indore.

- |              |                |
|--------------|----------------|
| 1. Modi Aqua | 7. Gauson Aqua |
| 2. Aqua Gold | 8. Shudh       |
| 3. Aqua Care | 9. Nirmal Jal  |
| 4. Saanchi   | 10. Niroli     |
| 5. Hello     | 11. Choice     |
| 6. Easeau    |                |

**BOTTLES:** Following are the common brand of water bottles of one litre supplied by the private companies.

- |                |              |
|----------------|--------------|
| 1. Bisleri     | 5. Belli     |
| 2. Narmada     | 6. Aqua Fine |
| 3. Health Plus | 7. Kinley    |
| 4. Hello       |              |

**A. In Summer Season**

Item	Daily	Monthly	Season Total (4 Months) April, May, June, July	Cost (Rs.) In Crore (1c = 10 million)
1. Pouches (250 ml) <sup>®</sup>	300 Thousand	90 Lac*	360 Lac	3.60
2. Bottles (1 litre) <sup>®</sup>	75 Thousand	22.5 Lac	90 Lac	9.00
3. Jars(20 litres) <sup>π</sup>	30 Thousand	9 Lac	36 Lac	18.00
				<b>30.6 Crores</b>

<sup>®</sup> Cost of one pouch of 250 ml = Rs. 1/-  
\* 10 Lac = 1 million  
100 Lac = 1 Crore = 10 million

<sup>®</sup> Cost of one bottle of 1 litre = Rs.10/-  
<sup>π</sup> Cost of one Jar of 20 litre = Rs.50/-

**B. Off Season**

	Daily	Monthly	Total (8 months)	Cost (Rs.) Crore
1. Pouches	70 Thousand	21.0 Lac	168 Lac	1.68
2. Bottles	15 Thousand	4.5 Lac	36 Lac	3.60
3. Jars	10 Thousand	3.0 Lac	24 Lac	12.00
				<b>Rs. 17.28</b>

Total A + B = 47.88 Crores

Estimated amount of Rupees yearly paid to Private Companies by the public for water Rs. 47.88 crores.



## Water privatisation in Gujarat

A case study by Darshini Mahadevia<sup>12</sup>

### Forms of privatisation

Number of different forms of privatisation of water resources has been observed in the state. In general way, privatisation of water resources takes place because of the existing social and economic structures. The Schedules Castes (SCs) being banned from accessing the freshwater resources in the villages was one form of privatising the natural resources by the upper castes in the traditional social system. In the modern context new forms of privatising water resources have emerged.

**Privatising Ground Water:** Ground water has contributed to a great extent towards irrigation and domestic water use. The big farmer's lobby in the state, with the help of favourable policies, has shifted to cash crop farming. Hirway and Patel (1994) attribute increase in drinking water problem to development of water resources for irrigation purposes. A special feature of irrigation in Gujarat has been, the budgetary allocations to this sector have gone up over time, but the area irrigated has remained constant. The investments in the irrigation have gone towards improving the existing sources, for example deepening the existing tube wells, and so on. Agricultural credit at subsidised rate has been liberally available for the purchase of electric or diesel powered pumpset, supported by NABARD and under Integrated Rural Development Programme (IRDP).

Tubewell irrigation is inaccessible to the poor as neither they have surplus to install a tubewell nor are they creditworthy to borrow from a credit co-operative for digging a tubewell. Hence, dependence on groundwater has enhanced inequity in the access to irrigation facilities and thus in rural productivities. There are studies that show the development of private water markets in the rural sector for irrigation purposes (Shah 1993).

Urban households also depend upon ground water sources. In Ahmedabad, in the peripheral areas, housing colonies have their private tubewells. In western part of Ahmedabad, where the rich of the city live, depend on this system of water supply, which is often glamorised as privatisation of water. The local authority, in Ahmedabad, the Ahmedabad Municipal Corporation (AMC) finds such a situation congenial, as it does not have to then be concerned with supplying domestic water in these housing colonies. The AMC, however, does say that it is concerned with the quality of water supplied through such private means as such water is not filtered. But, given that the scarcity of water looms large through out the year and domestic water supply is a very sensitive political issue, the AMC does not interfere in any private solutions to address the crises that the citizens seek for themselves. The result is rapid decline in ground water tables around large cities such as Ahmedabad.

**Tanker's Lobby:** Due to repeated droughts in the state, the water suppliers through tankers have become a powerful lobby. For the first time, groundwater was not available in many parts of the state in the drought of 1960-61 and public supply of water through the tankers was observed as a response (Bhatia 1992). This practice has continued and has become common in many regions even in non-drought years now. In the drought of 1985-88, the state government went as far as transporting water to Rajkot by train across a distance of 250 km. The growing water crisis in the state can be observed from "the sharp increase in the allocation of funds to drinking water supply in the relief budget of each consecutive drought year"(Bhatia 1994: A-144).

The water suppliers through tankers do not bother about which water source they tap and if it is ground water, from what depth do they source it. Especially in the large cities, running of tankers is a very common sight. In the remote villages of the state, where the state government's water supply and sewerage board (GWSSB) has been unable to reach through its Rural Regional Water Supply Schemes (RRWSS), a pipeline network put up in the rural areas for drinking water supply, domestic water is supplied through tankers.

In areas where new industrial plants are coming up, the scene of tankers plying on the roads is very common. For example, tankers supplied water to residential colonies that came up in

Hazira industrial area that sources sweet water sources in and around Surat city. Thus, Surat city witnessed decline in water tables. Around Sanghi cement plant, the tankers sourced the sweet water wells in the villages nearby to supply water to the township that has come up around the plant. This was prior to the setting up of Sanghi's own desalination plant. In Dahej also, water for construction and worker's colony was supplied through tankers. This solution is available to who so ever can afford it. How can local poor communities afford such a solution to such a basic commodity as water?

**Private Solutions to Drinking Water:** Especially in the urban areas, because of the degrading quality of drinking water, the rich households have taken to purchasing bottled water. Twenty litres bottles are used now in large number of households in the cities such as Ahmedabad. National and multinational companies have now come in this business. The cost of such water is about Rs. 2 per litre.

**Freehand to Industries for Water Exploitation:** In the effort to increase pace of economic growth, the GOG, after liberalisation has unstated policy to let the industries make their own arrangements to access water resources. Especially, the large chemical industries coming up, and these are the only ones coming up in large numbers, have got freedom to tap any water source. Wherever possible, the state government facilitates their access to freshwater. As a result, number of situations, of these industries cornering the local water resources, has come to light.

The government has permitted construction of what one may call a 'captive dam'. Birla Cellulosic (of Grasim Industries Ltd.), to manufacture viscose staple fiber, has constructed a private dam on river Kim on the border of Bharuch and Surat. Can a private company build a dam across a river to meet its requirements of water, adversely affecting the lives of 50,000 people in 23 villages (Quadri 1997)?

In Hazira area, the private and public sector industries are using the water of Kakrapar canal, originally meant for irrigation on the region. In fact, there is a general understanding among the local area development authority (HADA – Hazira Area Development Authority) officials, and even the government that there has not been any productive agriculture in the region and there will and need not be any agriculture in the region after the full development of the area. Hence, there is no reflection in the HADA plan on the water requirements of the agriculture in the region.

Hazira area has very high water requirements. The projected requirement is about 75 MGD (Million Gallons Per Day) (HADA 1991). Water requirements have been assessed by the HADA for two purposes, for construction and for industrial and residential use later on. On a permanent basis, GIDC proposes to lay pipelines to source water from the upstream of Kakrapar dam, where an intake well will be constructed and impounded water lifted from the reservoir. Near Ichchhapur village, at the beginning of the Hazira Area, a reservoir is proposed to be constructed (HADA 1991), in which the water thus sourced will be stored. The first pipeline constructed will be exclusively to meet the requirements of the public sector units. If the total water required in Hazira area were to met by the SSNNL (Sardar Sarovar Narmada Nigam Limited - Narmada) project then, 31.75 per cent of industrial water quota of the SSNNL allotted to Gujarat will be used up by Hazira alone.

In Dahej GIDC estate, which also has large public sector and private sector industries, is another water-intensive industrial complex. IPCL (Indian Petrochemicals Limited) is the largest industrial plant in the region and has water requirement of 22 MGD (Mahadevia 1999). The GWSSB had handed over the drinking water network of the region to the industry. On the opposition from the locals, who went and broke the pipeline carrying water to the IPCL plant, the GWSSB asked the industry to build its own private water line, sourcing Narmada waters from a location 80 kms away. If the Dahej complex gets its entire water requirement of 40 Mcum/yr from Narmada project then it would use up 16.9 per cent of the industrial water allotted under the SSNNL to the state (Mahadevia 1999).

**Enlightened Self-interest of Industries or Public-Private Partnership:** What is now called the enlightened self-interest of the private sector, the government encourages the models of public-private partnerships in drinking water supply. For example, Sanghi cement industry in Lakhpat

taluka of Kachchh district, has been given permission to set up a desalination plant on the condition that it would supply drinking water to the nearby villages. It is important to know that there was a very strong opposition to the cement plant here from the environmental groups as well as local population (See Mahadevia 1997, Mahadevia 1999). This is one of the method through which the industry has opportunity to make over its image. In such situation, the government does not have to fulfil its responsibility of providing drinking water to the remotest villages of the state. This model can also be called the passing on the buck model. Government could have facilitated the local communities in developing their own water resources, a solution that does not get much support from the government.

In Jamnagar district, where Reliance Industries has a large petrochemicals plant, the government asked the industry to supply drinking water from the company's desalination plant to the villages nearby in the drought year of 2001. On one hand, the government permits the industries to access the natural water sources for their use in unlimited manner and then as a grace asks the industries to take care of the drinking water needs in the region.

In Hazira industrial area, where large private sector industries such as Reliance Industries, Larsen and Tubro, Essar, and public sector plants like KRIBHCO (Krishak Bharati Co-operative), GAIL (Gas Authority of India Limited), ONGC (Oil and Natural Gas Commission) are located, and which is one of the most capital intensive industrial cluster in the country, some of the new industries were given permission to access local water sources on the condition that they provide drinking water to the villages in the region. For example, Essar industry has promised villages in the region that it would supply water to the villages whose water sources it was developing for its own use. However, the villages are were complaining that the Essar industry, which had promised to lay drinking pipeline in the region, had not fulfilled it's promise. The company had promised the village panchayat that if the latter supplied water to its colony located in the latter's jurisdiction (as it is the mandatory duty of the panchayats to provide drinking water), the latter would take up development works in the villages. The development works include laying of drinking water pipelines so that each household has an individual water connection. This promise has not been kept by any industry.

Often, such passing on the responsibility model does not work. The industries promising are not accountable. The government has no mechanism to enforce the commitments. The government is happy that on paper, it has solved the drinking water problem of some villages.

**Conversion of Water into Private Commodity:** One of the solutions identified for water crises in the state is demand management. Two aspects are being promoted under this, which are of concern. One is to introduce appropriate pricing of the electricity and water so that the rate of extraction can be controlled and water can be judiciously used. This is discussed later.

The option water conservation proposed is to establish a regime of tradeable property rights in water through establishment of water markets. It is argued that since such markets do not exist, the rich and the powerful exploit the water resources for commercial uses. It is therefore argued that private property rights over water could be established and individuals could trade such rights in the water market and allocate water to the most efficient use. To operationalise, it is proposed that each member in a community gets certain entitlement of water and any one wanting to use in excess can purchase that right from the others. It is assumed, as in all economic solutions, that human beings would take rational decision about it and not give away their minimum entitlements. Or the poor can cash in on the minimum entitlements they have and the rich can pay for that. The problem is that situations are likely to occur when in the given social system, the poor do no plan for long. The water, which is a public good gets converted into a private commodity. Number of environmental issues are being addressed from this perspective.

**Pricing of Water:** Arguing that agriculture has used up large amounts of water, the new paradigm of development of liberalisation and globalisation argues for pricing the water for its conservation and rational use has been proposed. It is argued that it would dissuade the farmers from going for water intensive crops and will make farmers use water saving devices such as drip-irrigation,

etc. In the urban areas also, it has been argued that the dwellers have enjoyed enormous subsidies and the local bodies are being unable to meet their obligatory functions because of financial crunch. Further more, if the urban centres have to source water from a far, they will have to pay for the same. Efforts are on to institutionalise pricing. As yet we do not find, but, it can be possible that the private sector would be invited to develop raw water sources. In that case, the bulk users (to whom they will supply the water) will have to purchase the water. Eventually, the retail users will have to pay for the same.

Under the proposed system of pricing water resources, it is possible that the large farmers, or now the proposed agro-corporations would be willing to pay the cost of water for commercial agriculture. Other types of agriculture practices would not remain viable. Studies have shown that if the farmers in these regions pay the actual cost or electricity supplied by the Gujarat Electricity Board (GEB), the food crops such as wheat and summer bajara would not remain economically viable (IRMA 2001: 95-96). The return from wheat would almost be negative and that from summer bajara and castor would almost be negligible. There are therefore dangers of costing water at a price above one realised now.

**Privatising Bulk Water Distribution:** The GOG of Gujarat has come up with a new concept called privatising bulk distribution of water. That is, bulk water sources, such as Narmada project, would be handed over to a private company, who would lay the network for water distribution. For the purpose, Gujarat State Drinking Water Infrastructure Company Limited (GSDWICL) has been set up that will supply bulk water (developed through various sources, including Narmada project), to the local bodies, GWSSB and industrial estates. In a way, it is a method of developing captive water sources for important consumers. The GSDWICL is authorised to purchase water from any agency, besides SSNNL and supply it to the bulk purchasers. Water thus supplied will be priced and the cost of the same would be eventually recovered from the water users. GSDWICL is a Special Purpose Vehicle (SPV), which can raise finance from the market. Only the large cities, which have its own revenue base, would purchase water from this SPV. Small cities and villages that do not have funds would be excluded from accessing fresh water. All these mechanisms are towards reaching a situation of water pricing in the state. It is learnt that one corporate sector has bagged the contract of bulk distribution of Narmada waters. Such scenarios are likely to occur. Even if that does not happen, the SPV, as set up in Gujarat, can assist in privatising water distribution.

### **Legal support to privatisation**

The most important legal support that the state of Gujarat will give to privatisation efforts is the framing of BOOT policy. Gujarat is the only state in India that has come up with such a systematic policy with regards to the process of privatisation. Under this policy, it is enjoined upon the state government to ensure timeliness of infrastructure creation, autonomy of the private sector and efficiency of operations, synchronisation with other sectors, maintain its role in appropriate areas and keeping its liability to the minimum.

In this context, the state government has framed an infrastructure development act, named Gujarat Infrastructure Development Act, 1999. This act is to provide a framework for private sector participation in financing, construction, maintenance and operation of infrastructure projects in the state. This act is similar to the BOT (Built-Operate-Transfer) law in Philippines. It is based on the clear-cut enunciation of the project cycle required for effective and timely completion of infrastructure projects. It provides fair, transparent and competitive mechanism for selection of private developers. It also clearly delineates the type and extent of support, which will be available from the state government to developers. This law is the first of its kind in India. The state government's nodal agency for the promotion of infrastructure in the state, Gujarat Infrastructure Development Board (GIDB), has also formulated a comprehensive infrastructure development strategy – Gujarat Infrastructure Agenda - Vision 2010 (GIDB 1999). Water development and distribution is being viewed as infrastructure work and put under this infrastructure sector.

Recently, the GOG has decided to have a Water Regulatory Act for inviting private investment in water projects. The GIDB has instructed the state water resource department to prepare a draft water regulation bill to set up a separate water regulatory authority, which would decide on water tariff and other policy issues to invite private investment in the field (*Times of India, Ahmedabad, July 5, 2001*).

## People's struggles for survival

### Sporadic

The newspapers have regularly reported on the conflicts over water availability, on water quality and legal cases of water pollution filed in Gujarat High Court. Some of these are discussed here. In November 1996, that is just after the monsoon (and 1996 was a good monsoon for Gujarat except Kachchh) the conflict between the AMC and the state government over the waters from Dharoi dam hogged the headlines in the vernacular press. There were two contending users, the farmers downstream of Ahmedabad, in Dholka and Dhandhuka taluka, depending on river Sabarmati and the residents of Ahmedabad, represented by the AMC. The farmers downstream of Ahmedabad have been enjoying riparian rights over water of river Sabarmati over the centuries. In 1978 Dharoi dam was built to supply water to Ahmedabad and Gandhinagar cities. The downstream farmers lost their riparian rights. Fatehwadi canal network was built subsequently, sourcing Sabarmati river downstream of Ahmedabad, for irrigating the region downstream. The network supplies irrigation water to the villages in Sanand and Dholka talukas of Ahmedabad district.

River Sabarmati flows from north to south. A barrage (Vasna barrage) is constructed at the point where the river leaves the city. A water sharing formula between the urban and rural users was worked out. It was decided that the farmers would get their annual quota of 266 mcum of water to irrigate 43,000 ha through Fatehwadi canal. The source will be the river flow originating from the free catchment area downstream of Dharoi dam combined with the treated sewage water to be released in the Sabarmati by the AMC. Over time, however, the promised quantity of water has not been made available to the farmers, the farmers allege in a petition they submitted to the state government. In 1996, after the monsoon, fearing that the waters will not be released from Dharoi dam to water Kharif crop, because of inadequate rainfall in the catchment of river Sabarmati and thus inadequate storage in the dam to meet the requirements of the two cities for rest of the year, the farmers made a representation to the state government. Last watering of the crop remained to reap good harvest.

The petition submitted river flow data and rainfall data from the years 1978 1996 to show that the maximum water available for any year during this period was about 217 mcum for irrigation of less than 31,000 ha. The petition also pointed out that about 140 mcum of sewage water is released annually into Sabarmati but the AMC constructed the sewage treatment plant downstream of the Vasna barrage whereas Fatehwadi Project draws water from point above the barrage. So this large quantity of water have never been available for irrigation under this project. Thus, the farmers have been constantly unhappy about the actual water sharing. Not seeing any permanent solution to availability of irrigation water, the farmers also requested the state government to make Narmada waters available to them.

In 1996, by the end of the monsoon, the AMC had already reduced water supply to the city to once a day in efforts to conserve Dharoi waters for use through the year. When the state government agreed to meet the demand of the farmers, the city Municipal Commissioner and the city Mayor made a plea to the state government not to release Dharoi waters for agriculture otherwise there would be water crises in Ahmedabad city in the summer of 1997. Both sides were adamant on their rights to Dharoi dam waters. Finally, the matter reached Gujarat High Court which upheld the riparian rights of the downstream farmers (*Based on the reports in the local newspapers, the Times of India, Ahmedabad and Gujarat Samachar, Ahmedabad*).

This is one of the typical conflicts emerging in Gujarat. Urban versus rural users of scarce water resource. For both, access to water is matter of survival. The instance of Ahmedabad cited above

has another significance. Talukas south of Ahmedabad city, which are downstream of river Sabarmati, has a network of irrigation canals sourcing water from river Sabarmati. After the coming of canal irrigation, this region has shifted to cultivating rice and after the SAP, cultivating Basmati rice for exports. Traditionally, it was a wheat cultivating region, the best wheat of the state, known as *Bhal na Ghau* (wheat from Bhal region), coming from here. Due to irrigation facility, the cropping pattern has changed and water intensive agricultural practice has taken precedence over the traditional system. After the SAP, water intensive industries, the rice mills, and textile industries have been coming up on a large scale in the region. All these industries are waiting for the water to come from Narmada canal, which is passing by the region. Even Ahmedabad City is waiting for water to come from Narmada canal. What conflicts will emerge once the Narmada water comes to the city and region south of it is for any one's imagination.

The following excerpts from a news report (*Indian Express, October 17, 1996, Ahmedabad*) on the AMC's negotiations with the SSNNL (Sardar Sarovar Narmada Nigam Ltd.) illustrates the competition for Sabarmati and Narmada waters which, if not addressed properly, may degenerate into divisive political conflicts. "Almost pushed against the wall braving the water crisis, the AMC has no option. All roads lead to the Narmada canal. It is no secret that the AMC's groundwater sources are fast depleting and there is a danger of getting fluoride rich water. The AMC's dependence on Dharoi water is a matter of chance. Much depends on the rainfall every year in the catchment area of the dam. Besides, Mehsana, Sabarkantha, and Gandhinagar districts are in the queue for Dharoi waters." "The AMC has no alternative but the Narmada water. That is the only option which is economically viable and cheapest. Moreover, the AMC is not the only client for the Narmada water. The SSNNL has received proposals from Essar, Maradia, Reliance and negotiations are on, the sources said." (*Indian Express, October 17, 1996, Ahmedabad*).

Another conflict has emerged on Dharoi water. A case has been filed in the state high court by about 61 villages downstream of the dam alleging that the dam is not operated properly by the authorities. "Whereas on the one hand the downstream area gets flooded during the monsoon, on the other, its crops wither for want of water even in the following winter (Rabi) cropping season. People in the area complain that the promised 10% quota of water is not made available to them" (Bhat 1995). So the monsoon crops get washed away in the floods and winter and summer crops dry due to lack of water.

In fact, both the design and operation of Dharoi dam is faulty concludes a study sponsored by the state government (Kirloskar Consultants 1992). This report states that only 40% of the farms in the canal command area receive irrigation water. The report points to numerous problems with the design and operation of the dam, which requires attention. "There is some improvement in utilisation of created irrigation potential since commencement of irrigation. However, it is noticed that the maximum irrigation achieved so far is hardly 25,000 ha. (cropped area) against planned potential of 61,085 ha., even though: (i) full storage is created and water potential available, (ii) distribution system is completed nearly for 95% area to be served, (iii) on farm development works are completed nearly on 55,000 ha. area, (iv) people in the vicinity are aware of irrigation benefits and demanding irrigation water, and (v) practically entire live storage is consumed during the year (barring few exceptions)." This means that either estimates made of the achievements at the planning stage were faulty or there is gross mismanagement because of which there is overutilisation of water somewhere and wastage of water elsewhere.

The villagers of Amod taluka in Bharuch district, under the aegis of *Peya Jal Ladat Samiti* (Committee for the Struggle for Drinking Water) and backed by a voluntary organisation named MTF (mentioned before), removed the valves of the pipelines that carried water to the Gandhar IPCL plant and GACL plant at Dahej. The villagers acted thus to stop the water being supplied by the Gujarat Water Supply and Sewerage Board (GWSSB) to these giant industrial units. The GWSSB is a public sector organisation with a mandate to ensure drinking water to all in the state. In many parts of the state, the GWSSB has laid Regional Rural Water Supply Systems (RRWSS), a pipeline network to cart drinking water from long distance to the villages having no local source of drinking water. The GWSSB was inclined to hand over one such pipeline scheme, serving 201 villages and two towns of Amod, Vagra and Jambusar of talukas of Bharuch district, to these two



industries. As ever, people's plea does not work. And the people had to take direct action.

The point to be noted from the above reported instances is that, the large cities get priority over the small cities for water and the irrigation gets priority over drinking water, specially of the small town dwellers and rural population. Also, multiple sources have to be tapped, that is whatever is available, to meet the urban drinking water requirements. Thirdly, all large cities of the state have started looking towards Narmada dam to meet their current and future water requirements, when the original mandate of Narmada project was only drinking water for arid regions of Saurashtra and Kachchh.

Such conflicts over drinking water between the people and the industries, between the people and government, between the urban and the rural users, have become quite common in Gujarat. At the root of such conflicts is the declining availability of water resource all through the state. Within it, availability of water for drinking purpose is declining whereas that for the economic activities continues to be high. It is immaterial whether the region is in high or low rainfall zone, conflicts have been observed. Conflicts are as much in Bharuch and Surat districts which have average annual rainfall of 40 inches to 45 inches (100 cms to 112.5 cms) or in Ahmedabad district which has an average annual rainfall of 25 inches (62.5 cms) or Kachchh district which has an average annual rainfall of only 10 inches (25 cms). These conflicts have become much pronounced in the post-SAP phase if one were to take frequency of reporting of these conflicts in the newspapers as an indicator of some sorts. In Gujarat, in the industrialised and industrialising regions, the industries are competing with agriculture for water, the households with both. Households fare poor third poor third in the race for water. In less industrialised regions, the agriculture and household water needs are competing fiercely. On the top of it is the severe and shameless pollution of the water resources by the industries. All these have brought Gujarat on to a front where the whole development process of the state needs to be reviewed once again.

The Gujarat government is already embroiled in a big controversy regarding the major dam project, the much discussed Sardar Sarovar Project (SSP) over Narmada river. All international funding agencies have withdrawn their financial support to the project. This project will meet the growing water demands of the commercial farming lobby and industrial lobby in the state. As all good and bad policies are being enacted in this country in the name of poor, this dam is also being constructed in the name of providing drinking water to the poor rural population. Only now it is being questioned whether this dam will really quench the thirst of the arid regions of the state, Saurashtra, Kachchh and north Gujarat.

Following the failure of 1999 and 2000 monsoons, a major portion of the water from Mahi-Kadana irrigation system was diverted for drinking water requirements in the cities of Ahmedabad and Vadodara. The farmers of Kheda district were deprived of irrigation water during the Kharif season to water paddy. The farmers of the area therefore took to rioting. In 2000 summer, when water from the four reservoirs close to Rajkot city were diverted for the use of Rajkot citizens, the village residents drawing the water from these reservoirs for irrigation purposes took to streets (IRMA 2001: 56). Much serious situation had arisen in 1999, when three people died in police firing in Falla village of Jamnagar district when they were protesting against diversion of water from Kankavati Dam to Jamnagar city (*The Times of India, December 15, 1999, Ahmedabad*).

The movements for the access to water resources are sporadic. These take in scattered manner and dissipate after the purpose is served. There are, on the other hand, organised efforts to develop water resources in equitable and sustainable manner. In some places, through the NGO support, the communities have begun finding their own solutions. However, the current vision of the state government, its encouragement of the private sector without adequate regulatory mechanism and its lack of will to regulate the private sector excesses, does suggest that the inequities in the state with respect to access to water resources will increase.

### **Suez: privatising the Ganges to create water markets in Delhi**

On August 9<sup>th</sup>, 2002, on the eve of the Quit India Day, more than 5000 farmers of Muradnagar and adjoining areas of western Uttar Pradesh gathered in a Rally at Village Bhanera to protest

the laying of a giant 3.25 metres-diameter pipeline to supply the water from the river Ganga to the Sonia Vihar Water Plant for Delhi. The project, which has been contracted to Suez-Ondeo Degrémont of France by the Government of Delhi, will deprive the richest farmlands of India of irrigation water.

The Sonia Vihar water treatment plant, which was inaugurated on June 21, 2002 by the Chief Minister of Delhi, is designed for a capacity of 635 million liters a day on a 10 year BOT (build-operate-transfer) basis, at a cost of 1.8 billion rupees (approx. 50 million dollars). The contract between Delhi Jal Board (the Water Supply Department of the Delhi Government) and the French company Ondeo Degrémont (subsidiary of Suez Lyonnaise des Eaux Water Division – the water giant of the world), is supposed to provide safe drinking water for the city.

The water for the Suez–Degrémont plant in Delhi will come from Tehri Dam through the Upper Ganga Canal upto Muradnagar in Western Uttar Pradesh and then through the giant pipeline to Delhi. The Upper Ganga Canal, which starts at Haridwar and carries the holy water of Ganga upto Kanpur via Muradnagar, is the main source of irrigation for this region.

The 9<sup>th</sup> August Rally at Bhanera village was the culmination of the 300 kilometer-long mobilisation drive along the Ganga by the farmers of Garhwal and inhabitants of devastated city of Tehri to liberate the river from being privatized. The rally was launched from Haridwar – one of the oldest and holiest cities of India built on the banks of Ganga - where hundreds of farmers, together with priests, citizens and worshippers of Ganga announced that **“Ganga is not for Sale”**, and vowed to defend the freedom of this holy river. Thousands of farmers and others in villages along the route joined the rally to declare that they would never allow Suez to take over Ganga waters.

The rallyists joined more than 300 people from across the country, representing over a hundred grassroots groups intellectuals, writers and lawyers, at the 3-day Convention on Earth Democracy – People’s Rights to Natural Resources, organised by Navdanya from 10<sup>th</sup> to 12<sup>th</sup> August 2002, at Indian Social Institute, New Delhi. The Convention sought to provide evidence of the state’s violent appropriation of people’s land, water and biodiversity, and evolve common action plans and strategies to defend collective community rights to resources.

## **Mother Ganga Is Not For Sale**

### **The Haridwar Declaration**

Today, the 8<sup>th</sup> of August 2002, on the eve of the 60<sup>th</sup> Anniversary of the “Quit India Movement”, we all have gathered here to pledge that:

We will never let the river Ganga to be sold to any multinational corporations. Ganga is revered as a mother (Ganga Maa) and prayed to and on its banks important ceremonies starting from birth till death are performed (according to Hindu religious practices). We will never allow our mother or its water to be sold to Suez-Degrémont or any other corporations.

The sacred waters of the Ganga cannot be the property of any one individual or a company. Our mother Ganga is not for Sale.

We boycott the commodification and privatisation of the Ganga and any other water resources.

We pledge to conserve and judiciously use our regional water resources to save our environment and ecology, so that we would gift our coming generation a clean and beautiful

environment as well as safeguard their right to water resources.

We pledge and declare that the local community will have the right over the local water resources. It is the duty of the local community to conserve and sensibly utilize their resources. Anyone from outside the community whether an individual, an organisation or a corporation have to take the permission of the Gram Sabha for utilizing these resources.

The river Ganga was brought upon the face of earth by Bhagirath through his yagna (prayers) to sustain the existence of life on Earth. The Ganga is now intrinsic to our cultural and a part of our heritage and our civilisation. Our life and progress over the millennia has been dependent upon the sacred waters of Ganga. We will fight any multinational company trying to take away our right to life by privatising Ganga waters.

The “Water Liberation Movement” will continue till we liberate the sacred waters of Ganga from the clutches of corporations, like Suez-Ondeo Degrémont.



“There is only one struggle left – the struggle for the right to life”, said Magasaysay Award winning writer Mahaswheta Devi. Eminent author Arundhati Roy and eminent scientist Vandana Shiva stressed the urgent need to take collective united action to defend people's rights to land, water and biodiversity.

### **Suez–degrémont water plant at Sonia Vihar**

Ondeo Degrémont, a subsidiary of Suez Lyonnaise des Eaux Water Division, has been awarded a 2 billion rupees contract (almost 50 million dollars) for the design, building and operation (for 10 years) of a 635 million liters/day Drinking Water Production Plant at Sonia Vihar in New Delhi to cater 3 million inhabitants of the capital.

Won through the collaboration of all the Group companies, within the context of an international call for tenders, this 2 billion rupees contract is the first contract of this size in India, after Bombay, for Degrémont.

Construction of the giant 3.25 meter-diameter pipe on a stretch of 30 kilometers from Muradnagar to Sonia Vihar is going on and till date, about 10 kilometers of the pipeline has been laid down.

The disastrous impact of this project on the farmers of Western UP is evident from the fact that this area is totally dependent upon the canal for irrigation. Even before being operationalised to divert 630 million litres water/day from irrigation, farmers are already feeling the impact of corporate greed for profits – the Upper Ganga Canal is being lined to prevent seepage into the neighbouring fields (an important source of moisture for farming) and recharge of ground water, and farmers are being prevented from digging wells even as they are reeling under severe drought.

The lining of the canal to prevent recharging of groundwater has terrified the farmers of the whole region of western UP. At a meeting organised by Navdanya on 21<sup>st</sup> July at Chaprauli, the land of Choudhury Charan Singh, ex-Prime Minister, farmers stated “we will not allow the Canal to be lined and supply water to Delhi. Instead the government should link the Upper Ganga Canal to the Yamuna Canal passing through this area to tackle the severe drought.”

### **Who is paying for corporate profits?**

Privatization of water has been justified on the ground that full cost must be paid when water giants get water markets whereas with water privatization they demand a full price from the people. However, as the case of the Delhi Water plant shows, the corporations get the water for free without paying for full social and environmental cost to those rural communities from whom the water is taken.

The country has got into huge debt for the loans taken from World Bank for the Ganga Canal. At the same time the giant 3.25 meter-diameter pipe is being built through public finances. In effect the public pays the price while transnational companies make the profit.

Delhi Jal Board claims that they have no intention of raising the water rates for the time being. However, as has been seen in the case of Enron with electricity, the Orissa Lift Irrigation Corporation in Orissa, and other cases, privatization leads very quickly to a steep rise in the price of water and electricity. With regards to concession to the poor, DJB said there would be no such proposal. DJB will continue to deliver the water to Delhites and maintain infrastructure i.e burst water pipes, billing etc. Thus the people of Delhi will not just be paying Suez and the Jal Board for the water directly, they will be paying through taxes to maintain the infrastructure, thus freeing the corporation of any expenses which might detract from their profits.

### **Water requirement and sources of water in Delhi**

Delhi is experiencing increasing pressure to meet demand for its water resources. Growing urbanization, improvements in living standards, exploding population are just some of the contributing factors. The population of Delhi is expected to cross 15 million by the end of 2002. The city, at the moment, requires 3,324 million litres of water a day (MLD) while what it gets stands closer to 2,634 MLD. Average water consumption in Delhi is estimated at being 240 litres

per capita per day (lpcd), the highest in the country. The large-scale extraction of groundwater is a result of this widening gap between the demand and supply of water. And still worse, serious doubts are also being raised about both the quality and quantity of groundwater, which has gone down by about 8 metres in the last 20 years due to unsustainable demand and use.

Delhi's water and wastewater management is controlled by the Delhi Jal Board, which has signed the contract with Suez Degrémont. With the demand-supply gap projections for water set to increase in the next ten years, DJB have identified new raw water sources including Tehri, Renukal, Kishau Lahawar dams. Plans also center on the construction of new and existing sewage treatment plants (STPs) which will enable an increase in treatment capacity. Rainwater harvesting is another option that DJB is considering.

### **Corruption in Delhi Jal Board's Suez Degrémont plant**

The process for allotment of contract for the Sonia Vihar Plant to Ondeo Deegremont has not been without controversy and objections by senior DJB members. Of the 3 companies that bid for the tender, Ondeo Degrémont was chosen despite being higher in cost than the two other contenders, and allegedly an inferior technology. It was also known that Ondeo Degrémont had already experienced problems with previous contracts in Surat and Delhi (Ohkla) where they were 2 years behind in the project.

Jagdish Anand, a member of the Opposition party, has accused senior politicians of trying to bribe him into silence. "Earlier also I had exposed the irregularities committed by the Jal Board and its officials with regard to the allotment of Sonia Vihar 140 MGD plant ... (they) approached me on more than one occasion. They independently requested me not to expose the working of the Delhi Jal Board.... They also tried to tempt me with suitable reward and my adjustment in lieu of my not exposing the irregularities being committed by Delhi Jal Board...." (*The Hindu, New Delhi, Nov. 28*).

Yet another accusation was against the politicians and senior DJB members was of pushing through a contract to Larsen and Toubro for laying of water pipeline in Sonia Vihar at a cost that was approx. Rs 30 crore more than the justified amount. The clear water transmission mains will supply water from Sonia Vihar Water Treatment Plant to different parts of Trans-Yamuna Delhi.

Former mayors of Delhi Yog Dhyana Ahuja and Shakuntala Arya (both members of DJB) said that though the appropriate amount for laying the 33.948 km long water pipeline within Delhi was about Rs 85 crore, the contract has been awarded for Rs 111.31 crore.

Out of the four firms that were short listed, two did not even submit their tenders and the lowest tender bid was as high as Rs 148 crore. Though a final offer of Rs 111.31 crore was made by Larsen and Toubro only on February 27, 2001, the technical committee had already given its approval a month earlier.

### **Destruction of Tehri for water supply to Delhi**

Ganga's waters, the lifeline of northern India and India's food security, are being handed over to Suez to quench the thirst of Delhi's elite even as a hundred thousand people are being forcefully and violently removed from their homes in Tehri for the Tehri Dam.

Tehri, the capital of the ancient kingdom of Garhwal on the banks of the Ganga in the Himalayas, is in the process of being submerged as the tunnels of the controversial Tehri Dam are being closed. More than a hundred thousand people have been displaced by the Dam, costing thousands of crores. In 1994, a budget of Rs. 6000 crores had been earmarked for it. The figure must have escalated substantially since then.

### **Uneven Distribution of Drinking Water in Delhi**

The per capita daily water supply should be at least 150 litres as per the standards set by the Central Public Health and Environment Engineering Organisation of the Union Urban Development Ministry, Govt. of India.

Despite DJB claim of equal allocation of water, supply of drinking water in the Capital is characterised by vastly unequal distribution, with posh colonies and VIP areas getting several times more than the supply given to rural areas and resettlement colonies.

A recent report reveals that people in Mehrauli and Narela receive only 29 and 31 litres per person per day respectively, those in the Cantonment Board get 509 litres and Lutyen's Delhi 462 litres. The Karol Bagh zone receives 337 litres per person per day. It is also estimated that unless the depleted water table in Mehrauli is maintained or replenished, Mehrauli will experience desertification within the next ten years.

### GANGA AT A GLANCE

<b>Length</b>	: 2,525 sq. km
<b>Source</b>	: Gaumukh (Gangotri glacier) at 4,100 metres above MSL.
<b>Ganga basin</b>	: more than one million sq. km (1,060,000 sq. km)
<b>Drainage area</b>	: 861,404 sq. km (26.2 percent of India's total geographical area)
<b>Break up</b>	
Uttar Pradesh	: 294,413 sq. km
Madhya Pradesh	: 201,705 sq. km
Bihar	: 144,410 sq. km
Rajasthan	: 107,382 sq. km
West Bengal	: 72,010 sq. km
Haryana	: 34,200 sq. km
Himachal Pradesh	: 5,799 sq. km
Delhi	: 1,485 sq. km
<b>TOTAL</b>	: <b>861,404 sq. km</b>

**Annual flow:** 468.7 billion cubic metres (25.2 per cent of India's total water resources)

**Flow at Rishikesh:** 27 billion cubic metres of water.

**Important stations on the Ganga and distance from source:**

Rishikesh 250 km,	Balawali 330 km,
Garhmukteshwar 440 km,	Kachla Bridge 510 km,
Fatehgarh 670 km,	Kanpur 800 km,
Allahabad 1050 km,	Mirzapur 1170 km,
Varanasi 1295 km,	Buxar 1430 km,
Patna 1600 km,	Baharampur 2175 km,
Nabadwip 2285 km	

The Tehri dam project is located in the outer Himalaya in the Tehri-Garhwal district of Uttaranchal. It is planned to be the fifth highest dam in the world - 260.5 meters high and spread over an area of 45 square kilometers in the Bhagirathi and Bhilangana valleys near Tehri town. The dam will submerge 4200 hectares of the most fertile flat land in the Bhagirathi and Bhilangana valleys without really benefiting the region in any way.

The huge Tehri dam is located in a seismic fault zone. This area is earthquake prone. Between 1816 and 1991, the Garhwal region has witnessed 17 earthquakes, the recent one being the Uttarkashi earthquake of October 1991 and the Chamoli earthquake of 1998. The International Commission on Large Dams has declared the site "extremely hazardous".

In case the dam collapses due to an earthquake or any other fault, the devastation will be unimaginable. The huge reservoir built at such a height will be emptied in 22 minutes. Within 60 minutes Rishikesh will be under 260 meters of water. Soon after Haridwar will be totally submerged under 232 meters with next 23 minutes. Bijnor, Meerut, Hapur and Bulandshahar will be under water within 12 hours (Sunderlal Bahuguna). Thus the dam is potentially dangerous for large parts of north-western India, and large areas in the Gangetic plains could be devastated in the event of a mishap. It is also estimated that the life of the dam could not be more than 30 years because of heavy sedimentation.

Ironically the disaster management plan submitted by Tehri Project authorities states that Tehri dam has no built in provision for providing protection against floods and that flood management of the down- stream area is not the

direct responsibility of the project authorities.

Since 10% of the dams in India and abroad have failed or collapsed, it is therefore important to make the dam break analysis and disaster management reports mandatory. In fact the disaster management report submitted to the Union Ministry of Environment by the project authorities clearly emphasises the need for such reports. Further the Union Ministry of Environment in their conditional clearance insisted on the preparation of such a report in consultation with the people likely to be affected in case of a major accident. However such report has not yet been prepared and the safety of the Tehri project have not been properly assessed.

Moreover, with the building of the dam, the river Ganga will become a dead river. Ganga is not just any river; it is a unique symbol of our ancient civilisation and culture. Ganga water has the quality of remaining fresh for many years and is, therefore, part of many sacred rituals, including the pouring of a few drops of Ganga jal into the mouth of a dying person. People come from all over the country to perform asthi pravah in the Ganga at Haridwar. Once the Ganga is made to flow through tunnels dammed at Tehri (and also at Bhaironghati Thala dam), this sacred river will soon lose the quality of freshness and purity it is mainly revered for.

Ever since the dam was sanctioned in 1972, local people have been opposing the dam and offering resistance to its construction. Many scientists and environmentalists have pointed out the grave risks involved in building this dam in a highly earthquake-prone zone. But the government dismisses these allegations of risk, saying that all those who oppose the Tehri dam are "anti-development".

Despite all these huge costs to the people and the government exchequer, Suez-Degrémont is not paying any of the social, ecological or financial cost for the construction of Tehri Dam. Rather it will get free water and will sell it to the people of Delhi at a very high cost.

## Impact of diverting Ganga water on agriculture and food security

### Upper Ganga Canal: the lifeline of Western U.P.

Upper Ganga Canal is one of the oldest canal in Western U.P. Initial discharge of water in the canal was 6750 cusecs which was later increased to 10500 cusecs. The length of the canal is about 304 km. and it irrigates about 9.24 lac hectares of land in Hardwar, Roorkee, Saharanpur, Muzaffar Nagar, Meerut, Ghaziabad, Gautam Budh Nagar, Bulandshar, Aligarh, Mathura, Hathras, Mainpuri and Etah.

As said earlier the 635 million litres daily (MLD) of Ganga water will be diverted from the Upper Ganga Canal to Delhi, which would affect the agriculture potential of the canal and the food security of the region where the canal had been irrigating since more than one century.

Some of the major crops in the area, which is irrigated by Upper Ganga Canal are Wheat, Rice (Basmati), Rice (Coarse), Sugarcane, Maize, Potato, Gram and others.

### Water needs for different crops in the region

- 1kg. of Basmati Rice requires 4200 litres
- 1kg of coarse rice (long duration) requires 2500 litres
- 1kg. of coarse rice (short duration) requires 2250 litres
- 1kg. Wheat requires 700 litres of water.
- 1kg. of potatoes require 240 litres

A) i) Water Requirement to grow wheat in Western UP & Delhi  
= 30-35 cm (6-7 irrigation 5 cm per irrigation)

ii) For rice (Basmati) = 140-160 cm

iii) Rice (coarse) = 120-150 cm

iv) Maize = 30 cm

v) Potato = 60 cm

B) 1 Hectare = 2.46 Acre

1 Acre = .405 hec

1 Acre = 4000 sqm

1 hec = 1/.405

= 2.46 x 4000 = 9840 sqm

or 1 hec = 10000 sqm (approx.)

C) 1 hec = 100 x 100 m<sup>2</sup>

or 1 hec = 100 x 100 x 100 x 100 cm<sup>2</sup>

Volume of Water = 100 x 100 x 100 x 100 x 35 (C.C)

or Volume of water = 100 x 100 x 100 x 100 x 35 litres =

3500000 litre per hec

1000

Average yield of wheat = 50 quintal per hectare (approx.)

Therefore water requirement per quintal =  $\frac{3500000}{50} = 70000$  litres.

Water requirement for wheat per kilogram =  $\frac{3500000}{50 \times 100} = 700$  litres.

or 700 litres water is required to grow = 1 kg of wheat

or 70,000 litres water is needed for = 1 quintal (100 kg.) of wheat

or 7,00,000 = 1 ton

### Water requirement for Rice

Similarly we may calculate the water requirement to grow rice.

Water requirement for rice (Basmati) = 140 – 160 cm per hectare  
Average yield of rice Basmati = 35 quintal per hectare  
(4200 litres of water is needed to grow 1 kg of basmati rice)

Water requirement for rice (Coarse) = 120 – 150 cm per hectare (short duration)  
Average yield of rice Coarse = 60 quintal per hectare  
(2250 litres of water is needed to grow 1 kg of rice (Coarse) (short duration))

Water requirement for rice (Coarse) = 140 – 160 cm per hectare (long duration)  
Average yield of rice Coarse = 60 quintal per hectare  
(2500 litres of water is required to grow one kg. Coarse rice of long duration)

### What does diverting water to Delhi mean for national food security?

The annual water diverted to Delhi from the Upper Ganga Canal at the rate of 635 million litres per day will result in critical reduction in the production of food crops in the region, and thus possible destruction of national food security.

This massive diversion of water would have produced in a year

- 3310550 quintals of wheat
- 551150 quintals of rice (Basmati)
- 927100 quintals of rice (Coarse)
- 9657290 quintals of potato

### Alternatives to privatisation of Ganga and meeting Delhi's water needs<sup>13</sup>

At present Delhi has allocation of waters from the Yamuna, the Ganga and the Beas [Bhakra project], in addition to ground water resources, with the total availability, as follows:

Water Source	Allocated	Useable
Yamuna	0.724 BCM	0.500 BCM
Beas	0.2464 BCM	0.1724 BCM
Ganga	0.1800 BCM	-
Treated sewage	0.100 BCM	-
Ground water	Govt. wells 0.012 BCM	Private wells 0.010 BCM
<b>Total</b>		<b>0.9645 BCM</b>

The above capacity can be reinforced through the following means:

- Flood plain reservoirs at Wazirabad. Barswal. Badapur. Nala Mandela and at Nizamuddin bridge providing additional 0.168 BCM.
- Rain water reservoirs at Tilpat/ Tughlakabad 0.010 BCM
- Reservoirs in the NCR at Najafgarh Jheel and Hindon-Ganga bed with the capacity 0.285 BCM.
- Harvesting in existing tanks and wells to the extent of 0.010 BCM
- Revival of dried up streams [through afforestation] of Delhi with capacity 0.015 BCM
- Increased ground water output in government and private wells due to better recharge of aquifers through greater flow in river Yamuna, yielding additional 0.033 BCM

Greater output of treated sewage of higher quality in 9 eco-parks designed by Paani Morcha to the extent of additional 0.500 BCM.

It can be seen that the above measures would yield an additional 1.011 BCM of usable clean water, giving Delhi sufficient waters to meet its increased requirements of the next century and obviating the need to bring Tehri dam waters to Delhi

## Water liberation

On the eve of Independence Day, 15<sup>th</sup> August 2002, the Indian people have resolved to defend the real freedom—the freedom of access and rights to their own resources - Land, Water and Biodiversity. Movements gathered in Delhi committed themselves to shut these water theft units and rejuvenate alternatives. In the Resolution issued at this occasion they said, “Water is the essence of life. Its marketisation is unacceptable to us. We reject the anti-people water policy. We will fight intrusions of all sorts of companies, national or multination, at every level with all our might”.

The Water Liberation Campaign (Jal Swaraj Abhiyan) which had already organised a study tour of farmers from Tehri in Uttaranchal to Delhi for World Water Day is committed to stop the water theft by global water corporations in the name of public private partnership.

Specific demands to the Delhi Government are:

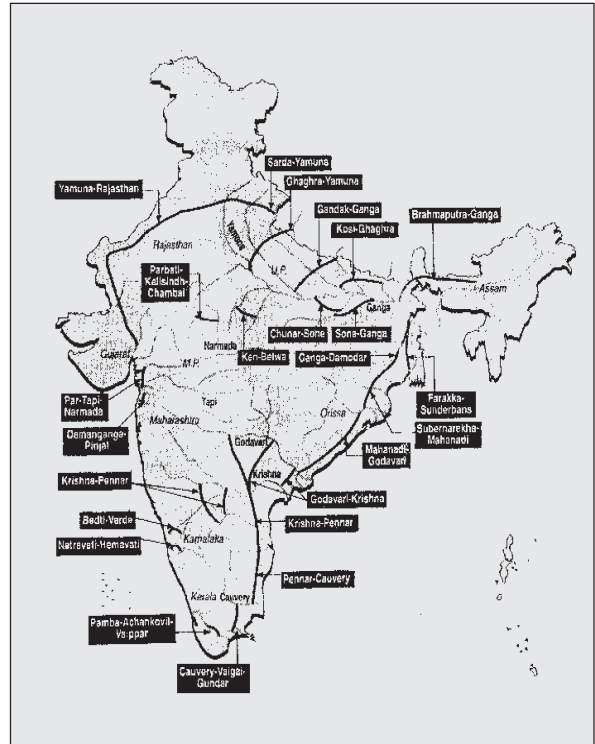
- Make the contract with the Suez–Degrémont public
- Organise a public hearing on the full cost of water treatment plant at Sonia Vihar, including cost for both backward and forward linkages.
- Let the public through a democratic process fix the cost that Suez-Degrémont must share to pay compensation to the displaced people of Tehri and the farmers who will lose their land in and around Muradnagar in U.P.
- The government of Delhi must ensure that:
  - a. Water for sustenance which is 50 liters per day is available as a basic right to all.
  - b. Higher use can be charged higher taxes.
  - c. A ceiling must be put on water use so that there is no wastage of scarce water resources.
- If hidden cost of bringing water from Tehri to Delhi are not being internalized for the operation of the Suez–Degrémont plant and water delivery in Delhi, the Delhi government should give up the project and develop lower cost conservation based water system which have been proposed by many citizens organisations.

The water liberation movement will continue to carry out independent studies and continue to do public awareness to ensure that water is not stolen from the rural poor and sold to the urban elite through water markets under the control of water giants like Suez.

## Linking rivers: an invitation to the corporatisation of India's river

The current dispute between Tamil Nadu and Karnataka has become an opportunity for the short-sighted people to reopen the long forgotten proposals that will create a different and gigantic set of human, ecological and economic problems. Linking the Ganga, the Cauvery and all the rivers in between from the North to South is the most extreme of these proposals. Another idea is to connect the three main rivers in the South – the Godavri, the Krishna and Cauvery, so that all the peninsular India can share their waters. This proposal is rooted in the mindset which believes that the only way to tackle the problem is to find and use water- wherever it might be and whatever be the negative consequences.

A project to connect the peninsular rivers will be a human disaster that will rival Mohammad-bin-Tughlak's experiment of shifting his capital from 'Delhi' to 'Daulatabad'. It will be a disaster because while there is enough water if we care to use it carefully, there is never enough, if our only approach is to use more and more of it. The cause of the Cauvery crisis lies in the second approach. Farmers in the Thanjavur delta insist on growing three crops – all of water intensive





Activists from around the world met at Navdanya's organic farm on December 16<sup>th</sup> 2001 to develop national and global strategies to defend water as a collective community commons, and drafted the Water Liberation Declaration.

The Declaration has over five hundred signatories.

### **WATER LIBERATION DECLARATION**

Water is life. It's a gift of nature. The access to water is a natural and fundamental right. It is not to be treated as a commodity and traded for profit. People shall have the right to freedom from thirst, and shall have adequate access to safe water for all of their living needs.

Experiences all over the world reveal quite convincingly that water which is "life" is being privatized and brought under corporate control. This will deprive the people of water lifeline for survival. All the water resources should be owned, controlled, managed and utilized by local communities in their natural setting.

We the people from all over the world will not allow our waters to be made a commodity for profit.

We will work together to liberate water from corporate / private agencies, control and return it to the people for common good.

WE DEMAND THE GOVERNMENTS ALL OVER THE WORLD SHOULD TAKE IMMEDIATE ACTION TO DECLARE THAT THEY ACCEPT WATERS IN THEIR TERRITORIES A PUBLIC GOOD AND EXACT STRONG REGULATORY STRUCTURE TO PROTECT THEM.

paddy. The farmers in Mandya want to harness the Cauvery water not to protect their agriculture with irrigation, but to cultivate another water intensive crop, sugar cane. Similar examples of irrational and wasteful uses of water can be found elsewhere. The expansion of paddy cultivation in Punjab has led to a depletion of groundwater resources, similar to sugarcane in Maharashtra.

Connect the rivers, spread the waters, dry areas will become irrigated, farmers will use their new bounty to grow water intensive crops that are not suited to local soils and indiscriminate irrigation will become the norm. It will then be a question of time before water shortage develop all over again and the intensity of today's conflicts is multiplied a thousand fold.

Connecting the rivers will be a disaster because the gigantic project which may take half a century to complete, will cause massive human displacement. The construction of dams and the excavation of thousands of kilometers of canals will make villages disappear, flood towns and cut through millions of hectares of agricultural land. It will uproot millions, the number exceeding the population shifted in partition. This mammoth project will be another kind of disaster as well because as its cost runs into lacs of crores. The only beneficiaries will be the contractors, and the political distributor of largesse who will become crorepati many times over.

It is possible to carefully harvest the resources we have and to grow crops that use a minimum amount of water. There is enough water available, but only if we know how to use it efficiently. When digging a canal takes more than

two decades and displaces lacs of farmers, connecting the peninsular rivers will be the biggest human, economic and ecological disaster of independent India.

### **Briefly, there are four major constraints**

First one relates to the finance.

Second, the apprehension of the States regarding the impact of the project.

Third, a number of the canals would have to pass through national parks and sanctuaries, causing a number of environmental problems.

Another important issue relates to the relief and rehabilitation of measures for huge population displaced by the canals.

Original project proposed 30 years ago by the then Union Irrigation Minister Mr. K.L. Rao is not practical one and raises a number of issues connecting every river in India is not the same as building a national highway. The problem is not simply one of resources of political will or technical feasibility. It has an international dimension as well as a more intractable intra-national one of getting five or more states to share water. India already has a treaty for sharing the water of Ganga with Bangladesh. What would be the implication for bilateral relations if that water was diverted south of Vindhyas.

The costs of resettlement of people, are rarely counterposed to the benefits of providing an additional 125 million hectares from surface water, besides 10 million hectares through the increased use of groundwater and generation of 34 million KW of power as a permanent solution to the drought.

Perhaps the most talked about model for interlinking the country's rivers is the Ganga- Cauvery link canal which was advocated by Rao. The 2640 kilometer long link essentially envisaged the

## Linking of rivers – an unviable policy

Ramaswamy Iyer\*

The idea of the 'linking of rivers', dormant for a while, has acquired new prominence in recent weeks, particularly in the context of the acute form that the Cauvery dispute has taken. A recent PIL has led to directions from the Supreme Court for an acceleration of the 'linking'. With respect, one wishes that the learned judges had undertaken a more careful study of the subject before deciding to issue directions. Fortunately these are interim directions, and there is still time for a reconsideration of the matter.

There seems to be a general impression (shared by the Supreme Court) that the idea is an accepted one that had been languishing for several decades for want of attention and action. That is not the case. The idea is doubtless an old one, but there have always been doubts about its soundness and practicability.

The 'Garland Canal' idea mooted by Capt. Dastur was merely a fanciful notion that never commanded respect among knowledgeable people.

The gigantic Brahmaputra-Ganga gravity link canal that India had proposed in the seventies was rejected by Bangladesh for many reasons, at least some of which were and continue to be valid; that proposal is dead. An alternative link canal passing entirely through Indian territory (the Siliguri chicken-neck!) will involve large lifts and seems likely to be both non-viable and questionable from other points of view, even if it is physically doable and the money can be found. We must disabuse ourselves of the notion that the vast waters of the Brahmaputra can be diverted westwards or southwards. At best we can think in terms of some minor transfers within the Brahmaputra system (say, to Teesta).

Dr. K.L.Rao's idea of a Ganga-Cauvery Link was long ago given up by the Ministry of Water Resources as unworkable. Apart from considerations of techno-economic viability (on which the proposition was abandoned), it will have international implications. Under the India-Bangladesh Treaty of December 1996 on the sharing of Ganga waters, India has undertaken to protect the flows arriving at Farakka, which is the sharing point. How will a diversion of waters from the Ganga to the southern rivers be consistent with this? Will the flows at Farakka be left intact, and water diverted from, say, whatever is now being used by UP and Bihar? Bihar has already a strong sense of grievance that its interests have not been given due consideration. Besides, in the context of the India-Bangladesh talks, it is a proposition accepted by both sides that the Ganga is water-short and needs to be 'augmented', though the two sides have different notions on the means of augmentation: one has reservations on that proposition, but if that is in fact true, where is the scope for diversion from the Ganga?

We entertain grand visions of long-distance water transfers from one basin to another, when we cannot even persuade neighbouring States within a basin to agree upon a sharing of waters (e.g., Ravi-Beas, Cauvery). The National Water Development Agency has been studying the possibilities of linking the peninsular rivers (Mahanadi – Godavari – Krishna – Pennar – Cauvery), but Orissa does not agree that there is a surplus in the Mahanadi, and Andhra Pradesh does not agree that there is a surplus in the Godavari.

Turning to theoretical considerations, we cannot simultaneously urge that planning must be on the basis of a basin as a natural hydrological unit, and that we must cut across the basins and link them. Quite apart from the technical challenges involved, this implies the redrawing of the geography of the country. One's misgivings about that kind of technological hubris or Prometheanism ("the conquest of nature" philosophy) may be dismissed by some as romantic, but the practical difficulties involved cannot be so dismissed. Every inter-basin transfer must necessarily involve the carrying of water across the natural barrier between basins (which is what makes them basins) by lifting, or by tunneling through, or by a long circuitous routing around the mountains if such a possibility exists in a given case. Exceptionally heavy capital investments and continuing energy costs (in operation) are almost always likely to be involved. In addition, big dams, reservoirs and conveyance systems will need to be built, involving not merely large investments but also substantial environmental impacts and displacement / rehabilitation problems. All this will need to be looked at very closely in every case. Not too many projects are likely to survive such a scrutiny.

Even more serious is the funding problem. Plan outlays are barely adequate even for the completion of on-going projects, and there seems to be little likelihood of finding the massive resources needed for a major river-linking undertaking. We may be wasting a good deal of time in pursuing such unpromising propositions, and distracting ourselves from finding time and money for more worthwhile and urgent activities, such as extensive water-harvesting all over the country (wherever feasible) and the massive task of rehabilitation of tanks in the South and other similar traditional systems ('dying wisdom') elsewhere.

Lastly, the idea of 'linking of rivers' that everyone is now talking about has already been carefully considered by a high-level National Commission (on Integrated Water Resources Development Plan) and found to be not so promising. Should we not at least look at that Commission's Report and see what it had to say before re-floating the idea?

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withdrawal of 60000 cusec of flood flows of Ganga near Patna for about 150 days in a year. The plan recommended the pumping of about 50000 cusec of water over a head of 549 meters for transfer to the peninsular region. The remaining 10000 cusec would be utilised in the Ganga basin itself.

Rao had estimated the project to cost about Rs 12500 crore which at current price would cost about Rs. 150000 crore i.e. 12 times higher than the original cost. Rao's project was rejected by the Central Water Commission, which felt it that it was economically prohibitive. Moreover, the scheme would require large blocks of power to lift water. Worse still, it would neither have flood control benefits nor take care of irrigation as no storage was involved.

This was followed by the Garland canal proposal presented by a group headed by Dinshaw J Dastur. The Plan talked of two canal system. The first would be aligned along the southern slopes of the Himalayas and fed by 90 lakes.

The second central and southern garland canal was to have about 200 integrated lakes. The cost of the project was put at Rs. 24095 crore. Two expert committees examined the proposal and rejected it on the grounds that it was technically unsound and economically unviable.

The Government is now mooted a new plan, which is a revised version of the National Perspective Plan evolved. In this plan, the Himalayan river development involves the construction of storage reservoirs on the principal tributaries of the Ganga and Brahmaputra in India and Nepal and Bhutan. The linking of the main Brahmaputra and its tributaries with the Ganga and the later with the Mahanadi is also mooted. Under this Plan, with a cost factor of Rs. 56000 crore, the National Water Development Agency (NWDA) has identified 30 links for a feasibility study – 14 in the Himalayan component and 16 in the peninsular one.

According to professor A. Vidhyanathan of Madras Institute of Development Studies, the idea may have some merits if seasonal patterns of rainfall and stream flow in different parts of the country differed significantly. In India, practically all rivers have their peak flows in roughly the same period – July to October. Colossal amounts of water then will have to be stored. Geographical constraints would, in any case make it impossible to design a distribution network that will carry the required amount of water to all segment of the recipient basins.

### **Past Precedents**

Now the present Government is throwing its weight behind the project, there is bound to be a flurry of techno-economic feasibility reports in the coming months. But unless the important issues are addressed, it will be prove to be a chimera. Thinking and dreaming big is not the problem. The difficulty is to practically work out the means to translate these dream into reality.

Plans to interlink rivers have failed in other parts of the world. One such project involved attempts by the former Soviet Union to divert Siberian rivers through a canal network to feed deficient rivers in Kazakhstan and central Asian Republics. The Central feature was a 2200 kilometer long canal linking Siberian rivers – swollen with snow melt to the Amu Darya and Syr Darya rivers in Central Asia. The target was the vast steppes which agronomists argued, could reap grains for the country: The experiment failed miserably, as there was saline water incursion and a subsequent ecological disaster. The scheme was abandoned in the 1980's soon after Perestroika began.

The exploitation of the Colorado in the U.S. is cited as an example of the positive effect of river networking on the economy of the country. But even in this case, with virtually no water reaching the ocean, environmentalist are concerned about the ecology of region.

## Endnotes

- <sup>1</sup> The documents are made available at the IMF website: <http://www.imf.org/>.
- <sup>2</sup> Bernbeck A.V., Deutsch Bank AG Environmental Technology Team, *The Global Water Market – Overview*, presented at the First European Congress on Participation in Global Infrastructure, Jan 23-24, 2001
- <sup>3</sup> PPI Project Database
- <sup>4</sup> Inputs from Polaris Institute, Canada
- <sup>5</sup> State Council of Employees and Teachers of Orissa (SECTO)
- <sup>6</sup> Based on the paper presented by OLIC union members at the *International Conference on Globalisation, Environment and People's Survival*, organized by Navdanya in New Delhi September 29-October 1, 2001 and Orissa farmers' evidence at the National Water Parliament, held at New Delhi, March 22, 2002, and at *Vasudhaiva Kutumbakam : Earth Democracy, National Convention On Community Rights To Natural Resources And The Constitution*, organised by Navdanya in New Delhi, August 10-11, 2002
- <sup>7</sup> Orissa Lift Irrigation Corporation Employees Union.
- <sup>8</sup> Orissa Lift Irrigation Corporation
- <sup>9</sup> Florida Energy Extension Service and Helen Helikson, "Energy Use in Agriculture", *Energy Efficiency & Environmental News* - the newsletter of the Florida Energy Extension Service, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: October 1990.
- <sup>10</sup> Evidence given at *Vasudhaiva Kutumbakam : Earth Democracy, National Convention On Community Rights To Natural Resources And The Constitution*, organised by Navdanya in New Delhi, August 10-11, 2002
- <sup>11</sup> The India Experience in applying norms of good – the urban governance, paper presented by M.V. Suresh at the Hangzhou International Seminar held at Bangalore, October 19-21, 2000.
- <sup>12</sup> Paper prepared for the *International Conference on Globalisation, Environment and People's Survival*, organized by Navdanya in New Delhi September 29-October 1, 2001.
- <sup>13</sup> This section has been prepared by Cdr. Sureshwar D. Sinha of the Pani Morcha, Delhi, and has been taken from their website ([www.panimorcha.org](http://www.panimorcha.org)).