River stories from Maharashtra: many morals to learn from..

Parineeta Dandekar
South Asia Network on Dams, Rivers and People
www.sandrp.in
Maharashtra..
Maharashtra: Some statistics

- Maharashtra is the third largest state in India with an area of 308 lakh hecatres
- It is bordered by the states of Madhya Pradesh to the north, Chhattisgarh to the east, Andhra Pradesh to the southeast, Karnataka to the south, and Goa to the southwest. The state of Gujarat lies to the northwest, with the Union territory of Dadra and Nagar Haveli sandwiched in between. The Arabian Sea makes up Maharashtra's west coast.
- The Western Ghats or Sahyadri ranges run parallel to the coast, at an average elevation of 1,200 metres (4,000 ft).
- To the west of these hills lie the Konkan coastal plains, 50–80 kilometres in width and to the east of the Ghats lies the flat Deccan Plateau.
- The Western Ghats form one of the three important watersheds of India, from which many South Indian rivers originate, like Godavari, Bhima, Koyna and Krishna
- Growth rate: 14.23%
- Per capita income: 74, 027 as against national average of 46492
- Literacy rate 76.88% as against National average of 64.84%
- Contribute to about 14.7% of National GDP, highest in country
- It is the second most populous after Uttar Pradesh and third largest state by area in India.
- Percentage gross irrigated area (4037 thousand ha) as compared to gross cropped area (22655 thousand ha): 17.7% (against National av. Of 44.6% (Mah. Economic Survey 2010-11, GOM)
- Percentage urban population 42.43 % (most urbanized state in India) as against national average of 27.82%, though this is extremely concentrated
Rivers of Maharashtra

• The geographical area of Maharashtra state is 308 lakh ha and its cultivable area is 225 lakh ha. Out of this, 40% of the area is drought prone. About 7% of the area is flood prone.

• The highly variable rainfall in Maharashtra ranges from 400 to 6000mm and occurs in a four month period between June - Sept with the number of rainy days varying between 40 and 100.

• The estimated average-annual availability of water resources consist of 164 km$^3$ of surface water and 20.5 km$^3$ of subsurface water.

• In Maharashtra, of the 5 river basin systems, 55% of the dependable yield is available in the four river basins (Krishna, Godavari, Tapi and Narmada) east of the Western Ghats. These four river basins comprise 92% of the cultivable land and more than 60% of the population in rural areas.

• * 45% of state's water resources are from West Flowing Rivers which are mainly monsoon specific rivers emanating from the Ghats and draining into the Arabian Sea.
## River Basins in Maharashtra

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Name of the Basin</th>
<th>Geog Area (Mha)/Percentage of Maharashtra</th>
<th>Culturable Area (Mha)</th>
<th>Average Annual availability</th>
<th>75% dependable yield (MCM)/percentage wrt Mah.</th>
<th>Permissible use as per Tribunals/Committees (MCM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Godavari</td>
<td>15.43 / 49.5%</td>
<td>11.25%</td>
<td>50880</td>
<td>37300 (28.35%)</td>
<td>34185</td>
</tr>
<tr>
<td>2</td>
<td>Tapi</td>
<td>5.12 /16.7%</td>
<td>3.73%</td>
<td>9118</td>
<td>6977 / (5.30%)</td>
<td>5415</td>
</tr>
<tr>
<td>3</td>
<td>Narmada</td>
<td>0.16 / 0.5%</td>
<td>0.03%</td>
<td>580</td>
<td>315 (0.24%)</td>
<td>308</td>
</tr>
<tr>
<td>4</td>
<td>Krishna</td>
<td>7.01 / 22.6%</td>
<td>5.63%</td>
<td>34032</td>
<td>28371 / (21.56%)</td>
<td>16818</td>
</tr>
<tr>
<td>5</td>
<td>West Flowing Rivers</td>
<td>3.16 / 10.7%</td>
<td>1.86</td>
<td>69210</td>
<td>58599 (44.54%)</td>
<td>69210</td>
</tr>
<tr>
<td>6</td>
<td>Maharashtra</td>
<td>30.80 / 100.0%</td>
<td>22.53</td>
<td>163820</td>
<td>131562 / (100%)</td>
<td>125936</td>
</tr>
</tbody>
</table>

Source: www.mwrra.org
• With 1821 Large Dams and more in the offing, Maharashtra has the maximum dams in the country (35.7%)
• However, proportion of gross irrigated area vis a vis the gross cropped area at 17.8% is much lower than the national average of 44.6%
Contradictions from the state with most dams

- In nearly 70% of the state’s villages (around 27,600 villages), water is either not available within 500 metres or is not available 15 metres below the ground. Or it is not potable (World Bank, Promoting Agricultural Growth in Maharashtra, Volume 1, 2003).
- Around a fourth of the state’s rural households do not have secure access to drinking water (NSSO 1999), and nearly half the rural households in the state do not get safe drinking water (Human Development Report Maharashtra 2000).
- In western Maharashtra and Vidarbha, around three-fourths of the population lives in rural areas; in Marathwada, 85% of the population is rural.
- Agriculture remains the main source of livelihood in the state. While it accounts for roughly 55% of overall employment in the state, in rural areas, 80% of the population is dependent on agriculture, either as cultivators (42%) or labourers (38%).

Maharashtra Water Sector Improvement Project

- Maharashtra water sector improvement project was initiated in 2005 which was funded by World Bank (Of the total project cost 394 Million $, World Bank contribution 83%). Main components were:
- Water Sector Institutional Restructuring and Capacity Building – which included
  - “establishment, operationalization and capacity building of Maharashtra Water Resources Regulatory Authority (MWRRA); establishment of river basin agencies in Maharashtra; restructuring and capacity building of water resources department”
  - The MWRRA Act (2005) has been amended, taking out the clause for equitable water distribution, giving cabinet the rights to have the last say about water entitlements, this has lead to diversion of water for irrigation from vulnerable, suicide prone Vidarbha region to Thermal Power Plants
  - Entitlements of more than 1500 MCM have been changed from agriculture to industries and cities (Prayas)
West flowing rivers of the Western Ghats

- Maharashtra has more than 11 important west flowing rivers including Damanganga, Surya, Vaitarna, Ulhas, Savitri, Kundalika, Patalganga, Vashisti, Shastri, Karli, and Terekhol.
- There are numerous smaller rivers joining the creeks.
- These rivers contribute to about 44.54% of the yield at 75% dependability of Maharashtra.
- Development of large dams over these rivers has not occurred due to their geographical location, difference in elevation, smaller valleys and weaker economies.
- 67.5 TMC from Koyna and 51.3 TMC from 6 Tata Dams: 450 MW Mumbai. 5% of Krishna Flows at 75% dependability (131.2 TMC).
- West Flowing rivers flowing near Mumbai are being dammed rapidly. There are 8 such dams planned, 2 under construction. Works for Kalu dam have stopped following a petition from local tribal organization highlighting numerous illegalities in the process.
- These dams include the Middle Vaitarna and Balganga which are under construction, Kalu and Shai, Gargai, Pinjal, Poshir and Barvi.
- Dams under construction and proposed for Mumbai Metropolitan Region are set to displace more than 25000 tribals and submerge more than 14000 hectares of primarily tribal land, including 5685 hectares forest land in global biodiversity hotspot of Western Ghats.
- Due to a serious omission in the EIA notification 2006, these dams supplying water to industrial areas and SEZs are exempt from Environmental clearance, hence no EIAs, no Public hearings and no EMPs for them!
- We have been writing about this issue to the MoEF, but have no response.
<table>
<thead>
<tr>
<th>Name of the Dam</th>
<th>District</th>
<th>Storage Capacity, MCM</th>
<th>Total Submergence Area (ha)</th>
<th>Forest Area (ha)</th>
<th>Population Affected</th>
<th>Environmental Clearance Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalu</td>
<td>Thane</td>
<td>407.99</td>
<td>2100</td>
<td>999</td>
<td>3169</td>
<td>No</td>
</tr>
<tr>
<td>Shai</td>
<td>Thane</td>
<td>348.00</td>
<td>3040 (43000 trees to be cut)</td>
<td>494</td>
<td>5124</td>
<td>No</td>
</tr>
<tr>
<td>Middle Vaitarna</td>
<td>Thane</td>
<td>172.00</td>
<td>3473 (over 100000 trees cut)</td>
<td>760</td>
<td>Eight villages (minimum 1600 people)</td>
<td>Yes, submerging part of Tansa Wildlife Sanctuary. Cleared</td>
</tr>
<tr>
<td>Balganga</td>
<td>Raigad</td>
<td>127.76</td>
<td>1240</td>
<td>265</td>
<td>8000</td>
<td>No</td>
</tr>
<tr>
<td>Gargai</td>
<td>Thane</td>
<td>180.00</td>
<td>900</td>
<td>765</td>
<td>NA</td>
<td>Yes, affecting part of Tansa WS</td>
</tr>
<tr>
<td>Pinjal</td>
<td>Thane</td>
<td>425.00</td>
<td>1900</td>
<td>1188</td>
<td>NA</td>
<td>Yes, affecting part of Tansa WS</td>
</tr>
<tr>
<td>Barvi</td>
<td>Thane</td>
<td>250.00</td>
<td>NA</td>
<td>1214</td>
<td>3375</td>
<td>No</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1910.75</strong></td>
<td><strong>12653</strong></td>
<td><strong>5685</strong></td>
<td><strong>21268</strong></td>
<td></td>
</tr>
</tbody>
</table>
One more use of west flowing, diversity rich rivers is setting up chemical industrial zones on the banks of these rivers.

Chemical industries have been set up on:
- **Patalganga river** (Patalaganga Rasayani Industrial Area),
- Roha industrial estate with 80 chemical industries along **Kundalika River**. (Villagers have already filed complaints for 3 spills from the CETP and 50 industries have been served notices for effluent disposal in streams). MPCB tested samples for organochlorines in June 2010, the report is still not made public after one and a half years.
- Mahad MIDC and industries in Panvel along **Savitri and Ghot rivers**
- Lote Parshuram MIDC near the **Vashishti River**
The main part of Vasishti basin falls in Ratnagiri district and covers an area of 2233 sq kms, in the blocks of Guhagar, Dapoli, Khed and Chiplun.

- Average Annual Yield is 5496 MCM
- Water added to the basin from the Koyna Hydroelectric project is 1911 MCM (67.5 TMC)
- Area under agriculture and horticulture is 67000 ha
1. Story of Vasishtti

The natural character of Vasishtti has been affected tremendously due to two reasons:

1. Koyna Hydroelectric project:
   - The Koyna project diverts 1911 MCM of water from the Koyna basin (part of the water deficit Krishna basin) into the Vasishtti for electricity generation using the It has a vertical drop of 487.68 m at Pophali.
   - Total installed capacity of Koyna Stage I, II, III and IV is 1960 MW
   - Koyna stage IV is a peaking power project and water level fluctuations downstream can happen at any time in the day.
   - Vasishtti has a narrow basin and excess water from Koyna adds to floods in rainy season for Chiplun city
   - It has been documented that sudden water levels fluctuations brought about by hydropower dams have a severe impact on fish life cycles and constitution of mangroves. This can be one of the factors affecting the fish production in Vasishtti estuary and needs to be studied further.
2. Lote Parshuram Industrial Area (LIA):

• In 1978, the Maharashtra Industrial Development Corporation (MIDC) appropriated 570.73 hectares of land of Lote, Awashi, Sonegaon, Dhamandevi and some other villages of the Chiplun block, Ratnagiri district for setting up a Chemical Industry Zone.

• The development of the industrial belt was part of the government's plan to develop the Konkan region and provide better survival opportunities for people.

• LIA was developed in two phases, Around 200 chemical (agro chemicals, dyes and pharmaceutical) and a few engineering units began operations in the 1980s.

• By the year 2002 there were about 122 units in business, the rest having closed down, due a number of reasons, including closure orders by MPCB

• One of the important criteria for selecting Lote Parshuram site was also the proximity of the region with Vashishti creek, to ease the disposal of effluents.

• Indeed, effluents are being released from the LIA into the streams and Vashishti creek for more than 25 years now, entirely changing the ecology, sociology and economy* of the region.

(*Economy: According to a study done in 1997, of 773 local residents seeking employment in the four villages, only 92 people (11.9%) got jobs. Only 25 among these were permanent employees, the remaining 67 working as contract labourers. 80% of work in factories is done through contractors.)
Socio ecological impacts of untreated pollutants

Release of untreated pollutants in the streams and Vashishti river had several far reaching impacts of the community and ecosystem:

Fish and biodiversity:
• Fishing as an industry in Vashsihti Estuary is finished. There were (and still are) around 6000 fishing families in from Lote to Dabhol and estuarine fish dependant livelihoods of all of them are destroyed. Income from estuarine fishing started to drop rapidly from 1997 and has reached negligible levels now.
• Fish kills are still very common and the Pollution Control Board neglects them most of the times
• Fishermen have received no compensation what so ever for the losses they have /are sustaining
• In Dabhol, which at the mouth of Vashishti about 45 kms from Lote, estuarine fishing is dead.
• According to fisheries cooperatives members in Dabhol, fish catch has been falling every year. They used to get approx. 10 kilos fish for every net that they casted and they did this 3-4 times a day. Now, getting half kg from the estuary in a day is difficult.
• Barely 5% of the original estuarine fishermen are now members of the fishing cooperatives. Rest have moved to Mumbai or work with Trawler ships in open sea.
• Around 70% of estuarine fish and marine species found in Vashishthi are now locally extinct
Socio ecological impacts of untreated pollutants

Loss of agricultural productivity:

- Riparian farming in 6 villages around Lote is abandoned because of crop burning and rotting incidences
- A number of cattle have died after drinking water from the streams
- Pipes carrying effluent are generally broken, a situation observed by a number of surveys (CGWB, MPCB, NGOs) and agricultural land is grossly polluted due to seepage and illegal dumping of pollutants
- Studies indicate that pH of soils around Lote MIDC is acidic (less than 5) and soil moisture is much higher (BG College, 2004)

Health Impacts:

- During a survey conducted in 1997 (there have been no health surveys after that) 30% population in the 5 villages suffers from Lung disorders and skin diseases
- According to a study conducted by BJ College (which had to be obtained under RTI), Chiplun in six villages around Lote, cattle milk and human milk samples show high proportion of lead, aluminum and chromium
Recent Water Quality Studies from Vashishti estuary

According to National Institute of Oceanography studies, Vashsihti estuary shows
- Marked reduction in DO with high nutrients indicating that the estuary is under stress due to ongoing discharges.
- The contents of heavy metals like Cr, Mn, Co, Ni, Cu and Zn is higher at the upper segment the source of these metals is suspected to be anthropogenic.
- Bacterial counts are high both in the coastal and estuarine segments.
- High standing stock of phytoplankton and zooplankton in the estuary suggests organic pollution induced biological productivity in the estuary.

According to Central Groundwater Board Report (2004):
- The extent of pollution of ground water in Lote Parshuram industrial area is less as compared to surface water due to physiographic conditions existing in the area.
- The industrial effluents in this area are collected in sumps and then disposed off through pipelines in the creek.
- The pipeline was found broken during the study and effluent was flowing in the streams.
- The COD of effluent samples collected from sumps was found above 1000 mg/L. while the COD of effluent sample mixed with stream water collected near village Arkatewadi was 552 mg/L.
- The ground water sample collected in Arketewadi near to creek have COD value 60 mg/L and TDS 2243 mg/L. This indicates that the pollution effect is more near to the creek area.
- The continuance of present status of ground water pollution can result in serious consequence due to further increase in extent and intensity of ground water pollution.
- To stop further deterioration in quality of ground water, it is recommended that the effluent generated by the industries must be properly treated before disposing it on land/stream/creek.
- Any leakage of chemical and wastewater from the industrial campus/pipes through which effluent is carried away must be regularly checked. The disposal of the effluent should not be in the neighbourhood of drinking water sources. (Central Groundwater Board 2004)
Measures adopted by the Maharashtra Pollution Control Board to control pollution of the estuary

• The Pollution Control Board installed a **Common effluent treatment** plant in Lote which is now of capacity 6 MLD with 122-138 member units: Pesticides, medicines, dyes, paints, organic chemicals, etc.

• According to survey Report of CETPs by CPCB, 2005, it states: “In general, the performance of CETPs has been found to be very unsatisfactory, largely because of poor operation and maintenance. Therefore, the State Pollution Control Boards should conduct regular monitoring of CETPs and persuade them to ensure proper operation and maintenance failing which they should initiate action against negligent agencies and wilful defaulters.”


Lote Parshuram CETP: Performance status & remarks:

• **A - Whether complying with standards:** No
• **B - If no, reasons:** Lack of adequate operation and maintenance

• *In response to the charges of bad O and M, ironically, the response has been to move the MPCB field office from Lote further to Chiplun, making any chance of monitoring, complaints, and action even more remote*

• Environment Monitoring Group and Lote Abhyas Gat which monitors the functioning. Meetings of this Lote Abhyas Gat, under MIDC and MPCB **have not happened for the past 2 years**
• Most members of the group are from MIDC and PCB, with barely 2 village representatives.
Local options: Sand Mining

- Locals are now fatigued with constant struggles with industry and MPCM officials.
- Manual sand mining has replaced traditional fishing. The situation is exactly similar in Savitri and Kundalika.
- Dredgers of local politicians have now taken over sand mining from locals and in the guise of ‘desilting’, sand mining, using dredgers, which are illegal, is being practiced.
- Mechanized dredgers are destroying the remaining mangroves and fish in the area.
- During the field visit, manual sand mining was prohibited and boats were idle.
River Shastri originates near Prachitgad, on the crestline of the Western Ghats, in the newly formed Sahyadri Tiger Reserve, a Project Tiger Habitat in 17 Degrees 27' W and 73 Degrees 48' E on the western slopes of the Western Ghat complex in the Konkan region of Maharashtra, at an elevation of 839 masl.

It falls entirely in the Ratnagiri district, covering three talukas of Sangameshwar, Ratnagiri and Guhagar.

Its length is approximately 80 kilometers, with first 20 kilometers in hilly areas of severe slope.

Basin area is 2173.55 square kilometers

Average annual yield is 6261 MCM (4496 MCM with 75% dependability)

Tributaries of the river include rivers and rivulets of Gadgadi, Bav, Gad, Asavi and Gandagi which join Shastri at various points.
• It meets the sea at Jaygad, where the historic port of Jaygad has been established.
• During its short journey, it exhibits diversity of aquatic habitats, with features like falls, glides, runs, pools, riffles, pocket waters, potholes, etc,
• Mono culture and intensive farming practices are not observed on the banks.
• Rural population is dependent on the various provisioning, regulating and cultural ecosystem services of the river.
• Local community in all the three blocks and 80 villages of Ratnagiri depend directly or indirectly on the river for ecosystem benefits, drinking water and water for agriculture.
• The river is of high cultural significance with sacred groves and Shiva Temples at each hydrological junction
• Saptalingeshwar: At the confluence of seven first order streams

• Marleshwar: At the origin of rivulet Gangotri

• Sangameshwar: At the Confluence of Alknanda and Shastri

• Velneshwar: Where River Shastri meets the sea

• Saptalingeshwar: At the confluence of seven first order streams
Links with a living river..

Dependence of local population on Shastri: Upstream: Shringarpur-Sangameshwar

Drinking water:
• The entire town of Sangameshwar with a population of 12000 also depends on the river for domestic water supply through jackwells in the river.
• Other riverside villages have wells in the riparian areas which are closely linked with the water level in the river.
• Nearly 55 villages which are spread over the ridge and slopes of the watersheds have community wells and village water supply systems from wells.
• Spring tanks through springs emanating from Sacred Groves is a common feature here like across Konkan.
• The region has one of the highest density of sacred groves which protect water sources (streams and temple tanks) and are a sanctuary to rare biodiversity.
• The Shastri basin is home to about 22 sacred groves.
• Water management is decentralized, autonomous and strong.
**Links with a living river**

**Upstream: Shringarpur-Sangameshwar**

**Water for Irrigation:**
- The main crop of the region is monsoon paddy, ragi and vari (on mountain slopes) and a rich variety of horticultural crops like Mango, Cashewnuts, Kokum, Areca nut, etc. The horticultural crops do not have a high water demand and are irrigated by village spring tanks.
- However, the region also produces vegetables and indigenous varieties of pulses like Masoor, Val and Pawta

**Vegetables gardens:**
- 10-12 villages on the banks of Shastri, Bav, Sonvi, Saptalingi and Gad have flourishing riparian vegetable gardens
- Some villages like Wanjale have vegetable gardens irrigated by river which are cultivated and managed exclusively by women
- Water is drawn from the river directly through traditional systems like Ukti, channels or recently, pumps
- This provides income to about 2200 families in the Shastri basin
River bank cultivation along the zone of **tidal influence** is also rich

- This zone, with an area of nearly 550 ha. has small land holdings of an hectare or less. Pulses and vegetables are cultivated in the riparian zone.
- Cropping pattern changes with seasons and changing salinity of water.
- Vegetables from this area are sold in markets of Ratnagiri, famed for their unique taste, which is locally attributed to brackish water.
- The zone is organic ‘by default’
- This riparian zone provides subsistence and employment to nearly 1550 households.
Freshwater Fisheries:

- There has been no systematic study of freshwater fish of the region, but it is estimated that the river may be supporting more than 60 species of fish, with high endemism, because of its pristine nature and a number of habitats.
- Freshwater fish are caught by all the riparian villages and form an important part of diet, though they form a small part of the village fish markets.
- Interesting sustainable methods of fishing exist in the region.
A Living River?

Eustarine Fisheries:

- Considering the pristine state of Shastri, one would expect that the river would support rich estuarine fisheries and dependant livelihoods.
- But, as it turns out, this is no tale of a living river..
- Estuarine fisheries are dying a slow death in Shastri bay, the Jaigad Creek
- Jaigad creek is one of the important fishing creeks in Western coast, supporting nearly 42 fishing villages. Fish catch for the year 2009-10 was 3953 Tonnes (Fish Production Report, GOM, 2010)
- While most fishermen go out in the open sea, some are specialized to estuarine fishing, around 20 kms in the mouth of the river.
- These fishermen specifically do not have mechanised boats and use diesel fired ‘dibkos’ or manual boats.
- Their proportion in the overall catch is barely 1.2% (98.8% by mechanised boats with trawlnets)

- Fish catch for these fishermen has been going down drastically for the past three years, with last year being the most critical, some cooperatives claiming a 65-70% decrease in estuarine varieties. This is severely affecting their subsistence, economy and livelihoods.

Why would this happen?
Jaigad creek has three under construction and in-operation mega projects,

- **JSW 4 X 300 MW Coal based thermal power plant** which is producing 300 MW in Phase I currently
- **M/s JSW Jaigarh Port Ltd.**, a constituent company of Jindal Group concessional agreement signed, works ongoing: The port complex will have a 1200 MW coal-based thermal power plant (operational now in first phase) and a port-based SEZ. The port is being dredged to handle vessels with a draft of 14 m in the first phase. Expected to handle 20 million tonnes cargo every year.
- **M/s Chowgule Ports & Infrastructure Pvt. Ltd.**, a constituent company of Chowgule Group. Dredging activities upto 10-14 mts going on. Expected to handle 5 million tonnes cargo every year.
- Concessional agreement for the next 50 years have been signed, with Maharashtra Maritime Board and these ports will be operated on a Build, Own, Operate, Share and Transfer (BOOST) basis.
• All of these projects have received clearances for the State Environment Departments, Maharashtra State Coastal Zone Management (Ports: EXPERT COMMITTEE ON INFRASTRUCTURE DEVELOPMENT AND MISCELLANEOUS PROJECTs) Authority and the MoEF
• The EIAs did not apply any effort on the impact of these infrastructure on the estuarine zone or mangroves.
• Estuaries are the most productive ecosystems in the world and healthy estuaries, with mangroves provide ideal nurseries for fish, and various aquatic animals which are an important part of the food chain.
• **Dredging is being done for the ports nearly 10-12 kms inside the mouth of the river to a depth of 14 mts (which is not monitored)**
• This sort of dredging entirely destroys the nutrients, releases pollutants in the water, destroys mangroves and larvae, eggs and young of fish and crustaceans. Richness of zooplankton and phytoplankton (which are a component of the fish food chain) depends on this zone.
• Both the ports are continuously dredging the area, reclaiming it and building infrastructure inside the estuary
• Their huge mechanized boats obstruct smaller dibkoses and tear their fish nets
• Crustaceans, which are filters feeders are hugely affected by turbidity and disturbance through dredging. It is no wonder that shrimps catches in the estuary and also open sea near Jaigad has fallen most sharply
JAIGAD PORT (NEAR LAVGAN)

Latitude: 17° 18’
Longitude: 73° 14’

Inside Jaigad creek near village Lavgan in Dist. Ratnagiri
Water supply in Jaigad village

• The JSW Thermal Power plant has treats its flyash in beds which are watered down with sea water.

• Within two months of its functioning, wells from Jaigad have been declared unfit for human consumption as the TDS has risen extremely sharply from normal to 1440 mg /l (permissible limit is 500 mg/l)

• The members of the panchayat have even pasted posters warning the villagers.

• This is the condition with six wells in the village affecting 1200 people, but villagers fear that nearly all wells have been contaminated as the water smells bad

• The fly ash deposit in JSW plant is on a lateritic plateau, which is highly porous, it is feared that fly ash with sea water has percolated in the groundwater aquifers

• A population of around 1200 is being supplied drinking water by the company through tankers, but it is not sufficient. Officials claim that there are no reports to substantiate the involvement of the company, but the company will be providing water tankers till condition improves
A dying river again...

When JSW Thermal Power Plant starts operating to its full 3X400 MW capacity, when JSW port starts handling 20 million tonnes cargo every year, when Chowgule Ports Ltd. starts handling 5 million tonnes cargo every year, where will the small fishermen of the Shastri creek be?

Will we be moving towards economic development or irreparable ecological and social destruction?
Story of Reviving Rivers: The Rural and Urban way

- Under the National River Conservation Plan 123,173,500 Rs. have been spent in cities like Nashik, Nanded, Sangli and Karad for rejuvenating Godavari and Krishna
- Add to this ongoing works on Panchaganga in Kolhapur, at the cost of 74.29 Crores
- The entire scheme focuses on setting up sewage treatment plants, in selected cities.
- Sewage treatment plants have been under performing historically. In Pune, estimates are they perform below 50% of their installed capacity
- The Economic Survey Report of Maharashtra 2010-11 claims: “Under the National River Action Plan, the work of cleaning the rivers at Tryambakeshwar, Nashik, Nanded, Karad and Sangli cities have been completed successfully.”
- One look at rivers in these cities is enough to prove the utter baselessness of this claim.
- State Pollution Control Boards and Municipal Corporations have been playing the blame game for a long time.
- SPCB had filed a case on Pune Municipal Corporation, while PCB Kolhapur region states that it has sent notices to Kolhapur Municipal Corporation 131 times about releasing (much) more than 46 mld of untreated water in the Panchaganga river, has filed 3 criminal cases against the Municipal officials and has even cut the electricity connection to the Corporation twice!
- In its turn, the Kolhapur region of PCB turns a Nelsons eye towards problems of Vashishti pollution!
Water Quality of rivers in Maharashtra

• The overall picture of the water quality of the Rivers of Maharashtra is summarized as follows (MPCB 2010-11 Report):
  
  • Percent exceedance of pH, DO, BOD, TC, Ammonical Nitrogen and Nitrate with respect to the MPCB standards show that at 140 locations out of 248 monitoring sites, the parameters exceed the stipulated standard 50% of the time.
  
  • At 103 locations out of 248 monitoring sites, the parameters exceed the stipulated standard 75% of the time. Annexure VII gives a list of these sites.
  
  • At 43 locations, the parameters exceed the stipulated standard 100% of the time.
  
  • The Rivers which have locations where the BOD values exceed the standards 100% of the time are Bhima, Damanganga, Godavari, Indrayani, Kolar, Krishna, Mithi, Mula, Mutha, Pawana, Pedhi, Purna, Tapi, Ulhas, Vaitarna, Wena and Wainganga.

  • Of the 30 stations noted across Mah. For especially bad WQI, 16 are from Pune!!
A story of what communities and administration is doing to revive our hospitalised rivers..
Story of the revival of Kathani River

- Kathani is a mountainous river, flowing through a tract of dry deciduous forest, scrub and cultivation in Gadchiroli district of Vidarbha.
- It originates in the Dhanora Pendhri hills at an altitude of 427 m and travels a distance of 70 km before joining Wainganga, a tributary of Godavari near Gadchiroli city.
- This region receives an annual rainfall of 1800 mm. It is a seasonal river retaining water in deep pools during summer. The river flows through a sparsely populated area, is no dammed nor affected by pollution.
- The 32 villages include about 6000 Gonds and Dhivars dependant on the river.
- Though an undammed, unpolluted river, its fish catch was falling steadily because of unsustainable fishing practices by local gonds and dhivars and also ‘external’ population of refugees.
- Customary belief about the river deity being angry.
- Ilakha Panchayat of 32 villages passed a resolution that use of poison will be completely stopped and river will be revived.
- The resolution and voluntary restrictions have been in force for the past five years.
Story of reviving the Kathani and bringing back the fish

Along with ban on use of poisons, a number of other restrictions were brought upon by the community, with the help of customary law and gram sabhas. Some of these rules include:

• No forest encroachment
• Joint forest vigilance by men and women. Offenders brought to the Panchayat and fined.
• Lopping riverside trees banned
• Commercial extraction from the forest of external companies like Paper mills stopped
• Construction of more than 1000 gully plugs
• Bamboo harvesting done by villagers
• The community has a number of sacred pools in the river where water is not used and fished in. In a small 70 km river, there are more than 10 such ‘community conservation areas’. This is the actual operationalisation of norms like IUCN of protecting at east 10% of the river!
Traditional Conservation Practices

Dev Doh, a sacred pool of Kathani from which fishing is prohibited
Urban way of reviving a river: Pune River Restoration Plan

- Funded under the JNNURM head of River Restoration
- Tendering process lead to selection of a single organisation.
- Initially, it was a restoration cum navigation proposal, but due to a number of controversies, the term ‘navigation’ was dropped
- The total cost is 416 Crores (this does not include sewage treatment/ laying pipes to convey sewage/ transportation of rubble, etc)
- It has been approved by the Municipal Corporation and is being implemented in the city
- Let us take a look at this ‘River Restoration Project’
Components of Pune River Restoration Plan

- Channelizing 16 kms of the Mutha and Mula Mutha River flowing through the city
- Maintaining a constant depth at 545, 541 and 536 meters from msl (continuous water depth of minimum 3 mts).
- Huge river bed excavation will be required for this. Some of the rubble generated (1960497 CuM) will be used for channelisation, while about 3355386 CuM will be “disposed off outside the city limits. (This comes to around 6 lakh truck trips)
- The project has been planned considering “Maximum discharge from Khadakwasla dam will be maintained at 60000 cusecs”.
- In August 2006, maximum discharge from Khadakwasla exceeded one lakh cusecs following heavy rains in the upper catchments
- According to the Irrigation Dept, the maximum discharge capacity of the dam at Maximum water level is 128800 cusecs
Components of the plan

• The DPR mentions building 3 bunds in the river with constant water levels “for maintaining river ecology”!
• The project was referred to Moef and EAC in 2008 for site assessment. It was categorically mentioned that “World over restoration works are being undertaken with improvement in river ecology as the goal, nowhere was river navigation the goal of restoration”
• “Creating bunds in the river goes against the principle of river restoration, which needs water to flow naturally.”
• However, the current DPR has only taken out the term ‘navigation’ and still talks in the same language of excavation and maintaining water levels.
• The project the ‘excess’ 8 TMC (226 MCM) water in Kadakwasala dam will be used to maintain water in the bunds, calling this ‘environmental flow’
• There is no excess water in Khadakwasla, Irrigation Dept had sent notices to PMC for using more than its share from the allocated water. PMC is now planning to take over water for Irrigation from the Bhama Askhed dam, 50 kms from the city at an expense on 100 crores.
• The only solution is recycling sewage and effluents, which does not feature in the plan at all.
The kind of activities envisaged in the encroached and embanked river bed as per the DPR* are: Exhibition Ground, Circus Ground, Recreation, 2 wheeler parking, pedestrian mall, advertisement park, slum rehabilitation, *Lake to give Corporate look to PMC*

• Maintaining water levels in the river at 545, 541 and 536 mts (3mts uniform) will lead to stagnant back waters in the 13 nallahs of the city.
• Now referred to as ‘storm water drains’, these were rivulets joining the river which supplied water to the city 100 years back.
• Backwater from the river will go upto 329 in Ambil Odha, 549 mts in Nagzari Nallah
• Implications re. submergence, floods, health hazards?

• *Can a plan which envisages channelization, excavation, reclamation and damming of a river be considered as a river restoration plan?*
Thank You

National River Conservation Plan,
MoEF 2010
Let us not flatter ourselves overmuch on account of our human victories over nature. For each such victory nature takes its revenge on us. Each victory in the first place brings about the results we expected, but in the second and third places it has quite different, unforeseen effects which only too often cancel the first. ...We by no means rule over nature like a conqueror over a foreign people, like someone standing outside nature - but that we, with flesh, blood and brain, belong to nature, and exist in its midst, and that all our mastery of it consists in the fact that we have the advantage over all other creatures of being able to learn its laws and apply them correctly.

- Fredrick Engels, 1883