

From localized contestations to Terrains of Resistance: Water Conflicts making Statements around Odisha's Landscapes

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1. Turbulences in State's Waterscapes

'Pani bihune sarbanasa; Pani bahule sarbanasa' which translates to "Water, in excess or in absence leads to mass destruction" is a very familiar odia proverb. Students in primary schools of rural Odisha, heavily quote this proverb, when it comes to writing their most common essays on 'flood' or 'drought'. This saying, in simplest terms defines the delicate-relationship between 'water' and 'destruction' while metaphorically reemphasizing the duality that water has played in sustaining and in threatening lives in rural Odisha. It also underlines the situation that water can lead to if not managed and governed properly. While the 'floods' and 'droughts' continue to visit, albeit more frequently and with intensity and heavier damages, the state's water fronts have become more chaotic over the way hydro-politics and market-economics are taking over the biophysical and socio-cultural realities of water.

Situations³ and assumptions of plenty and purity⁴ in the state are being replaced with discourses and concerns of water-scarcity⁵ and quality⁶ (pollution). Traditional and localized ways and institutions⁷ of water governance and management are making ways for externally imposed investments and institutions⁸, state regulations⁹, privatizations¹⁰ and market control. Faith in the mainstream engineering paradigm¹¹ in dealing with water is also increasingly being contested with alternate paradigms (e.g. holism, environmentalism, right-based approach) emerging and consolidating around water.

Water-users and stakeholders are getting segregated quite alarmingly with increasing competition and contestation over access to and uses of water. Crystallizations of such alignments and their unprecedented political patronizations¹² are fuelling social movements and

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³ The Mahanadi, Brahmani-Baitarani and the Eastern Flowing Rivers (EFR1) in Orissa were termed water-surplus rivers as per IWMI (Amarsinghe et al 2005)

⁴ Most of our rivers are treated as 'holy' in ancient texts and anecdotes and are worshipped for their purity, sanctity and ability to flush/wash away impurities with their flows.

⁵ The Draft IWRM Road maps of Odisha, says that per capita availability will decline by 34 per cent by 2050 as per a calculation on water availability from 11 major river basins. The average surface and ground water potential of the State, currently at 141 billion cubic metre (BCM), would fall by at least 10 per cent to 129 BCM. Three rivers __ Baitarani, Rushikulya and Budhabalanga __ will become water stressed.

⁶ Various Reports of Orissa Pollution Control Board and National River Conservation Plan

⁷ Kata, munda, bandha system of water harvesting of Western Odisha or the Jora, Pokhari system of drainage network in Coastal Odisha

⁸ Externally imposed investments include bilateral and multilateral on Watershed Management, Irrigation and accompanied imposed institutions like watershed committee, Pani Panchayat etc.

⁹ The proposed Draft IWRM roadmaps spell out proposals for prioritization of Water allocation, Water Regulatory Authorities, Water-pricing and tariffs for O&M cost recovery, formation of River Basin Organization etc. Regarding flood, the state's policy continue the legacy of colonial history for construction and maintenance of embankments and creation of flood exclusion zones, which many of the colonial experts have also warned against (e.g Flood Enquiry Committee Report, 1928) considering the geohydrology of the state.

¹⁰ Examples of growing private entry include their massive entry into drinking water market viz. packaged (pouch) water, water purification devices and exploitation of ground water

¹¹ One of the dominant and powerful discourses of engineering paradigm is that water going to sea is waste and therefore construction of storage is the solution.

¹² Viz. Former Deputy Speaker and BJP leader Ramachandra Panda leading Rushikulya Banchao Andolan and Former Irrigation minister and Senior BJP leader Bijay Mahapatra spearheading the Mahanadi Banchao Andolan

forming terrains of resistances¹³. Revolutions around state's Rivers are spreading very fast of late, from north to south, from big rivers to small drainage channels around a gamut of structural, environmental, economic and cultural issues.

Appreciation of importance of water, realization of stakes/rights as well as increasing perceptions, threats and concerns of vulnerabilities around water from local to regional to river-basin levels are making simmering of disputes and manifestation of water conflicts of different scale and intensities, obvious and conspicuous outcomes around the state's landscapes. Evolution and manifestation of these conflicts or social movements around water can be attributed to development of local 'convergence spaces'¹⁴, and the interaction/ negotiation of space and strategy among local, national and global alternate discourses and actors around water in the globalizing terrains of resistance (Routledge, 2000). On one hand, the increasing water conflicts around industrialization probably reflects the challenges or oppositional forces that civil societies and social movements pose to the power and development trajectory of the state, corporate and neo-liberal forces. On the other hand, with grassroots globalization¹⁵ providing internet-ted and media-ted connecting terrains, 'Save or Free River Movements' and 'anti-privatization and commoditization drives' seem to be evolving drawing from experiences elsewhere, around particular 'places' or 'local contexts of resistance' in interplay with national/global processes. (Routledge, 1996)

Though conflicts are taken to be bad or negative; they are also, logical developments in the absence of proper democratic, legal and administrative mechanisms to handle issues that are at the root of water conflicts. (Joy et al, 2006) On the other hand, conflicts are also an unavoidable part of processes of social change in all societies. (OECD, 2005) Conflicts around water in a state can be interpreted as reflections of the inadequacies in the existing water governance mechanisms and management framework or stakeholder-realization of the inability of the same to address the changing development contexts and stakeholder aspirations. Present situation of increasing contestations and peaking of number, types and intensities of conflicts in Orissa are pointers to the arrival of the time for bringing in change, the way water is understood and used by the society, government and the development processes.

Understanding and analysis of water conflicts in Odisha, therefore is imperative. Comprehensive and analytical insight into different types of water conflicts manifested or emerging in different geographies around different issues among different stakeholders are critical for bringing in appropriate changes in water governance and management. Water conflicts documentation and analysis are the need of the hour for the state, as they not only are the precursor to conflict

¹³ 'Terrain of resistance', as per Routledge (1997) can be understood both in a metaphorical and in a literal way: it was the ground on which the protests took place, and the representational space in which the events were interpreted. As per Routledge (1996), the geographical concept of place provides crucial insights into at least three aspects of social movement experience. First, the concept of place informs us about why social movements occur where they do and the context within which movement agency interpellates the social structure. Second, the concept of place informs us about the nature of specific movements, since the particularities of place inform and affect the character, dynamics and outcomes of movement agency. Finally, a research paradigm that is sensitive to place provides the means of understanding the spirit of movement agency, that which inspires and motivates people, the articulation of the experiences of everyday life. In 'The Art of War' texts of Sun Tzu, 'terrain', the intimate knowledge of 'the lay of the land' (1988, p. 159) is one of the key strategies or tactics employed in conflict situations to manoeuvre resistant forces against an opponent.

¹⁴ Convergence space, as per Routledge(2003) is a heterogeneous affinity of common ground between resistance formations wherein certain interests, goals, tactics and strategies converge.

¹⁵ Grassroots globalization is a struggle expressly against the neoliberal form of globalization and for inclusive, democratic forms of globalization, using the communicative tools of the global system. (Routledge, 2003)

resolutions and preventions, but also for creating a platform for bringing in right and desirable changes towards more responsive, democratic and inclusive water governance.

2. Understanding Water Conflict

Competition for water exists at all levels and is poised to increase with increasing demands for water for multiples uses. Access to water, and its allocation and use, are critical concerns that often leads to conflict. Water-related tensions occurs when water is scarce, but even when the resource is not severely limited, its allocation and use (physical and economic scarcity) can still be hotly contested. The coexistence of a variety of uses and users – such as agriculture, industry, different clans or ethnic groups, and rural and urban users – increases the likelihood of conflicting interests over water. (OECD, 2005) Increasing demand for water by some is taking toll on its availability, quality and implications for others, including humans, other life forms and the ecosystem. With water stresses and inequities on rise, water conflicts become natural offshoots.

Part of the cause of water conflicts owe to the specific nature of water as a resource: for example: a) water is divisible and amenable to sharing; b) contrarily, it is a common pool resource so that a unit of water used by someone is a unit denied to others; c) it has multiple uses and users and involves resultant trade-offs; d) excludability is an inherent problem and exclusion costs involved are often very high; e) it requires a consideration and understanding of nested expanding scales and boundaries from the local watershed to inter-basin transfers; and f) the way water is planned, used and managed causes externalities – both positive and negative, and many of them are unidirectional and asymmetric. (Joy et al, 2006)

3. Water Conflicts in Odisha

In their conflict publication, aptly titled ' A million revolts in making' Joy et al (2006) had remarked 'Water conflicts in India had reached every level; divided every segments of our society – political parties, state, regions and sub-regions within states, districts, caste and groups and individual farmers'. Notably, in that volume, while wide ranges of typologies of conflicts from different corners of the country were found their place, Chilika was the only conflict presented from Odisha. However, just about 5 years since then, water conflicts in Odisha seem to be peaking up at all levels from village level conflicts among farmers and castes to regional tensions over industrial use and livelihoods access to river revolutions where people's movements are crystallizing against the neo-liberal development processes. Interstate water conflicts, which were hardly an issue in the state, now draw overwhelming political and media attention.

In this paper, we are trying to provide an overview of such ongoing and emerging water conflicts in the state, drawing from our ongoing work on conflict documentation. With a cursory overview of those conflicts, their typologies, patterns of manifestations, their location in the geographical, political and socio-cultural contexts, we argue for greater political and academic appreciation of these conflicts and concerted interventions around them. We feel there is a compelling requirement for their analytical interpretation and need of locating them vis-à-vis present development roadmap and socio-environmental concerns of the state as well as in the contexts of neo-liberal and grassroots globalization.

3.1 Typologies and terrains Water Conflicts in the State of Odisha

Water conflicts in the state are now omnipresent. Across basin scale, they are manifested, from the river source on forested hills inhabited by tribal communities with underlying minerals and hydro-power potentials in the upper catchments to the deltaic flood plains, irrigated commands and the confluence-mangroves with densely populated politically active coastal communities relying on water-based and aquatic-biomass-based livelihoods. They are seen from local village level conflicts over access to drinking or irrigated water to regional, state and inter-state level over pollution and allocations. An attempt is made to locate different typologies of conflicts seen in the state across basin and geographical scale (Fig 1) and along quality and quantity gradient as representative spaces for better stakeholder appreciation and to facilitate further analytical enquiry and decision making.

Fig 1 Locating water conflicts in Odisha in river-basin & geographic- space

Upper catchment (hills)			Mining		Industry Vs. Agriculture/livelihoods	Culture & Traditions	Water Allocation for different uses/ Policy & legal issues/ External Investments or Projects	Water sharing & Externalities
			Dams & Displacements					
Middle catchment (plateau/highlands)	Irrigation Water	Ground Water Use	Fishing Rights	Drinking Water (pollution, scarcity)	Pollution & Water Quality (Industrial, Mining, Urban-bodies, ground-water)	River Degradation/ management/ linking	Wetlands	Upstream and downstream implications
		River-bank erosion						
Lower catchment (Deltaic Flood Plains)	Sand Mining		Flood & Drainage					
Local			Regional			State	Inter-state	

4.1 Conflict around Water Uses : Industrialization(& Mining) Induced Conflicts

The multiplying requirements for industry and mining in the wake of state's ambitious industrialization drive has led to tensions and conflicts around allocation and quality of water for drinking, agriculture and livelihoods all around the state. The rapid industrialization through large mineral-based extractive industries, including iron, aluminium and other mineral extraction, processing, and associated thermal-route energy¹⁶ generation is placing increasing demands on water for processing, cooling, and hydropower and raising concerns about their water quality. In the ongoing industrialization drive, the Water Allocation Committee (WAC) of the state government has allocated 1419 cusec of water to 61 industries and other organization in

¹⁶ Recently declared draft CCAP (Climate Change Action Plan) of Odisha, indicate a massive 60000 MW of power production, a majority of which will come from coal

addition to other industries which were allocated prior to formation of WAC¹⁷. Out of this 37 industries are drawing water from Hirakud Dam alone. Of late, iron and steel industries like BRPL and Essar are laying pipelines in Keonjhar to transport beneficiated ore powder slurries, which will reduce their cost but draw and transfer huge amount of water often across basins. While the industrial demand¹⁸, allocation and alleged pilferage¹⁹ are going up along with the protests by the farmers, city-dwellers and civil society, the state govt claims that the industries are drawing less water than allocated. As it is economical to lift water from rivers, reservoirs or canals, industry tries to influence such extractions. This is threatening the availability of water for agriculture bringing farmers face to face with the state and industry and such conflicts are on rise from Hirakud to Paradeep.

In terms of water pollution load, Odisha was fourth in India (Pandey and Ghosh, 2002). Union Ministry of Environment and Forest has identified 3 major rivers of Odisha (Mahanadi, Brahmani and Baitarani) as highly polluted and brought them under the purview of the NRCP (National River Conservation Plan). Reports by Orissa Pollution Control Board as well as recently released draft IWRM roadmap of the state²⁰ also confirm poor water quality in state's rivers. Most of the industries and urban bodies in the state directly discharge their effluents to the rivers. Community waste from domestic sector is about 4 times the industrial effluent in Odisha. A very high concentration of Chromium⁺⁶ (0.05 to 1.12 ppm; permissible limit 0.05ppm) has been observed in the seepage water from chrome based plants and also around mining area in ground and surface water in Sukinda Valley. With reduced flow in rivers like the Baitarani, the concentration of pollutants goes on increasing causing health problems for the downstream population dependent on it for domestic uses. For example, about 30% population of 2432 villages (17.55 lakhs) in 16 riparian blocks in 5 districts depend upon surface flow for drinking water and 19% of them on the Baitarani river water directly (Choudhury et al 2006). In such situations, where the down stream rural poor are silently bearing the burnt of pollution by up stream urban, industrial and mining units, tensions and conflicts are only matter of time.

In mining areas, over burdens and in industrial (e.g. sponge iron, steel and aluminium) areas, slurry (beneficiated) and red mud ponds are causing heavy pollution of surface and ground water. Incidences of embankment-breaks and heavy spill over of toxic materials into the local lands and water bodies are becoming increasingly regular. In mine belts, regular blasts are resulting in cracks in the rock layers surrounding aquifers affecting the local geo-hydrology. In many areas in Keonjhar, the tube wells are going dry or have started yielding poor quality water.

¹⁷ The collection of water rate from both the agricultural sector and industrial sector was earlier vested with the Revenue & Excise Department. Responsibilities for collection of industrial water rate from industrial sector was transferred to Water Resources Department vide Revenue & Excise Department Notification dated 29th September, 1999 and 11th October, 1999 published in the Orissa Gazettes vide No. 1423 dt. 30.09.1999 and No. 1466 dt. 13.10.1999. The Department of Water Resources has been collecting the water rate from the Industrial units / Commercial organizations w.e.f, 01.04.2000. <http://www.dowrorissa.gov.in/WaterPricing/WatertoIndustries.pdf>

¹⁸ Current industrial demand for water in the State is 4.2 per cent of the annual average flow as per the Water Resources Department <http://expressbuzz.com/states/orissa/industries-drawing-less-water-than-allocated/188920.html>

¹⁹ As per the Government, penalty to the tune of Rs 2 crore was collected from 15 industries who were drawing water unauthorised from different rivers and during 2009-10. <http://expressbuzz.com/states/orissa/industries-drawing-less-water-than-allocated/188920.html>

²⁰ Water quality of at least six major rivers rarely meets drinking water standards, reports the darft road map thanks to inadequate treatment of the municipal and industrial effluents. The report paints a grim picture saying the entire stretch of Mahanadi is in a state of slight to moderate pollution. Of the dozen monitoring stations of Mahanadi, all except five show water quality is below acceptable levels. <http://expressbuzz.com/states/orissa/orissa-becoming-a-dry-state/217882.html>

Many of the perennial streams have suddenly disappeared. Community protests many a times are being suppressed through use of unfair means. Situations are quite tense in many villages and violence may erupt at any time.

Water quality and availability are going down unabated with severe health and livelihoods implications in peripheral and downstream areas of mining and industrial belts, leading to further alienation and dispossessions of local communities. The upcoming industrial hubs now have become the most common water-conflict terrains of the state, largely superimposed or linked with the ongoing local and global struggles against the neo-liberalization and privatization. (Examples in Table 1)

4.2 Conflict around Water Excess : Flood & Deltaic Conflicts

Historically Odisha, the land of hexa-deltaic rivers is prone to floods and flood induced vulnerabilities. Fifteen percent (3.34 mha) of state's geographical area is traditionally flood prone. However, in the last decade, floods have also been witnessed in non-traditional areas from Malakangiri to Kalahandi. During a span of hundred years (1868-1967), there were 262 flood inundations in the state, of which 68 were high floods. Among the rivers, Mahanadi experienced the highest number of floods i.e. 99 times. Of late floods have been more periodic; occurring almost every alternate year during 1967 to 2003 and since 2006, almost every year.

Though the alluvium in the delta and its flourishing agriculture owe their existence and continuance to these recurrent inundations, over the years, changing demography, political-economy and changing strategies flood management has been continuously segregating affected and the others and thereby catalyzing conflicts. While the loss due to flood damage during 2002-07 was about Rs 4000 Crore, the investment in flood control and receipt for flood relief were about Rs 15 Crore and approximate Rs 600 Crore respectively. The contractor-criminal-politicians nexus seem to have been the biggest benefactor of flood at the cost of common man's plight.

Embankments, which divide flood prone area from flood-excluded areas, are often the cause of conflict. Contractors often found to encourage breaches to get more works and also doing sub-standard repair work with an intention to get more work in future. Often more breaches are reported after the flood peak. Breaches are also sponsored by political-leaders to help their affiliate villages at the cost of others, done by fractioned communities intentionally to settle scores. In some areas like Puri district, there has been more damage due to flood after the construction of irrigation infrastructure²¹. Ingress of sea water is now becoming another threat

Escapes constructed by the Water Resource Department to prevent flood in the down side of the catchment, often creates severe flood hazard in the immediate areas. The distributaries in stage II delta of the Mahanadi i.e. Kuakhai system (Kushbhadra, Bhargavi and Daya) have flood escapes and flood water higher than 0.6 million cusecs at Naraj will make the escapes operate and water from these rivers escape into the surrounding doabs and flood the land. In some instances, the escapes have been constructed upstream to save down stream cities e.g. Jajpur, often saving the urban dwellers at the cost of multiplying miseries of the upstream villages.

²¹ There used to be floods in the past, e.g., in early 1900s, but damage was less as drainage was possible then. But now, non-flood zones have been converted to flood zones with natural drainage channels getting blocked. Even rainwater stands till end of December in most of the crop lands.

Table 1: Examples of Industrial water-conflict terrains of the state

#	Conflict	Location/ River Basin	Conflict Parties	Conflict Brief	Manifestation
1.	Industry Vs Agriculture around Hirakud	Hirakud, The Mahanadi Basin	Farmers, State Govt, Industries	This is regarded as the watershed event in the industry vs. agriculture conflict in the state. With massive participation of farmers' groups and other civil society institutions, protests over non-availability of water from the dam have snowballed to a social movement since then.	In Hirakud about 30,000 farmers stormed the reservoir in Sambalpur in November, 2007 to protest against increasing diversion of water meant to irrigation in favour of industry. The issue also rocked the State Assembly and Congress moved a motion in the house on alleged atrocities against farmers and diversion of water. The Chief Minister intervened and subsequently it became the election manifesto. This
2.	Suffocation of Bheden River	Jharsuguda; Bheden River Mahanadi River Basin	Villagers, Industries, Govt (OPCB & Dist Admn)	The effluents from industries including fly ash are directly being dumped into the river severely suffocating it. Illegal withdrawal by industries also put threat on the existence of River	Locals affected by the pollution and dwindled flow have been regularly protesting against the industrial activities. Some Organisation like Water Initiative of Odisha, Anchalik Paribesh Surakshya Samiti, Chetanashila Nagrik Mancha, Lok Mukti Sangathan, Ib Paribesh Milita Kriyanusthan Committee, etc have also been regularly raising their voice against the issues.
3.	Pollution in Ib	Jharsuguda, Mahanadi River Basin	Industries, OPCB, Villagers in downstream	The first court case of Industrial pollution was filed on this issue in Odisha. The people from Belpahar, Brajaraj Nagar and Jharsuguda are regularly protesting against the pollution by the industries.	Heavy pollution of the Ib river water has caused innumerable problem to its primary users and this is the root of the conflict. Now the conflict - which first started over pollution of the river water - has now spread to include the affect over urban water supply to important townships in Jharsuguda and Sambalpur districts, and, affect fishery in the Ib River and Hirakud reservoir.
4.	Mining activities in the Brahmani catchment area	Sundergarh (Bonai area) , The Brahmani Basin	Mining Companies, Primitive Tribal Group (PTG), Activists	A number of small and medium scale mining activities are going on in this area resulting in drying of perennial springs and mining activity is leading to pollution of water bodies apart from large scale of water exploration. The livelihood of the PTG residing in this area is also affected.	Due to various mining activities the agricultural land and the fishing as a livelihood have been affected and the people of this area have agitated against the mining authorities. Now many political parties and Civil Society Organisations have involved in this issue and raised their voice.
5.	Non-availability of drinking water due to Pollution	Talcher, Angul, The Brahmani Basin	Mining Companies, Ground Water Board, Villagers, OPCB	People living in over 200 villages around these 15 coal mines are experiencing acute shortage of potable water even in the rainy season. Such is the situation that tube wells dug up to 200 feet fail to supply a few buckets of water.	Protests and movements for the villagers have become an every day affair. A mass movement for drinking water was undertaken way back in 1994. The Mahila Jagaran Manch is spearheading its endeavours to unite women in the coal mine areas to virtually force the MCL authorities to provide sufficient potable water for survival of their families.
6.	Impact of pollution on fishermen' livelihoods	Dhenkanal, Brahmani Basin	Industries, OPCB, Urban bodies, Down stream	For the Jhara, Girigia and Bahania communities, fishing is a traditional occupation. From one generation to another, fishing has remained their only occupation and the Brahmani, their sole	The fisherman communities from Dhenkanal District have regularly protested against the pollution created by the industries. The pollution control board officials in Angul, however, said "The Brahmani waters are not that much polluted as it was few years

#	Conflict	Location/ River Basin	Conflict Parties	Conflict Brief	Manifestation
			Fishermen	lifeline. Presently, they have lost their traditional occupation due to pollution.	ago. Now, officially its rating is bathing standard." But, the reality is different.
7.	Water transfer through slurry pipes	Keonjhar, Baitarani Basin	BRPL, Essar, Villages, KCF, WRD	BRPL requires 480 CUM per hour for its pellet plant in jajpur-Keonjhar and Essar for 12 million tonne iron ore slurry transportation to its plant site at Paradeep.	Keonjhar Citizen Forum and other CSOs have made representations to the WRD in this matter. Villagers suggest Essar to lay a parallel pipeline from Paradeep to bring water from sea for preparation of slurry.

Table 2: Examples of Flood-related and Deltaic water-conflicts in the state

#	Conflict	Location/ River Basin	Conflict Parties	Conflict Brief	Manifestation
1.	Flood in non-traditional area due to river linkage	Boudha and Kalahandi, Mahanadi River Basin	OHPC, Dist Admn, Villagers in Catchment & Command	40 thousand people of 8 Panchayats are remaining waterlogged for four months in rainy season due to discharge of Indravati water into Hati river after power production, which subsequently drains to Tel. Generation of power in Indravati, now causing flood in Hati around Dharmagarh in Kalahandi	The affected people are searching a new place to reside. The administration is not taking this issue seriously and now these people are migrated to Tilakmal village to acquire the land for residence, but they face stiff opposition from the Govt officials and they have lodged case against them. The district administration is also writing letter to the OHPC to stop the power generation.
2.	River Bank Erosion	Kendrapara, Mahanadi Basin	Villagers, WRD, Revenue Department, Sand miners	The Pattamundai and Rajnagar blocks of Kendrapara district are mostly affected by this type of erosion. The majority of the villagers are poor farmers and lack basic facilities. Over the years, their crops, livestock, and houses were repeatedly swept away by the rivers.	The protest of these river bank-erosion hit villagers against the government has been attracting huge public participation. They have submitted memorandums of protest to the state government several times. The affected communities are demanding compensation package and a permanent solution towards the checking of river erosion.
3.	Escape	Jajpur, Baitarani Basin	Villagers, WRD, Urban dwellers	Escapes, while provide escape to downstream villages and urban areas, put tremendous pressure on upstream villages and agriculture lands. There is more than 4 ft of sand casting in thousands of acres of lands along with creation of new rivers near an escape in the Baitarani in Bhandari Pokhari, provided to save downstream Jajpur town.	Protests by villagers, application to politicians and Dist Administration, Upstream Vs Downstream Villagers, Water Resources Department
4.	Water logging due to canal irrigation	5 blocks in Puri, Mahanadi Basin	Farmers, Politicians, Chilika Dev Authority	Water logging is a perennial problem in 5 blocks of Puri district causing extensive damage to crops. Dredging of river mouths of Daya, Bharagabi, Makar, Luna, Ratnachira for speedy discharge of rain water into Chilika lake is taken up to address the issue. However the process is being stalled by some others and there have been farmers' protest around that.	Farmer rallies, protests, assembly questions, media coverage etc.

The Flood Enquiry Committee Report of Govt of Odisha, argued for removing all obstacles that militate against flood water safely moving towards the sea including all obstructions and embankments. There is provision under Section 8 of Odisha Irrigation Act 1959 to remove obstruction in drainage works by the executive and assistant engineers associated with irrigation works. However, of late, apart from encroachments and unauthorized constructions, myopic and massive use of NREGS and other development funds without land-use and drainage plans, have lead to choked drainages, more floods of higher durations and water loggings.

Though river meandering and river-bank erosion are natural processes in the delta, their acceleration and segregation of gainers and losers around areas where land is at premium also lead to conflicts among communities and with state.

4.2.1 Conflict around Dams & Barrages

Water resources department of the state follows dominant engineering discourse which seeks to dominate the nature and ecosystem and economically exploit the water by treating it as 'resource'. The commoditization of water is the next logical step in the liberalization era with maximization of its economic use through 'more crop/cash per drop' or using water for best alternate economic use. This involves bringing in/reforming pricing and water-tariff, recovering cost on O&M and developing an institutional (corporate) arrangement more productive water, sometimes at the cost of livelihoods (including socio-cultural) and ecosystems (including biophysical). In many cases, the dams or barrages which are usually being constructed and augmented with 'engineering' passion to exploit, store and divert 'water resources' through increasing external investments, are strategically appropriated for best 'productive use' by corporate (industry or mining units), urban bodies or by rich and elite farmers. This leads to both displacement and dispossession of the poor, marginalized and voiceless farmers, rural and tribal communities from their life lines. With such ominous trends of growing cooption of the state trustee-ship by the external donors and corporate and overwhelming appropriation of traditional water governance by market economics becoming ubiquitous, voices of dissents and conflicts are getting more common and louder. (Examples in Table 3)

Table 3: Examples of Water-conflict terrains around Dams and Barrages in the state

#	Conflict	Location/ River Basin	Conflict Parties	Conflict Brief	Manifestation
1.	Dams and displacement	Lower Suktel Project Bolangir, Suktel, Mahanadi River Basin	Activists, Affected peoples, To-be-benefited farmers, Political Parties & Govt	Nine thousand families will be displaced for this project. Some people of the displaced area allege that they are not compensated properly; others are still not ready to endorse the idea of irrigation project in the area. In the process, those opposing the project and those in support of project are at war with administration.	The affected people are now formed Lower Suktel Budi Anchal Sangrami Parishad to raise their voice against the project. Protests and movements are continuing along with court case for legal remedy.
2.	Irrigation divide	Anandpur Barrage, Keonjhar, Baitarani River Basin	Water Resource department, Keonjhar Citizens Forum, Farmers	The designed area of irrigation from Anandpur barrage is only 6200 Ha in Keonjhar, where as the same for Bhadrak and Balasore district is 53,800 Ha. The lean season flow of Baitarani at Anandpur is 3.900 Cusec, appears to be far too inadequate for this barrage project.	The Keonjhar Citizens forum is continuously following this issue and has filed memorandum before Chief Minister and other authorities.
3.	Irrigation Vs Industry and Mining	Keonjhar, Baitarani River Basin	Industries, Water Resources Department, Villagers	Kanupur is a long awaited irrigation project in the district. While it is yet to be completed, Jindal has almost laid a nine-kilometer pipeline to draw water from this. With a predominant mining catchment, siltation rate is very high and it is expected to be silted up very fast defeating whole purpose of irrigation.	The Keonjhar Citizens forum is continuously follow this issue. Farmers and locals in the region have protested against the delay in project execution.
4.	Power project Vs Agriculture	Nabarangpur Indravati Basin	Locals, Farmers, WRD, Activists, OHPC	The commitments of at the planning stage of Indravati dam regarding recommendations (of Hazra Committee) to release of water (7 cumec) into the river, area treatments and new dam construction at Telengiri have not been met so far. The dam has turned an area known for prosperous agriculture to a drought-prone area. More that 50 LI points are now defunct in d/s of the dam. Major conflict is between power production and water supply for irrigation.	Protests, media coverage

Table 4: Examples of Inter-state Water-conflicts in the state

#	Conflict	Location/ River Basin	Conflict Parties	Conflict Brief	Manifestation
1.	Polavaram	Malakangiri Sileru, Godavari	Government of Odisha and AP,	Polavaram conflict is lingering since 1980, when an agreement between Orissa and Andhra Pradesh was entered upon. Government of Odisha has now lodged a complaint with the Ministry of Environment and Forest to protest the forest clearance given for the Polavaram project. It has pointed to clear violation of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. Claim over settlement of forest rights, which was set as a pre-condition by the MoEF for according forest clearance to the Indira Sagar Project, was not followed properly. The project requires approximately 3,700 hectares of forestland. There has also not been any public hearing in the to be affected area in the state under the provisions of EIA for getting environmental clearance. Odisha also opposed the decision of the AP to increase the storage capacity of the dam from 30 lakh cusecs to 50 lakh cusecs. Odisha is also not convinced with AP's suggestion of embankments as permanent solutions to effectively contain submergence in villages in Malakangiri during floods.	Supreme Court cases, Media coverage, debate in assembly and Parliament, Rallies, protest meetings by political parties, civil society workshops & consultations, expert visits and recommendations
2.	Interstate River dispute on Jaunra River, Koraput	Koraput, Indravati	Government and Peoples of Odisha and Chhattisgarh,	The conflict on Jaunra River is around reduced flows in Indravati. Chhattisgarh alleges that most of the water of Indravati is diverted through Jaunra. a. The locals call for a tripartite talk between both of the governments and the local leaders. The people of Kotapada area are completely dependent for their drinking water and irrigation water on this river. This conflict has also affected the people of Chhattisgarh (Jagdulpur area). The Chitrakuta Waterfall which is a famous tourist attraction is also not getting water and lost its existence	There is unrest among the people from both the States and sometimes it leads to violent situation. According to Jaunra Bachao Sangharsh Samiti of Kotpad, the Chhattisgarh Police has harassed the people of Orissa living at the border
3.	Dispute on the barrage over Mahendra Tanaya	Gajapati, Vamshadhara	Government of Odisha and AP, affected people	The offshore project of A.P will affect as many as 8, 00 families living in 30 villages of Odisha. Moreover, 1,100 acres of agricultural land would be submerged with the project and Gajapati district would hit severely.	Locals of Gajapati have formed Mahendra Tanaya Bachao Andolan to campaign against the project. The exchanges of letters between the CM of both States are continuing without any result.

Table 5: Examples of Other Water-conflicts Terrains in the state

#	Conflict	Location	Conflict Parties	Conflict Brief	Manifestation
1.	Village level conflict over access to drinking water	Malkanagiri,	Villagers of Nuaguda, Khairiput Block, Malkangiri	In tribal communities, practice of households migrating to other villages for different reasons is common. In Malkangiri, better access to drinking water is one such reason. However, in some cases, the migrants have entered into conflict with original inhabitants in their new settlement over water.	At many cases, violence has erupted among original inhabitants and migrants forcing migrants to go back to their villages.
2.	Irrigation Vs Pisciculture	Balasore	Farmers from Odisha and West Bengal, District Administration, Irrigation Departments	The conflict is between the farmers of Odisha and fishers of West Bengal. The Minor irrigation Department is also involved in this conflict. The District administrations from concerned districts are trying to deal with the issue but there is not much success on that front.	The conflict took a violent shape on 1999 and from that date breaches in the embankment, stealing of keys of sluice have increased. The main purpose of the Irrigation project is not fulfilled and the conflict is continuing.
3.	Marginalization of the poor in Ground Water Market	Balasore	Rich and poor farmers, WRD	With the water table going down in this area due to heavy draw down of ground water by rich farmers putting in deep bore wells, small and marginal farmers are suffering. They are often forced to buy water from the rich farmers having deeper wells. The farmers who had private shallow tube wells also faced the scarcity of water.	Regular instances of disputes are experienced by the farmers in the village on distribution of water from the tube wells. The conflicts were mostly seen among the small scale farmers depending upon the government tube well and between small and rich farmers.
4.	URBAN-RURAL Farmer vs. Water Supply Dept	Baripada, Mayurbhanj	Municipality, Farmers, Dist Administration	To meet their agrarian need, the farmers have constructed many temporary Check Dams on streams which are source of water to Baripada town during last year's drought. As it reduced water supply into the town, the Water supply department staff asked these check dams to be dismantled which lead to conflict between the farmers and the water supply department.	Protests, Media coverage
5.	Urban Water Conflict	Bhubaneswar	Builders, Municipality, Dug well/ shallow tube well dependents	The ground water depletion in and around Bhubaneswar have grown fast in recent Years. Due to inadequate access to municipal supply, people have resorted to digging deep bore wells and pumping water indiscriminately. A large numbers of multi storied buildings have come in and around the city along with a number of industries in the outskirts in the recent past, who have also started exploiting ground water day and night. The long term depletion is the causing deep depression of the water table and making the shallow dug wells go dry.	Media coverage

4.2.2 Inter-state Conflicts²²

Centre has a right to take decisions in the matters of interstate rivers (7th schedule) as per the legal and constitutional provisions. The Interstate River Water Disputes Act of 1956 has empowered the state to go for a tribunal in case such conflict arises. These provisions are meant to protect the riparian rights of states, but have their own blurred interpretations. Absence of a prescribed time limit for consensus of the states however, makes these disputes and chaos continue to linger.

For interstate rivers, Orissa has agreements with all its neighbouring states viz West Bengal, Jharkhand (then Bihar), Andhra Pradesh and Chhattisgarh (then Madhya Pradesh). Among the interstate rivers flowing in Orissa, the state has agreements for Mahanadi, Ib, Subarnarekha, Bahuda, Vamsadhara, Nagavali Indravati and Kolab Rivers. Erratic rainfalls induced by climate change, silt depositions due to land use changes and increased interventions towards water harvesting and extraction etc. have rendered the flow in many of these rivers shrink over the years, making the performance of the agreements difficult. The reduced flow and competitive water use has led to creation of social unrest in the area.

On many instances, the neighbouring states have taken steps without consulting the Central Water Commission, the Orissa government or the local community. There are several instances like the illegal construction of canal near Katragadda by Andhra Pradesh government to divert the water of Vamsadhara River, sand bags in the mouth of Jaunra River, construction of an off take sluice in Srikakulam district by Andhra Pradesh to divert the water of Mahendratanaya etc.

Through projects on interstate rivers, the people living at downstream are affected in terms of water scarcity and the chain of water use is negatively influenced. Due to such projects, people living at upstream experience submergence of land and water logging. Orissa has experienced the burnt of both. The multiple constructions in Chhattisgarh on Mahanadi have put a negative impact on irrigation in Orissa. Projects like Polavaram and Neredi barrage on Vamsadhara have brought threats of submergence. (Examples in Table 3)

4.2.3 Other Water Conflicts

Water conflicts are not bound by scale, or by geography in the state. From village level conflicts fuelled by caste, class or power divide over access, to conflicts within urban areas and between urban and rural areas, they are everywhere and growing with the ongoing trajectory of development. New contexts and grounds of conflicts especially around political and economic lines seem to be evolving side by side to traditional social and cultural divides. We attempt to showcase examples of some such conflicts from different geographies of the state in Table 5.

²² Adapted from <http://www.merineews.com/article/interstate-water-conflicts-creating-problems-in-resource-sharing/15794214.shtml>

4.2.4 Revolutions around Odisha's Rivers

A remarkable development around the water conflicts in the state is sudden emergence of revolutions around its rivers. From its north to south, around big rivers to drainage channels, these 'save/free river campaigns' are spreading very fast over past few months accommodating in its bandwagon a gamut of structural, environmental, economic and cultural issues. Civil societies' appreciations and concerns over Odisha's river is fast becoming loud and clear. They are now raising their concerns about the massive pollution, unmindful and unjust water allocation, dwindling environmental flows and biodiversity erosion in their rivers. They seem to be quite perturbed the way their lifelines, their holy rivers being used and abused. The reflections of these appreciations, realizations and concerns are fast unfolding with movements around its rivers getting manifested one after another. While, Mahanadi Banchao Anodalan (MBA) has emerged over concerns of water allocation to industries from Jobra barrage, farmers and locals in Jagatsinghpur are now rallying together to save Hansua from POSCO. There were also movements earlier to save 'the Brahmani' (Brahmani Anchal Suraksha Parishad) from pollution and small rivers like 'Alaka' from siltation. Baitarani Surakshya Manch has now been formed to protect the holy river from the clutches of industrialization. Movements in south Odisha to save Rushikulya (Rushikulya Banchao Mancha)by linking to the Mahanadi, protect Vamshadhara from mining and projects in Andhra, free Nagavali from pollution by paper mills are also manifestations of such community aspirations.

4. Conclusion

With the 'economic' demands for water rising, with the dominant paradigm of water-management and governance being increasingly imposed and widely contested, as well as the catalysts of polarization gaining strength, thanks to informed and ideological/political patronage, many such water-conflicts and 'social-movements' around water seems to be imminent in Odisha. The legacy of fragmented social structure, skewed-rights-regimes and the natural geo-hydrological divide aligned with socioeconomic divide in the state also threatens to fuel and aggravate the conflicting situation. *Kalinga Nagars*²³ around water are not too far with *Hirakuds* (industry-agriculture), *Chilikas* (fishing rights) and umpteen Free River Campaigns already representing 'terrains of resistance'.

It is time now Govt to take note of these water conflicts and river revolutions, particularly their political geographic and political economic implications. The academia, civil society and intelligentsia are also required to appreciate the need of an interdisciplinary and holistic approach in dealing with water. They need to get engaged critically with right science and knowledge to bring about desired change towards an inclusive and secured water future.

In the conflict context, there is an urgent need of dealing with the ongoing, emerging and imminent water-conflicts in different part of the state to understand, document, analyze and disseminate the required information. Through this paper, we seek to draw attention of the audience- the water users and stakeholders in the state, to this critical

²³ A blot in the development history of the state, where 12 tribals died out of police firing while they were protesting against their displacement due to a TISCO factory on 2nd January 2006.

ecosystem and livelihoods issue, whose time seems to have arrived. Involvement and contribution of all are required for documentation, analysis and dissemination of information on water conflicts to prevent, engage and resolve them.

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