

Dams, Rivers & People

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Digging Our Rivers' Graves?

A summary analysis of the ecological impacts of the National Waterways Bill (2015)

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Introduction: The National Waterways Bill (NWB, Bill No. 122 of 2015) was tabled by the current central government's Minister of Transport and Shipping, Mr. Nitin Gadkari, in May 2015. This Bill plans to convert 106 rivers and creeks across India into waterway canals, purportedly for 'eco-friendly transport' of cargo, coal, industrial raw materials, and for tourism purposes. The primary reasons provided for this bill are that 1) inland water transport is fuel-efficient, cost-effective and eco-friendly, 2) the systematic development of waterways will create progressive economic opportunities in the country, and 3) the potential of water transport is underutilized in India. The Bill has since been examined by the Standing Committee appointed of Rajya Sabha Members and experts on the matter, who submitted their findings in Report No. 223 (Rajya Sabha Secretariat, August 2015). Recently, the Bill has been cleared by the Lok Sabha, and awaits final discussion in the Rajya Sabha within a fortnight's time. As of now the NWB appears to enjoy support across party lines, states and political positions and agendas. There is also a belief that waterways would mean maintenance of enough water flowing in our rivers – yet the means through which this is proposed to be achieved involve capital dredging and large-scale conversion of floodplain environments and riverbanks to concrete embankments. A serious concern of observers has been that there has unfortunately been but scant debate on the high ecological and social risks the NWB poses to riverine bio-diversity and local resource users through

such irreversible engineering controls on our rivers. There is no discussion among politicians and administrators. Importantly, this issue appears to have barely received adequate attention even in environment and conservation circles. Problematically enough, the NWB thus emerges as a threat that may go unnoticed by conservationists and get passed without debate, deliberation or emphasis on environmental clearances to the extent required. In this article I will discuss the potentially damaging consequences of the NWB on river ecology, human life and hydrological dynamics of India's riverscapes. My earlier article on the SANDRP blog 'Four boats at a river crossing along Ganga' (dated 28th December, 2015) had described <https://sandrp.wordpress.com/2015/12/28/four-boats-at-a-river-crossing/>) ground experiences related to the impacts of large-scale inland water transport (IWT). Continuing there I attempt to provide a point-wise discussion and critique of the NWB.

Policy document sources: This document discusses various points of contention as identified in 1) the draft of the National Waterways Bill (2015), and 2) the Standing Committee (SC, comprised of select members of the Rajya Sabha's initial appraisal of the implications of the said bill provided in its review and recommendations (Report 223, Rajya Sabha Secretariat 2015).

Observations on the National Waterways Bill draft, 2015 and Report 223 of the Standing Committee, Rajya Sabha on the Bill

1. **NWB as a river-control ploy:** the Bill, at its core, appears to treat rivers as mere canals for waterways that can be commoditized for just this singular purpose. In fact, it appears that inland water transport, at the scale conceived by the bill, involves the centralized, unitary control of rivers by the Government of India. This will involve the construction of locking barges to hold water for vessel movement, concretization and building of embankments to create port terminals, and regular (high-intensity) capital dredging of river sediment deposition along channel bottoms and margins. Worldwide, such interventions are known to have seriously damaging impacts on fish fauna, aquatic biodiversity, and people dependent on them. Although purportedly eco-friendly, there is not a single mention of “ecological” or “conservation” needs or concerns for rivers in the Bill draft.
2. **Rivers as nothing but water channels:** The bill shows a poor understanding of the hydrological, geomorphological and socio-ecological complexities of India’s rivers. In this sense, it is a blind copy-and-paste proposal inspired from other waterways across the world that also conveniently ignores the failings of even these examples (e.g. ECMT 2006). Most river courses in the Ganga and Brahmaputra floodplains are highly dynamic and migratory. They show flooding pulses in the monsoons, but have little water in the dry-season. The resulting sediment deposition and erosion patterns in the river channels have historically made river navigation highly risk-prone. By treating rivers as mere “water-carriers” the bill dishonours the naturally dynamic flow regimes that involve ‘essential floods’, critical to sustaining river productivity and life-history of organisms like fishes. There is not a single mention of “ecology” or “conservation” needs of rivers in the Bill statement.
3. **Competing rights to and pressures on water:** The Bill does not recognize natural limits on the proposed expansion of water use for transport in India, where multiple competing pressures already exist on water resources. Given the current and projected scale of water demands for irrigated agriculture, industry, thermal power plants, etc. (Pt. 18) of the Bill seems an entirely unfeasible idea entirely because of the basic requirement of adequate water availability. As a result the bill seems either unconcerned or naïve about considering rights to use water for diverse social and ecological needs. There is a cursory mention of “continuity of state rights to river water” (page 19, pt. 6 of NWB) yet there is no clear mechanism identified on how waterways development and already ongoing activities will be reconciled. The Rajya Sabha SC Report 223 rightly expresses concern about the conflicts that could be potentially generated at multiple levels: between state and central governments, between local human users and ecological needs of rivers, and between water allocations for transportation vis-a-vie irrigation and drinking water demands. Point No. 9 of the Report states land acquisition as a minor concern of the waterways development plan. However, there is absolutely no discussion on addressing issues of rights to water for direct needs such as fisheries-based livelihoods, pilgrimage, or rights for local navigation, which are unresolved in most cases even today. The Report mentions concern about rights to sediment and silt dredged from rivers (point 15.1) but deeper security for more fundamental water rights have been paid rather scant attention.
4. **Hazardous goods:** The Bill contradicts its own claim that waterways are environmentally friendly means of transport because in the same breath, the statement of object (page 18, pt. 2) says that “hazardous goods” will also be transported by waterways. Accidental spillage could directly affect the health of millions of people in India that still depend on rivers for drinking, domestic uses, commerce, and livelihoods, and present life-threatening risks to aquatic species.
5. **Feasibility of Implementation:** The Rajya Sabha Standing Committee’s Report 223 recognizes multiple lacunae and potentially serious gaps in the implementation of the proposed project. It details multiple ecological, social, commercial viability, and political-economic feasibility considerations and consequences for the 101 proposed national waterway development projects. Point 14 of the Report highlights that the Bill’s implementation will be conditional on Techno-Economic Feasibility, Environmental Clearances, and Detailed Project Reports, which is a welcome reminder to the Bill itself, of its potentially disastrous impacts on natural flowing water bodies. Point 22 of the Bill also highlights the opinion of the Indian Chamber of Commerce about how the lofty ambitions of the waterways project show strong disconnect with ground realities – and suggest first focussing on improving the effectiveness of the 5 existing waterways (Nos. 1 to 5 in bill) in a sustainable manner, before taking up 101 more river/coastal projects. Strong suspicion about the feasibility of the projects is also evident in the risk-averse and reluctant responses of companies towards taking up government tenders and contracts for port construction and dredging-related work (<http://www.thehindubusinessline.com/companies/no-takers-for-ntpc-river-transport-deal/article7642357.ece>). A case in point is the navigation lock of the Farakka Barrage on the Ganga, where navigation is hugely impaired due to high sediment loads, need for continuous and costly dredging and maintenance.
6. **Where is the Water?** At present, owing to numerous existing large and small dams, barrages, channel diversions, irrigation canals, thermal plants’ demand on river water, most rivers in India have extremely low or even NO water availability, especially in the dry season. It is indicative of the Bill’s ignorance of these realities because many such rivers are proposed for in-

clusion in national waterways (Pt. 15.4). The author is aware of the following rivers (enlisted with waterway numbers) that either have no water for nearly all year, or run as sewers carrying urban solid waste – but are included for development as National waterways: Ajoy (7), Aran (9), Betwa (17), Bheema (20), Budhabalanga (22), Damodar (28), Gomti (40), Indira Gandhi Canal (42), Jalangi (44), Manjara (67), Nag (71), Wardha (77), Punpun (79), Sone (88), Tapi (94), Tons (97), Vaigai (100), Wainganga/Pranahita (103) [this list is by no means an exhaustive one].

7. Ecological impacts and effects of capital dredging on river sediment, biodiversity, fisheries productivity (Pt. 20.1), and concerns regarding environmental clearances (Pts. 17, 19.1):
 - a. Barrages have been planned in the Ganga River at every 100 km, to artificially raise water levels for 11 proposed terminal ports. The impacts of barrages on fish movements, flow (water, sediments and nutrients) regimes at daily, seasonal and annual scales, and other river-dependent biota and people – given the fateful experiences in India over the last 5 decades – are anybody's guess (again, the Farakka barrage stands testimony to the magnitude and gravity of the problem: <https://sandrp.wordpress.com/2014/11/25/lessons-from-farakka-as-we-plan-more-barrages-on-ganga/>).
 - b. Capital dredging proposed to deepen, widen, and maintain existing waterways (5 of which are supposed to be operational today, though all of them are operating at sub-optimal levels), has highly negative environmental impacts. Such dredging dislodges river sediment, thereby destroying fish breeding grounds, habitats for endangered freshwater turtles, fishes, sensitive aquatic invertebrates, and other organisms. In particular, substrate-breeding fish species are negatively affected by dredging and might even become locally extinct following failed breeding. As a bulk of fisheries depends on benthic (bottom-dwelling) fishes in most of India's larger rivers, this will mean important threat to the sustainable production of fish in these systems as well. These impacts are well known and pose serious environmental concerns to many waterways across the world (e.g. Dolah et al. 1984, Travassos et al. 2012, Freedman et al. 2013).
 - c. Invasive species: One of the most common modes of spread and establishment of invasive species populations (mainly plants and fishes) is by waterways. Aquatic invasions in India threaten native aquatic biodiversity seriously, and aggravation of these threats might be disastrous for fisheries as well as navigation systems in turn (e.g. Koehn 2004, Arbaciauskas et al. 2008).
 - d. The noise and disturbance caused by intensive dredging activities is known to have deleterious impacts on aquatic biodiversity, especially the National Aquatic Animal of India, the Ganges River Dolphin *Platanista gangetica gangetica*. The endangered Gangetic dolphin is a unique, blind mammal that relies entirely on the use of ultrasonic sound production to forage and navigate in murky river waters of the Ganga-Brahmaputra river system with the use of echolocation, i.e. production and hearing of echoes from ultrasonic-frequency sounds. Our research predicts that dredging for waterways at the scale envisaged by the Bill will further endanger this emblematic species that is endemic to the Indian Subcontinent, owing to the following reasons: i) Range-level declines (local extinction) of Ganges river dolphins has been reported from many rivers due to the complete lack of river water availability (e.g. Sone), ii) river dolphin echolocation frequency might be masked by dredging and vessel engine sounds, which might seriously limit their ability to find food and navigate; iii) The physical upheaval of river sediment caused by dredging appears to be disturbing to river dolphins.
 - e. Our field observations in the Ganga River at Bhagalpur identify the negative impacts of heavy dredging on dolphins. River dolphins, in May 2014, moved about 2 km downstream from a regularly used hotspot areas near Barari, Bhagalpur town and stayed there for nearly one full week over which intensive dredging operations by the Inland Waterways Authority of India were conducted near the Vikramshila Setu. The authors noted that the surfacing frequency of river dolphins (breathing time between dives) reduced approximately 3 times as compared to a natural dive-rate of approx. 1.5-2.5 minutes during feeding peaks. In dolphins, this is a clear indication of stressful physiological and body conditions. Further, Ganges river dolphins are highly vocal in normal circumstances but their acoustic activity was noted to be much lower than on an average non-dredging day. Further, river dolphin mortality due to boat-propeller hits have been recorded on a couple of occasions from the same area. During the movement of tourist cruise ships, we observed that the impact of loud sounds produced by the engines lasted for over 2 minutes – in which river dolphin diving behaviour showed signs of suppression.
 - f. Approximately 90% of the viable Ganges River dolphin population in India overlaps with the extent of the proposed waterways in the Gangetic and Brahmaputra basins. The same is true for protected areas especially designated for river dolphins, such as the Vikramshila Gangetic Dolphin Sanctuary is a river stretch of 67 km length between Sultanganj and Kahalgaon towns in Bhagalpur district. At present, IWAI vessels have been regularly moving through, and conducting dredging operations throughout the sanctuary stretch – without any

environmental or wildlife clearances. Appropriate measures are a must to mitigate the impacts of dredging on river dolphins as well as other riverine biodiversity. Other flagship protected areas included in the waterways declaration include the National Chambal Sanctuary (600 km, proposed waterway no. 24), the turtle sanctuary from Ramnagar Fort to Assi Ghat at Varanasi (6 km, Ganga national waterway no. 1), and others along the Brahmaputra River and its tributaries (nos. 2,6,16,29, 31, 53, 80), Harike Bird Sanctuary in Punjab (which has Indus River dolphins; proposed waterway no. 15), and several stretches in the Sundarbans Tiger Reserve (no. 91). In some of these stretches, vessels are already plying large distances for transporting cargo, heavy goods and for tourism packages and their ecological impacts on riverine fauna and fisheries need to be assessed urgently. The recent oil spill in the Sundarbans of Bangladesh highlights the problems of inland transport in highly biodiverse and productive estuarine ecosystems.

- g. Ganges River dolphins have the highest abundance for any single Indian state in Bihar, with at least 800 animals in the Ganga River, and about 270-300 in the Gandak River. Similar estimates have been reported by researchers from Patna University and Wildlife Trust of India. The Kosi River is yet to be surveyed properly, but 75 km river stretch surveyed in May 2014 (Kursela to Osraha Thana) was found to have almost 173 animals (unpublished data from field surveys). The proposed intensive development of waterways in these rivers is of serious concern for a very important, high-density population of approx. 1500 Ganges river dolphins occurring in Bihar (estimate subject to negative bias).
 - h. In this context in particular, the widespread notion that this Bill has not gone through environmental scrutiny and navigation projects not requiring environmental clearances is also a serious flaw. Alongside protected areas for the conservation of endangered river dolphins, gharials, otters, turtles, and fishes, similarly diverse faunal assemblages continue to persist even in rivers not covered under protected areas. This further emphasizes the need for detailed studies to assess the environmental impact of waterways.
 - i. Impacts of pollution (noise, solid wastes, fuel leakage etc.) on river biota need to be assessed urgently for the 5 existing operational waterways in the specific context of inland waterways development and upgradation.
- 8. Social concerns:** Millions of India's people depend regularly on the rivers for drinking, domestic uses, agriculture, fishing, dairy, pilgrimage, local navigation and other livelihoods. The proposed national waterway development plans show scant regard for a sensi-

tive consideration of how these livelihood and commerce-sustaining activities may be affected by waterways. Some examples are listed below.

- a. Fish breeding habitats are seriously affected by capital dredging operations in the river substrate. Many fishes of high market value require intact substrates to spawn in the main channel of the river, which in turn determines their catch availability to fisher folk. The impact of capital and maintenance dredging on both short- and long-term fish catch needs to be monitored from the point of view of fisheries subsistence economy. Our observations suggest that fish catches fluctuate towards the negative side during and after bouts of capital dredging.
- b. Threats to life: There have been recent reports of pilgrims dying by drowning due to swimming in depths and sediment flows created post-dredging activities by the IWAI in the Ganga River.
- c. Local boat navigation will get impaired by frequent and constant movement of large ships and vessels and needs adequate consideration.
- d. The construction of ports, harbours, barge construction zones and embankments on the river banks can have dire consequences by increasing river erosion rates. River erosion and gradual land reduction have been historically high-strung and pernicious problems in India's floodplain rivers. The effects of heavy infrastructure might interfere with sediment dynamics and reduce economic outcomes from resource use substantially.

9. Multi-sectoral responses to the Bill:

- a. A noteworthy component of Report 223 is the response of the state governments of 18 states to the proposed bill. While most states agree to the Bill in principle, multiple conditions are discussed with respect to state-specific details of river conditions (e.g. in the response by Jharkhand). The responses of Kerala and Madhya Pradesh, two large states which oppose the bill by providing well-grounded and ecologically sensitive responses, are important to consider in discussions on balancing waterways development with social and ecological needs of water. Extremely important issues are raised by both state responses, backed by detailed appraisals, and these pertain to 1) existing structures to harness water for various basic needs, 2) threats of pollution and saline ingress into waterways, 3) impacts of dredging and solid wastes, 4) impacts on sanctuaries for wild species, fish breeding habitats and biodiversity such as crocodiles and river dolphins (with particular reference to the National Chambal Sanctuary), 5) poor water availability in rivers both from natural seasonal fluctuations, and more importantly, dams and barrages that already exist. The response of the Bihar government is cru-

cially important in the context of this document. Bihar has given a conditional agreement to the National Waterways Bill (Pt. 26.3). Bihar's response is important to consider as it brings up multiple relevant issues. The conditions include: 1) waterways should not alter or affect flood levels, natural surface levels, and submergence area, 2) a clear negative response to construction of new barrages based on the highly destructive experience of the Farakka barrages constructed downstream of Bihar's Ganga River in 1975, 3) the correct recognition that large-scale dredging will alter the near-natural sediment transport loads in rivers such as the Gandak, Kosi and Mahananda, leading to additional load on the Ganga River, 4) potential interferences with irrigation and drinking water needs, and 5) a detailed silt conservation and management policy and 5) ensuring that no impacts are felt on state entitlements to water within and across the state as per existing water-sharing agreements.

- b. The statement by NTPC representatives (Report 223, Pt. 19.3) that current one-way water-based cargo transport is only marginally cheaper than railways is a significant one. We believe that environmental regulations on ship design and movement rates will necessitate a cap on the proposed upscaling of waterways transport by making it both-ways (e.g. by carrying fly-ash wastes to dumping sites, Pt. 20.2 of Report 223). We believe that this proposed measure might be especially hazardous to river water quality and natural sediment load.
 - c. Doubts on the feasibility of the project at the scale in which it is conceived have been raised, notably, from multiple industrial quarters and by the Indian Chamber of Commerce (these responses are briefly summarized above in Pt. 5).
 - d. Concerns about the impacts of waterways development have also been raised by pilgrimage authorities and temple management boards across the Ganga River. <http://www.thehindu.com/news/national/inland-waterways-project-will-kill-ganga/article6289042.ece>
 - e. Mishra and Hussain (2012) extend this argument to considerations for transboundary water-sharing, of specific importance for existing water treaties with Bangladesh and Nepal.
- 10. Conflict with other objectives of the Indian Government:** The earlier points have expressed concerns about the pollution impacts of national waterways. If zero-pollution shipping models are not ushered in, the waterways bill proves directly antithetical and in conflict with the Clean Ganga Mission of the Central Government, as also for other river cleanups planned in the future. Further, its proposed consonance with other potentially disastrous projects such as river interlinking, can add to cumulative im-

pacts on river ecology, there is no attempt to acknowledge, understand or assess such impacts. The cost-effectiveness argument for inland waterways advanced by the Ministry is based on its low infrastructure investments. However, IWT projects appear cost-effective because India's riverine environments and ecology are systematically undervalued by the Ministry of Environment, Forests and Climate Change, similar to other arms of the Government. Moreover, the costs have to be seen along with the high costs of continuous dredging, loading and unloading at both ends of waterways and transportation to and from such points from the origin and destinations.

- 11. Possibilities for regulation and downscaling of impacts:** Forms of adaptive management and regulation of vessel traffic, dependent on dry-season river hydrological observations, should form the benchmark for environmental management guidelines and mitigation strategies for inland waterways. The priority to ensure adequate water availability across India both for snowmelt-fed or dryland rivers as per their seasonal fluctuations (dry to wet season) is foremost in this regard. Even if flows are maintained at levels that resemble ecological dynamics and navigation operations planned accordingly, navigation schedules will need to be adapted seasonally as per variations in flooding extent, dry-season ecological flows, and rising and falling discharge volumes. The Bill focusses on maximizing water transport infrastructure but does not suggest any regulatory mechanisms for sustainable management. The Government of India's Ministry of Transport, Inland Waterways Authority of India (IWAI), National Mission for Clean Ganga, National Ganga River Basin Authority, the Ministry for Water Resources, River Development and Ganga Rejuvenation and the Union Ministry of Environment, Forests and Climate Change, along with state governments need to seriously consider strict regulation and downscaling for managing inland water transport (IWT) with necessary environmental safeguards and guidelines. In fact, a detailed 'Waterways Classification' exercise has been demanded (<http://indianexpress.com/article/india/india-others/inland-waterways-policy-dredging-through-the-silt/>) for efficient management of IWT by the head of the IWAI already. Cumulative Environmental Impact Assessments (phase to phase) for IWT development are critically needed to identify the scope for case-by-case regulations, environmental prescriptions and guidelines, monitoring, compliance and enforcement of caps on ship traffic as per seasonal variations. Regulatory and adaptive management approaches will need to include: a) restricting allowed upper limits of bulk cargo only (but not hazardous goods), season-wise; with dry-season movement to be completely restricted if water availability naturally does not allow navigation securely; b) ship sizes for horizontal and vertical clearances (Pt. 15.2 (i,ii,iii)

of Report 223) must be specified only in tune with natural availability of water, and NOT by augmented availability through interlinking, inter-basin or canal transfers, dams/barrages, or repeated dredging; c) considerations for ship design to make them zero-pollution/discharge and ecologically benign (e.g. with engine noise reduction devices), and d) cap on simultaneous plying of both cargo and tourist ship traffic, e) tourist and cargo vessels must be mandated to pay substantially for the estimated costs from ecological impacts on the river. Further, mechanisms need to be instituted towards restoration of river-floodplain habitats such as islands, point bars etc. (important for seasonal farmers, as well as nesting birds, turtles, otters, and crocodilians) through effective silt protection and conservation mechanisms. The high frequency of even ongoing dredging operations by the IWAI points to natural constraints imposed on navigation by river sediment and silt, which are both highly essential for agricultural and fisheries productivity. Dredging operations alter depositional and erosional processes and affect these systems. Hence a comprehensive and ecologically sensitive river silt protection, restoration and management policy is essential. As past interventions have amply indicated (e.g. embankments) capital dredging impacts need to be mitigated with strict policies to ensure the same.

12. Despite these important insights and discussion points proposed in the Report 223, it falls short of a critical revisiting of the scale and scope of the conceived national waterways bill. Problematically, the Report seems to uphold the suggestion that the waterways should be in consonance with the River Interlinking Plan (though this plan has no sanctions from any of the states, those neighbours sharing river basins concerned or the statutory authorities) (Pt. 18 (iii)) sharply contrasts with the concerns expressed in the same report about water scarcity, ecology, and dry bed conditions for most rivers included in the Schedule (ref. Section 2) of the National Waterways Bill. This appears as a latent and somewhat uncritical acceptance of both the river interlinking and waterways bills and the Report's tone remains in broad agreement with the intent of the Bill, in an unquestioning manner, of the status quo (e.g., the impacts of the River Interlinking Plan; Lal et al., 2015).

Conclusion: The management of existing waterways remains wanting on several counts. The aforementioned discussion highlight that the current ecological impacts of dredging in waterways are already significant. Given this background, the scarcity of water available in our rivers, scenarios of extreme climate-induced drought and flood events, river erosion, and declining agriculture and fisheries productivity, we believe that the proposed scale of upgradation of inland waterways in India is not only unsustainable but also highly destructive. In conclusion, efforts are needed to strike balances between IWT and numerous other more pressing water needs for people and

ecology. The National Waterways Bill thus represents a formidable challenge to our planning as well as our ethic. After a long history of damaging hydrological alterations, riverine control, and social injustices and disasters, the National Waterways Bill's implementation does not show that something has been learned from a troubled past. In the current circumstances, achieving potential utilization of waterways without impairing ecological and hydrological dynamics, productivity, biodiversity, and social dependencies, environmental regulations and safeguards are critical for sustaining the life of the river basins of India does not seem likely. The bill in present form is not likely to be accepted at least by some concerned states and the proposed waterways are not likely to be viable.

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Large Dams in Konkan Western Ghats: Costs, Benefits and Impacts

Introduction

Konkan is that narrow and spectacular strip of land encompassing coastlines, estuaries, lateritic plateaus, foothills of Western Ghats and dense forests, which runs from Maharashtra to Goa. Bound by the Arabian Sea to its west and the mighty Sahyadri ranges (Western Ghats) to its east, the region has a distinct and rich culture of folklore, performing arts, music, literature, culinary art. Konkan, its temples, rivers and forests have an entire Sahyadrikand of the SkandPurana dedicated to it. Several poems and songs have been penned about the beauty, the mystery and the people of this region. Many of our celebrated singers, poets and authors come from Konkan. Community conservation practices that thrive here include some of the most pristine Sacred Groves, Temple Tanks, Fish Sanctuaries and sacred trees.



Index Map of Konkan
From: KonkanTrips

Konkan of Maharashtra, the subject matter of this report, consists of Greater Mumbai, Thane, Raigad, Ratnagiri and Sindhudurg Districts, covering an area of 30,394 sq kms and running for about 720 kms. Of the 17,000 square kilometers area of Maharashtra Western Ghats, identified as 'Eco Sensitive' according to High Level Working Group Report on Western Ghats, majority falls in Konkan Division.

Konkan has a unique physiography with an undulating terrain and narrow coastal plains. It receives heavy rainfall from South West monsoons averaging to about 3000 mm. Elevation difference for a small width of about 50-60

kms ranges from mean sea level to over 1000 meters. Due to severe slopes, the drainage pattern is dense and dendritic, leading to poor groundwater recharge on slopes but good recharge in plains and valleys. Geological strata is composed of rocky basalt, lateritic plateaus, sandy coasts and small alluvial river mouths and valleys.

Konkan holds 22 river basins. All rivers that flow here originate in the Western Ghats and are swift and west flowing, with narrow, rocky basins, smaller catchments, shorter lengths and smaller estuaries as compared to their east flowing counterparts also originating from

Sahaydris like Krishna and Godavari. Damanganga, Ulhas, Vaitarna, Savitri, Shastri, Gad, Karli, Terekhol etc., are some of the important rivers of Konkan. They are marked by rich biodiversity, dense forests and productive estuaries and they play an integral part in the social and cultural lives of the Konkanis.

Traditional water systems here revolve around groundwater from lateritic plateaus, hills streams and rivers. Due to quick runoff, swift, overflowing rivers of the monsoon dry up in the summer; range of groundwater fluctuation is also high. The region has several evolved traditional practices to utilize rainwater for irrigation and domestic use. The system of making "Paats" or irrigation channels off-taking from rivers, hills streams and groundwater zones exists till date.

Konkan is the spectacular piece of land encompassing coastlines, estuaries and foothills of Western Ghats. It has unique biodiversity, geology, topography and soils and has region specific water harvesting methods. How are large dams faring here?

As a result of its singular soil-rainfall-topography, agriculture in Konkan is different from the rest of Maharashtra. Traditional crops include paddy cultivated on terraces and millets like Ragi cultivated on slopes. Mainstay of agricultural economy is horticulture of Mango, Cashewnuts and kokam (Garcinia fruit). These have no specific irrigation needs and grow on slopes. Coconut and Arecanut plantations on the precious strips of plain land require water. In Rabi, region-specific pulses are grown on soil moisture and dew. Due to poor soils and hot weather, the region is not a leader in spices, coffee, tea or rubber. Migration from Konkan to Mumbai and other parts of the state has always been high and farm labour is difficult to find.

Due to several factors like a rugged undulating terrain, lateritic porous strata, poor soil, traditional crops which do not need irrigation, etc., major Irrigation Projects and dams are rare in Konkan. This is despite the fact that Konkan gets 45% of the average annual yield of all rivers in the state! It is here that you find one of the oldest earthen dams in the state: the Dhamapur Dam in Sindhudurg, which still stands proud, not only irrigating plantations but providing drinking water to the entire Malvan city. Temple Tanks in Sindhudurg provide drinking water, irrigation and recharge groundwater.

Following the surge of dams in Maharashtra, several major and medium irrigation projects, drinking water

supply and hydropower projects were proposed and developed in Konkan.

A reconnaissance of the current situation is disturbing. It indicates that despite spending more than Rs 6,000 Crores in building these dams for decades, not a single Major or Medium irrigation project has been completed in Konkan till date by Konkan Irrigation Development Corporation (KIDC). Actual Irrigation Potential created is less than 25%, of which less than one percent is actually used by people for irrigation, for projects tested by CAG[i]. Hydropower generation from projects is shockingly low.

But for building these non-performing dams, not only have we spent thousands of crores of tax-payers money, we have displaced thousands of people, affected ways of life, desecrated sacred conservation areas, deforested thousands of hectares of forests in Western Ghats, destroyed habitats of wildlife, affected migration routes of Elephants, Tigers and Fish. The sum of these impacts maybe more tragic as compared to monetary corruption alone.

Currently, 12 irrigation projects of KIDC[ii] in Thane, Raigad and Ratnagiri Districts of Konkan, undertaken by FA Constructions and FA Enterprises are facing enquiry by the Anti-Corruption Bureau[iii] for severe corruption charges. Water Resource Minister Girish Mahajan has indicated that a charge-sheet will be filed shortly in which former Deputy CM Ajit Pawar and Former Water Resource Minister Sunil Tatkare may also be named [iv]. Stories of corruption in KIDC are varied and amusing. According to some, when Talamba Major Irrigation Project was being sanctioned, a Sumo full of cash was given as a bribe to one of the leading politicians of Konkan, who kept the money...and the Sumo as well.

Several of KIDC Irrigation projects have violated Environmental Laws and Project Affected People of almost all projects are protesting due to insufficient compensation and shoddy rehabilitation. Man-Animal Conflicts are not rare in regions where dams blocked migration routes.

This state of things requires a fundamental rethink.

When I asked a farmer in Ratnagiri about Major and Medium Irrigation Projects in Konkan and if they have helped, he says "Whom have these projects helped? Not us!". A Geologist says, "Large dams in Konkan are not

viable on multiple scales". An Agricultural Scientist says, "Engineers from Western Maharashtra posted in Konkan have their own ideas for irrigation which suit Western Maharashtra, not Konkan. They have not worked and will not work here." Former Head of Walmi

who has also worked in Konkan as an Engineer says, "Large dams in Konkan are a reflection of Intellectual Corruption in WRD and a resolute denial to learn lessons from past mistakes. I think the area irrigated by Major and Medium Projects may be less than the land submerged behind them". However, when I ask the same question to a senior official of the

Konkan Irrigation Development Corporation (KIDC) he says despondently: "It is Government Policy."

This blind push for large dams has resulted in social, economic and ecological losses, without any substantial gains

Farmers in Konkan need protective irrigation, but their needs are very different from the Plateau. There is an urgent need to take an objective look at the approach of pushing large projects as a matter for policy for a region that does not need or want them. A thorough audit of Irrigation Projects in Konkan needs to be undertaken with a scope that is wider than regular CAG Reports. Projects like Talamba Major Irrigation Project, which have been lying idle for several years, have been rejected permissions, face strong local opposition, are unviable and would need massive amounts of additional funding, need to be scrapped to stem the flow of tax payers money down a blackhole.

Rather than spending further crores, benefiting the contractors and continuing questionable projects, perhaps there is need to acknowledge that past experience of pushing large dams in Konkan is a lost cause.

While this may sound difficult to achieve, we hope that the following sections make its need self evident. The balance cost of main projects now stands at about 11,000 Crores and will only increase with time. In this context, schemes like current government's flagship Jalyukta Shivar are ideally suited for Konkan and

Konkan Irrigation Development Corporation and the damming of Western Ghats

White Paper on Irrigation Projects published by Government of Maharashtra in 2012 lists 4 major projects,

11 medium projects and 4 projects under BOT (Build-Own-Transfer) by KIDC (which are all Drinking Water Dams for Mumbai). It has avoided mentioning several of the more problematic projects. However, NONE of the irrigation projects mentioned in the White Paper have been completed till date, even after 33 years of starting work for some. In some cases, the scope has been changed from Irrigation to Drinking Water and the irrigation component has been put on a back burner. (Details of some projects in Annex 1)

Konkan Irrigation Development Corporation (KIDC) was formed in 1998 under KIDC Act 1997 to expedite irrigation projects in Konkan administrative division and also independently raise capital from the market for this purpose. Of the cultivable command of 15.68 Lakh ha in the region, estimated irrigation potential that can be developed is about 3.67 L ha. But according to CAG Report 2010[v], of the 90 projects handed to KIDC in 1998, only 13 were “partially complete” in 2010. Although KIDC is supposedly autonomous, “All planning, approval, tendering, allocation of funds was done by the government and not KIDC”.

From the CAG Report, 2010

After spending Rs 4363 crores on 90 projects since 1990, only 13 could be partially completed till 2010. Recommendation of HPC (High Powered Committee) about prioritizing projects where over 75% work has been completed was ignored by KIDC leading to too many incomplete projects, no budget and no rise in Irrigation Potential. KIDC violated laid down norms of not taking up projects unless all land required has been acquired, Forest Clearance has been granted and PAPs (Project Affected Persons) have been rehabilitated. Starting projects in the absence of these statutory requirements has led to a situation where projects are stalled, land acquisition could not be completed, there was no money to resettle the PAPs, and contractors had to be paid idle charges. For 16 projects checked by CAG in 2010, work orders were issued by KIDC before acquiring lands and all of these 16 were stalled by PAPs. KIDC did not even let the Special Land Acquisition Officer (SLAO) know of the complete land requirement for these projects.

In case of Nardave Medium Project in Sindhudurg, for which the KIDC still does not have Forest Clearance, KIDC paid Rs 7.4 Crores to contractor as idle charges, but did not pay Rs 3.1 Crores to Forest Department as NPV (Net Present Value of the forestland). There are

several examples where the KIDC did not pay the full compensation amount to the PAPs, neither did it deposit the full amount with the SLAO. The CAG report seethingly notes that while KIDC was short of money to pay the PAPs who were losing their homes and fields, it paid advances to contractors even when it was prohibited by the Maharashtra Public Works Manual. In case of Deharji Medium Project, Rs 10 Crores were paid as advance in 2007 to an influential contractor, but the dam work did not start in the absence of FC till 2010. For these 3 years, no substantial recovery of advance was made when there was no work done!

Of 30 projects test checked by CAG, 10 were under repairs for more than 5 years, necessitating no irrigation.

Damningly, CAG says that although heights of dams was increased, none are complete, nor did increase in height lead to increased storage. The Executive Director of KIDC justified this by stating that heights were raised to store more water and irrigate more area. The hollowness of this claim is clear we consider Land acquisition problems, lack of clearances and of funds. For 38 projects on which Rs 800 Crores have been spent and which have been going on for upto 20 years, no storage has been created.

CAG Report 2013-14 [vi]

The Report states that of the 64 ongoing projects of KIDC as of 2013, total expenditure has been Rs 6020 Crores and the updated cost of ongoing projects is more than Rs 11,000 Crores.

CAG Report of 2010 as well as 2013-14 have highlighted several serious problems with Irrigation Projects in Konkan which range from Irrigation Potential Created, technical soundness to Environmental Clearances, Rehabilitation of PAPs etc. On most of these counts, KIDC fares badly.

Of the 64 ongoing projects, 54 projects have seen massive cost escalations. When Administrative Approval was given for Rs 783 Crores, expense has been Rs 6020 Crores. In 2013, 25 of KIDC

projects needed a whopping 6303 ha of Western Ghats Forest lands and many had proceeded without securing statutory Forest Clearance, a punishable offence.

This CAG report was played down by the government when a PIL against multiple irregularities in KIDC was filed in the Bombay High Court in 2013. However, CAG through an affidavit stood firm by its report.[vii]

Snapshot of some KIDC dams in Western Ghats

SANDRP has visited several projects undertaken by KIDC, has talked with the Project affected people, as well as Engineers and officials. The picture which emerges is sordid. Some of the notable projects are mentioned below:

a. Talamba Major Irrigation Project, Kudal, Sindhudurg

Talamba Major Irrigation project was planned across River Karli in Kudal Taluka of Sindhudurg 34 years ago. For a Project which received Administrative Clearance and funds in 1981 and for which Rs 142 Crores have been spent till date, it is not even 20% complete. The project aims to irrigate 28,900 ha and has a submergence area of 2618 ha, including 626 ha of Forest Land in Eco Sensitive Area. Work on Talamba Major Project started without Forest Clearance (FC) and it still does not have final Forest Clearance! In fact, the State Forest Division has rejected its FC application in 2015. Government continues with the project doggedly which now costs an estimated Rs 1,772 Crores.

Bal Sawant, who has been leading the struggle on this dam in the region tells me that the government “better scrap” the project urgently, which will displace over 5000 people in 7 villages. “The dam officials are raking salaries for doing no work for decades. The command of the project actually includes about 5000 ha of Forest Land. The command also overlaps with other irrigation projects like Sarambala. What irrigation are we then talking about? Large parts of the command[viii] is already served better functioning by Minor Irrigation Projects and tanks. There are several sites where smaller projects can be built, without displacing people. We will continue to fight. You see, even after 34 years of starting a project the government could not rehabilitate affected people or compensate all of the affected population. How can we trust them?”

When I visited the dam site in January 2016, all that could be seen of the dam was a partly made stone-pitched dam wall. Forests in the submergence area are some of the most luxuriant forest I’ve seen in Western Ghats of Maharashtra. According to Sawant, when the project received Environmental Clearance in 2001, villagers did not receive a notice of Public Hearing in Marathi, neither was the EIA translated in Marathi and given to people. PAPs have stalled dam work more than 4 times in the past, but still rehabilitation and compensation is incomplete.

Talamba Major Irrigation Project has been in limbo for more than 34 years due to inefficiency, lack of will to

solve PAP issues, absence of Forest Clearance and violations. It does not have an Investment Clearance from the CWC (Central Water Commission). The submergence area lies in the Eco-sensitive Area of the Western Ghats as per the High Level Working Group on Western Ghats Report (HLWG Report).

Action needs to be taken against responsible officials for starting work without Forest Clearance and rehabilitation of PAPs. The affected people themselves have drawn out plans where KT weirs on Karli River can provide effective and cheaper irrigation for part of the command

than spending 11,000 Crores or more. When I discussed the project with senior official in KIDC, he simply said, “Forest Department should give clearance and project affected should take back their struggle.”

b. Viridi Large Minor Project, Sindhudurg

When I visited the strangely-named Viridi “Large Minor” Project in Jan 2016, several Trucks, JCBs and machines were languishing at the dam site. The Dam itself, a huge structure, seemed almost complete, without the main river plugging. Hills in the upstream were deforested and made into pineapple and rubber plantations by, I was told, rich lobbies from Kerala who are eyeing backwater irrigation once the dam is complete. This project, which is at the head stream (Walvanti) of the Mhadei River, has been asked to stop work by the Mhadei Water Disputes Tribunal in 2015. Mhadei is a shared basin between Goa, Maharashtra and Karnataka and the river is the lifeline of Goa. Maharashtra has agreed to maintain status quo on the work through an affidavit[ix]

The project does not have an Environmental Clearance, nor does it have Wildlife Clearance, although it is barely 3 kilometers from Mhadei Wildlife Sanctuary in Goa. In August 2015, Union Water Resources Minister Uma Bharti stated before the Parliament that “Maharashtra government did not secure environmental clearances for the Viridi dam on the pretext that the culturable command area (CCA) of the project is less than 2000 ha, requiring no environmental clearances.” However, according to government WRD Website itself, the project has a command of 2937 ha[x].

When I discussed this project with the officials, I was told that it was important to boost storages in

Maharashtra and Viridi Dam water will augment Tillari Major Irrigation Project's irrigated area, which is adjacent to Viridi Dam. Looking at the pathetic state of completion of projects in Konkan and dismal performance of Tillari's distribution network, this sort of undertaking violating multiple laws should be unacceptable. We have spent Rs 58 Crores of this project whose costs stands at Rs 182 Crores as of March 2015.

c. Sarambala Medium Irrigation Project, Sindhudurg

When I visited Sarambala Dam site in the heart of Western Ghat forests, I was taken to the Durga Devi Temple and sacred grove in Dabhil, which will submerge under the dam. The villagers asked the Goddess to protect their village from drowning. And the Goddess herself, I thought.

Sarambala Medium Irrigation Project falls in Sindhudurg in a region that is extremely rich in biodiversity. A voluntary organization, Vanashakti, found out under the RTI Act that the villagers in the supposed command of Sarambala had never demanded for irrigation! While WRD claims that 22 villages will benefit from the dam, there are only 15 villages in the command, of which seven are already shown in the command area of the Tillari and Talamba irrigation projects!

The region is a part of the 35 km-long and 10 km-wide Sawantwadi-Dodamarg wildlife corridor, connecting the Koyna, Radhanagri and Chandoli Protected Areas in Maharashtra with Mhadei, Bondla, Bhagwan Mahavir, Netravali, Cotigao and Molem in Goa, and Anshi and Dandeli in Karnataka. This strip of land has over 303 species of plants, several with crucial medicinal values and 18 species of mammals, including tigers, leopards, bears and several species of birds. It is also an elephant corridor. Nevertheless, KIDC claims this region has no wildlife while the Forest Department claims that there are no religious, cultural or archaeological sites here. The EIA of the project has not been made public.

Though the project is yet to receive environmental clear-

ance and a final forest clearance, KIDC issued a work order in 2005. Neither community and individual forest rights as per the Forest Rights Act, 2006 have been settled nor have rehabilitation proposals been prepared. The White Paper has pushed the project claiming that it has spent over 25 per cent of its budget and 35 per cent work has been completed.

Similar is case of Nardave Medium Project where work was started without Forest or Environmental Clearance as well as Shirshinge and Deharji Medium Projects.

d. Kal-Kumbhe Hydropower project, Mahad, Raigad

While showing a percolation tank built by the villagers, leader of the dam resistance Balkrishna Gawas asks me, "This region receives 4,000 mm rainfall. If we villagers can build water harvesting structures for our water security at a fraction of the dam's cost and with so little ecological impacts, can't the Water Resources Department do so? Is drowning forests and our villages the only way forward they know?"

Kal Kumbhe Hydropower Project is an example of an entirely unviable project. This Small 15 MW +10 MW hydropower project includes two dams in Western Ghats, one of them over 55 meters high and two massive tunnels, submerging 6 villages and displacing more than 1500 people. The total expense now is

more than Rs 300 Crores, and the expenditure lies locked for 4 years as the work has stopped due to protests from people who were not rehabilitated and absence of Forest Clearance.

When the average per MW cost for small hydropower project is about 8-9 Crores as per the Union Ministry of New and Renewable Energy (MNRE), the cost for Kal Kumbhe project will be a minimum of Rs 25 Crores / MW, mostly more than that. This is discounting the cost of rehabilitation, impact on biodiversity and Forests. All submergence area lies in Eco Sensitive Area of the

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HLWG. I had stumbled upon the dam site accidentally, when I was visiting a community conserved fish sanctuary just downstream the dam site. The sanctuary, protecting endangered Mahseer fish, will be rendered dry and lifeless if the dam materializes.

Similarly, Government of Maharashtra is claiming that there is insufficient water for 60 MW Tillari Main Dam in Sindhudurg to generate power and is pushing for Tillari Stage II Project[xi] which includes 3 more dams in the upstream which will require 642 ha additional land, including about 550 ha of Forest Land in Eco Sen-

sitive Area and an Elephant Corridor. Effectively, this means much more than 700 ha of land to generate only 60 MW of power and 11.66 ha of forest for 1 MW of power! For 1 MW power generated by Solar, only about 2 ha land is needed. Even if we do not include the value of forests, this project is entirely unviable.

Apart from Environmental Impacts and violations, none of the large dam projects in Konkan can claim satisfactory rehabilitation of Project Affected People before starting dam work, as is mandatory. Riverside lands which are richly irrigated and covered with plantations are being submerged under these projects, which remain incomplete and do not deliver a fraction of benefits promised. The case of Jamada Medium Irrigation Project in Rajapur Taluka of Ratnagiri is stark in this regard. No Irrigation potential has been created for Jamada Dam in 10 years since the work started. More than 3000 people have been affected. Even joint surveys of their lands have not been completed till dated. Of the 733 ha required for the project, only 44 ha have been acquired so far[xii] but expenditure is already more than Rs 300 Crores! Same is the case with Arjuna, Devghar and Gadnadi Medium Projects (Refer to Annex 1).

What Experts and Stakeholders Say

When I discussed Large Dams in Konkan with water experts and people working in the region, their verdict seems clear.

Satish Bhingare, Former Director General WALMI Aurangabad, Government of Maharashtra states that large dams in Konkan; constructed for irrigation; are a big mess and a symbol of not only monetary, but Intellectual Corruption.

He says, "Irrigation in Konkan is different from the rest of the state. Horticultural crops, the mainstay of Konkan agro-economy do not grow on extensive plains, but on hills where the exercise of irrigation through extensive canal network has been a catastrophe. They are irrigated by groundwater and hill streams (Parhye or Pat in Marathi). Resultantly, the region does not have an irrigation culture like say Western Maharashtra. Lat-

eritic, light soil cannot provide an ambiance conducive to operating typical open canal network on the other hand; water logging causes massive crop losses like Kal Amba Irrigation Project in Mangaon. I doubt if Large

"I doubt if Large dams in Konkan are providing even as much irrigation as the area they submerge. Small projects built at 100% dependability backed by a closed conduit distribution network suits the region the best. KIDC needs to look back and think about the Lessons Learned from the past. Unfortunately, such reconnaissance rarely happens."

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Surendra Thakurdesai is a Professor of Geology in Gogate Jogalekar College of Ratnagiri and is also a hands-on farmer. He has spearheaded a river rejuvenation program for Golap River in Ratnagiri. Prof Thakurdesai says: "The topography and geology of Konkan makes large dams unviable. Canals networks are very costly due to undulating terrain and porous basalt. We need to accept the productivity limitations of the lateritic, light soil of Konkan. There is no logic behind costly projects in such a situation. On the other hand, whatever limited fertile land that Konkan has in its narrow valleys, is being submerged under the dams. There is not a single Large Project, or even a Medium project, that is serving the people of Konkan to a significant extent."

"Unlike rest of Maharashtra, agriculture in Konkan is dispersed and on hills. This region cannot be serviced by large dams and canal network. Groundwater, hills streams and rivulets are the lifelines of farmers here and they need to be rejuvenated."

"The large dams ongoing in Konkan are not for us. They are for the contractors and engineers and lobbies who can afford to buy thousands of acres of land in backwaters of dams like Tillari."

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Dr. Prasad Deodhar who leads an Organisation called Bhagirath in Sindhudurg, amidst all the dam development is also clear, "Konkan needs irrigation no doubt but large projects are not viable for this region. Minor irrigation tanks, small scale structures and groundwater hold a great promise in irrigating hinterlands and are already doing so."

Dr. Shrirang Kardekar, Balasaheb Sawant Konkan Krishi Vidyapeeth, an agricultural scientist who has also worked extensively on Konkan's crops as well as water problems states that large projects are simply not meant for Konkan. He has been trying to get this across to the government for many years. "The undulating geography, small plains which immediately run into Western Ghat foothill ranges mean that dams in Konkan have to be very tall and hence very costly. This also makes canals difficult to construct. The few canal networks we have are broken and leaking. In rainy season due to very heavy rainfall, they get clogged with sand. Horticulture in Konkan is practiced on hill slopes and there is no way a canal can reach a mango or cashewnut tree on a hill. What can help are dispersed tanks built on plateaus which can give water to plantations through drip. KT weirs across rivers and smaller dams can help riverside cultivation."

"See, the problem is Engineers trained in Western Maharashtra come to Konkan and want to implement projects which worked on a flat plateau here in our hills and narrow valleys. This one-size fits-all attitude is a big problem. They put forth impractical solutions and then blame farmers for not lifting water."

Sanjeev Anerao, an environmentalist and plantation owner says that there are hardly any dams which have canal networks. "Engineers build dams, but do not even acquire land for canals. We have several dams without distribution systems and only irrigation is some backwater lifting. How can tax payer money be spent for this? The river was irrigating much more land than this! On the other hand, minor projects which are actually helping farmers are in a state of disrepair. We need to rejuvenate these than go after huge projects like GadNadi which go on and on."

Executive Director, Konkan Irrigation Development Corporation

When I discussed the impasse of non-performing dams with KIDC Executive Director, his approach was positive but he did not have substantial answers to the is-

sues plaguing the region. He talked about the inclusion of private forests in "Forest Lands" requiring clearance and adding to delay, paucity of funds, protests by PAPs as some of the hurdles behind slow development of dams in the region. This does not answer why the projects were started before mandatory Clearances and Rehabilitation in the first place.

He noted "Dams in Konkan are very costly. In the amount it takes to build a medium project on the plateau, we can hardly build a minor project in Konkan." He agreed that thin spreading of meager funds was one of the reasons be-

hind incomplete projects and asserted that, "This year funds will only be spent on completing canal and distribution networks of projects like Korle Satandi, Devghar and Arjuna." This is a welcome step.

When I enquired about the best performing Irrigation project in KIDC, he said that there are several projects near Mumbai (Surya, Bhatsa, etc) which were meant to be Irrigation Projects, but are now mostly supplying drinking water to Mumbai, which perform very well. "But what about Irrigation Projects?" I ask. There is no answer.

When asked about non performance of hydropower projects like Kal Kumbhe, the ED agreed that they are extremely costly, but that "Scrapping them now would be a great loss to the nation". This is a reflection of the ideological support to large dams and has been causing

immense harm to overall development.

Way Ahead

Dhamapur Dam, a small earthen dam in Sindhudurg, was built in the 1600's. It still irrigates over 100 ha of land, while fulfilling drinking water supply needs of the entire Malvan city. There are several temple tanks in Konkan which store rain water in the monsoon and provide irrigation and drinking water in summer. In Ratnagiri, small mountain streams are channelized to various plantations and irrigate the region throughout the year, while helping groundwater recharge.

"See, the problem is Engineers trained in Western Maharashtra come to Konkan and want to implement projects which worked on a flat plateau here in our hills and narrow valleys. This one-size fits-all attitude is a big problem. They put forth impractical solutions and then blame farmers for not lifting water."

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Incomplete Kal Kumbhe Hydropower Project, stalled for more than two years due to lack of funds, Forest Clearance and rehabilitation issues. Photo by author

The experts and stakeholders I talked with were unanimous in their opinion that Minor projects and groundwater have fared better in meeting irrigation needs of the farmers. They suggest a more nuanced understanding of irrigation needs of Konkan before launching big budget projects.

Suggestions include:

- Assessment of irrigation needs of farming specific to Konkan, based on the existing cropping pattern and actual needs of farmers.
- Regular maintenance of Minor Irrigation Projects and their distribution systems
- Rejuvenation of Temple Tanks as a source of drinking water and irrigation
- Desilting rivers, temple tanks and MI Tanks regularly. Desilting has played an important role in Golap River rejuvenation and has helped irrigation.[xiii]
- Protection of Forests in catchments and hillsides to maintain water levels in streams and wells
- Recharging dug wells by rainwater
- Creating small storages on plateaus (Sadaa in Marathi) to irrigate plantations and fields by drip and gravity, where needed
- Small ferro-cement rainwater harvesting tanks on plateaus and[xiv] villages (Jalvardhini in Sindhudurg) which help significantly in times of need
- Building KT Weirs on large rivers which can store water for a short duration and it can be lifted for irrigation
- Converting open canals into closed conduits/under-

ground pipelines. This was tried in a project in Ratnagiri in 1985-86 and has been successful to a large extent.

- Not allowing Thermal Power Plants/ Chemical industries/ Mining industry to exploit rivers and groundwater or pollute these sources.
- Maharashtra Government's Flagship Program Jalyukta Shivar holds great promise for this region.
- Konkan holds answers to most of its water questions. In such a scenario, large dams are being pushed through by ideological/policy bias, following a uniform development model which does not respect regional difference and strengths, disregarding the ecology and people of the region.
- Rampant corruption surrounding dams in Konkan raises big questions about the rationale behind their planning in the first place.

Due to their scope, reports from agencies like CAG or Anti Corruption Bureau cannot conclude about desirability, optimality, necessity or viability for large dams in a particular region. (In fact there is no official agency taking an objective view of these questions!) More important is to look at the holistic viability of projects in Konkan, draw lessons from past mistakes, make necessary course correction, which includes scrapping unviable dam projects like Talamba, Jamada, Viridi, Kal Kumbhe etc.

Like Prof. Thakurdesai says, large dams in Konkan seem to be planned more for the welfare of contractors, politicians, engineers, bureaucrats, consultants and plantation mafia than the Konkani people.

Is it not time to look beyond financial corruption and raise questions about basic viability of large dams in biodiversity

Like Prof. Thakurdesai says, large dams in Konkan seem to be planned more for the welfare of contractors, politicians, engineers, bureaucrats, consultants and plantation mafia than the Konkani people.

Is it not time to look beyond financial corruption and raise questions about basic viability of large dams in biodiversity rich Konkan?

rich Konkan? Is it not wise to scrap the projects which are stuck once and for all, rather than limping on with them and spending additional crores? Due to investment and resources locked up in large dams, appropriate solutions are being neglected. A region which gets more than

3000 mm rainfall has several small and beautiful solutions up its sleeves, if only we are ready to see.

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NOTE: For full PDF file containing this analysis, see: https://sandrp.files.wordpress.com/2015/01/dams_kidc_westernghats_pd-0216.pdf

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Unabated Riverbed Mining in Saharanpur, UP, Puts Delhi's Water Supply under Threat

Delhi water supply from Yamuna River through Munak canal has been severely impacted by Jat quota stir as the violent mob has damaged the Munak canal. As a result thousands of Delhiites are facing great difficulty in securing supply of potable water. The repairing of the canal may take about a month to restore the water supply. Adding to Delhiites misery, effluents discharged in Yamuna by industries upstream in Haryana has forced shutting down of two water treatment plants.

Delhi water supply has become so vulnerable to casualties that experts have been rightly suggesting development of own water resources in terms of wetland protection, rain water harvesting etc. to deal with such crisis.

Apart from these two reasons there a third bigger and still not known reason ignoring which may cause severest of water crisis in national capital and that is rampant mining of riverbed material around Hathini Kund Barrage (HKB). SANDRP in this blog try to highlight how the uncontrolled mining around HKB is endangering the structure which in turn will surely lead to suspense of Delhi water supply for many months.

Hathini Kund Barrage (HKB) located in Yamuna Nagar, Haryana (HR) on River Yamuna is primary source of Delhi's potable water. The barrage also serves as State boundary between HR and Uttar Pradesh (UP) with River Yamuna continue separating the two States for next 200 KM before reaching the capital city.



The adjoining districts to HKB namely Yamuna Nagar in HR and Saharanpur in UP are still infested with unauthorized removal of minerals despite National Green Tribunal ban on such mining. Local people have been reporting of non-stop riverbed material (sand and stone) excavation in the region which is further confirmed by a news reports (e.g. *The Times of India*, 10 of Feb. 2016). According to the news report a local politician has formed 111 fake companies and carries mining illegally worth Rs 6-7 crores on a daily basis. Around 50 villages have been reported to be adversely affected by widespread mining and stone crushing activity in the area.

In previous decade, Yamuna Nagar district had turned into a massive stone crusher zone. Miners have dug deep large chunk of farmlands adjoining to River Yamuna in the district. The huge abandoned mine pits now filled with ground water are still visible there (See Google Images) without any post mining restoration. Local ecology and ground water table was hit severely by unsustainable quarrying before Supreme Court on India in Feb. 2012 put a ban on mining in country without environment clearances. Nevertheless local people still find no let up in mining activities and report that operators were taking advantage of the fact that the river area was being shared by two districts belonging to different states which was difficult to demarcate due to annual flood.

Taking cognizance of the issue the National Green Tribunal (NGT) on 18 Feb.2016 has imposed ban on illegal sand mining and extraction of minor minerals from Yamuna River in Yamuna Nagar and Saharanpur districts for next 45 days. On Saharanpur side the green court has put a fine of 50 crore on five lease holders for carrying out excessive unauthorised mining resulting in damage and degradation of riverbed whereas in Yamuna Nagar 69 stone crusher operators have in affidavit accepted not to be in operation during the ban period. Constituting a high powered committee under Union Environment Ministry the tribunal has asked d both State Govt (HR & UP) to submit a complete and comprehensive mining plan to it. The court has also made it clear that violators of the ban would be liable to pay Rs 5 lakhs as environmental compensation.

The decision was taken on a plea filed by activists Gurpreet Singh Bagga and Jai Singh who had moved the NGT against rampant illegal mining of minor minerals in Saharanpur and Yamuna riverbed. However it seems that neither petitioner nor the NGT have showed concerns towards the safety of HKB in the case. Secondly, ban on sand mining in past by respective Courts have also proved ineffective as States of HR & UP have failed to implement it in right spirit.



Indiscriminate Yamuna riverbed quarrying from Saharanpur side also reportedly led to collapse of famous Tajewala barrage during 2010 flood. The British

era barrage was located about 5 km downstream HKB, as can be seen in the google image. It was seen as a heritage site even after becoming non-functioning in 2000 when its function of diverting water to Western and Eastern Yamuna canals were taken over by HKB. Now only ruin of the celebrated structure is standing, also as testimony to the indiscriminate and destructive mining (See Google Images).



As obvious from above report unauthorised stone and sand extraction from Yamuna riverbed is going on in Saharanpur district. The following Google images precisely post 2010 also shows large scale riverbed mining activities happening barely 200 meters downstream HKB which may lead to weakening of the foundation of the HKB. Such is the gravity of the issue that many locals have started fearing for HKB safety and guessing that the barrage too is destined to meet Tajewala like fate if mining goes on unabated.



Under the circumstances the collapse of HKB could happen in the event of big floods in future which periodically happen in Yamuna. In case the barrage is damaged, not only there will be massive destruction in the immediate downstream, here would be severe water crisis in Delhi as the capital procures large part of its total water demand from the barrage via Western Yamuna Canal. In addition, the areas of Haryana and Uttar Pradesh served by the Western and Eastern Yamuna canals respectively will also be badly hit.

It is urgent and imperative for the HR, UP, Delhi State Governments as well Union Ministry of Environment, Forests and Climate Change, Union Ministry of Water Resources, River Development and Ganga Rejuvenation, Central Water Commission and Upper Yamuna River Board to take urgent and immediate cognizance of the issue and check unauthorized riverbed mining in the vicinity of HKB. The sooner this is done, the better.



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River Sand Mining in India in 2015

Unsustainable sand mining from riverbeds can have huge social, environmental, geomorphic and disastrous impacts for rivers. In this three part report, SANDRP is trying to provide a picture of what happened on this issue in 2015 in India. This first part looks into 2015 putting together instances of illegal sand mining that occurred throughout the year different Indian States. The successive blogs would make an attempt to cover all governmental measures and judicial interventions taken in 2015 to reign in uncontrolled extraction of this possibly most consumed natural resource after air and water.

Illegal mining of sand is profoundly linked to growth in construction industry that have accelerated in recent decades. Since then demand for this mineral is only going up. Today possibly there is not a single river in the country that is not ruined by sand mining. As a result, while the state of rivers has gone worse, the number of violent instances around illegal sand mining is on the increase.

Like the previous year, 2015 only saw an escalation in numbers of violent clashes between mining operators and law enforcing agencies. A State wise description of some of the illegal sand mining happenings that took place in 2015 is given here.



Madhya Pradesh The State has become known for its mining-related incidents, which include the murder of honest police officials in recent times. One of the first such incident this year was registered in April 2015 when a truck carrying illegally mined sand mowed down Dharmendra Chouhan a 40 years old police constable posted at Noorabad police station in Morena district. Earlier in March 2012 an IPS Officer Narendra Kumar was also crushed to death by sand mafia in same district while he was conducting a raid on illegal sand mining. On 4 June, 2015, a woman inspector Reena Pathak including 8 home guard jawans were attacked by sand mafia when they were inspecting illegal excavation of sand from Nevaj river near Banka Khedi village

in Shajapur and Ratlam districts. Sand smugglers had reportedly also attacked three 'patwaris' (revenue officials) a night before near village Nerukhedi. The officials were trying to stop illegal mining of sand from Chambal River. In the same month, in most tragic incident body of Sandeep Kothari, a Madhya Pradesh based journalist was found burnt to death in Nagpur Maharashtra (MH). The journalist used to write against illegal sand mining activities frequently and ultimate had to pay the price with his life. In August 2015, wild-life experts opposed MP Govt. move to allow sand in Chambal Ghariyal sanctuaries. Rampant Sand mining in Chambal sanctuary had adversely affected the habitat of gharials. Experts say that miners ran mining vehicles over the unhatched eggs of Ghariyal and Turtles laid in sandy banks.



The case of Narmada valley was even more tragic where State Govt. in open violation of norms was illegally allowing mining in Sardar Sarovar Project (SSP) affected area which was under Narmada Valley Development Authority a State agency. According news reports creation of dams on River Narmada was actually facilitating the illegal sand mining activity. The situation was so bad that villagers were unable in accessing the river area. Even authorized miners were found breaking stipulated norms in Badgaon and Saatdev villages in Sehore district, the native place of Chief Minister (CM) Shivraj Singh Chouhan. Remarkably in 2013 Pahanbarri a village in Hoshangabad was totally destroyed by flood due to excessive illegal sand mining. In December 2015, Narmada Bachao Andolan (NBA) activists alleged that Govt. has allowed mining in 5 lakh hectares which it was supposed to protect. They alleged that mining is also allowed in Narmada catchment area which needs to be protected for longer life of the reservoirs.

Uttarakhand (UK) Mining operators have shown utter disregard even to Ganga the national river of India in the State. In April 2015 there were reports of illegal sand mining activities going on unabated at Haridwar in violation of National Green Tribunal (NGT) orders. Earlier Union Ministry of Environment, Forests & Climate Change (MoEFCC) has also found illegal mining of sand, quaterz boulders going on at massive level in Haridwar district. NDTV, a leading media house claimed that corruption of crores of rupees was taking place in mining of river. Matri Sadan's questions under the Right to Information (RTI) Act also revealed that there were no document to show that who were given mining contract worth Rs. 200 crore and where all the mineral had gone. In May 2015, Jai Prakash Badoni, an activist approached High Court (HC) UK alleging that behind the pretext of Disaster Management Act 2005 which allows removal of accumulated river bed material to prevent flooding, sand mining is rampant at different sites in Haridwar. The Central Govt. in September 2015 gave in-principle nod to quarrying in Ganga and eight of its tributaries in the state after repeated request from UK Govt.

Earlier in 2011, the UK Govt. had enforced a ban on sand mining in Haridwar, calling it a sacred region. Environmentalists have also raised concerns over unabated quarrying leading to extinction of aquatic ecosystem. According reports there were at least 60 huge stone crushers active in the area which procured a constant supply of stones from Ganga River. In 2015 Swami Shivanand initiated fast unto death twice against the illegal mining in Ganga. Remarkably in June 2011, Swami Nigmanand on fast for 72 days to highlight illegal mining was allegedly poisoned to death in the same district.

Uttar Pradesh (UP) The illegal mining became worse once River Ganga entered Bijnor in UP. In July 2015 a dozen villages held Panchayat to stop sand mining in the districts. Villagers complained that due to mining River Ganga was changing its course and moving towards the inhabited areas. Surprisingly police lodged FIR against eight villagers for pelting stones at the contractor's machines. Later a farmers' body also alleged that cops were arresting innocent farmers instead of sand mafia. In October 2015 there were many reports of rampant illegal sand extraction at Narora, Ahar, Ram and Karanvas Ghat in Bijnor district now being carried out through nights. Illegal sand mining was happening at such a big scale that a delegation led by Bijnor Lok Sabha member requested Union Minister of Water Resources, Ganga Rejuvenation and River Development Uma Bharti for immediate intervention in the matter. Following this the minister wrote to MoEF&CC pitching for a joint probe to inquire into unauthorized mining leading to change in river hydrology. In August 2015

a Comptroller & Auditro General (CAG) report also found illegal mining of minerals including sand to be going on in UP in violation of mining plan and Environment Act.

National Capital Regions (NCR) Sand mining also happened on massive scale in Greater Noida, Noida (UP) and Faridabad, Palwal in Haryana (HR). In October 2015 the operators even built a bridge on River Yamuna as a link between Noida and Faridabad to facilitate sand mining. Reportedly it was the third bridge being built in the area to mine sand from the Noida floodplains and transport it to HR. In September 2015 on a brief visit to area SANDRP team found several patches of Yamuna riverbed ravaged by sand extraction carried out during nights. Villagers also reported that the operators were powerful and enjoyed full political support. Remarkably in July 2013 Durga Shakti Nagpal an Indian Administrative Service (IAS) official had conducted several raids on such operators. The officer was ultimately suspended and transferred. Barely three days after her transfer, 52 year old Pale Ram Chauhan, a vocal activist working against illegal mining was allegedly shot dead in Raipur village in Noida by the sand mafia. In another case, a 60 year old farmer Vijay Pal Nagar of Noida was attacked twice by the mafia for lodging complains against it. In the same year, a MoEF& CC team having visited the area, reported that illegal mining continued discretely in Greater Noida. The report also mentioned that the mafia had even created deep pools in riverbed and diverted Yamuna River for the smooth extraction of sand.



Mining ravaged river bed in NCR

The operators grew so fearless that it even did not refrain from attacking Govt. officials. In one such incident sand mafia went on to attack a police team near Rajpur Phulera village in Faridabad (HR) last year. The incident took place while the police team was on carrying out inspection against illegal sand mining in the area. Five police men including one woman were injured in the attack.

Haryana Despite a ban illegal sand mining was widespread in Yamuna river through Yamuna Nagar, Karnal, Panipat and Sonapat districts HR. Similarly adjoining districts of UP like Saharanpur, Muzzafar Nagar, Shamli and Baghpat were also found involved in mining sand illegally. Deeply affected Karnal villagers formed a vigilant team to protect 52 acres of Panchayat land from illegal sand mining after they found local police to be ineffective.

Jammu & Kashmir (J&K) Even the hilly states were found affected by illegal sand mining. Illegal sand mining in Tawi River had caused loses of crores of rupees to State Govt. The report further mention that the mining was happening right under the nose of the Govt. and concerned agency was taking no action against it.

Punjab The mafia was so restless in the State that it started digging common village ponds when Sutlej was in flood in monsoon. They even began persuading farmers to allow them to dig sand from their lands way beyond the permissible limit of 4 ft.

Rajasthan In December 2015 Police team from Alwar found illegal mining taking place in Kundali River. The police could arrest only a few while many other involved in the activity managed to flee the spot.

Chhattisgarh In March 2015 a news report mentioned of rampant illegal mining on Panchayat land in Gariyaband district in Chhattisgarh. Rajim Nagar villagers reported that mafia was active during nights for the last six months and administration took no action despite several complains.

Maharashtra (MH) The situation was no better in Maharashtra where sand mafia blew away reservoir weir of the Nira river using explosives in May 2015. The incident occurred during wee hours in Baramati taluka's Kambleshwar. Locals reported of similar attempt made by mafia about eight days before the incident. In another incident the mafia tries to mow down revenue officials by running over a tractor on them when they attempted to intercept it at Mankeshwar vilage in the east MH district during night.

Karnataka The death of DK Ravi, an IAS officer on March 16, 2015 was allegedly linked to his efforts to restrict illegal sand mining in the state. The 2009 batch officer was famous for his strong stand against the illegal sand and land mafia. A July 2015 report also highlighted that the State mined 4 lakh tonnes of sand in just three months from March to June 2015 from river-

beds within the Coastal Regulation Zone in Dakshina Kannada. The same amount of sand earlier was extracted in 11 months. The report also mentioned that the sand was also being illegally transported to neighboring Kerala where sand extraction was banned.

Kerala Despite a ban by National Green Tribunal, illegal mining of sand was reportedly happening at huge scale in Kerala. The report further said that all the 44 rivers were badly affected by mining menace in the State. Locals alleged that the police was letting the miners scot free after taking bribes.

Andhra Pradesh D Vanjakshi, a lady Tehsildar of Musunuru was assaulted by Prabhakara Rao, the area MLA for objecting to illegal sand mining activity In July 2015. One more report in August 2015 reported that excess excavation of sand was posing a threat to under-construction bridge on the Nagavali river.



The official addressing media after the attack

Telangana T Harish Rao, mining minister in March 2015 while replying to a question in State Assembly accepted that large scale illegal sand mining in Godavari, Majeera and Maneru rivers was leading to continual decline of ground water table in Telangana.

Tamil Nadu A report in July 2015 warned that sand mining had become a threat to fish species in Western Ghat.

Thus the Year 2015 saw no respite in the cases of illegal sand mining activity. The operators continued to brazenly rob the rivers of essential ingredient and attacked the Govt. officials striking terror in the heart of common man.

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River Sand Mining in India in 2015 – II – Government acts of omissions and commissions

In this second part SANDRP presents detail of some of the significant steps taken by Central and various State Governments (Govt.) to control and regulate unsustainable excavation of riverbed sand mining.

Central Govt

Introduction of “sustainable sand mining policy” draft notification by Ministry of Environment Forest & Climate Change (MoEF&CC) was the most significant development pertaining to sand mining in 2015. The draft notification was uploaded on MoEF&CC website in September 2015 seeking comments from all concerned. The draft, shockingly envisioned self regulation of environmental norms by miners. It also acknowledged that sand mining was happening in unsustainable manner and revealed that Govt. lacked reliable data on amount of sand being mined in different rivers in the country. Accepting that sand was essential for the health of Rivers, Prakash Javedkar, Minister, MoEF&CC stated “Sand is for river, what RBC is for blood”. According to minister the objective of notification was to strike a balance between increasing demand of sand and sustainable sand mining practices which will help in achieving the goal of sustainable development.

Earlier in January 2015 too, meeting on Mines and Minerals (Development & Regulation) (MMDR) Amendment Ordinance 2015 was held in New Delhi. The objective of the meeting was to simplify mining procedure. The amendment envisaged self-certification of environmental norms by the miners. It also proposed penal provi-

audit for all uninspected mines to check whether companies are adhering to government-approved mining plans or not. According to news report Govt. planned to carry such third party audits at least once every year for each mine. Later in August 2015 MoEF&CC announced to adopt a different sand mining policy to prevent flooding of forest areas. The Environment Minister stated that due to no mining in forest areas, river bed level had swollen leading to frequent flooding of forest area.

In October 2015 taking a note of unauthorised sand mining in Ganga, Uma Bharati Ministry of Water Resources, Rivers Development & Ganga Rejuvenation wrote a letter to Prakash Javedkar asking him to send a joint team of her Ministry and Environment Ministry to inquire into the matter. One more report in same month stated that a fully prepared River Regulation Zone draft which can effectively control illegal removal of sand was waiting clearances for the last 13 years.

In December 2015, replying to a question in Rajya Sabha Prakash Javedkar, Minister MoEF&CC informed that sand as a minor mineral came under State Govts. jurisdiction and regulation of grants to mining leases and abatement of illegal sand mining was largely vested with them. He also informed that no data was maintained separately for sand mining. The Minister stated that Indian Bureau of Mines reports on the incidents of illegal mining. The statement made by the minister included year-wise cases of illegal sand mining reported in last 4 years in three States, see table below.

S. No.	States	Illegal mining cases				Action taken by the State Governments			
		2012-2013	2013-2014	2014-2015	2015-2016 (upto June 2015)	No of FIRs lodged	No of Court case filed	No.of Vehcles seized	Fine realized by State Govt. (Rs lakh)
1.	Uttar Pradesh	3266	6777	10402	2020	0	0	0	7151.75
2.	Rajasthan	2861	2953	2945	687	2183	52	3631	3979.294
3.	Jharkhand	663	901	1162	441	1656	177	1061	1962.37

sions up to Rs 5 lakh rupees and imprisonment up to 5 years for checking illegal mining. Earlier in the same month the Central Govt. planned to amend of MMDR Act to include provisions of allowing transfer of captive mines granted through procedures other than auction. In March 2015 MoEF&CC team conducted a field inspection of Haridwar and reported of large scale illegal mining of sand and stones going on in Ganga River.

In July 2015 Central Govt. planned to conduct external

MoEF January 2016 order On January 21, 2016, a PIB press release titled “Decentralization of Environmental Clearance for Sustainable sand Mining and Mining of Minor Minerals Introduced: Javedkar” announced new regulations. This announcement is seriously problematic, some reasons are listed here:

- The decentralisation of clearance process to district level is good idea, but the inclusion of three district government officers of the four members of Dist EIA Authority is not good, they all are govt servants, likely

to toe govt line with little independence. Similarly DEAC (Dist Expert Appraisal Committee) is packed with govt servants, in all these committees at least 50% members has to be from outside the govt, and people who have proven independent credentials.

- There are state govt regulations on sand mining, it is not clear which one will prevail. For example: see: <http://www.thehindu.com/news/national/kerala/confusion-over-sandmining-norms-in-kerala-sparks-concern/article8148351.ece>
- Statements like “Shri Prakash Javadekar, said that the Ministry has taken several policy initiatives and enacted environmental and pollution control legislations to prevent indiscriminate exploitation of natural resources and to promote integration of environmental concerns in developmental projects.” are baseless, the MoEF has been more anti environment than even water resource ministry recently. Its track record on sand mining and rivers related environmental issues is very poor.
- There seems to be too much faith in technology and IT with very little in the people at the grass roots level. In issues like sand mining, there has to be much greater role of the local communities in decision making and also monitoring and compliance.
- There is any attention to the impacts of unsustainable mining and how to ensure credible impact assessment and capacity to assess unsustainable mining and saying no in such cases.
- The excluded activities include some that certainly require impact assessment. e.g. desilting of dams.

State Govt.

Kerala bans mining in rivers The State Govt. in June 2015 decided to impose a total ban on sand mining from six rivers and to allow restricted sand extraction in five other rivers for the next three years. The government’s decision was based on the report of river bank mapping and sand auditing conducted as per rules stipulated in the Kerala River bank protection and regulation of removal of sand rules. This seems like a positive development for rivers, not seen in any other state in India.

Gujarat In March 2015 State Govt. announced amendment in sand mining rules to introduce measures for violations. The govt. also planned for prohibiting sand mining below the water level in a riverbed, allowing mining only during day time, ensuring protection to river course including crops on river banks, and compulsory

submission of environment management plan while bidding for the mining lease. The State imposed a ban on inter-state movement of sand and since the last two years the state has sold sand largely through online auctions. This happened in response to a PIL filed by Zarpara (Kutch district) villagers protesting against mining activity in a nearby riverbed.

Madhya Pradesh (MP) In March 2015, the State Govt. with an object to stabilise sand prices and bring transparency formed a new sand-mining policy. Suggesting State Mining Corporation to identify new areas for sand mining, it allowed Govt. to conduct sand mining in all tehsils of the 18 districts. It also scaled down the security money for bidders from 25% to 10% making mining much easier and lucrative. Activists alleged that that the new policy would spell disaster for the State’s environment and livelihoods of lakhs of people. Earlier in 2013, the Govt. amended the Minor Minerals Rules, 1996, facilitating formation of district-level environmental committees for granting environmental clearances to mining projects. This move rendered the State Environment Impact Assessment Authority (SEIAA) formed under MoEF&CC redundant as far as sand mining projects are concerned in Madhya Pradesh. In June 2015, District Administration of Chhatarpur proposed fine of

The inclusion of 3 district govt officers of the 4 members of Dist EIA Authority is not good, being govt servants, they are likely to toe govt line. Similarly DEAC is packed with govt servants, in all these committees at least 50% members has to be from outside the govt.

Rs 9 cr against illegal removal of sand. The official website of Mineral Resources Department, MP Govt. revealed that till 02 February 2016 the State had filed 418 (against illegal mining), 9997 (illegal transportation) and 448 (illegal storage) related to minerals in MP.

Maharashtra (MH) In Jan 2015 State Govt scraped river regulation policy, pandering to industry at the cost of rivers and people, as SANDRP wrote. The State Govt. felt that the policy was rigid and had led to stalling of industrial projects worth Rs 7000 crore. Sadly MH was the first state to enact comprehensive river regulation policy after prolonged research and consultation with leading experts.

In June 2015 the State Govt. brought illegal sand mining activity under the Maharashtra Prevention of Dangerous Activities (MPDA) Act, 1981 which enabled police to make preventive arrests of repeat offenders and detain culprits for up to a year. Earlier to this in May 2015 Govt. lifted sand mining ban on coastal districts of Sindhudurg, Ratnagiri, Raigad and Thane after promising National Green Tribunal (NGT) adherence to precautions to maintain the ecological balance. NGT had imposed the ban in 2014 on coastal regions of many states, including MH noting that sand mining in coastal areas and of river and creek beds was harming the en-

vironment. In [2010](#), [2011](#), [2014](#) too MH Govt. had revoked ban on sand mining in State imposed by courts in absence of comprehensive sand mining policy. Maharashtra has framed rules for auctioning of sand mined from river beds.

Uttarakhand (UK) The new mining policy of UK notified in July 2015 has divided mining areas in Zone A, B & C (Hills, Middle Hills & Plain respectively). Under riverbed dredging strategy the policy states about expert study under Geology and Mining Department for allowing dredging of riverbed to prevent flooding in residential areas and farming land located close to rivers. The policy also states that the muck created by digging of tanks, tunnel and water channels in Hydro Projects would be used in construction of projects after approval for same is granted by District Administration in confidence with Geology and Mining Department. The policy spells ambiguity on several aspects and nowhere mentions environmental precautions to be taken before, during and after mining, let alone the question of checking illegal mining. This shows the desperation of UK govt. in facilitating mining activities.

In January 2015 Chief Minister UK Harish Rawat strongly objected to the term “Mining Mafia” used by opposition and stated that mining is only anti-dote to curb rising levels of rivers and save cities located on river banks from flooding. Then in August 2015 the State Govt. urged Central Govt. to permit dredging of Ganga citing flood threats to Haridwar. The Centre gave in principle approval to the plan next month. The forest department of UK was learnt to have started Ganga mining in November 2015.

Haryana (HR) A notification of the Department of Mines and Geology, HR Govt. dated 19 March 2015 allowed sand extraction from River Yamuna in Sonipat district. The notification also prescribed several conditions to address environmental concerns and prevent further degradation of the river. Interestingly it was Bhartiya Janta Party who had promised to lift the ban on all forms of mining in the State during 2014 Lok Sabha elections. According to a news report in June 2015, MoEF&CC planned to approve environmental clearance to mining of sand, boulders for 12 mines in Ambala, Karnal, Panipat, Sonipat, Faridabad, and Palwal.

Notably the Tajewala Barrage (It was not longer in use as it was replaced by Hathnikund barrage earlier) in 2010 collapsed as a result of unrestricted mining in Yamuna. Local people had warned, seeing the unrestricted sand mining happening downstream of it, that it could collapse and collapse it did. It was used as picnic spot and a bridge before it collapsed. Now there are local reports of Hathini Kund Barrage being under threat from sand mining and could run down in future if hit by big flood.

Other States

Other States were also learnt to be taking steps to curb illegal removal of sand, e.g. *Punjab* Govt. decided to apply reverse bidding policy for new mines in State to bring down prices and discourage black marketing of minor minerals. The State also allowed the Irrigation Department to mine sand midstream from riverbeds of the Sutlej and Beas by dredging it at 45 places. The State of *Karnataka* lodged more than 30 police complains to combat illegal sand mining. While *Andhra Pradesh* formed women self-help groups for excavating sand on which it took a U-turn in December 2015 and decided to go for open auctioning.

The *Chhattisgarh* govt. revised the basic rules for granting permission of minor minerals. *Himachal Pradesh* govt. constituted flying squads and made it mandatory to secure prior approval for stocking of minor minerals. The *Jharkhand* govt. tried to revise royalty for riverbed sand to discourage its illegal exploitation. *Meghalaya* classified sand as a minor mineral and put its protection under its forest department.

We see that different State Govts. took some measures to control illegal sand mining in 2015, but majority of these steps were forced by respective Courts. The formation of Sustainable Sand Mining Policy by MoEF&CC was in fact an outcome of NGT decision about which we will provide details in third and concluding part.

Summing up In 2015, we find unsustainable and unscientific removal of sand from rivers continues to remain wide spread in India. The operators of mining activities have grown stronger and have been assaulting anyone that objects including Govt. agencies. Affected villagers allege politicians to be either directly involved or supporting the illegal mining indirectly, hence finds it difficult to raise their voices.

Sand being Minor mineral comes under State Govts. jurisdiction and Central Govt. does not directly deal with the mining leases, and abatement of illegal extraction, though enforcement of environment laws is certainly under the mandate of Union government. There is no mechanism developed either by State or Central Govt. which measures amount of sand being annually mined in the country, or what is sustainable level at any given location. State Govts. have failed in restricting the illegal mining. In many cases their policies are found encouraging it. Central Govt. also has not developed a reliable mechanism resulting in unsustainable mining. It is mainly the judicial interventions that are trying to make the govts. correct its mistakes, but we have yet to see effectiveness of judicial interventions.

The new notification from MoEF in January 2016 in this regard is seriously problematic and seems like we have long way to go before our rivers have better future.

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River Sand Mining in India in 2015 – III – Judicial actions

SANDRP in this third and final part provides information on significant judicial decisions issued by different Courts particularly National Green Tribunal (NGT) in 2015.

Previous Important Judgements

In 2012 Honourable Supreme Court (SC) of India in its landmark judgement on 27 February 2012 had directed all Union Territories and State Governments to seek Environmental Clearances (EC) from Ministry of Environment, Forest & Climate Change (MoEF&CC) for mining minor minerals even in less than 5 ha or renew the same after prior approval from the MoEF&CC. Before this order, mining areas of less than 5 ha were exempted from EC enacted under Environmental Impact Assessment (EIA)-2006. The SC also observed that quarrying excessive in-stream sand causes the degradation of rivers as it lowers the riverbed which may lead to bank erosion and result in destruction of aquatic and riparian habitats as well.

In 2013, observing continuous violations of environmental norms in riverbed quarrying, NGT on 05 August 2013 ordered a ban on sand excavation across the country without seeking prior approval for the same from State Environment Impact Assessment Authority (SEIAA) and MoEF&CC. The green court also directed all concerned departments in States to ensure compliance of its orders. Further in November 2013, bringing sand mining rule formation under MoEF&CC ambit, NGT stated that environment is a subject of Central govt. and States can't frame sand mining rules separately.

Year 2015 was full of Courts orders particularly by NGT, issued against unsustainable riverbed quarrying going on in violations of EC. We give here glimpse of some of the key judgements.

High Court Orders

In January 2015, while hearing a PIL, Madhya Pradesh (MP) HC directed State Govt. to explain steps to curb sand mining in Chambal River. This was in response to a PIL that alleged that on a daily basis 400-500 trolleys and dumpers were illegally excavating sand from Chambal River banks, severely impacting the aquatic life in and around the river. In April 2015 the MP HC

gave State Govt three days to file report on State sponsored sand mining activities on Narmada banks under Sardar Sarovar Project (SSP) catchment area. The court found that sand was being extracted from the banks of Narmada River and its tributaries in various villages of Barwani, Dhar, Khargone and Alirajpur districts in violation of norms. In May 2015 the HC put a ban on illegal sand mining in SSP catch-



ment area commenting that State Govt permission to mining leases on lands under the Narmada Valley Development Authority was a "colourable exercise" of power. Extending the ban on 12 May the court directed the MP Govt., the State Pollution Control Board and the MoEF&CC to file "detailed replies".

In May 2015 Gujarat HC shut down 67 sand mining units in Gir Sanctuary. The court observed that the units were operating without renewing their licences and posing a threat to the lives of wild animals on the banks of the Shetrunji River.

In August 2015, finding that most of sand mining sites across the State were being run by sand mafia the Madras HC Tamil Nadu (TN) asked the State Govt. why sand quarrying should not be banned from the Cauvery riverbed.

NGT Judgements

In April 2015 NGT slammed MP govt. for failing to stop illegal sand mining in Narmada & Ken Rivers. The green tribunal also directed the concerned agencies not to release vehicles involved in mining without its permission. In November 2015, NGT served notices to SEIAA, MP for allowing mining in SSP areas seeking explanation on what basis it issued 22 mining leases in alleged submergence area of SSP. The green court also asked MP pollution control board to examine complaints of illegal mining and file prosecution proceedings. In December 2015, taking note of Narmada Bachao Andolan complaint regarding continuing of illegal sand mining in the submergence area of SSP, NGT appointed a commissioner to verify the complain.

In July 2015, the green panel stayed sand mining in MP during monsoons finding it causing significant damage to river ecology. The court also ruled that mining policy or sand extraction permission of the State should not be in contradiction to fisheries policy. Then in September 2015 NGT banned sand mining during monsoon directing the MoEF&CC not to grant environmental clearance for sand mining in the rivers of north India during the rainy season. The ban was lifted next month.

In October 2015 NGT Central Bench, Bhopal fined two construction companies Vanshika Construction and Shiva Corporation finding them guilty of being involved in illegal excavation of sand in Narmada River near Bhopal. The Bench also asked the companies to compensate the damages.

In February 2015, hearing a plea filed by Matri Sadan Haridwar NGT ruled out complete ban on quarrying in Ganga. The court stated that removal of riverbed materials should be done scientifically and according established practices. Then in April 2015, putting a ban on illegal riverbed quarrying at Haridwar, NGT ordered that no unauthorised sand mining should take place in Ganga without taking environmental clearance. In December 2015, while issuing judgment on Ganga Rejuvenation Phase-I the green court banned mechanized mining of riverbed material. The court stated that quarrying of riverbed materials should be done in highly restricted manner and under strict supervision.

In February 2015, NGT imposed a ban on all mining activities around Sariska National Park, Alwar (Rajasthan). The court observed that 85 mining leases were operating in the area without obtaining EC from SEIAA Rajasthan and rebuked the State Govt. for shutting its eyes on indiscriminate sand mining. In 2014 also NGT Central Bench had prohibited mining of stone and marbles in Rajasthan. Hearing the petition further in March 2015, the Bench warned Haryana & Rajasthan Govts of strict actions against non-compliance to its sand mining ban order. The green panel also directed the States to file a comprehensive status

reports on the issue within two weeks.

In March 2015, NGT criticised MoEF&CC for failing to stop illegal sand mining on Yamuna riverbed in Noida and Faridabad. In May 2015 NGT directed MoEF&CC to present expert committee report on the river regula-

tion zone while hearing a plea against encroachments on the flood plains of the Yamuna and Hindon. In November 2015 the court imposed a ban on all sort of sand mining legal or illegal in Yamuna River.

In September 2015, while hearing a petition filed by two villages complaining of rampant

sand extraction in the middle of Chapora River, Goa, NGT Pune Bench put a ban on illegal sand mining in Goa. The green panel also directed to Directorate of Mines and Geology to conduct strict vigilance to check sand mining during nights.

In October 2015 NGT halted riverbed mining in Neugal River near Palampur, Himachal Pradesh asking State forest and mining departments to submit their report.

In Conclusion Thus we see, Honorable Courts specially NGT issuing numbers of orders all through 2015, directing Central and States Govts. to check unsustainable riverbed mining. It is sad to note that despite so many orders, MoEF&CC and State Govts failed to effectively implement the court orders and arrest illegal extraction of sand from different rivers. Many State Govts like Rajasthan & Kerala are also finding it difficult to implement the Sustainable Sand Mining Management Guidelines issued in Aug 2015 by MoEF&CC. The repeated court orders are clear signs of failure of the state and central

government.

In 2016, the news of unchecked sand mining and attacks on law enforcers & RTI activists by unauthorized sand operators have begun filling the news spaces as if nothing has changed on the ground.

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Jhulelal or Zindapir: River Saints, fish and flows of the Indus

Perhaps we all have our pet projects which we wish would go on forever. I have been working on a Primer on Riverine Fisheries of South Asia for some years now (my office may disagree with the definition of 'some'). Like a magpie collecting shiny knick-knacks, I keep collecting (quite serendipitously, or so I think) anecdotes and interviews and snippets on the subject.

Some days back, I was putting together information on the Hilsa fish from Indus in Pakistan and I came across a composite Hindu-Islamic river deity riding, yes, riding the Hilsa or Palla! Thrill of this discovery overflowed into a discussion on social media, with friends from all over, including Pakistan chipping in. Not only could I glean lesser known insights about South Asia, I was positively pushed towards reading "Empires of the Indus" by Alice Albinia: on my reading list for too long. After a few weeks, some more discussions and trying to join the dots that connect river deities, Palla, Indus and Sufism, I can say that Zindapir (The Living Saint) of Indus has been one of the most beautiful riverine riddles to stumble upon..



Zindapir Shrine at Sukkur Photo from: British Library

The story is based in Sindh, Pakistan.

As much as Sindh is the land of Indus and its extensive delta, it is the land of Sufism too...some of the greatest Sufi Saints come from Sindh: Sachal Sarmast, known for his poetry in search of the eternal truth, Shaheed Shah Inayat, a reformer-poet-visionary, who laid the foundation of a free agrarian reform in Jhook, Sindh in the 18th Century. As a friend told me, Shah Inayat raised the famous slogan against feudalism; "Jo Khery, so khaey" (The one who sows is the one who reaps). It includes the unstoppable Lal Shabaz Qalander, whose tomb in Shehwan reads "Jhulelal" and Shah Abdul Latif, whose tomb in Bhitshah is described by Albinia as a

place where it is normal to see a "Hindu untouchable family sleeping in a Sunni mosque of a Sufi shrine dominated by Shias". It is said that 125,000 holy men are buried in the yellow sandstone necropolis at Thatta[i] along the mighty Indus, which gives India its name.

Sufism in Sindh has evolved over centuries, and the flowing Indus has had a major role to play in this heady concoction. Sindh includes the once-extensive Indus Delta, which was ruled by several dynasties, its age old trading hubs and ports, including the largest city of Pakistan: Karachi.

Sufism in Sindh has evolved over centuries, and the flowing Indus has had a major role to play in this heady concoction. Sindh includes the once-extensive Indus Delta, which was ruled by several dynasties, its age old trading hubs and ports, including the largest city of Pakistan: Karachi. Indus Delta is the biggest arid mangrove system in the world, extending over 40,000 Sq kms, but is suffering greatly due to ever-decreasing freshwater reaching the mangroves due to upstream dams.

The flowing, composite culture of the Indus Delta embraces poetry, philosophy, worship and very importantly, music. Millions have been mesmerized by Sufi music and the other day was no exception when I heard Runa Laila, Ustad Nusrat Fateh Ali Khan, Wadali Brothers and Abida Parveen, each singing their own unique renditions of Bulle Shah's immortal Dhammal (Songs nearing Qawalli, but infused with a lively mix of folk elements and instruments, Nakahara, Drums, etc.) based on Lal Shahbaz Qalander...possibly one of the best known Dhammals in the world: (<https://www.youtube.com/watch?v=7fKXzG7jQFc>)

***"Lal meri pat rakhiyo bana Jhulelaalna,
Sindadi da, Sevan da, Sakhi Shahbaz Qalandar!"***

...

*Hind-Sind Pira teri Naubat baaje
Naal baje, ghadiyaal bala Jhulelaalan
Sindadi da, Sevan da
Sakhi Shahbaz Qalandar!
Damadam mast Qalandar!
Ali dam dam de andar!
Damadam mast Qalandar!"*

I was intrigued by the mention of Jhulelal, a quintessential Sindhī Ishta Devta in this Sufi Dhammal. But that is what Sufism, especially Sindh's Sufism, is all about: synergy and secularism. I have heard of Sufi shrines in Sindh which are frequented, nay crowded, by Muslims and Hindus alike ... even Nanakpathis, during Urs!



Jhulelal on Hilsa
Photo: sanj.yolasite.com

Jhulelal is not a regular Hindu/Sindhī/Sufi/Islamic deity. For one, Jhulelal or Daryalal is known and worshipped in many forms, across religious sects. Although there are several tales of Jhulelal known across Sindh and the global Sindhī diaspora, there is a complex synergy between Jhulelal, Lal Shabaz Qalander of Shehwan, Shaikh Tahir of Uderolal and Khwaja Khijr, worshipped at different times by different groups. The link that connects these deities and Saints is singular: The Indus River. Jhulelal is a part of the Daryapanthi or Daryahi sect which worships the Indus, a form of River or water worship which may have its links dating back to the ancient Mohenjadarō civilization.

Jhulelal and the composite sect of Saints are also known interchangeably as the Zinda Pir or Jind Pir: The Living Saint.

An innocent riddle about a local fish, and I was about to find out that Jhulelal, that benign old man with a white flowing beard, has a lot to do with it.

An innocent riddle about a local fish, and I was about to find out that Jhulelal, that benign old man with a white flowing beard, has a lot to do with it. Jhulelal is found far and wide in Pakistan, as Azhar Lashri tells me, "Thing that fascinates me about Jhulelal is inscription of his name on buses, trucks, vans and taxis. He is everywhere. This is very ubiquitous phenomenon in Pakistan."

Jhulelal's fascination is not linked only with the ebb and flow of the Indus, or the Sindhu. I have been researching Hilsa, that fabulous fish which comes back to its rivers to lay eggs and goes back to the sea, only to repeat its adventure in the coming season. Hilsa, or Palla, as it is known in Pakistan is not simply a fish. Palla

is a cultural icon... one of the strongest icons of West Bengal and Bangladesh too. ...a strange connection between two regions on opposite sides of the Indian subcontinent.

Found in deltas across South Asia (and beyond), the aroma, taste and the dramatic occurrence of this shimmering silver fish holds all in its thrall: from fish folk in the deltas of Godavari to Krishna to Narmada to Padma. But Bengalis are jealously possessive about their Ilish. I've seen even sane acquaintances turn a shade of puce when told that Hilsa is found in deltas across the country and not limited to their Padma and Meghana!

I thought that the cultural significance of Ilish in Bengal would be unparalleled. But in Sindh too, the place of Palla is so very special, it is an indelible part of the "Saqafat of Sindh" (Sindh's rich culture). Palla is the unofficial regional dish of Sindh, it is the delicacy of honor in most Sindhī festivals, but is also given to urban relatives when they trudge back to their cities, with Mango Baskets.

And Jhulelal is perched not only on the Lotus



Mohana Fishermen of Indus with freshly caught Hilsa Photo from: Dawn

flower, but he actually rides the Palla! It is said that in the Zindapir Shrine of Sukkur (A shared monument of Muslims and Hindus till very recently), Palla go to pay respect to its "Murshid" (Revered spiritual

Guide). Mohana fishermen on the Indus maintain^[ii] that it is here that the Palla gets its shimmering silver glow and “a red dot on its forehead”. Before visiting the Sukkur Zindapir Shrine, it is an “ok tasting” black fish. But swimming upstream to Sukkur, even till Jamshoro gives them the heavenly fragrance, silvery visage and the unique taste. I partly believe this Mohana tale. You see, when Bengal tried to raise Hilsa in captivity, feeding the fish at boring intervals, one of the problems was that the fish would not breed and second, its unique taste was eminently lacking. Its deliciousness comes from the muscle, and like all muscle, it has to be earned, often swimming against the tide!

Coming back to Jhulelal, there are two major shrines of Jhulelal in Sindh where the Palla-riding god and Indus is worshipped by Muslim as well as Hindus. One is Uderolal near Bhitshah and the other is much further north, at

There are two major shrines of Jhulelal in Sindh where the Palla-riding god and Indus is worshipped by Muslim as well as Hindus. One is Uderolal near Bhitshah and the other is much further north, at Sukkur.

Sukkur. At the shrine near Uderolal, Muslims worship it as the shrine of Shaikh Tahir, while Hindus worship it as Jhulelal. But the celebrations take place on Cheti Chand, on Jhulelals' supposed birthday. There has been no demand of separate celebrations or shrines. Shaikh Tahir is known as the Pani ka Badshah, just like the Jhulelal, with power to control the ebb and flow of the Indus.

At Sukkur (itself called as Darya Dino, or the gift of the river), the Zindapir shrine is in the middle of the river itself. Here, two separate Hindu and Muslim shrines have been built across the River fairly recently, but devotees are not too bothered with these distinctions. Same is the case with the Jhulelal Shrine in Manora island of Karachi, where: “Over the centuries this deity had acquired a following of both Hindus and Muslims and has become part of the shared heritage of the people of Sindh. Sindhi Muslims believed that he was none other than the prophet Khwaja Khizr, venerated because he is believed to guide and protect travelers and also because he is believed to possess the secret of eternal life. (Christians know Khizr as Saint Christopher – the patron saint of travelers.)” (from Admiral Sardarilal Mathradas Nanda, as told by Nilim Dutta.)

Muhammad Ali Shah, Chairperson of the lively and strong Pakistan Fisherfolk Forum (PFF) tells me, “*Sufism in Sindh has long been serving as the unifying force between religions in Sindh. We believe that because of spiritual inclination, it has helped Sindh be much lesser victim to terrorism and extremism as compared to other provinces. Sindh bears an identity of the land that respects all religions.*”

People of Sindh whether from the Islamic faith or Hindu faith frequently visit the Sufi shrines and practice the rudimentary form of Sufism without any religious difference. When the Urs of Shah Abdul Latif Bhittai, Shaheed Shah Inayat, Sachal Sarmast and others' are observed in Sindh; their shrines are inundated by their disciples no matter what religion they belong to.

There are shrines of Sufi saints throughout the Sindh be it the banks of rivers, the sand dunes of the desert, the heights of mountains, nearby the natural springs or the lakes. The arrival and departure of the Sufi saints in Sindh dates back to around 11 hundred years ago. The people from urban as well as rural area had consistently

been paying visits to these shrines in different Melas and in normal days as well.”

So, call Zindapir as Lal Shahbaz Qalandar, who is supposed to have recognized and guided young Jhulelal or call

him Khwaja Khizr, literally Mr. Green, “Yaaron ka yaar” who helps “Darya” travelers. Call him Shaikh Tahir, Pani ka Badshah, who controls the ebb and flow of the Indus for the Mohana fisherfolk, call him Daryanath, with a complicated lineage reaching all the way to Nath Sect of India, or call him Jhulelal himself, who is held dear by Hindus and Muslims alike: The Indus River worship transcends and brings together all these forms, across the rigid boundaries of religions.

The silvery strands that bind together the myth and the folklore of Indus are wrought by the water of the river herself, and her fish that once were abundant. However, it's been ages since Palla reached Sukkur Zindapir Shrine. The Sukkur Barrage cut off the migratory routes of the fish, just like the Farakka has decimated the fish in West Bengal and Bangladesh or the Arthur Cotton Barrage in Godavari. Muhammaed Ali Shah, tells me, “As per the local communities the Palla used to be caught in the thousands in the Indus just two to three decades back. They also claimed that the fish could once be found all the way upstream in Multan, at a time when three barrages in Sindh – Guddu, Sukkur and Kotri – were not built on the river.

Palla previously accounted for 70 % of the total catch in the past; today that figure has dwindled to just 15 %. The production in 1980 was 1,859 metric tons; this fell to only 265 metric tons in 1995 and just 222 metric tons 1999.

Since the last 20 years, the fish has become extinct due to unavailability of water in downstream areas. After the construction of Kotri barrage in 1956, the migration of Hilsa has been restricted up to Kotri barrage which



Fisherfolk Protest for more freshwater in Indus, Sindh Photo: Pakistan Fishworkers' Forum

is at distance of 300 km from the sea. This obstruction has deprived Hilsa of two-thirds of the previous spawning area. Palla fish is severely depleted due to declines in the Indus water flow (majorly affected by the dam/barrage building) in the deltaic region.”

The mangroves of the Indus are drying and dying, just like the mangroves of Krishna, because we think that water going to the sea is a waste. Indus has only been left on the mercy of flood waters that are usually released only between March to August which does not correspond with the Palla season.

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Fisherfolk Protest for more freshwater in Indus, Sindh Photo: Pakistan Fishworkers' Forum

The Indus Delta is shrinking just like the Krishna Godavari delta due to the silt trapped by the upstream dams which impoverish the delta further. Fish ladders in barrages for Palla don't work in Sindh, just like they never worked in case of Farakka Barrage. Pakistan Fisherfolk Forum, with the guidance of the “Martyr of Indus” Late Tahira Ali Shah and Muhammad Ali Shah has been fighting for the rights of Sindhi fisherfolk..for their right to the water of Indus. The PFF has a membership of over 70,000 people from fishing and peasant

communities and is one of the biggest social movements of South Asia, working towards more freshwater for the Indus Delta.

According to the remarkable Policy Analyst and writer from Pakistan, Raza Rumi[iii], “*Indus legends are the lived reality of the communities that reside along its majestic banks. This is where culture and environment acquire a powerful synthesis for they are equally important to preserve and conserve life patterns. Water holds a significant position in the cultural existence of the Sindhi people. Water has been a source of literature, mystical beliefs and a composite way of life that is threatened now. Reclaiming Indus*

folklore along with environmental conservation is a powerful way of saving the shared heritage of India and Pakistan. The Indus is an all-encompassing metaphor of securing long-term peace in the region, documenting and preserving our cultural heritage and maintaining the sublime literary standards set by the Indus followers. India cannot be without the Indus and Pakistan cannot function as a viable ecological zone without this magical river.”

For synthesis to flourish, for a rich, synergistic and composite culture to exist side by side we need a living Indus...we need living rivers in Pakistan and India as well. A shared Zindapir is not an aberration, not an alternative narrative of this subcontinent. Such sharing, such synergy formed the mainstream narrative, not too many years ago.

We need a perspective towards water management which aspires not only for improved irrigation and hydropower, but respects the livelihoods, culture, folklore, music and philosophy of our rivers embodied in miracles like the River Saints of Indus...Indus is as much about the Palla reaching its Murshid, as it is about dams and hydropower...

Parineeta Dandekar,

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PS: I would like to thank several friends who helped me with anecdotes, references and stories. Some of them include Shreekant Pol, Nilim Dutta, Azhar Lashri, Muhammad Ali Shah, Pankaj Sekhsaria and Sunil Tambe.

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Farmers, Rivers and the Environment in Union Budget 2016-17

Massive expenditure on Large Dams will only help contractors The Union Budget 2016-17 presented by Finance Minister Arun Jaitley on Feb 29, 2016 seems to be promising in its thrust and focus towards farmers and the farming sector of the country. For a sector which employs about 55% of the work force of the country, this priority is much needed and one which holds a promise of a number of multiplier effects. He stated, *"We are grateful to our farmers for being the backbone of our food security. We need to move beyond food security and give our farmers a sense of "Income Security".*" This is particularly required when the farmers are in dire states as they are today, many of them facing four consecutive crop failures, Kharif 2014, Rabi 2015, Kharif 2015 and Rabi 2016. *In 2015, on average 52 farmers committed suicide every single day in India.*

And hence, focus on farming is indeed a positive step. As Maharashtra State Water Resources Minister for State Vijay Shivtare once told me, "We are not very bothered about the high costs of Lift Irrigation Schemes *per se*. If they work well, and result in prosperous farmers, it would mean more agricultural implements, more Tractors, more vehicles, better homes etc., increasing the government's revenue at the end of the day." ("If they work well" was the operative part here, which has seldom materialized in Maharashtra). A Prosperous Farmer and strong farming economy can help all sectors.

Mr. Jaitley opened his budget speech with an Agenda to **"Transform India"**, based on nine pillars. Foremost pillar is **'Agriculture and farmers' welfare, with a focus on doubling farmers' income in five years, by 2022.** The total allocation for Agriculture and Farmers Welfare is **Rs 35, 984 Crores.**

Finance Minister rightly diagnosed that **"Irrigation is the critical input for increasing agricultural production and productivity."** Out of 141 million hectares of net cultivated area, only 46% is covered with irrigation and that there is a "need to address optimal utilization of water resources, create new irrigation infrastructure, conserve soil fertility, value addition and connectivity from farm to markets."

For ensuring this, **"Pradhan Mantri Krishi Sinchai Yojana"** will be implemented in mission mode through which 28.5 lakh hectares will be brought under irrigation". A major part of this will be through **"Fast tracking and Implementation of 89 irrigation projects under AIBP (Accelerated Irrigation Benefit Program) which have been languishing. These will help irrigate 80.6 Lakh hectares. These projects will need Rs 17,000 Crores next year and 86,500 Crores in next five years. 23 of these will be completed before 31st March 2017."**

So, in the coming 5 years, a whopping Rs 86,500 Crores of the taxes collected from all Indians and at least a part of the Krishi Kalyan Cess at 0.5% all taxable services will go into AIBP Projects, with over Rs 17,000 Crores being allocated in 2016-17 itself. **This is highly problematic.** AIBP was started by P. Chidambaram in 1996 and in two decades

since then, it has not delivered anything substantial except huge bank balances for contractors, as also for the engineers, bureaucrats and politicians, hand in glove with the contractors. CAG reports have repeatedly highlighted this reality in case of Maharashtra, Andhra Pradesh, Gujarat and now possibly Madhya Pradesh. In fact, this was the very plank on which BJP came to power in Maharashtra. But Arun Jaitley seems to have no new ideas to offer here, except treading on the same path.

While it is clear that the government cannot abandon all incomplete projects, before it decides to spend more good money after already sunk costs on incomplete projects, it needs to halt more Major and Medium irrigation projects and undertake a credible, independent review of why the projects were incomplete for so long, what were the loop holes, what are the lessons learned from past mistakes, which projects are worth going ahead, in what form. And finally, which need to be abandoned. Without doing such an exercise, the money allocated for incomplete projects is not going to help the farmers.

1. Massive Support for AIBP Projects in Union Budget 2016 17 is unwarranted

Rs 86,500 Crores over 5 years is a massive amount. Will it be able to ensure promised Irrigation? Which are these AIBP Projects? Why do they need so much support from the Center? How have they performed till now? Where are they located? Is this expenditure wise?

Here is a snapshot of some of the 89 AIBP Projects, maximum of which, 13, come from Maharashtra. Maharashtra has had enough bad publicity following the Dam Scam but more importantly, it now has a **Chief Minister, also from BJP, who openly stated in the State Assembly on July 21, 2015 that "We have built Large dams everywhere without thinking of feasibility or water availability" and that "Large Dams are not the road ahead"**. Devendra Fadnis wisely separated Large Dams from actual Irrigation and said: **"We pushed large dams, not irrigation, this has to change"**. He has spearheaded a considerably successful program that focuses on small scale interventions for harvesting and recharging water known as **Jal Yukta Shivar Yojana.**

With this context, it is ironic and deeply troubling that maximum Large Irrigation Projects under AIBP come from Maharashtra. The name "Accelerated Irrigation Benefit" is also ironic as many of these projects have been going on for **over 2-3 decades**, have seen huge costs escalations, corruption charges, question marks about their viability, desirability, optimality, quality and final effectiveness.

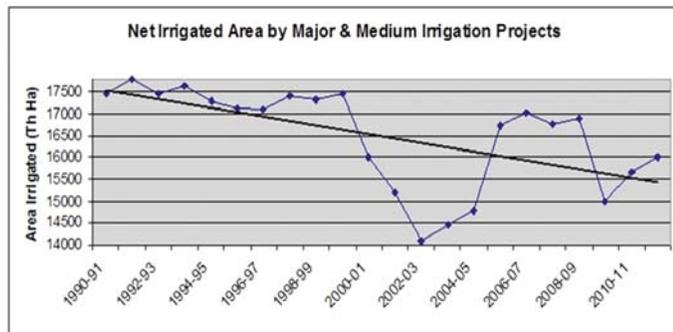
Out of 149 AIBP Projects across the country, 89 projects are active, out of which 46 projects have been prioritized in the Union Budget. 23 Priority I Projects are to be completed by 2016-17 and additional 23 Priority II Projects are to be completed by 2019-20. Of these 46 Projects, maximum 13 projects come from Maharashtra.

A brief snapshot of some AIBP Projects in Maharashtra

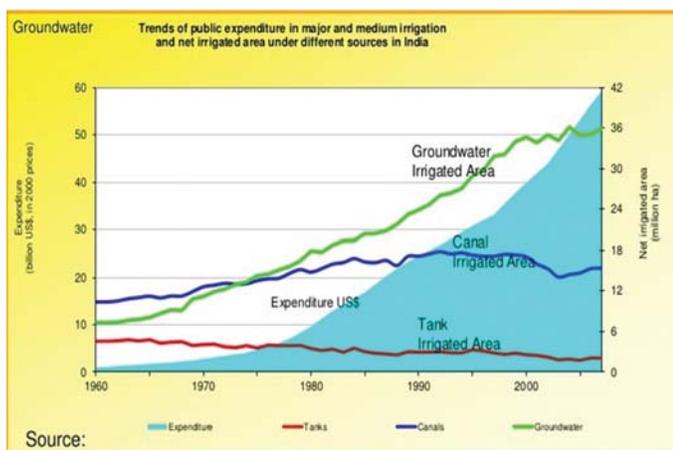
No.	Project	District	Issue
1.	Tillari Interstate Project	Sindhudurg	Based in hilly tracts of Western Ghats, highly unviable project, very low irrigation efficiency, terrain not suitable for large dams, Protests, Land Acquisition problems.
2.	Bembla Major Project	Yavatmal	Huge Corruption Charges, Work ongoing since last 24 years. High cost escalations. Cracked canal Lining due to poor quality work. Enquiry ordered against Contractor for substandard work.
3.	Tarali Major Irrigation Project	Satara	Whistle Blower of Maharashtra Dam Scam, then-Serving Chief Engineer Mr. Vijay Pandhare inspected construction of Tarali Project and stated that compressive strength of all 66 cores of the dam is as low as 42% when a difference in core strength by 1-2% is considered serious. This indicates corruption, use of less cement and institutionalised ill-intent. He officially wrote letter against these happenings. No action taken.
4.	Dhom Balkawadi	Satara	Contract of Canal works given to a close relative of Ajit Pawar, Former Deputy CM and Minister of Water Resources. Several tendering lacuna exposed by officials.
5.	Arjuna Medium Project	Ratnagiri	Massive cost and time escalations, unviable project in hilly terrain, corruption charges, rehabilitation issues not settled.

In addition to these, cost escalations of **Lower Wardha, Lower Panzara, Nandur Madhyameshwar II** (which will need 3 dams in the upstream) are also well known. (Link to all projects in References below)

Across the country, but more sharply so in Maharashtra, Large Irrigation Projects have not automatically meant increased irrigated area, which is what the farmer needs. SANDRP has shown with official data that even after spending over Rs 600,000 crores on Major and Medium Dam and Canal Network between 1993-2010-11, net national canal irrigated area has been decreasing and not increasing. There are several reasons for this.



Canal irrigated area declining in the country (Source: SANDRP)



Groundwater dominates Irrigation in India, not dams and canals (Source: IWMI)

If Large Dam approach delivered all that it promised, then Maharashtra, with the largest number of large dams in the country would have had the highest irrigated area. The actual picture is the opposite. Maharashtra has the lowest irrigated area in the country at about 18%. This is not a coincidence. As the dam scam highlighted, more large projects with complicated, ever-changing plans, far away offices and opaque funding mechanisms meant that local people had no clue about what was happening, leaving doors open for the unholy nexus of Babus, Contractors and Engineers **to eat away public funds**, without ensuring irrigation. Recent example is when the Maharashtra Government told the Hon High Court that they have resolved all of the **financial** backlog in areas like Marathwada and Vidarbha, but the **PHYSICAL** backlog remains nearly the same. So is money for large irrigation projects an answer in this scenario?

While three major projects from Vidarbha (Bawanthadi, Bembla and Lower Wardha) included in AIBP will receive huge support from the Center, the Vidarbha Irrigation Development Corporation (VIDC) faces some of the most serious charges of corruption, cost and time escalations, as highlighted by a series of government appointed committees and even CAG. Jan Manch, an NGO from Vidarbha which was instrumental in exposing the scam clearly stated that problems of projects here run deeper. **Money is not an easy fix.**

So why are the same projects being pushed in the name of farmers when it is demonstrated in Maharashtra that farmers are NOT benefiting from these projects? Cynics would point this out as another *Jumlaa!* Again, in the same state, the power of small scale water harvesting structures and people's participation have shown how quickly things can change. Maharashtra still needs to complete Anti-Corruption Bureau Inquiry against several Large Dams, it needs to work on an Integrated State Water Plan and, as per orders of the Hon High Court, it can undertake new Projects only as per the provisions of this plan, it needs to take transparent and credible action regarding its own enquiry reports, which includes Special Investigation Team Report,

CAG Report on Irrigation Projects dated 2013, etc. ***Unless all these steps are taken, and when small scale interventions are demonstrating their impacts, what is the logic behind putting huge public resources on the same approach?***

Projects in other states like Sardar Sarovar, Narmada Sagar, Omkareshwar and Maheshwar Projects in Gujarat and Madhya Pradesh have not resettled the oustees and has used repressive mechanism to still fill the dams. It has been rapped by the Courts. Local communities in Manipur have been opposing dams there and have gone to the National Green Tribunal against Thaubal Dam.

In this context, maximum allocation of funds for Large Irrigation Projects in the Union Budget is clearly, neither convincing nor beneficial to farmers.

Other Schemes included under PMKSY with budgeted expenses for 2016-17 are

- Har Khet ko Pani: Rs 500 Crores
- Per Drop more crop: Rs 2340 Crores
- Integrated Watershed Management: Rs 1500 Crores

2. **Some Positive water related steps in the Budget:**

- **A major program for sustainable management of GW with allocation of Rs 6000 Crores and proposed for multilateral finding:** Although the amount budgeted is hardly comparable to AIBP Projects, when contribution of groundwater in irrigation is much larger than surface water! We do not really need World Bank funding for this, we should be able to do this on our own.
- **A dedicated Long-term Irrigation Fund will be created in NABARD** with initial corpus of Rs 20,000 Cores. Unfortunately, NABARD has no specific social and environmental policies and has been funding projects without attention to the key governance issues.
- **5 lakh farm ponds** and dug wells in rain fed areas and 10 lakh compost pits through MNEREGA.
- **Allocation for MNREGA is Rs 38500 crores**, in reality this is much less than the actual demand and also less than what was actually spent last year. Last year, the actual spending on the programme was Rs 41,169 crore. The additional spending of Rs 6,470 crore is the pending liability and if adjusted the actual allocation in 2016-17 drops to Rs 32,030 crore—less than what was allocated in 2015-16. MNREGA allocation should have been higher.
- **Organic farming to be promoted:** Paramparagat Krishi Vikas Yojana 5 lakh acres under organic farming in 3 years with allocation of around Rs 412 crores. While more areas under organic farming is welcome, the target is more un-ambitious and allocation most meager. As Jayapal Reddy (Secy, confederation of kisan organisations) says we need aid for increasing carbon content in soil all across India.
- **Incentives for enhancement of Pulse production.** Rs 500 Crores under National Food Security Mission to pulses. Districts covered increased to 622. This is a specifically encouraging step taken as Pulse Farming is mostly rainfed, require low fertilizer inputs, contributes

to protein security, is climate friendly. We spent about Rs 15,000 Crores this year to import pulses and a focused plan for procurement and assured MSP will be of a great help. But the FM could have been much more ambitious here. A similar scheme was needed for oilseeds too.

- **Access to markets** is critical for farmer incomes. Unified Agri Marketing Scheme has been announced where a common e-platform will be developed for 585 regulated wholesale markets. Amendments in APMC Acts are a prerequisite for joining. On the 14th April Birthday of Dr. Babasaheb Ambedkar, Unified Platform dedicated to Nation.
- **Revised norms of assistance** under National Disaster Response Fund in April 2015.
- Special focus on adequate and timely flow of **credit to farmers**. Against target of 8.5 Lakh Crores in 2015-16, the target of agri credit 2016-17 will be Rs 9 lakh Crores.
- Prime Minister **Fasal Bima Yojana** providing greater cover against natural calamities at a low premium. Provision of Rs 5500 Crores in Budget 2016-17. However, the amount originally estimated to cover all farmers was Rs 17,600 crore. Why this lower allocation?

3. Where are the Rivers? In NDA's first budget in 2014-15, when Ganga Arati and rhetoric on Ganga cleaning were at their peak, the Finance Minister had said during his budget speech: "*Rivers form the lifeline of our country. They provide water not only for producing food for the multitudes but also drinking water.*"

This year however, there is no mention of Rivers, not even Ganga. However, Namami Gange Plan/ National Ganga Plan has been allocated Rs 2250 Crores in the year 2016-17. The plan itself remains unclear. A plan based on Sewage Treatment Plants alone does not hold promise for Ganga with Rs 2000 Crores budgetary support, or Rs 20,000 Crores, like the money we have spent in the past years, corresponding to declining water quality of the river.

Inland Waterways Plan: The much-talked about Plan pushed by Minister for Road Transport and Highways and Shipping Mr. Nitin Gadkari would be getting around **350 Crores** in 2016-17 as the combined budget for Sagaramala (Ports project) and Inland Waterways is pitched at 800 Crores and Sagarmala is budgeted at 450 Crores. Inland Waterways Program is being pushed without a thought being given to rivers in which they will operate. It is raising some very crucial questions, elaborated here: [Digging Our Rivers' Graves?](#)

Interlinking of Rivers Plan: The Plan has not been mentioned in the budget and the scheme does not feature in the further discussions. However, the Center is pursuing the project, disregarding ecological cost, social costs, financial costs and interstate conflicts.

It looks like Budget 2016-17 has no special announcements for rivers. However, plans like 100 Urban Rejuvenation Mission (Amrut and 100 Smart Cities) have been allocated a massive Rs **7296 Crores this FY**. Projects like Smart Cities, Highways Project, Inland Waterways all have a strong link and impact on life support systems like rivers and these

needed to be seriously addressed. India has no policy for Urban Rivers, and this has meant that rivers are common grounds for encroachment, pollution and extraction, leading to their destruction, like the Ganga, among others.

4. Environment in Union Budget 2016-17

While the Environment Minister was one of the first Ministers to official hail Union Budget as “Visionary”, it is a bit sad to see that Ministry of Environment Forests and Climate Change (MoEF and CC) does not feature in the list of Important Ministries annexed to Finance Minister’s Speech, nor does a single Scheme from MoEF and CC feature in the list of Important schemes.

MoEF and CC gets a slightly higher budget than the massively slashed budget for the past two years. However, as *Down to Earth* has pointed out, there is a hitch here: “The Budget document shows that allocations to the Ministry of Environment, Forests and Climate Change (MoEFCC) have continued to rise, from Rs 1,681.60 crore in last year’s budget to Rs 2,250.34 crore in 2016-17. But most of this Rs 570-crore increase has come in the form of planned revenue expenditure (salary and other operational expenses), which has risen by Rs 540 crore to Rs 1,944.75 crore this year. This leaves an increase of only Rs 30 crore divided between planned capital expenditure estimates (expenditure on schemes and programmes) and non-planned estimates. In fact, planned capital expenditure saw a dip in comparison to actual expenditure undertaken during fiscal year 2014-15.”

Some Climate Change initiatives like National Action Plan on Climate Change (NAPCC), have seen an increased allocation. Of the Rs 180 Crores for Climate Change initiatives, Climate Change Action Programme (CCAP) has been allotted Rs 30 crore, the National Mission on Himalayan Studies Rs 50 crore and the National Adaptation Fund Rs 100 crore. According to *Down to Earth*, “While this is more than the Rs 160 crore allocated last year, there is no provision to cover the revised estimates of total expenditure of Rs 136.79 crore for the CCAP and Rs 115 crore for the National Adaptation Fund.”

There has been an upward spike in the **National Clean Energy Fund**, constituted mainly by Coal Peat & lignite Cess, which has seen increase from Rs 50 to 100 Rs/tonne in 2014-15, further to 200 Rs/tonne in 2015-16 to 400 Rs/tonne in 2016-17. It is reported that it is this fund which will be support Inland Waterways Project, which is likely to destroy our remaining rivers. It will be hugely ironic if Clean Energy Fund levied on coal because of its environmental impact is used for Inland transport of Flyash and Coal from Rivers, as envisioned in the Inland Waterways Plan!

Budget of Ministry of New and Renewable Energy has also been increased considerably from Actual 2014-15: Rs 515 Crores, Revised Estimates 2015-16: Rs 262 Crores and Budgeted Expenditure of 2016-17 at **5036 Crores**.

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All in all, the massive thrust and support for large dam and canal network which has not delivered in past remains one of the most problematic parts of the Budget. The focus of farmers, encouragement to pulse farmers, increased decentralized procurement, increased Clean Environment Cess, increased allocations (marginal) to MoEF and CC and CC initiatives are welcome steps. Finally, a budget is as good as its implementation. A look at achievements of the last year indicates that that several schemes are still listed as *under progress*. While the aim of increasing farmers’ incomes by double in 2022 sounds very strong and positive, it does remind one of the BJP’s election promised of ensuring 50% profit over costs to farmers, unmet till date and now abandoned. Agricultural growth rate has not achieved more than 4% in any five year plans, and this target will need about 15% Compound Annual Growth rate in farmers’ income, that looks nearly impossible.

It is also sobering to note, as Devinder Sharma says, that in 17 states of the country, farmers average monthly income is 1666 Rs. Doubling it in five years would mean 3332 Rs a month, nearly the same as five years back, if adjusted against inflation!

Parineeta Dandekar

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