

MAHANADI

Coal Rich, Water Stressed

A study on the need of building inter-state cooperation
in managing one of India's major rivers

Ranjan K Panda

The **Heinrich Böll Stiftung/ Heinrich Böll Foundation** is a German foundation and part of the Green political movement that has developed worldwide as a response to the traditional politics of socialism, liberalism, and conservatism. We are a green think-tank and an international policy network, our main tenets are ecology and sustainability, democracy and human rights, self-determination and justice. We place particular emphasis on gender democracy, meaning social emancipation and equal rights for women and men. We are also committed to equal rights for cultural and ethnic minorities. Finally, we promote non-violence and proactive peace policies. To achieve our goals, we seek strategic partnerships with others who share our values.

Our namesake, Heinrich Böll, personifies the values we stand for: protection of freedom, civic courage, tolerance, open debate, and the valuation of art and culture as independent spheres of thought and action.

Our India Liaison Office was established in 2002 in New Delhi. Working with governmental and non-governmental local project partners we support India's democratic governance through informed national and international dialogue processes with a view to enhance the diversity of green thinking.

Disclaimer: This publication was prepared with the support of the Heinrich Böll Stiftung India. The views and analysis contained in the publication are those of the author and do not necessarily represent the views of the Heinrich Böll Stiftung.

This publication is not for sale.
"Mahanadi: Coal Rich, Water Stressed"

Author : Ranjan K Panda
Copy Editor : Priyaranjan Sahu
Cover & Design : Satyam Grafix
Printer : Satyam Grafix

©India, October, 2018

For more information please contact us:

Heinrich Böll Foundation, India Office
C-20, 1st floor, Qutub Institutional Area
New Delhi 110016, India

Phone +91-11-2685 4405, +91-11-2651 6695
Fax +91-11-2696 2840

Mail: info@in.boell.org
Web: www.in.boell.org

Photo Credits (except where mentioned): Ranjan K Panda



Mahanadi: Coal Rich, Water Stressed

A study on the need of building inter-state cooperation
in managing one of India's major rivers

Ranjan K Panda

Heinrich Böll Stiftung

Contents

	Page No.
Foreword	v
Chapter I On Water Laws in India in Context of Inter-State River Water Disputes	01
Chapter II The Mahanadi Inter-State River Water Dispute	15
Chapter III Mahanadi in its Coalfields: Real Concerns for the River Lie Here	31
Chapter IV Conflicts over Mahanadi Water and Marginalisation of Local Communities	63
Chapter V Conclusion and Recommendations	79
References	99
Annexure: ISRWD Act Amendment Bill 2017	101

Foreword

Our rivers are heavily stressed entities. That is the reason conflicts around the rivers have been growing. The conflict over the Mahanadi, India's sixth largest river, is the latest in inter-state river water disputes of India. In about 22 months, the conflict has already passed through many phases of agitations and negotiations with involvement of the governments of both the conflicting states – Odisha and Chhattisgarh – and many other stakeholders.

The Mahanadi is already struggling for its life because of excessive exploitation of the water by industrialisation and negative impacts of climate change. The river certainly cannot afford such a conflict. The history of India's inter-state disputes tells us that scarcity, or a perceived notion of scarcity, lets the conflict continue for years without an end in sight whenever it starts.

The current episode of the fight started in July 2016 when the lower riparian state Odisha alleged that the existing and forthcoming dams and barrages in upper riparian state Chhattisgarh will dry up the river downstream thereby affecting Odisha's common people, farmers, industries and ecology badly. In fact, Odisha claims that Chhattisgarh's plans to obstruct the river will reduce the inflow into the Hirakud Dam to almost zero and make it dysfunctional. The Hirakud Dam, located in Sambalpur district of Odisha, is the largest dam over the Mahanadi. But maximum of its catchment area lies in Chhattisgarh.

The Odisha government, the state's ruling political party, opposition political parties and civil societies started agitating about Chhattisgarh's alleged illegalities and the conflict has travelled from streets to the Assembly and even Parliament. Currently, the matter has been referred to a tribunal, after a battle in the Supreme Court, but the tribunal is yet to start its hearing.

Chhattisgarh refutes Odisha's allegations and claims that it has every right to utilise each drop of water of the Mahanadi within its geographical territory. Odisha, on the other hand, is projecting itself as a victim, as all lower riparian states do in such cases.

Having observed the conflict from close quarters and being a stakeholder in this case, this researcher decided to study the conflict in order to understand if it is just a political war between two states or there is substance in the argument of Odisha being a victim, and to know if the real issues of the Mahanadi and its dependent communities are or will be addressed by the dispute and the proposed redressal process.

This researcher embarked upon a study to understand the way such conflicts are addressed by the existing laws of the land and to gauge

how much of a difference a 'win' or 'loss' by the victim state, i.e. Odisha, will impact the poor, indigenous and other local communities, especially in the coalfield areas and around the Hirakud Dam, which is a symbol of first incidence of water colonisation in the basin and has actually been the genesis of the conflict.

In doing so this researcher closely observed the conflict as a resident of the lower riparian state and as a water expert of the region who has been studying and working on the Mahanadi river basin for more than two decades now. He also analysed both secondary information and made field visits to coal belts of the Mahanadi in both the states to understand how the local people were being dealt with by the states with regards to their rights over the river water and other local natural resources.

The research found out that while the inter-state dispute between Odisha and Chhattisgarh centred on reduced flow of water at the Hirakud reservoir because of the dams and barrages constructed upstream, the impact of coal mines and thermal power plants (TPPs), and other industries did not come up for discussion. This is because both the states have committed themselves to mining and industrialisation in the name of 'development' and have been promoting the Mahanadi as a 'water surplus' river for inviting more investment into mining and industrial sector. The research tries to highlight some such real issues being faced by people affected by mining and thermal power plants.

The research tries to explore Odisha's argument as a self-proclaimed 'victim state' in perspective with all the issues mentioned above and tries to find out if Odisha is treating the Mahanadi any better than Chhattisgarh? The answer that came out of the research for the moment is a simple NO!

Being the youngest inter-state river water dispute of India, this case offers a lot of opportunities to understand the new dimensions of conflict that the earlier conflicts had not dealt with at least while being fought in the tribunals or courts. Impacts of coal fired power plants and climate change are such new dimensions.

The report first describes the laws related to inter-state water disputes in India and the lessons learnt from them. It then describes the conflict so far and goes on to argue how the real problem of the conflict lies in the Mahanadi's coalfields. After that, the report discusses how the local and indigenous communities get marginalised in the conflicts over Mahanadi water. In conclusion, the report suggests a two-pronged set of broad recommendations.

This researcher is deeply indebted to all the villagers, local civil society groups and people's organisation leaders in the districts of Jharsuguda in Odisha and Raigarh in Chhattisgarh who spared their valuable time despite their continuous struggle with challenges posed by the mines, thermal power plants and pollution affecting their lives and livelihoods on

a daily basis. While it is difficult to name all, he would like to express his special thanks to Ramesh Agarwal ji, Rajesh bhai and Sabitaji of Jan Chetna Manch, Raigarh, and Mehboob Mahtab, Surendra Barik, Subash Pradhan, and Ananta bhai from Jharsuguda for their support during his visits to the villages in the coalfield areas.

This researcher would like to extend his heartfelt thanks to the Heinrich Boll Foundation for its support for this study – especially Sadia Sohail for facilitating the support, Axel Harneit-Sievers for granting it out and Sanjay Vashist for introducing him to the organisation.

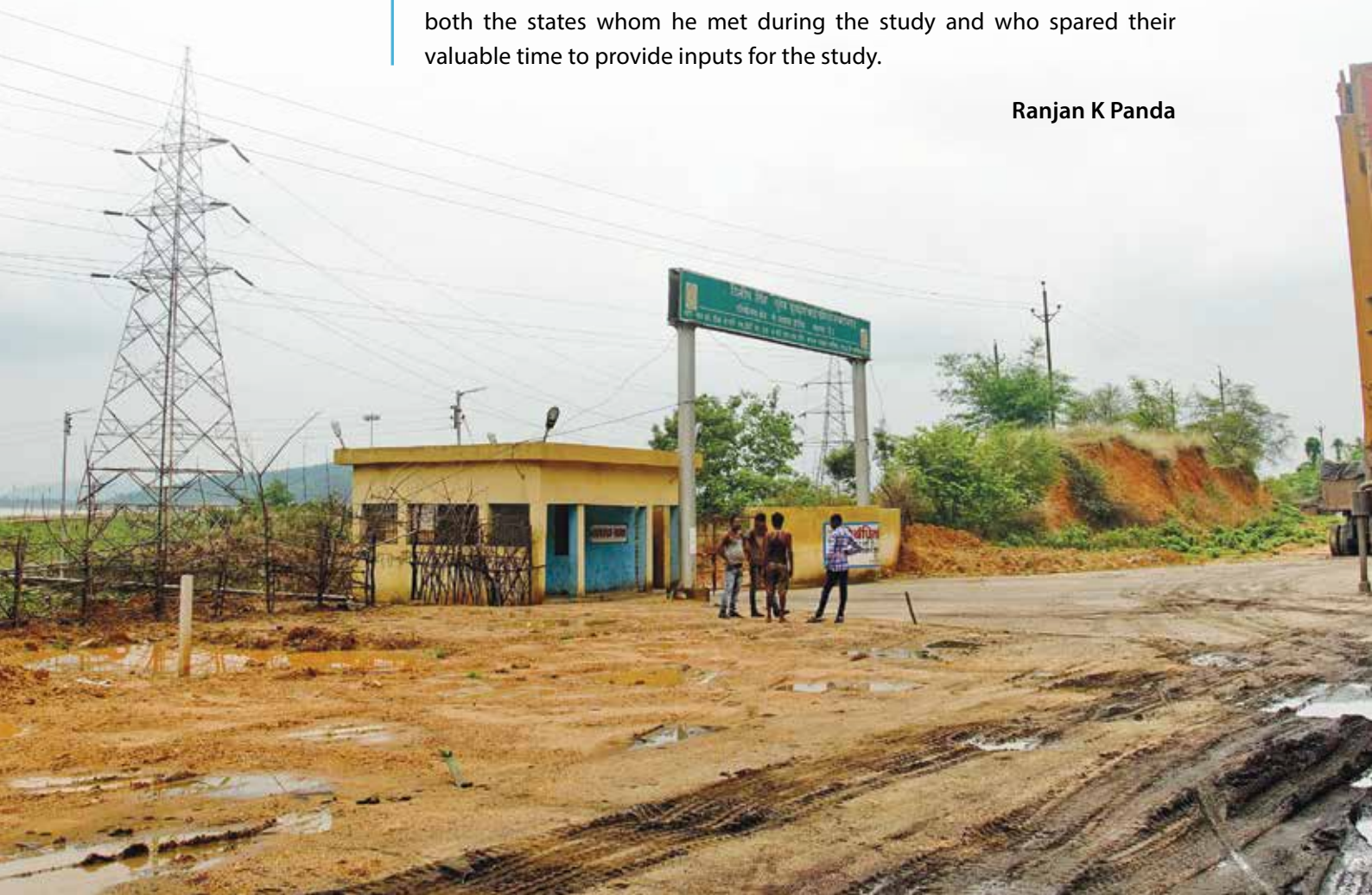
This researcher is also thankful to Sudeshna Satpathy for her assistance in keeping a note of the developments of the conflict as reported in media, and helping in some of the visits and interviews conducted during the study.

Thanks are also due for Lalit Kumar Patnaik, a veteran engineer who helped this researcher with required technical analysis on the water availability scenario of the Mahanadi.

This researcher is immensely thankful to senior journalist Priya Ranjan Sahu for his support in taking the pain of reading the entire document and helping in necessary copy editing. He is also grateful to Ajit Kumar Panda, co-sailor at Water Initiatives Odisha and a senior journalist, for his help in the compilation of some of the information.

This researcher would also like to thank many civil society leaders, politicians, media persons, activists, farmer leaders and other people from both the states whom he met during the study and who spared their valuable time to provide inputs for the study.

Ranjan K Panda





A dry and polluted stretch of the Mahanadi at Chandrasasini in Chhattisgarh that caters to daily water needs of thousands of people. Among other things, open dumping of fly ash on its bank has contributed to its pollution here.



On Water Laws in India in Context of Inter-State River Water Disputes

Water is designated a 'State' subject in the Schedule VII, List II, Entry 17 of the Constitution of India. The entry says, "Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provision of Entry 56 of List I." The Schedule VII, List I, Entry 56 of the Constitution says, "Regulation and development of Inter-State rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest."

Article 262(I) of the Constitution stated that the mechanism for adjudication of disputes and complaints in respect of water and water supplies was to be provided by a separate legislation. That led to the promulgation of the Inter-State River Water Disputes Act, 1956 (Lahiri 2016). The central government had also enacted the Rivers Boards Act, 1956 under these provisions. The Entry 56 of List I ensured that the Centre's power to legislate could be eviscerated by a declaration under Entry 56 by Parliament, and a measure to regulate/develop an inter-state river valley was expedient in the public interest (Lahiri 2016). According to the Schedule VII, List III, Entry 17-A, the Centre can also intervene in the interest of protecting the environment and forests and 'under provisions regarding national planning for development' (Vaidyanathan and Jairaj 2009).

The Inter-State River Water Disputes Act, 1956 (hereinafter referred as ISRWD Act), rules for which were promulgated in 1959, has gone through several amendments since it was enacted. The last amendment was in 2002 whereby adjudication of the water disputes by tribunals had been made time bound after consultation with all state governments¹. On the complaint made by the state governments, the central government has, so far, set up eight tribunals to settle water disputes among the states under the ISRWD Act, 1956². The list is in the following table.

Table 1: Status of Inter-State Water Disputes over the Sharing of River Water under the Tribunal

S No.	Name of Tribunal	States Concerned	Date of Constitution	Present Status
2	Godavari Water Disputes Tribunal	Maharashtra, Andhra Pradesh, Karnataka, Madhya Pradesh and Odisha	April 1969	Award given in July 1980
2	Krishna Water Disputes Tribunal -I	Maharashtra, Andhra Pradesh, Karnataka,	April 1969	Award given in May 1976
3	Narmada Water Disputes Tribunal	Rajasthan, Madhya Pradesh, Gujarat and Maharashtra	October 1969	Award given in December 1979

¹ Reply of Uma Bharti, Minister of Water Resources, River Development and Ganga Rejuvenation, Government of India, to Unstarred Question No. 1232 on Inter-State River Water Sharing Disputes in the Lok Sabha on March 3, 2016.

² Ibid.

4	Ravi and Beas Water Tribunal	Punjab, Haryana and Rajasthan	April 1986	Report and decision under section 5(2) given in April 1987. Clarification/explanation sought from the Tribunal under Section 5(3) of the said Act by the party states. Also, a presidential reference in the matter is before the Supreme Court and as such the matter is sub-judice.
5	Cauvery Water Disputes Tribunal(CWDT)	Kerala, Karnataka, Tamil Nadu and Puduchery	June 1990	Report and decision given on February 5, 2007 which was published vide notification dated February 19, 2013. Further, report of CWDT u/s 5(3) of the Act is awaited. Also, Special Leave Petition (SLP) filed by party States in the Supreme Court, as such the matter is sub-judice.
6	Krishna Water Disputes Tribunal-II	Karnataka, Telengana, Andhra Pradesh and Maharashtra	April 2004	Report and decision given on December 30, 2010. Further report given by the Tribunal on November 29, 2013. However, as per the Supreme Court order dated September 16, 2011, till further order, decision taken by the Tribunal on references filed by the states and central government shall not be published in the official gazette. As such, matter is sub-judice. Term of the tribunal has been extended for a further period of two years with effect from August 1, 2014 to address the terms of reference as contained in Section 89 of Andhra Pradesh Reorganisation Act, 2014. The matter is under adjudication in the tribunal. The Telengana government has filed a special leave petition(SLP 33623-26 of 2014 and Writ Petition WP(C) 545 of 2015) in the Supreme Court in the matter. The matter is sub-judice.

7	Vansadhara Water Disputes Tribunal	Andhra Pradesh and Odisha	February 2010	<p>However, as per the Supreme Court order the date of reckoning of the constitution of the tribunal is with effect from September 17, 2012.</p> <p>Report and decision not given by the tribunal. Odisha has filed an SLP in the Supreme Court against the appointment of one of the members of the tribunal. The SLP in the matter filed by Odisha in the Supreme Court is pending.</p> <p>The matter is sub-judice. Besides, the Vansadhara Water Disputes Tribunal in its order on December 17, 2013 has directed to constitute a 3-member Protem Supervisory Flow Management and Regulation Committee on River Vansadhara to implement its order. The Odisha government has filed Special Leave to Appeal (Civil) No.3392 of 2014 with regard to the Vansadhara Water Disputes Tribunal Judgement on December 17, 2013. The matter is sub-judice.</p>
8	Mahadayi Water Disputes Tribunal	Goa, Karnataka and Maharashtra	<p>November 2010</p> <p>However, vide notification dated September 13, 2014 date of reckoning of the constitution of the Tribunal is with effect from August 21, 2013</p>	Report and Decision not given by the Tribunal

Besides this, the central government has constituted a three-member supervisory committee on i) Mullaperiyar Dam for implementing the order dated May 7, 2014 of the Supreme Court, and ii) Babhali Barrage on October 24, 2013 for implementation of the order dated February 28, 2013 of the Supreme Court, informed the central minister (Refer footnote 1).

Action of negotiated settlement with the party states has also been initiated by the central government as per the provisions of the ISRWD Act, 1956 on the request of the Bihar government on the issue of the Sone river. After two meetings – one by the chairman, Ganga Flood Control Commission (GFCC) in 2014 and another by the chairman, Central Water Commission (CWC) in 2015– it was agreed that the situation can be watched for one year regularly and instead of analysing the Joint Operation Committee (JOC) recommendations at the end of season, it would be better to have analysis carried out during the lean period so that corrective measures could be taken timely. It was further agreed that the two states Uttar Pradesh and Bihar would meet periodically every two months to analyse the release pattern vis-a-vis the JOC recommendations from the Rihand Dam and try to solve the issues bilaterally.

According to the minister, states have in the past resolved their disputes on water sharing or joint projects through mutual discussions and agreements with/without the direct intervention of the central government. So far about 114 inter-state agreements have been reached between states. (Agreements on inter-state rivers: Vol III of Legal Instruments on Rivers in India, CWC)³.

However, the tribunals set up under this Act have not been always effective in settling the inter-state river water disputes. Researchers believe, they played an effective role initially, however the Centre has not been using this mechanism with much confidence. While there are no state mechanisms to redress disputes within their own territories, various acts and rules determine the use and distribution of water including river waters do exist. Irrigation rules are the dominant among them. States have legislated irrigation acts, which in effect give their governments the power to regulate the development and use of surface water within their territories (Vaidyanathan and Jairaj 2009).

The irony is that the River Boards Act, 1956 (hereinafter referred as RBA), which was enacted under Entry 56 of the Union List in the Constitution to enable the central government to create, in consultation with the relevant state governments, boards to advise on integrated development of inter-state basins, was never taken seriously. The river boards were expected to facilitate optimum use of river water by bringing in proper coordination in various aspects of water use such as irrigation, drainage, flood control and hydro-electric power and prevent disputes by preparation of developmental plans with joint effort of the riparian states. It has remained unimplemented because jurisdiction of the states is different from the area under river basins. Apprehensions existed regarding acceptability of apportionment of water, and precedence among the various uses of water had not been set out until the National Water Policy was announced in 1987 (Tyagi 2015). However, despite prioritisation of uses in National Water Policy 1987 as well as subsequent water policies, the Act could not be implemented because of the same reasons and growing water scarcity.

States have always been sceptical about central position in inter-state rivers and hence there have been resistance from time to time to any law that seems to increase central control over such rivers. The Sarkaria Commission on centre-state relations termed the RBA a 'dead letter'. No board has been so far formed under the RBA. India's former water resources minister (Refer to footnote 1) confirmed this in the Lok Sabha on March 3, 2017 when she said, "no committee/ boards have been constituted for resolving the inter-state water disputes between the party states raised under the provision of Inter-State River Water Disputes Act, 1956".

Chhattisgarh Chief Minister Raman Singh has been insisting on establishment of a river control board after Odisha registered a complaint against its alleged unauthorised constructions on the upper basin of the Mahanadi. But Odisha has not agreed to it. "River control boards are not same with river boards.

3 Ibid.

The earlier are basically set up for the purpose of coordinating central and state government inputs in project construction”(Wood 2007).

When the ISRWD Act was promulgated, there was not much concern about water scarcity in general and ground water in specific. Even the concerns with regard to climate change impacts were also not addressed. While these aspects started to be highlighted in various disputes at later stage of their arguments, the climate change aspect has just set in conflicts such as the Mahanadi. Of course, the state actors are not yet concerned about it, but civil society groups and experts are asking the states to consider growing water scarcity related to climate change. Specifically, the Water Initiatives Odisha (WIO) and Mahanadi River Waterkeeper have been asking both the riparian states as well as the central government to factor in climate change in management of Mahanadi⁴.

The Water (Prevention and Control of Pollution) Act, 1974 and the Environment (Protection) Act 1986 have utterly failed to play their parts in managing ecological status and pollution levels of our rivers. Interestingly, these laws should have also played a major role in inter-state rivers by bringing in ecology protection and pollution control of river basins. However, they have been used mostly as instruments to clear more industrial projects, forest diversion, dam projects and other so called development projects that have ultimately caused decay in our rivers. In the Mahanadi conflict, there are clear evidences of these Acts having failed in maintaining a coordinated approach for maintaining a healthy status of the river.

Projects along the basins have got forest and environmental clearances on basis of project based assessments of situations rather than cumulative assessments of the river basin.

When the ISRWD Act was promulgated, there was not much concern about water scarcity in general and ground water in specific. Even the concerns with regard to climate change impacts were also not addressed

DAMS THE MAJOR CONFLICT AREA

Inter-state river disputes in India as well as abroad have mainly centred on large projects. Farakka, Baglihar, Almatti, Narmada (Sardar Sarovar), Tehri, Mullapperiyar and Parambikulam Aliyar are the examples (Iyer 2007). Water resource development in inter-state rivers within India as well as in trans-boundary river basins has focussed much on large dams.

Dams have been built across India's rivers for thousands of years. Over the periods in history, after evolving their civilisations around rivers, humans started to change their relationships with the rivers. In the recent years, the country's water managers – dominated by civil engineers – however continue to focus on large dams. In India, we considered rivers as divine entities in the past. In the majoritarian discourse, it still exists but is limited to a few rivers. With the current government at the Centre coming to power in 2014, the major focus given to Ganga –traditionally the most divine river in the country – shows even in the fact that the name of the water resource ministry was changed to incorporate 'Ganga rejuvenation'. Earlier it was known as Water Resources Ministry but now it is called the 'ministry of water resources, river development and Ganga rejuvenation'. However, nothing really changed in relation to how the government looks into water resources. It is mostly the 'control' approach under which engineers are the most important influencers to 'develop' river basins by constructing dams, barrages, projects in which common people and other sectoral experts linked to rivers do not play any important role. This is part

4 <https://groups.google.com/forum/#!msg/apenvconnect/FGJ4oxxy2Q/M8XkuDYrAQAJ>

of the 'Era of Control' as Ramaswamy R. Iyer describes it. He feels, our current state of river management draws inspiration from ancient times' Promethean legend⁵, but the human capacity to subdue nature became marked only after the industrial revolution. (Iyer 2015) Iyer compares the Promethean legend with Bhagiratha legend that has come from ancient mythological stories of India. While Prometheus defied God, Bhagiratha prayed before God to bring the Ganga down. For some researchers, while Bhagiratha legend is much about an ecological concept of rivers, Promethean legend is more about Western engineering. According to historian Axel Harneit-Sievers, however, the Prometheus legend is at least 2,500 years old and known from ancient Greece, long before anything such as "the West" or "Western engineering" emerged⁶. According to this view, in more modern times, the Promethean legend has been interpreted by some to mean "control over nature". Our current day engineers, starting from the British Raj, have embraced the Western engineering concept that made dams as symbols of development. The Promethean attitude to nature came to India with Western engineering, and was ardently embraced by our own engineers and administrators, and by our intelligentsia as a whole. (Iyer 2015) Or, according to the other view, we can say the 'misinterpreted version' of Promethean legend has influenced our water planning more than anything else.

At present, India has completed construction of 5,254 large dams while 447 are under construction. Odisha has 199 large dams, while five more are under construction. Chhattisgarh, on the other hand, has 248 large dams, while 10 more under construction (Central Water Commission, 2017). Interestingly, the Central Water Commission (CWC) that has been favouring Chhattisgarh (as alleged by Odisha) in the Mahanadi dispute, has data from Chhattisgarh only up to August 2014 (Central Water Commission 2017). Building of large dams in India peaked in the two decades from 1971 to 1990, and then has been going on a downward trend. However, water management approach of the country has basically been centred around large dams under the 'Control Approach' (Iyer 2015). That is the reason most of the inter-state river water disputes are centred around such dams. Control gives rise to conflict.

Wood (2007) feels that most of the rivers in India have been the subject of disputes among co-riparian states over the allocation of the costs and benefits of developing river water resources and that most of these have been upstream-downstream conflicts. While trying to build an analytical framework to study the Narmada dispute, which he studied for decades, Wood found the prime ingredients of a conflict to be as follows:

- (i) the growing perception that a commonly shared source of water is diminishing and that one's normal allotment is jeopardised;
- (ii) a proposal to develop an as yet untapped water resource leads to a contest over shares of benefits and costs;
- (iii) the perception that an existing hierarchy of users and usages of a water resource is changing and that one must defend one's interest;
- (iv) and those imposing the technological change used to tap the resource are perceived to violate the human rights of population adversely affected by the change and also to inflict harmful effects on the environment.

In fact, the Mahanadi conflict fits into most of this framework.

Discussing some of the major water conflicts would be good to know how dams have been at the centre stage of inter-state water conflicts.

⁵ Prometheus is said to have brought fire to humans in defiance of the gods.

⁶ Based on personal communication with him.

In the Narmada case, even as the party states fought for water share from dam projects, the conflict brought in a huge participation from project oustees. The dam displaced communities fought a long battle, which is still continuing. The process of inter-state negotiations and then tribunal formation and award took too long, but the displaced are still fighting their battle against the governments.

The dispute relating to Krishna and Godavari arose long back in 1951 when India's First Five Year Plan was being drawn and states were asked to formulate water development projects. An agreement that was formulated between riparian states was the subject of consideration in the Krishna Water Disputes Tribunal that was set up in 1969. This dispute has also a lot to do with water sharing for hydro-electric projects, providing water to areas derived of water by Nagarjuna Sagar project, besides other things. The 1951 agreement was declared invalid and the new formula of water sharing was given by the tribunal. But things have not sorted out, despite the tribunal praising the positive spirit of the states. In the decades that have followed the tribunal headed by Justice R.S. Bachawat, the basin states – particularly Maharashtra, Karnataka and Andhra Pradesh – have frequently been at loggerheads over the allocation of water, accusing each other of violating the award (Wood 2007). Controversies around the Upper Krishna Almatti Dam and Ujjani Dam have been in major focus. Downstream projects by Andhra Pradesh too have kept the conflicts going.

The Cauvery, called the 'rice bowl of the south', is among the most utilised rivers in the world; barely 5 per cent of its water flows into the Bay of Bengal (Wood 2007). The conflict over the river dates back to more than a century. In 1892, an agreement was reached between the princely state of Mysore (almost the entire Karnataka) and Madras Presidency under which Mysore was not supposed to build any irrigation project without prior consent of Madras. However, the agreement failed and then a new agreement was reached in 1924 that specified the capacity and extent of irrigation to be provided by the Krishna Raja Sagara Dam in Mysore and the Mettur reservoir in Madras (Wood 2007).

The agreement was for 50 years but Mysore always had the complaint that it favoured Tamil Nadu (previously Madras) more. Each side thus violated the agreement by constructing more structures. Tamil Nadu always moved ahead with irrigation facilities while Karnataka was catching up and the conflict continued. After that agreement expired in 1974, the Tamil Nadu government asked for constitution of a tribunal. However, on being pursued by the then prime minister, the demand was withdrawn and a fresh negotiation process started. The new agreements offered by the central government were rejected twice and a crisis management system was worked out in 1976 for 15 years in which Tamil Nadu demanded enough water annually to save its withering crops in the delta. The Cauvery Water Disputes Tribunal (CWDT) was appointed on June 3, 1990. The tribunal gave an interim order on June 25, 1991 asking Karnataka to release 205 thousand million cubic feet (tmcft) of Cauvery water annually to Tamil Nadu (including 6 tmcft to Pondicherry (now Puducherry)). This was objected by Karnataka, which delayed the implementation of this order.

The dispute has seen the most political action including former prime minister Atal Behari Vajpayee trying to set up a Cauvery River Authority headed by him. However, it did not make any headway in

In the Narmada case, the dam displaced communities fought a long battle, which is still continuing. The process of inter-state negotiations and then tribunal formation and award took too long, but the displaced are still fighting their battle against the governments

addressing the problem. The tribunal⁷, which was originally reluctant to give an interim order, then heard petitions and counter petitions on the interim order for almost 16 years and then came out with a final order in 2007 allocating 419 tmcft water to Tamil Nadu and 270 tmcft to Karnataka. Kerala was given 30 tmcft and Puducherry got 7 tmcft. Kerala is a party to this dispute because it contributes to the catchment area of three of the Cauvery's tributaries. Puducherry is a party because sub-branches of the river irrigate its Karaikal area before reaching to the sea.

Petitions and review petitions were then filed in the Supreme Court and despite the intervention of the apex court, the conflict is not over. Karnataka witnessed violence in September 2016 when pro-Kannada people set ablaze many vehicles and attacked government offices in Bengaluru protesting the recent Supreme Court order directing the state government to release 15,000 cusecs (cubic feet per second) of water to Tamil Nadu. Though the apex court modified the verdict on September 12, 2016 asking the Karnataka government to release 12,000 cusecs instead of 15,000 cusecs, the violence continued⁸.

The case and conflict continued and on February 16, 2018, the Supreme Court gave another verdict and raised the share of Cauvery water for Karnataka by another 14.75 tmcft and reduced Tamil Nadu's share, while compensating it by allowing extraction of 10 tmcft groundwater from the river basin, saying the issue of drinking water has to be placed on a "higher pedestal"⁹. The court, in the verdict, tried to give justice to all stakeholder states and decided that the states of Tamil Nadu, Karnataka, Kerala and Union Territory of Puducherry would be annually entitled to 404.25 tmcft, 284.75 tmcft, 30 tmcft and 7 tmcft of Cauvery water respectively out of the total of 740 tmcft. The court, in the same order, said that it modified the Cauvery tribunal order and would not extend any further dates in this case, and asked the central government to formulate a scheme for management of Cauvery waters by May 3, 2018. However, the Centre has not yet been able to formulate the same and has on April 28 sought another two weeks this year's time to come up with the same¹⁰. The dispute continues, and it was one of the major issues during this year's Karnataka state assembly elections.

Large dams become the foci of conflicts essentially because (a) they tend to alter geography and hydrological regimes, sometimes drastically; and (b) they involve issues of control, power and political relations, social justice and equity (Iyer 2007). The Mahanadi conflict, which is at a budding stage now, has to take a cue from all these conflicts and need to discuss about whole range of issues affecting the basin and its local communities.

Ecological concerns and concerns emerging from climate change were hardly any issue for most of the river conflicts when they started. However, they have to be taken into consideration in the Mahanadi dispute. In fact, environmental concerns, wherever they have been the points of discussion or dispute, have been mostly talked about in terms of reduction of flows. No doubt, the reduction of flows because of upstream dams or barrages or even because of heavy upstream water use (apart from affecting the availability of water) can have serious environmental/ecological impacts in the downstream areas (Iyer 2007), but they are not limited to that. In a basin like Mahanadi and many other basins where there is vast destruction of forests and hence top soil, there are many more ecological concerns, as we can see in subsequent sections of this report. The Mahanadi conflict, therefore, has a lot more to solve than just reduced water flow. Just depending on the tribunal order may not serve the whole purpose.

7 The tribunal had over 440 days of hearing and had to read about 36 volumes of documents that ran to several thousand pages, many technical notes and other submissions. (Main source of information: Wood 2007)

8 <http://indianexpress.com/article/india/india-news-india/cauvery-water-row-what-is-the-dispute-bengaluru-karnataka-tamil-nadu/>

9 <http://www.abplive.in/india-news/sc-asks-centre-to-file-cauvery-management-scheme-by-may-3-681119>

10 <http://indianexpress.com/article/india/cauvery-water-dispute-supreme-court-centre-seeks-two-weeks-to-file-draft-scheme-on-cauvery-5154568/>

LESSONS FROM LAWS

At the international level, there have been recognised principles such as the Harmon Principle and the Helsinki/ Dublin rules that seek to address issues of different claimants over a river basin waters. In India, there are no such principles. While the Harmon principle recognises the right of a region to use the water that flows through it, the Dublin rules are based on the optimum utilisation of the resources of the basin for the common benefit of all its inhabitants. At the national level, however, there are no such defined principles. Most of the tribunal judgements are based on combination of several of the existing principles (including the above international ones) and local practices. There is no formal basis to determine water allocations between different segments of a river basin, and between different uses and users either in the constitutional directive in respect of inter-state or intra-state rivers, or the central or state legislations (Vaidyanathan and Jairaj 2009).

Article 39 (b) of the Constitution provides a directive that “the ownership and control of material resources of the community are so distributed as best to subserve the common good.” However, with water policies of the country building around the concept of water as a ‘commodity’, which also was part of a segment of the Dublin Statement of 1992 – and being aggressively pushed under reforms agenda of World Bank and Asian Development Bank that have played determinant roles in shaping of water policies and projects in India – the decisions of tribunals have not been able to address the issue of ‘common good’ and of all the stakeholders in an equitable way. The Dublin statement contained some good principles (1,2, and 3), but Principle 4 declared water to be an economic good, and that laid the foundation for the treatment of water as a commodity, subject to market forces like any other commodity (Iyer 2015).

Even when a tribunal addresses a conflict based on the principle of ‘optimum utilisation of resource for all inhabitants’, there would remain many gaps – in so far as ensuring rights of the resources to local communities – because the ‘optimisations’ are largely dependent on the ‘water development’ models promulgated by the state machineries which are influenced by engineering designs that revolve around ‘control of the resources through large structures.’ There are ambiguities in priorities of use of water set by water policies – both national and state – and that gives ample scope for misguided allocation to market forces that invest money in projects, but exert more resources than the community in the name of development or ‘national interest’ despite having no riparian rights. Most of the large dams, including the Hirakud – which has sown the seed of conflict between Odisha and Chhattisgarh in case of the Mahanadi – are constructed in the guise of ‘national interest’ and when the water resource is controlled or colonised, the locals including indigenous communities – who have sacrificed the most for the projects either get the least access or absolutely no access to these water resources. We will see that while discussing the case of Hirakud Dam in subsequent chapters.

With water policies of the country building around the concept of water as a ‘commodity’, the decisions of tribunals have not been able to address the issue of ‘common good’ and of all the stakeholders in an equitable way

The Mahanadi dispute has now gone to a tribunal and the hearing may start anytime soon, as the latest series of developments show. However, Odisha – the self-proclaimed ‘victim state’ – should understand that inter-state water disputes are lengthy affairs. Interstate water disputes in India often prolong over long periods and tend to recur (Chokkakula 2012). As the table 1 shows, the Cauvery Tribunal took almost 17 years to give its final award. All other tribunals also took long years but disputes have every chance to

recur. Then it is not necessary that the states will not open up the conflicts again. These long delays are partly due to elaborate judicial proceedings and deliberations. But more importantly, the adjudication proceedings are often circumvented and impeded by a variety of political interests (Chokkakula 2012). Inter-state water resources disputes are thus more political than hydrological or ecological.

In fact, each river water dispute in India has its own peculiar characteristics and is dependent on many factors related to the states, their geography and their past relationships. The tribunals may, in an ideal situation, try to consider the whole basin as a single hydrological unit and make decisions based on many of the principles available but it is easier said than done. Woods (2007) says the following:

“At first glance, the ideal solution from a development perspective would be to treat a river basin as an integrated whole, uncomplicated by state (or international) boundaries and competing interests. Engineers and planners could then devise schemes that would maximize the development of each river’s potential benefits while minimizing the damage done to the resource, the environment and the people dependent on them by the self-interested behaviour or disputed states.”

However, with the River Boards Act, which was perhaps supposed to do the above, being a ‘dead letter’ and growing water scarcity and changing political scenario, this is just a difficult proposition. India so far has also not been able to enact any law that would be able to handle the complexities involved in river basin management while assuring the states about their intact control over water as a state subject.

Then, there is no mechanism available in which the riparian communities – mostly the farmers, fisherfolk, forest dwellers and other indigenous communities – can find a space in the river basin management. Most of the tribunals in India have preferred the doctrine of ‘equitable apportionment’ after following other doctrines such as the Harmon Doctrine and the English common law principle of riparian rights. That is why it becomes essential to understand the doctrine that basically talks about equitably distributing waters of inter-state rivers between states. However, this has also not been able to devise suitable formula of ‘equitable distribution’ so far. All tribunals since the enactment of the Act of 1956 have been ad idem that the concept of equitable apportionment is not capable of a precise definition and cannot be put in any straightjacket formula¹¹. There are various factors that will make a tribunal consider a particular set of principles and then many more factors will determine how the warring states will consider the same. So, for the moment, the Mahanadi conflict is entering into turbulent waters of water laws that may take decades to come out with any decision in this regard, who knows?

If the central government is depending on constitution of a common tribunal, towards which it has already introduced an Amendment Bill (*see Annexure*) to the ISRWD Act, 1956 in one of the recent sessions of Parliament, then things may take more time for a Tribunal to be formed and then the history of disputes settlement may also take a new course. Whichever way it goes, the fact that a conflict has erupted and has already knocked the door of a legal process, it is important to understand the conflict.

11 Report of the Ravi and Beas Waters Tribunal – p.277 as reported in Lahiri 2016 p. 29)



A boy takes a plunge into the Lilari nullah (rivulet) and comes out all black. The nullah flows through coal mines of the Ib Valley area in Jharsuguda district. The same is the fate of many other rivers that ultimately go into the Mahanadi river.



The Mahanadi Inter - State River Water Dispute

India's sixth largest river Mahanadi (see box: Mahanadi River, A Brief Profile) is now witness to a bitter political fight between its two major riparian states: Odisha and Chhattisgarh. In June 2016, Water Initiatives Odisha (WIO) – an organisation working for water and environment in the state of Odisha – came in possession of a letter written by Odisha's special secretary of the water resources department to the engineer in-chief of the state seeking details of violations (meaning construction of dams and barrages) by Chhattisgarh upstream Mahanadi. When the letter was sent out to the media with a press release from the WIO, the state sprang to action. Immediately, the state government as well as opposition started agitating against the alleged violation by the upstream state.

Odisha's complaint basically is centred on six barrages that Chhattisgarh was building upstream without consulting them, and that the central government was favouring the upper riparian state in this alleged illegal act. Odisha wanted an immediate halt to all such constructions and do an assessment of their impact on the Mahanadi flow that, according to Odisha, has already reduced a lot over the decades. "The annual flow of water in the Mahanadi in Odisha is 20 million cubic feet and if water is intercepted for storage by the upstream state, the flow will fall sharply," the state's engineer-in-chief had said then¹² when he had been asked to investigate into Chhattisgarh's illegalities.

Odisha's ruling party, Biju Janata Dal (BJD), took the lead in the agitation and many others, including civil society and media, have joined the force. Odisha claimed the upstream state is intercepting Mahanadi waters to an extent that will dry up the river and make the Hirakud Dam dysfunctional. Chhattisgarh immediately refuted the allegation and claimed it had every right to utilise each drop of water of Mahanadi within its geographical territory. Odisha then projected itself as a 'victim state' and organised a lot of agitational programmes. BJD's MPs even raised the issue in Parliament and then organised demonstrations in front of it.

The Odisha government started a two-way battle: one at the official level and another at the political party level. Public protests by the party started inside the state and the MPs from the BJD took up the matter in Upper and Lower Houses. Opposition parties and civil society groups also began protests. The Mahanadi also became a campaign agenda for the state's panchayat elections¹³.

Almost all the opposition political parties joined the battle in their own ways. The Bharatiya Janata Party (BJP) however took a different position. Its leaders and spokespersons alleged Odisha government of playing unnecessary politics without having an intention to solve the problem. That is understandable because Chhattisgarh is ruled by the BJP.

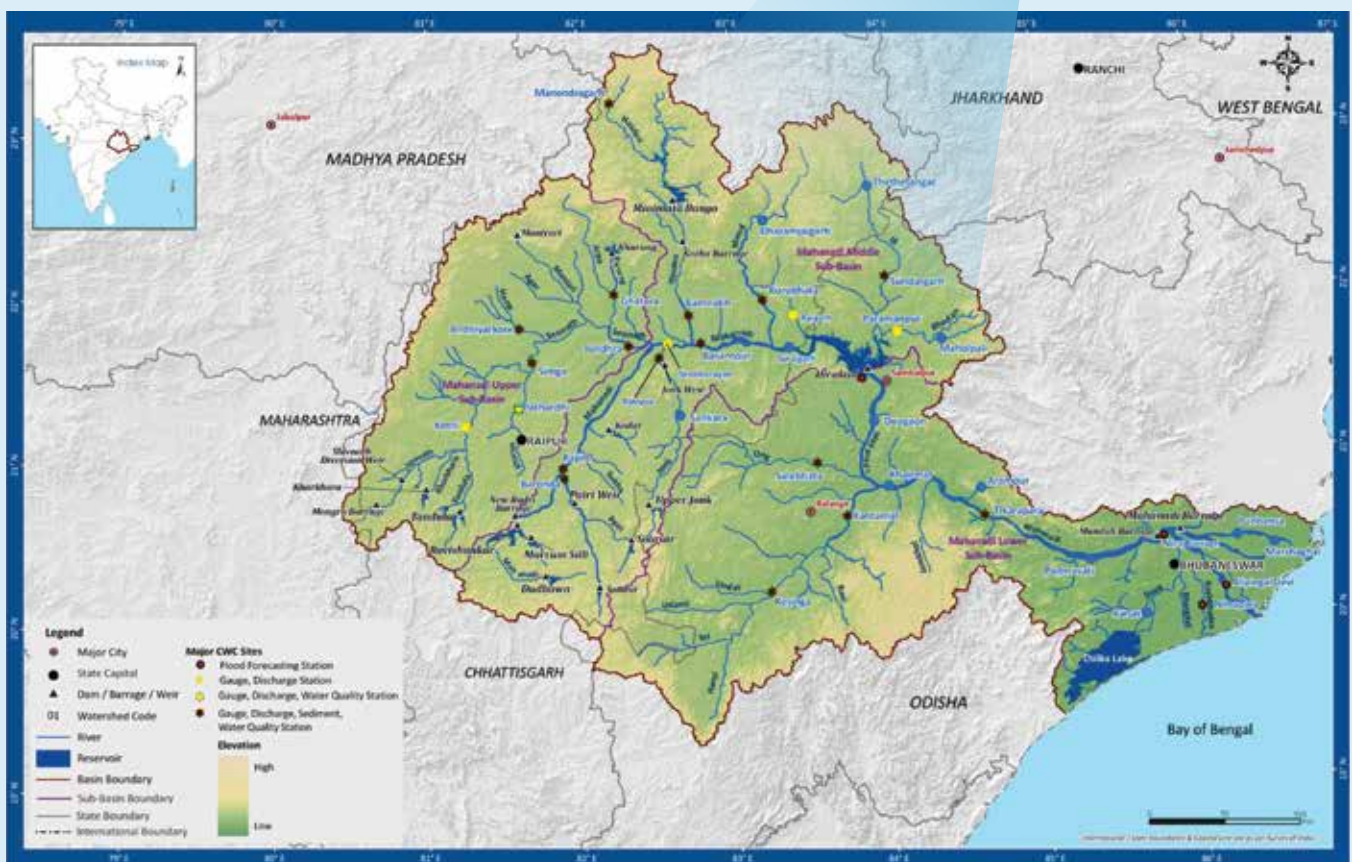
The fight went on at political levels and the Odisha government stepped up official pressure on the central government to solve the issue with Chhattisgarh. After repeated attempts by Odisha, the central government convened a meeting of both the chief ministers on September 17, 2016 under the mediation of the Union minister for water resources. The Odisha chief minister took this as an opportunity to invite

12 <https://timesofindia.indiatimes.com/city/bhubaneswar/Cgarh-drawing-water-from-Mahanadi-without-state-nod/articleshow/53018795.cms>

13 <http://www.downtoearth.org.in/blog/dams-will-not-solve-the-mahanadi-water-conflict-58601>

MAHANADI RIVER: A BRIEF PROFILE

Mahanadi, literally meaning 'Great River' is the sixth largest river of India, and the major river in East Central India. It originates at an elevation of about 442 metre above mean sea level (msl) from a pool, 6 km from Farsiya village of Dhamtari district of Chhattisgarh, and flows 851 kilometres through Odisha to the Bay of Bengal. During its travel, a number of tributaries join the river on both of its banks. There are 14 major tributaries of which 12 join upstream of Hirakud Dam (Asia's longest earthen dam) and two join downstream. It is the lifeline of both Odisha and Chhattisgarh affecting almost 40 million people, a little more than 19 per cent of whom are Scheduled Tribes and about 16.5 per cent Scheduled Castes. The total catchment area of the basin is 1,41,600 sq km spreading over five states including Chhattisgarh, Odisha, Madhya Pradesh, Jharkhand and Maharashtra. However, more than 99 per cent of the river lies in Chhattisgarh and Odisha.



Source of maps: Central Water Commission (CWC), Govt. of India.

people's participation in the process as he asked for suggestions from all sections of the society. Media reports said more than 2,000 organisations that ranged from women's self-help groups to civil societies to truck owners associations – handed over their demands to the chief minister. Ironically, there were only two days available for this and the chief minister had a marathon session with many of the groups personally.

While many kinds of opinion of the ruling party members as well as government officials were floating in media and in public meetings, the first official positions of the states came to the fore during the chief ministers' meeting that was held at Delhi. We are describing the same below.

ODISHA'S APPREHENSIONS ABOUT HIRAKUD DAM

Following several battles on the street and letter writing, when Odisha got a chance to present its facts before the other state as well as the central government, its complaint note started with an interesting observation. It said: "Odisha has the liability to handle entire flood from Chhattisgarh¹⁴." While 53.1 per cent of the Mahanadi's entire catchment area falls in Chhattisgarh, for the Hirakud Dam reservoir it is almost 90 per cent. That is the reason why the Hirakud Dam is completely dependent on the release of water from Chhattisgarh. Catchment area of the dam inside Odisha is only about 9.4 per cent. The Hirakud Dam was constructed between 1948 and 1956 as a National Project, which was transferred to Odisha in 1963.



Almost 90 percent of the Hirakud dam's catchment lies in Chhattisgarh. This dam is at the root of conflict between the two states.

The original project report envisaged that irrigation and power production would require 12.28 million acre feet (MAF) of water that includes reservoir losses (see table 2). Of this, 4.10 MAF was supposed to be derived from storage and the balance from the normal flow of the river. The minimum run off of the Mahanadi at that point was 20.61 MAF as per the following table.

Table 2: Quantification of Commitments of Hirakud Dam (contemplated in 1947)

¹⁴ Presentation from Odisha in meeting between the chief ministers of Odisha and Chhattisgarh held under mediation of the central minister for water resources at Delhi on September 17, 2016.

Sl. No.	Details	Contemplated in DPR 1947
1.	Irrigation including lift	3,628 (2.94 MAF)
1.	Power	10,785 (8.74 MAF)
3.	Evaporation	740 (0.60 MAF)
4.	Domestic	-
5.	Industries	-
	Total	12.28 MAF

Source: Govt. of Odisha presentation at the CM level meeting on Mahanadi, September 17, 2016.

The project architects had made an allocation of 12.28 MAF for the Hirakud Dam leaving 8.33 MAF for use by upstream states. The dam was originally conceived as a flood control reservoir to mitigate flood in the downstream delta. Apart from flood control, Odisha's requirement for water for irrigation, power, domestic and industrial use stands at 18,175 million cubic metre (MCM) (see table 3).

Table 3: Planned Utilisation of Water from Hirakud Dam

Sl. No.	Details	Planned Utilisation (MCM)
1.	Irrigation including lift	5,722
2.	Power	10,222
3.	Domestic	134
4.	Industries	1,415
	Total	18,175*

Source: Govt. of Odisha presentation at the CM level meeting on Mahanadi, September 17, 2016.

**This is excluding the environmental flow requirements, which are assessed to be about 9,621 MCM.*

The non-monsoon commitment from the Hirakud Dam stands at 6,308 MCM, which is set to increase to 8,179 MCM due to commitments already made by Odisha, as shown in table 4.

Table 4 : Commitment of Hirakud Dam During Non-Monsoon (unit: MCM)

Sl. No.	Details	Present Scenario	Commitments
1.	Irrigation including lift	1,390	2,804
2.	Power	4,077	4,077
3.	Evaporation	395	395
4.	Domestic	14	78
5.	Industries	432	825
	Total	6,308*	8,179*

Source: Govt. of Odisha presentation at the CM level meeting on Mahanadi, September 17, 2016.

**This excludes requirement for downstream environmental flow¹⁵.*

¹⁵ Surprisingly the Odisha government did not quantify the environmental flow during non-monsoon period as can be seen from this data presented during the CM level meeting. And the quantity of environmental flow calculated in the previous table is more than the committed water during non-monsoon period.

Odisha claims there has been a constant downward trend of water availability in the Hirakud reservoir from 1990-91 onwards. Going by inflow versus demand at Hirakud (non-monsoon actual) the water availability seems to have gone down from a little less than 8,000 MCM to a little more than 5,000 MCM¹⁶. That is really a scary situation.

Odisha's major objections are about some dam and barrage projects in the upstream for which either Odisha has not been informed or are being constructed without obtaining statutory clearances. There have also been projects (new and revised) for which the Central Water Commission (CWC) has considered granting go ahead to Chhattisgarh without consulting Odisha. In some cases, as Odisha complains, CWC has insisted upon the Chhattisgarh government to share the detailed project reports (DPRs) but that state has not done so while going ahead with the construction activities. The table 5 provides details of projects for which Odisha claims it has not received the DPRs.

Table 5: Contentious Projects

Sl. No.	Project Name	Major/ Medium	Benefits in Hectare (ha)
1.	Mahanadi Reservoir Project	Major	26,400
2.	Sutiaput Irrigation Project	Medium	6,960
3.	Mongra Irrigation Project	Medium	9,431
4.	Minimata (Hasdeo) Bango Multipurpose Project	Major	4,33,500/120
5.	Mahanadi Reservoir Project (Revised)	Major	26,400
6.	Minimata (Hasdeo) Bango Multipurpose Project (Revised)	Major	4,33,000
7.	Koserteda Irrigation Project	Medium	11,120
8.	Karranalla Irrigation Project	New – Medium	4,100
9.	GhumariyaNalla Irrigation Project	New-Medium	3,200
10.	Sutlapat Irrigation Project (Revised)	Medium	6,960
11.	Khrung Tank Project-ERM	Major	56,300
12.	Maniyari Tank Project – ERM	Major	64,771

Source: Govt. of Odisha presentation at the CM level meeting on Mahanadi, September 17, 2016.

Besides these, two projects – the Rajiv Samoda-Nisdamajor irrigation project phase II and Sukhanala medium irrigation project – have been taken up without any statutory clearances and without consulting Odisha, the lower riparian state complains. In the case of Arpa-Bhaisajhar project, the DPR of which has been forwarded to Odisha for appraisal and which is still awaiting CWC clearance, the Chhattisgarh government has gone ahead with construction activities.

Alleging unilateral and unauthorised construction of many projects, the Odisha government makes another big claim about one of the contentious barrages, Kalma barrage. The Kalma barrage appears to have been built within acquired land of the Hirakud reservoir.

¹⁶ This again depicts that there is no water available for maintaining the environmental flow downstream. This creates doubts about Odisha's own plans of utilisation of water during non-monsoon periods.

INDUSTRIAL BARRAGES THAT POSE THREAT TO ODISHA

The focal points of fight between Odisha and Chhattisgarh at the moment are six industrial barrages (presented in table 6 below) that are in close proximity to the Hirakud Dam and may pose multiple dangers besides blocking water.



The Kalma barrage is the last among six contentious barrages on the Mahanadi that the Chhattisgarh has built without Odisha's consent. This barrage appears to have been built within acquired land of the Hirakud reservoir.

Table 6: Industrial Barrages that Pose a Grave Threat to Hirakud

Sl. No.	Name of the Barrage	Location (Village)	Catchment Area (Sq km)	Annual Allocation to Industries (MCM)	Summer Allocation to Industries (MCM)
1.	Saradih	Saradih	62,415	232.33	54.24
2.	Sheorinarayan	Sheorinarayan	48,050	52	37
3.	Basantpur	Basantpur	57,780	184	32.31
4.	Mirouni	Mirouni	57,800	97	51.68
5.	Kalma	Kalma	66,835	474.33	50.14
6.	Samoda	Samoda	10,650	36	Not known

Source: Govt. of Odisha presentation at the CM level meeting on Mahanadi, September 17, 2016.

Odisha apprehends that when all these barrages start operating in tandem, Mahanadi will be converted to an elongated pool, with storage potential of just 829 MCM of water during non-monsoon period. These barrages may actually reduce the non-monsoon flow in a normal year to the tune of 1,074 MCM and can also arrest base flow during weak monsoon years.

The Odisha government's apprehensions seem to be right and justified as this researcher could find out during field visits to these dam sites and discussion with people. Most of these barrages have been built under guise of irrigation but huge quantity of water has already been allocated to industries. These are in fact major projects as can be visible from the gates, height and catchment area interception of the barrages.

The Odisha government rightly argues:

1. Chhattisgarh has conveniently allocated very less water for irrigation and categorised these projects as minor irrigation projects thereby bypassing the scrutiny at appropriate level.
2. CWC could not take cognizance of these projects in true perspective due to the minor project status (i.e. irrigation <2000 ha) of these barrages.
3. Though the Union ministry of environment and forest (MoEF) covered it under its scope as per its revised 2006 guidelines, but categorised these projects under “B2” (minimal scrutiny from environment considerations) due to their minor project status and settled the appraisal process within the state level authorities.

Actually, extracts from Summary Record of the 35th Meeting of State Level Environment Impact Authority (SEIAA), Chhattisgarh makes most of Odisha’s complaints valid.

Extracts from the proceedings go as follows:

“It is noted that five barrages namely: Sheorinarayan, Basantpur, Meroni, Saradih and Kalma across Mahanadi River are proposed. After deliberation, Committee decided to seek information from Engineer-in-Chief, Water Resources Department for comprehensive report on water planning justifying the minimum flow on downstream of each barrages according to CWC guidelines, impact on flora and fauna in river bed and water logging study in the command area reference to these five barrages proposed across the Mahanadi River.

“The committee pursued the information submitted by the project proponent and is of the opinion that no comprehensive report consisting of integrated water availability study of 05 barrage projects across River Mahanadi in district Janjgir-Champa has been produced. Hence, the report submitted by the project proponent is not satisfactory.

“Committee also decided that since documents submitted by the project proponent vide letter dated 14/06/2013 reveals that construction works of the project has already been started which is violation of the provision of EIA Notification, 2006 therefore legal action against the project proponent should be initiated under the provision of Environment (Protection) Act, 1986.

“..... Being Minor Irrigation Project, committee decided to consider the project as category “B2” and recommended for grant of EC for Samoda barrage catchment area (106.50 sq km., length of barrage 789.5 M, Height of barrage – 11 M, in Mahanadi River.”

Statistics project a very bleak scenario for the Mahanadi. As per the information provided by Chhattisgarh to Odisha on August 27, 2016¹⁷ the government is already committed to utilising more water than that would be available in the basin. See table 7 for details:

Table 7: Planned Utilisation of Mahanadi Water by Chhattisgarh

Demands	Water Use
Existing	10,245 MCM
Ongoing	3,643 MCM
Future	20,008 MCM
Total	33,896 MCM*

Source: Govt. of Odisha presentation at the CM level meeting on Mahanadi, September 17, 2016.

**Further utilisation of 23,651 MCM for ongoing and future projects against availability of 19,237 MCM (assessed as per CWC data source, i.e. 4,414 MCM more than utilisable water available).*

17 As per presentation of the Odisha government in the CM level meeting held on September 17, 2016 at Delhi.

HIRAKUD STARES AT A DOOMED FUTURE

The present flow from Chhattisgarh catchment area at Hirakud (annual yield/ demand in MCM) stands at 19,237 MCM but Chhattisgarh's future demand will be 23,651 MCM. It means the net flow from Chhattisgarh catchment area will be in the negative at (minus) 4,414 MCM. Odisha receives 2,119 MCM from catchment area of Hirakud that falls within Odisha. It means, when all potential of Chhattisgarh projects are utilised, the total inflow to Hirakud will be reduced to only 2,119 MCM. But the requirement of Odisha at Hirakud stands at 18,175 MCM. That means, Chhattisgarh's dams and barrages would make Hirakud completely redundant.

CHHATTISGARH: PLAYING THE VICTIM CARD BACK

Chhattisgarh has been maintaining that Odisha has changed the scope and objectives of the original project of the Hirakud Dam project and has been utilising Mahanadi water at will without informing anything to them. The state has also refuted the charges of Odisha with regard to the six barrages (Samoda, Sheorinarayan, Basantpur, Mironi, Saradih and Kalma) and has maintained that these are minor structure and no diversion weirs¹⁸. These six barrages have no canals and as such they will store only monsoon water, maintains the state.

The proposed aggregate irrigation area from all six barrages is 3,149 ha through pumps. Since each project individually has less than 2,000 ha irrigation potential, each of them falls under minor irrigation project category, according to the upper riparian state.

The storage capacity of all these barrages taken together is only 274 MCM while the average non-monsoon flow at Hirakud is 4,446 MCM, claims Chhattisgarh.

The Chhattisgarh government has been asking for formation of a joint control board, which it reiterated in the meeting between the chief ministers held at Delhi. Formation of a board had been agreed upon by both Odisha and Madhya Pradesh¹⁹ on April 28, 1983. Now according to Chhattisgarh, formation of such a board is needed to look into complete range of issues in the Mahanadi basin.

Chhattisgarh has also been complaining that due to lack of gauging stations at important places there may be many lacunae with regard to understanding the real flow of the river. The state says it has already requested CWC for establishment of their gauging stations immediate upstream of Hirakud at the inter-state border on Mahanadi, Kelo, and Mand rivers to monitor the exact flow of monsoon and non-monsoon flows.

NON ADHERENCE TO ODISHA'S DEMANDS MADE THE STATE TO APPEAL FOR A TRIBUNAL

Odisha's major demand at the chief ministers' meeting was halting of all construction works upstream by Chhattisgarh until an expert committee studied the entirety of the impacts on the Mahanadi's flow. The central government offered to formulate such a committee but did not agree to halt the works. The chief minister of Odisha thus rejected the proposal of the technical committee²⁰.

The lower riparian state then decided to appeal for formation of a tribunal under the Inter-State River Water Disputes Act of 1956. The Odisha chief minister said that the state government filed a complaint petition before the Union ministry of water resources under Section 3 of the Act for formation of a

18 Presentation of Chhattisgarh officials at the CM level meeting held on September 17, 2016 at Delhi.

19 Chhattisgarh was carved out as a separate state from Madhya Pradesh on the November 1, 2000 and naturally all official negotiations, agreements, etc., if any, by MP with Odisha, would be inherited by Chhattisgarh.

20 <https://www.ndtv.com/india-news/odisha-rejects-centres-proposal-for-expert-panel-on-mahanadi-issue-1466083>

tribunal and direction to Chhattisgarh government to stop construction of ongoing projects on upper Mahanadi²¹.

The ministry of water resources, river development and Ganga rejuvenation then, on January 19, 2017, announced formation of a negotiation committee to assess availability and utilisation of waters of the Mahanadi and its tributaries²². This was set up with reference to complaint of Odisha under Section 3 of the ISRWD Act, 1956 regarding utilisation of waters of the Mahanadi basin, informed the ministry.

The Odisha government rejected the negotiation committee citing a few valid reasons. The committee would delay setting up of the tribunal and allow Chhattisgarh to complete the construction of the disputed project, said Odisha's chief minister²³. In a letter addressed to the Prime Minister, the chief minister requested him to direct the water resources ministry to withdraw the office memorandum on constitution of the committee. According to the provision of the 1956 Act, the chief minister said, constitutional functionaries (Prime Minister or Union water resources minister) should conduct negotiations with chief ministers of the riparian states instead of forming a committee headed by an officer.

The Centre did not keep the commitment of issuing notice towards formation of tribunal by the end of the one-year period. Rather, it surprised the Odisha government with a fresh affidavit given to the Supreme Court on December 6, 2017 stating that the Centre was not in favour of setting up of the tribunal

According to the Odisha government, therefore, the committee is not in accordance with the provisions of Section 4 (1) of the ISRWD Act and its composition is arbitrary. Odisha urged the Prime Minister to take leadership in sorting out the issue and settle the matter amicably.

However, the central government did not pay any heed to his request and continued with meetings of the negotiation committee²⁴. Odisha had already filed an original suit (OS) in the Supreme Court in this matter under Article 131 of the Constitution, as it was informed to the Odisha Assembly by the chief minister on December 2, 2016²⁵. He informed the house that the state had sought an injunction against Chhattisgarh from continuing works on ongoing projects and from taking up future projects. "We have claimed as a part of equitable share a minimum flow of 12.28 MAF of Mahanadi water at Hirakud as per the detailed project report of Hirakud project and a further utilisation of 3.67 MAF in the surplus flow," the chief minister said.

It was expected that the central government would constitute a tribunal as the minister of state in the water resources ministry had admitted to the failure of negotiation process and had committed to its formation on the floor of the Rajya Sabha²⁶. On October 9, 2017, during the hearing of case filed by Odisha in the Supreme Court, the counsel of the central government informed the court that a decision

21 <http://odishatv.in/odisha/body-slider/mahanadi-row-odisha-files-petition-for-formation-of-tribunal-177400>

22 <http://pib.nic.in/newsite/PrintRelease.aspx?relid=157512>

23 <https://timesofindia.indiatimes.com/city/bhubaneswar/odisha-government-rejects-centres-negotiation-committee-on-mahanadi/articleshow/56838241.cms>

24 Answering to unstarred question no. 1759 of A. V. Swamy, Rajya Sabha MP from Odisha, Dr. Sanjeev Kumar Balyan, minister of state for water resources, river development and Ganga rejuvenation, said in Rajya Sabha on July 31, 2017 that the Negotiation Committee held two meetings on February 28, 2017 and May 25, 2017 but Odisha did not participate in any of them.

25 <https://timesofindia.indiatimes.com/city/bhubaneswar/Mahanadi-issue-Odisha-moves-SC-against-Chhattisgarh/articleshow/55791681.cms>

26 <https://www.ndtv.com/india-news/odisha-rejects-centres-proposal-for-expert-panel-on-mahanadi-issue-1466083>

for issuing notification for tribunal formation will be taken by November 19, 2017²⁷. However, nothing moved and the chief minister of Odisha continued to write letters to the Prime Minister for expediting the formation of tribunal by the given date.

The Centre did not keep the commitment of issuing notice towards formation of tribunal by the end of the one-year period. Rather, it surprised the Odisha government with a fresh affidavit given to the Supreme Court on December 6, 2017 stating that the Centre was not in favour of setting up of the tribunal²⁸. S. Wasim Qadri, the counsel for the Union government in the case, said: "A statement on this matter has been filed by the Centre in the Supreme Court stating its decision on Mahanadi Tribunal. The Centre has decided not to set up a tribunal as the Odisha government failed to share facts on the issue²⁹."

This statement of the Centre in the Supreme Court raises several questions and experts on the issue immediately reacted to it sharply. The Centre has made this refusal mainly on plea of Odisha not submitting sufficient information to back its claim of water reduction in the basin. While in reality, there is no comprehensive information available on the exact reduction of water in the Mahanadi, the Odisha government has already provided a lot of information that point at a reduction of flow due to construction by dams and barrages upstream. If Odisha's information has not been found reliable by the Centre, then the normal process is to ascertain the same through a joint technical committee. Odisha had already given a proposal in that regard but the Centre and Chhattisgarh never accepted it³⁰.

It is rather surprising that the central government made such a statement in the Supreme Court without making any effort to make such joint endeavours to assess the water availability in the basin. Information provided by all parties – both the state governments and Centre (especially in its CWC) – have many mismatches and gaps and the ISRWD Act 1956 does not mention anywhere that the Centre can refuse to establish a tribunal for this reason. Furthermore, a tribunal can aid to a comprehensive information compilation in an independent and transparent manner.

The ISRWD Act, with latest amendments, clearly reads: *"When any request under Section 3 is received from any State Government in respect of any water dispute and the Central Government is of opinion that the water dispute cannot be settled by negotiations, the Central Government shall within a period not exceeding one year from the date of receipt of such request, by notification in the Official Gazette, constitute a Water Disputes Tribunal for the adjudication of the water dispute."*

In fact, for a state to call for setting up of a tribunal, it is not necessary to establish with evidence that it is a victim. The ISRWD Act says that a state government can make complaints:

"If it appears to the Government of any State that a water dispute with the Government of another State has arisen or is likely to arise by reason of the fact that the interests of the State, or of any of the inhabitants thereof, in the waters of an inter-state river or river valley have been, or are likely to be, affected prejudicially by –

- (a) Any executive action or legislation taken or passed, or proposed to be taken or passed, by the other State: or
- (b) The failure of the other State or any authority therein to exercise any of their powers with respect to the use, distribution or control of such waters; or

27 Supreme Court of India, Record of Proceedings dated 09.10.2017 on Original Suit No.1/2017, in which the next date of hearing was kept for second week of December 2017.

28 <http://www.orissapost.com/centre-refuses-to-set-up-mahanadi-tribunal/>

29 Ibid.

30 <http://www.dailypioneer.com/state-editions/bhubaneswar/now-chhattisgarh-river-link-bid-to-get-fillip.html>

- (c) The failure of the other State to implement the terms of any agreement relating to the use, distribution or control of such waters; the State Government may, in such form and manner as may be prescribed, request the Central Government to refer the water dispute to a Tribunal for adjudication.”

The statement of the central government based on ‘insufficient data’ provided by Odisha, therefore, does not stand scrutiny of this law, if we make a literal interpretation of the text of the law written above.

The Odisha government sharply reacted to this refusal by the Centre and also got the support of the opposition parties on this. On December 7, 2017, the Odisha Assembly witnessed a stormy session³¹. The chief minister announced in the Assembly that a house committee will be formed under leadership of the speaker to protect the interest of the state in the matter³². This committee will comprise leaders from all opposition parties. The same day, the government filed a counter affidavit in the Supreme Court accusing the Centre of providing erroneous information to the apex court while violating the law by not constituting the tribunal³³.

The central government ministers, including the water resources minister, kept asking Odisha and Chhattisgarh to resolve the dispute with talks. However, Odisha continued with its fight and finally the Supreme Court, on January 23, 2018, ordered the Centre to form the Mahanadi Tribunal. This was seen as a great victory by the Odisha government. Though the Supreme Court ordered the formation of the tribunal within a month’s time,³⁴ the Centre took 49 days³⁵ to form a three-member tribunal on March 12, 2018. The Centre was then accused of delaying the formulation and handing over of the terms of references (ToR) to the tribunal, which finally happened on April 17³⁶. So, it took almost three months from the Supreme Court order to formulate the ToR. Morning shows the day. At this speed, no one really knows how long the tribunal will take to start the hearing and when can the judgement be pronounced. Odisha is now demanding that the tribunal should stop construction of all controversial dams and barrages by Chhattisgarh till it pronounces its orders. This is most unlikely to happen anytime soon.

As the Mahanadi River Waterkeeper has been pointing out³⁷, the Chhattisgarh government had a plan to divert Mahanadi water to the Tandula river through a river-linking project, over and above all the ongoing projects. The central government might thus want the process of tribunal formation as well as hearing to get delayed to aid such a plan of Chhattisgarh³⁸. There could be another argument on this. As because a new amendment bill³⁹ has already been placed in Parliament, which proposes for constitution of one common tribunal for all the rivers, the Centre might just have tried to buy more time. Odisha’s pressure as well as the apex court’s intervention has, for now, forced the Centre to form the tribunal. Now, one has to see how the tribunal is being supported by the Centre to take up the hearing in an expeditious manner.

Odisha has just stepped into a long battle ground. As evident from the history of inter-state river water disputes in the country, it will take a long time to come to a settlement. However, the dispute is now

31 <http://pragativadi.com/mahanadi-issue-rocks-odisha-assembly-adjourned-till-3-pm/>

32 <http://odishatv.in/odisha/body-slider/mahanadi-row-odisha-to-set-up-house-committee-259033>

33 <http://odishasuntimes.com/mahanadi-water-dispute-odisha-files-counter-affidavit-in-sc/>

34 <https://timesofindia.indiatimes.com/india/form-mahanadi-tribunal-in-a-month-sc-tells-centre/articleshow/62622889.cms>

35 <http://www.newindianexpress.com/states/odisha/2018/mar/13/centre-forms-tribunal-to-resolve-mahanadi-issue-1786184.html>

36 <https://timesofindia.indiatimes.com/city/bhubaneswar/mahanadi-dispute-centre-hands-over-tor-to-tribunal-chairman/articleshow/63805465.cms>

37 Based on his arguments in live TV debates.

38 ‘Centre partial to Chhattisgarh on Mahanadi row, say expert’, New Indian Express, Bhubaneswar Edition, 08.12.2017

39 THE INTER-STATE RIVER WATER DISPUTES (AMENDMENT) BILL, 2017 (Bill No. 46 of 2017) Attached as Annexure.

being projected as a matter of Odisha's 'pride' in the line of the 'nationalism'⁴⁰ debate that is pitting one state or individual against another. In this fight of 'pride' and 'flow', many real issues facing the river, people dependent on it primarily for livelihoods and the ecology are getting camouflaged. Discussing about the coal belts of Mahanadi would tell us how.

40 India is currently embroiled in debates around 'nationalism' that is polarising the country on issues like 'singing national anthem in cinema halls', 'raising high national flags in university campuses' so on and so forth. A majoritarian dominance is being tried to be established where anyone who questions such above acts are advised to go to Pakistan (considered in public perception of a majority of Indians as the most hated rival of the country)



In the Mahanadi basin, the crop fields have a big competition for water with coal fired power plants. Both the major riparian states have committed a lot of water to these plants at the cost of irrigation.



Mahanadi in its Coalfields: Real Concerns for the River Lie Here

Rivers in India have close bonds with minerals, and minerals are mostly found in areas which have forests and been traditionally inhabited by indigenous communities. Mining activities not only destroy forests in river basin catchment areas and thus influence the health of the rivers in many ways but also marginalise the indigenous communities. Deforestation leads to increased run-off during monsoon and causes drought during non-monsoon periods. Mining overburdens are dumped on river catchments, roads and almost everywhere else while mining projects cut off feeder streams and waterways into rivers. All these form a deadly combination for the gradual degradation of the river ecosystem.

The Mahanadi river basin is rich with coal. While the major coal mines on Chhattisgarh side of the basin are owned by the South Eastern Coalfields Limited (SECL), those in the Odisha side are owned by Mahanadi Coalfields Limited (MCL). Chhattisgarh holds the catchment of four rivers including the Mahanadi. Large scale mining in Chhattisgarh is already degrading the Mahanadi's catchment and affecting the quality of the river water.



A rich coal deposit in the Mahanadi basin has meant severe pollution of its tributaries and other water bodies.

Odisha and Chhattisgarh are two of the richest mineral bearing states of India. Chhattisgarh has 16 per cent of the total coal deposits of India; 44,483 million tonnes coal has been estimated in 12 of the state's coalfields located in Raigarh, Surguja, Koriya and Korba districts. The state ranks second in the country in coal production and contributes over 18 per cent to the total national production⁴¹.

Chhattisgarh is presently one of the few states that have surplus power. As of October 2017, Chhattisgarh had a total installed power generation capacity of 13,018.46 megawatt (MW), comprising 8,005.97 MW under private utilities, 3,411.05 MW under state utilities and 1,601.44 MW under central utilities⁴². The Chhattisgarh government sources say they have signed MoUs for about 1,40,000 MW of coal fired power

⁴¹ <http://www.chhattisgarhmines.gov.in/Coal.htm>

⁴² <https://www.ibef.org/states/chhattisgarh.aspx>

plants including the captive power plants (CPPs)⁴³. Most of these have come up, or will come up in the Mahanadi basin. Raigarh district too is a destination for many power plants. Raigarh has a population of about 15 lakh people, 12.5 lakh of whom live in rural areas. Most of the people depend on agriculture as their primary livelihood, and mining and industries have been creating lots of troubles for them. Less than 3 per cent of rural households in Raigarh have access to tap water⁴⁴. While the Central Pollution Control Board (CPCB) has identified Raipur on the Mahanadi basin as one of the most critically polluted areas of India as per the Comprehensive Environmental Pollution Index (CEPI), independent studies have found out critical level of pollution in Raigarh mine areas.

With 75.799 billion tonnes of coal reserve, Odisha occupies almost 24.72 percent of coal reserves in India. In the Ib Valley coalfields, which covers almost entire Mahanadi catchment, holds 24.830 billion tonnes of coal. The MCL is in charge of mining in these areas⁴⁵. Various estimates show that Odisha is planning to generate about 58,000 MW of coal fired power and Jharsuguda district is going to bear a major burden of it. Besides, the Mahanadi is going to bear the maximum brunt of the coal fired power plants producing such huge amount of power. The district has a population of about six lakh people, more

than 60 per cent of which live in rural areas and are still dependent on agriculture, forest and other local resources. Only about 4 per cent of the rural households have access to tap water⁴⁶.

The Central Pollution Control Board (CPCB) has ranked both Jharsuguda and Ib Valley among the most critically polluted areas of the country as per the Comprehensive Environment Pollution (CEPI) index of 2009. The revised CEPI might dilute the ranking method, experts say. However, the fact remains that coalfields near the Mahanadi remain critically polluted and thus the river basin. Cadmium levels are 169 times higher than the safety level defined by Canada in the soil around coal mines, thermal power plants and coal ash ponds in Chhattisgarh's Raigarh, according to a recent study.⁴⁷

While the inter-state dispute between Odisha and Chhattisgarh is centred around reduced flow of water at Hirakud reservoir because of dams and barrages constructed upstream, the impact of coal mines and thermal power plants (TPPs) and other industries are not coming up for discussion. This is because both the states have committed themselves to mining and industrialisation in the name of 'development' and have been promoting the Mahanadi as a 'water surplus' river for inviting more investment into mining and industrial sector.

In this chapter, we shall try to highlight some of the real issues being faced by people affected by mining and thermal power plants in both the states, with specific focus on two districts – Jharsuguda in Odisha and Raigarh in Chhattisgarh – to show how the real water challenges are faced by people in these areas are going unnoticed under the larger bracket of 'inter-state river water dispute' around 'water sharing'

While the inter-state dispute between Odisha and Chhattisgarh is centred around reduced flow of water at Hirakud reservoir because of dams and barrages constructed upstream, the impact of coal mines and thermal power plants (TPPs) and other industries are not coming up for discussion

43 http://industries.cg.gov.in/SIPB/pdf/List_of_MoUs.pdf

44 Analysis of Census 2011 data.

45 <http://www.mcl.gov.in/Others/ecoalfields.php>

46 Analysis of Census 2011 data.

47 <https://scroll.in/latest/846331/cadmium-level-169-times-higher-than-is-safe-found-in-chhattisgarhs-raigarh-district-says-study>

between two states. Both the states are treating people in their mining areas, who have sacrificed for the development of the states and nation, in the same way to favour industries and thermal power plants. Odisha, which is projecting itself as a 'victim state', will be the major focus in the chapter.

OF DYING RIVERS AND SHRUNK RIGHTS

During the summer of 2017, we visited the Darlipali village in Odisha's Jharsuguda district. As the water tanker – supposedly carrying filtered water – reaches the village flanked by coal mines of the MCL on three sides, we saw women of all ages thronged to fetch a few buckets of water even in the searing heat of 45 degree Celsius. That was the only source of water that looks clean to eyes, quality of which of course no one knew. That scene has been repeating in Darlipali for three years now, after several decades of struggle.

Odisha and Chhattisgarh, sitting on one of India's richest coal reserves, have locked horns over the sharing of water of the Mahanadi. Both the states are competing to cash on the coal reserve deposited in the Mahanadi basin and have invited hundreds of industries including coal fired power plants, sponge iron factories, aluminium smelters and so on and so forth to set up plants in their respective states. Odisha complains that the upstream state, Chhattisgarh, has been obstructing water by constructing several numbers of dams and barrages drastically reducing flow to Odisha thereby jeopardising irrigation and drinking water projects and ecological services.



In Darlipali, a village engulfed by three coal mines, women of all ages rush to the water tanker during scorching sun. These villagers have sacrificed for so called 'development' but struggle for basic amenities such as this.

Visiting a village like Darlipali in the coal belt of the basin, one gets a confirmation that the inter-state river water dispute is going to become worse in the future. What is more, the already existing water

wars inside the respective states are going to be fiercer. And in all this, the poor, tribal, Dalit and other indigenous communities are going to suffer the most. Their fundamental right to clean water does not exist, and the state that is fighting for water obstruction by another state has either degraded or killed most of the local water resources with mining and related industrialisation.

DARLIPALI – WHERE PEOPLE WANT TO BE DISPLACED

About 85 families live in four hamlets in this village. A few of them, who acceded to the promises of proper rehabilitation by the MCL that started acquiring land from 1983, shifted to another area and suffer without basic amenities there too. The rest who stayed back have been demanding to be displaced with latest rehabilitation packages. We visited the village on May 13, 2017. The day before, a meeting was organised by the district administration with the villagers to convince them about shifting to rehabilitation colonies. That must be the 100th odd meeting in three decades but the administration has failed to convince them.

Under shoddy provisions of the old Coal Bearing Areas (Acquisition and Development) Act 1957, all their farm lands and forests, on which they had been traditionally dependent, were acquired by the mines but not their homestead lands. That meant people were left to die inside mines or else shift at their own cost. Only a few people were provided with some jobs, mostly menial, as people had no required qualifications. People in the villages complained that many job holders had to leave their jobs just after few years of joining because of ill health. People who were living in healthy environment on their lands and forests were forced to become labours at the hands of the mining companies. They could not cope, both with the type of work and polluted workplace.

The three mines that encircle the village have an annual production capacity of 28.35 million tonnes per annum (MTPA). Two of the hamlets were forcefully evicted in the early 1980s by using police force and the mines swallowed the only drinking water source of the village, an eight-acre *kata*, or surface water body. Forests were destroyed and agriculture became useless because of the thick layers of mining dust. The mines have engulfed a perennial stream, Phuljore *nullah*, and polluted another, Lilari *nullah*.

BLACK WATER



The Lilari nullah that feeds the Ib River, a tributary of Mahanadi, is highly polluted due to coal mines. The local people have no other option but to depend on it for their daily needs.

The Lilari *nullah*, now the only source of bathing and other domestic requirements, is highly polluted as untreated mining wastewater and other pollutants enter it freely and openly. Widespread greasy and black substances are visible to bare eyes. Black coloured polluted water flows in Lilari *nullah* but the helpless people have no other option but to depend on it. Most of the income of the villagers goes in to treatment of health ailments

caused by the water. People complained of chest pain, cough, skin diseases and many such ailments normally related with both air and water pollution.

The entire Ib Valley, under which this area falls, has been found as a severely and critically polluted region on the basis of the Comprehensive Environmental Pollution Index (CEPI) of the Central Pollution Control Board (CPCB). According to views of the board officials, as published in newspaper reports, five mines under the MCL, Samaleswari, Kulda, Vasundhara, Lajkura and Belpahal, have been identified as the major sources of pollution in the Ib Valley.

NOT SURE OF THE WATER THEY DRINK

The villagers are solely dependent on the tanker supplied water. Just a few years ago, they were dependent on the Lilari *nullah* for drinking water as well and used to bring water by digging *chuans* (small wells) in the river bed during summer season. In fact some people still do that because they believe the food does not boil properly in the water supplied through the tanker.

It is since the last three years that the tankers have been supplying water to the village, that too following a prolonged protest including sending petitions to the district collector and resorting to road blockades. Even though the tankers come to the village, there are often intermittent gaps due to problems either in the filtration plant or the vehicles with the contractor. In such cases, which happen at least twice in a month, people have to protest for a day or two. Sometimes, in such problematic phases, the mines authorities supply water, which are basically meant for spraying in the mines and not from the filtration plant, complain the villagers.

The summers are worse as the Lilari's pollution load increases due to reduced water flow. In April 2017, after a sustained agitation, the government has agreed to lay three water tankers in the village to which the water will be supplied from the filtration plant of MCL, which is about 7 km away. They started to install the same just a day before we visited Darlipali.

The message to the people of Darlipali is clear. Unless they agree to succumb to the government and MCL pressure of accepting forced and inhuman rehabilitation, they do not have a right to clean drinking water, besides other things.

JUNANIMUNDA – WATER NOWHERE

Junanimunda village is not very far from Belpahad, the most important town of Ib Valley. The villagers of Junanimunda faced another unique form of water scarcity. Their village is located above an underground mine of the MCL. The underground is hollow and a pond, the only surface water body in the village,



Junanimunda village sits on an underground coal mine and thus has no other source of water than the polluted pond.

is highly polluted due to the nearby coal mines. For decades, the villagers had been dependent on two 'jharas,' (small water springs) that come out from the ground downstream of the village pond. The villagers had constructed walled guards on these springs and used this water for drinking.



The villagers were traditionally dependent on two springs for drinking water which have now gone redundant because of local construction works.

Pollution of the pond water and construction of electricity poles near the source of the springs have made the villagers abandon them. As such, the dried up pond and excessive heat has considerably reduced the flow of these springs in the last 10 years. The small tribal village has not got any justice from the authorities even after decades of struggle, including blockade of the main road that connects the district headquarters to Belpahad and the mines. In 2009, a water tank was constructed in the village and government officials assured the villagers that it would be linked to the nearby water supply system, but nothing has happened so far. After its installation, the villagers lament, the water tank could supply water just for few days, and then became defunct. On the other hand, the authorities have stopped water to the village through tankers.

As if to mock at their plight, the local MLA has constructed a huge Sai Temple just a few hundred metres away spending about Rs.50 lakh. The forest department has made an urban forestry project just near the temple and an 'avenue plantation' corridor has been developed. The temple and urban forestry project could get money and water, but not the villagers who sacrificed for the nation, all in the name of development.

THE KELO STRUGGLE

Ib is one of the major tributaries of Mahanadi. The Lilari joins the Ib near the Hirakud reservoir, one of world's longest earthen dams that has become a matter of conflict between the two states – Chhattisgarh and Odisha. In fact, Hirakud reservoir has led to the faster exploitation of coal by bringing in infrastructural and other developments to the area. Hirakud water attracted most of the industries to the Ib Valley that borders Chhattisgarh. Nearly 90 per cent of Hirakud's catchment falls under Chhattisgarh

and that is another reason that state is now trying to reclaim the catchment by obstructing Mahanadi water through dams and barrages. Hirakud was built in the early 1950s and no such large dam has been built ever after in the Mahanadi system.

In this aggression, Chhattisgarh has planned to become the coal power production hub of the nation. And in doing that, it has utilised both government and private investments to build the barrages. Most of these barrages have been built to provide water to thermal power plants under guise of irrigation.



The Kelo dam on Bad Kelo river has been another bone of contention between the two states. Odisha villagers are complaining that the dam has been obstructing water for the last four years to affect their farming badly.

Kelo is one such dam on the Bad Kelo river that joins the Mahanadi just ahead of the Hirakud reservoir. It was completed in 2012 and obstructs a major tributary of Mahanadi thereby affecting hundreds of villagers downstream Odisha whose lives and livelihoods are completely dependent on this river. In case of Kelo, as we visited the dam project at Raigarh, Odisha's apprehensions were found to be correct. The dam, that has been built to provide irrigation benefit of 26,800 hectare (ha) in 175 villages located in two districts, Raigarh and Janjgir-Champa, has not yet provided irrigation to a single hectare of land.

NO TO IRRIGATION, YES TO INDUSTRIES

In these four years, documents show, industries have already started to draw water. More importantly, the Kelo Dam has not been adhering to the terms and conditions mandated in the Environmental Clearance (EC) granted to it by the Union ministry of environment and forests, we found out during a visit on May 14, 2017. Talking to locals, we got to know that the dam had not been releasing water regularly as laid out by the EC.

Four days before our visit, acceding to the complaints of Raigarh locals – who had been complaining about the stink of the filthy river for a month – the dam authorities released some water through one gate. All the drains of Raigarh flow into the Kelo that runs through the city. After the dam was built, the non-monsoon flow downstream reduced drastically and the stink started to grow forcing the people in the city to agitate.

ODISHA VILLAGERS LEFT DRY

Villagers in Odisha, however, are not that lucky. For the last four years, after the Kelo water was obstructed, they have been facing severe water shortage and crop failure. Lift points in many villages have become defunct and the river has become more polluted. Many fishermen have complained of drastic reduction in fish catch because of the pollution.

The Odisha government took several years to recognise the problem despite repeated agitation by villagers. Its current concern that Chhattisgarh is blocking Mahanadi water is being looked into as more of an effort in response to problems the government might face in supplying water to industries than anything else, as can be found out from the villagers' views and Odisha's moves. Reduction in the Kelo's flow will reduce the non-monsoon flow into the Mahanadi and Hirakud to a considerable extent, affecting thereby the prospect of industries assured uninterrupted water supply by the Odisha government.

The irony is that most of these villagers, be it in Ib basin or Kelo basin, had been displaced by the Hirakud dam project in the 1950s. While they are yet to get basic minimum amenities including safe drinking water and irrigation, the fight around the Mahanadi's reduced water is more of a competition between the two states to not fail in fulfilling their promises to industries.

The original Hirakud Dam project's plan did not have industrial water supply as an objective. But they seem to have become the prime objective now and the people who sacrificed their lands, lives and livelihoods have remained 'sacrificial goats' forever. If at all the governments are now genuinely fighting for the people's rights over water, then also the people are going to be losers. Because, by the time the dispute is over and a tribunal delivers a formula of water sharing, the Mahanadi might not have the required water to serve the real people and ecology.

CHHATTISGARH VILLAGERS FIGHTING SIMILAR BATTLES

Kelo dam project oustees are still fighting battle for proper rehabilitation, while industries have already been allocated water from the dam. Saroj, an oustee from the Lakha village, says: "They resettled us in a hurry in nearby areas. There was an informal promise that the Kelo Dam will supply us water, but we are not getting any water now." He had 150 acres of land but the compensation was enough only to buy 10 acres in Nusaur. As the government did not supply any water, he dug up four bore wells but nothing yielded water. A perfect case of a landlord turned into a pauper, Saroj repents that he did not oppose the dam. "We did not oppose the dam thinking the government was going to make us and the district prosperous. But the government ditched us," he says.

Prakash, another villager, however, says he had opposed the project because he and some of his friends had already been exposed to damages done by such big dams and industries by travelling to various places. Kelo has destroyed a very good forest that was a herbal hub. The Lakha village, he says, was named from two words: *la* meaning 'bring' and *kha* meaning 'eat'. They could just bring anything from the forests and eat, so rich was their forest. But the dam took it all and many local people lost a sustainable source of food security and livelihood, he claims. Saroj adds



Kelo dam project oustees feel cheated as they have neither been properly rehabilitated nor the government has kept other promises made during the construction of the dam. Rather, the dam is now providing water to industries even before supporting irrigation, they allege.

that they lost their *talab* (ponds), streams, and now the river is also lost. It is colonised and out of our control, the villagers of Lakha feel.

Noted environmentalist from Raigarh, Ramesh Agrawal, says that Kelo was a 'Brihat Sichai Yojana' meaning 'big irrigation scheme'. However, not a single canal has been completed. But industries have already been allocated water from there. Kelo is a highly polluted river now as the entire municipality waste is directly dumped on its beds as the drains are all connected to it. The dam now stores a lot of water and the Chhattisgarh government does not open the gates for months. This has also been a point of complaint for villages in Odisha downstream. They complain of both reduced water and increased pollution.

What more, the Raigarh people are now not getting vegetable from their most favoured places that have been submerged in the Kelo reservoir. The areas that were left out are so engulfed by coal dust and other pollution as mining and peripheral industrial activities have increased around them. As a result, there is a stunted growth of vegetables and drastically reduced production.

The Kelo starts from a hill in Lailunga, goes to Mand and then merges with the Mahanadi. These rivers surround most of the SECL coal mines in this district. With the dam as well as increased mining activities, people have experienced a drastic reduction in water flow in the Kelo river. Local villagers say that the river that used to have a perennial flow for the entire year is now dead at Minupada near the dam after monsoon. The '*bahaakhet*' (low lying fertile lands) that used to have water or moisture for the entire year are now drying up. Wells that held water throughout the year are remaining dry for four to six months. Dams and mines are taking away all their water, complain villagers.

Most of the industries, says Ramesh Agrawal, are not only taking ownership of the flowing water but also illegally extracting ground water affecting thereby all the sources nearby. The urban areas are no different. Raigarh's all local streams have been converted into sewer drains and out of the 80 odd *talabs* (surface water harvesting structures) in the town, only two are alive. Mining companies and industries never provide the promised drinking water facilities either in villages or towns.



Coal ash that is dumped everywhere is finding its ways to the Mand river which then flows to the Mahanadi.

The Kelo dam, which is a bone of contention in the Odisha-Chhattisgarh battle over Mahanadi, started displacing people in 2007-08 but they got compensation amounts in 2012 but as per old Land Acquisition Act. People got Rs.4 lakh per acre of fertile land while the current market rates would be double of that. That is not all. Thermal power plants are encroaching upon lands for dumping of their fly ash and other wastes without any notice or compensation. In Tamnar village on the Kelo river, upstream of the dam, power plants release all water from coal washery to the village fields as well as the river during rains. The same is the case with Chandrapur area that we visited during rains. Coal ash that is dumped everywhere is finding its ways to the Mand river which then flows to the Mahanadi. We witnessed the same scenario in many mines that we visited.

In Jampalli village of Hurumkela gram panchayat, SECL's mining started in 2009. The local *nullah* (stream) has dried up ever since and farmers are losing their crop regularly. Chhattisgarh has faced severe drought consecutively in 2015, 2016 and 2017. Most of its areas are rain-fed as the case in Odisha and the mining and coal fired power plants are sucking up the water further. According to locals, Kelo is reduced to one third of its total water holding capacity. In Saraipali, 18 *nullahs* that drain into the Kelo run through coal washeries and sponge iron factories. They are severely polluted and have stopped flowing for six to eight months. The local ponds too are heavily polluted and affected by water scarcity. In Bali village, for example, a pond has been completely dried up due to a sponge iron factory pollution rendering 10 acres of farm land barren. People are fighting a case but no solution is in sight.

The Lakha Dam on Kurkut river, which has been in control of Jindal Steel and Powers Limited (JSPL) has disrupted the communication of many villagers who used to supply vegetables to Raigarh and nearby villages. Kurkut is a tributary of the Mand river and the dam has faced lot of protests already. However, the Chhattisgarh government sided with the industrialists, allege villagers.

THERMAL POWER PLANTS

Hirakud Reservoir, the major dam project over Mahanadi and the genesis of conflict between the two states, is surrounded by a lot of thermal power plants. In fact, the existence of so many power plants and the fly ash dumping of the same has been a major worry for the local people as well as for the health of the river and reservoir. Major power plants in Chhattisgarh's Raigarh are owned by JSPL and DB Power and in Odisha's Jharsuguda by Odisha Power Generation Limited (OPGC) and Vedanta Resources. The Ib Valley coal plant region has been in news for problems related to coal fired power plants since long. As early as 1996, a study titled *The World Bank's Juggernaut: The Coal-Fired Industrial Colonization of India's State of Orissa* by The Sustainable Energy and Economy Network of the Institute for Policy Studies, Washington D.C. found that Odisha was the first state to agree to the World Bank-ordained privatisation of its power sector. The same study



Both Odisha and Chhattisgarh have been in a mad rush to establish coal fired power plants on the Mahanadi river and Hirakud reservoir.

estimated then that, by 2000 carbon emissions from Odisha's coal fired power plants would be about 164 million tonnes annually, of the equivalent of more than 4 per cent of projected growth in anthropogenic carbon emissions anticipated globally over the next decade. The Ib Valley was among the two major focus areas of this study. The other one was Talcher, which falls on the Brahmani basin but has a part of it in the Mahanadi basin as well.

By 2011, the state government had signed MoUs with 89 companies in different sectors which inter alia covers steel (50), aluminium (3), power (30), cement (3), auto component (1), oil refinery (1) and titanium dioxide (1) plants with an investment of Rs.4,61,182.74 crore. On July 24, 2014, Odisha's industries minister informed the State Assembly that the government had signed 92 memorandum of understandings (MoUs) for big industries with private companies so far. Only 35 of the steel industries, three of the coal fired power plants and one each for aluminium, auto ancillary and cement had progressed partially, he informed. In the same reply, the minister gave a list of integrated power plants (IPPs) with which the states have signed MoUs. A total of 28 IPPs in the list had a combined capacity of about 36,710 MW. There were central sponsored power plants including super critical TPPs like the NTPC's 4,000 MW plant in Sundargarh district that would also draw water from the Mahanadi. Of the list provided in the State Assembly of the IPPs, almost 15 plants are dependent on Mahanadi waters and three will be in the vicinity of Hirakud reservoir, and their capacity is 5,080 MW. Odisha Power Generation Corporation (OPGC)/ AES plants are already operating with 420 MW capacity, and Vedanta's captive power plants (CPPs) are operational with 1,350 MW capacity. Another plant by Ind Barrat Co and an expansion of OPGC will add further 3,200 MW to the area. Near the reservoir, at Sambalpur district, the Hindalco is already operating CPPs of 367.5 MW for its 1,00,000 tonne per annum (TPA) aluminium smelter.

Hirakud Reservoir, the major dam project over Mahanadi and the genesis of conflict between the two states, is surrounded by a lot of thermal power plants. In fact, the existence of so many power plants and the fly ash dumping of the same has been a major worry for the local people as well as for the health of the river and reservoir

While there is no comprehensive statistics available to know as to how much coal fired power generation Odisha is planning, going by the state's first Climate Change Action Plan (CCAP)⁴⁸ we could estimate that the state at least has a plan to generate 58,000 MW of coal fired power in the coming decade or so. If the state achieves this, then it will require huge amount of water which the river might not be able to sustain. Based on a thumb rule, 1,000 MW of coal fired power plant requires 28 million cubic meter (MCM) of water per year– sufficient to irrigate 5,600 ha of land⁴⁹. For generating 60,000 MW of coal power, the state would require about 1,624 MCM water per year, which would mean a direct diversion of water from 3,24,800 ha of farm land. Further, if we calculate this against the domestic water requirement then the plants will be using about 32.5 per cent more water than the domestic water requirement (put at an average of 80 litres per person per day, the total requirement comes to about 1,226 MCM per year) of the entire state's population (calculated at about 4.2 crores).

Then coal fired power plants are biggest Green House Gas (GHG) emitters. Considering that 1,000 MW thermal power would generate 5 million tons of carbon, the Government itself admits that Odisha's

48 Odisha State Climate Change Action Plan, Govt. of Odisha.

49 <http://www.indiatogether.org/articles/water-guzzlers-in-water-stressed-areas-environment>

energy sector will generate 9 billion tons of carbon over a 30-year period. This is almost 30.7 per cent of the total GHG contribution of India (at current levels). So, the thermal power plant belts of the state will not only eat up all the local water sources but also generate heat and pollution to the extent that these areas will experience drastic reduction in agricultural production and hence push thousands of villages to food insecurity. This is already evident in areas near Vedanta's captive power plant in Jharsuguda. This district is one of the places where there has been a rise of temperature by several degrees over the last one and a half decades. The situation is going to be worse.

Similar path of growth and industrialisation being pursued by neighbouring Chhattisgarh will make Odisha further vulnerable, as many of its plants will draw water from the Mahanadi. The cumulative impact of thermal power generation in both these states will have multiple devastating impacts on the region's ecology and will make us further water insecure. The fly ash disposal will need thousands of hectares of land and will thus render a lot of land barren. Besides they will suck up a lot of water from the basin. A state that is already on a fast track of desertification⁵⁰ due to heavy land degradation will have multiple challenges to face.



The cumulative impact of thermal power generation in both these states will have multiple devastating impacts on the region's ecology and will make us further water insecure.

Thermal power plants are radiation culprits as well. According to a study published in the Scientific American, "the fly ash emitted by a power plant – a by-product from burning coal for electricity – carries into the surrounding environment 100 times more radiation than a nuclear power plant producing the same amount of energy" (Hvistendahl 2007). The report says that "at issue is coal's content of uranium and thorium, both radioactive elements. They occur in such trace amounts in natural, or "whole," coal that they aren't a problem. But when coal is burned into fly ash, uranium and thorium are concentrated at up to 10 times their original levels". It further reports, "fly ash uranium sometimes leaches into the soil and water surrounding a coal plant, affecting cropland and, in turn, food. People living within a 'stack

50 <http://www.thehindu.com/news/national/other-states/desertification-of-odisha-happening-fast/article8506472.ece>

shadow' – the area within a half- to one-mile (0.8- to 1.6-kilometer) radius of a coal plant's smokestacks – might then ingest small amounts of radiation. Fly ash is also disposed of in landfills and abandoned mines and quarries, posing a potential risk to people living around those areas". Thermal power plants may therefore prove to be silent killers.

A study of two coal-fired power plants by J. P. McBride at Ridge National Laboratory, as reported in the above report, that was published in Science in 1978, said that "estimated radiation doses ingested by people living near the coal plants were equal to or higher than doses for people living around the nuclear facilities. At one extreme, the scientists estimated fly ash radiation in individuals' bones at around 18 millirems (thousandths of a rem, a unit for measuring doses of ionizing radiation) a year. Doses for the two nuclear plants, by contrast, ranged from between three and six millirems for the same period. And when all food was grown in the area, radiation doses were 50 to 200 percent higher around the coal plants". This is something the Odisha government must consider studying seriously before going ahead with the mega thermal power generation plans.

In October 2008, the Odisha State Pollution Control Board had warned the state government of serious consequences of having so many industries and power plants in one single cluster. The OSCPB said, as reported in daily newspaper The Samaj (October 27, 2008), that all the MoUs signed for the Ib Valley-Jharsuguda region will generate 1 million tonnes of sulphur dioxide, 142 million tonnes of carbon dioxide, 3,160 tonnes of fluoride and 59 million tonnes of solid waste. And if all these industries and power plants start operating, the suspended particulate matter will rise by 18 times in the area. The same report had warned about the severe water scarcity that will follow. It said the Hirakud reservoir, on which most of these industries would depend, can only provide 35 MAF of water while in reality the industries will need 645 MAF yearly.

Setting up of TPPs along the Mahanadi river and especially around the Hirakud reservoir is a huge problem that policy makers and planners are not able to see. If we join the dots, things get clear with regard to their negative impacts as well as the conflicts they would trigger

Setting up of TPPs along the Mahanadi river and especially around the Hirakud reservoir is a huge problem that policy makers and planners are not able to see. If we join the dots, things get clear with regard to their negative impacts as well as the conflicts they would trigger. A study in the year 2011 had warned that more than a half of the proposed (some of whom must be operational by now) plants would be located in just 30 districts (only 4.7 per cent of the total 626 districts of India). The total capacity of these plants added up to about 3,80,000 MW (Prayas Energy Group 2011).

This study further said that fifteen districts each have plants with capacities totalling 10,000 MW or more. The Janjgir-Champa and Raigarh districts in Chhattisgarh have the highest concentration of proposed TPPs in the country with combined capacity of 30,470 MW and 24,380 MW respectively. This shows the lurking dangers looming over the Mahanadi already. Same is the case with Jharsuguda and Sambalpur districts on Odisha side, as we have already discussed.

The Prayas study also found out that close to 72% of the thermal power plants with Environmental Clearance (EC) granted is to be located inland. That is a bigger challenge for the Mahanadi because most of the coal plants are located at areas where water stress is already getting worse.

As such a thermal power plant poses serious threat to the environment. A concentration of many plants in a small area can have cumulative negative impact far greater than the impact caused by the plants individually. Of particular concern will be the impact of sulphur dioxide and mercury pollution, ash disposal, and the impact on water resources due to high water withdrawals (Prayas Energy Group 2011).

The Centre for Science and Environment (CSE) found out in an analysis⁵¹ that during the 11th Five Year Plan however, Environmental Clearances (ECs) had been granted up to 2,17,794 MW thermal power capacity – about 40,000 MW more than the target set by the government for 2017. The CSE report also confirmed what the Prayas report had said with regard to setting up the plants in critically polluted areas. The CSE report said that that EC is being given in already critically polluted areas without considering the cumulative impact. Of the top 10 districts where ECs have been granted to coal based power plants, six were declared critically polluted by the MoEF in 2010. ECs have been granted to power and steel plants in Janjgir-Champa mindlessly and the district will soon join the list of critically polluted areas at this pace, warned the report. In the Mahanadi, the Ib Valley area and Jharsuguda were already declared critically polluted areas by then.

The CSE analysis found out that the water requirement of all the TPPs that got EC during 11th five year plan is equivalent to the daily domestic water requirement of about one-fifth of India's population. The Mahanadi, already a water stressed river basin, was to suffer big water loss as per the report. Without doing any cumulative assessment of the water carrying capacity of the river basin as well as the impact these withdrawals would bring, the TPPs were granted EC. For instance, in the last five years, 25 TPPs of about 20,763 MW installed capacity have been granted ECs, which will withdraw water from the Mahanadi and some of its tributaries. The total water that will be consumed by these TPPs from the Mahanadi is about 1.59 million m³ per day or about 0.51 billion m³ per year⁵².

In fact, coal fired power plants guzzle the maximum amount of water among all industrial projects and they too are facing a lot of water crisis due to continuous drought conditions affecting rivers and other waters in the localities they are in.

In fact, coal fired power plants guzzle the maximum amount of water among all industrial projects and they too are facing a lot of water crisis due to continuous drought conditions affecting rivers and other waters in the localities they are in. An estimate by Greenpeace India put a total revenue loss of such plants at Rs.2,400 crore in 2016⁵³, one of the severe drought years in recent history. The report found out that coal power sector consumes 4.6 billion cubic metres of water per year, which could have met the most basic needs of 251 million people. A latest report of the Greenpeace found out that water consumption for coal power plants is expected to increase by 90 per cent (from 19 BCM to 36 BCM) if the proposed coal power plants (1,300 GW) are all commissioned. At least 44 per cent of the existing coal power plants and 45 per cent of the proposed coal power plants are to be located in areas with high to extremely high levels of water stress. About a quarter of the existing and proposed power plants are located in areas that are suffering from over-withdrawal of water (Greenpeace India Society, 2017). The already water starved regions such as the Mahanadi basin are therefore going to be affected seriously by the mad rush for power plants.

51 <http://www.cseindia.org/userfiles/03Thermal%20power%20plant.pdf>

52 Ibid.

53 <http://www.thehindu.com/news/cities/mumbai/news/Water-crisis-cost-coal-companies-Rs.-2400-crore-says-Greenpeace/article14413642.ece>

FLY ASH MENACE: FOOD SECURITY IN JEOPARDY

We have already discussed in brief about the pollutants from fly ash. In this section, we will go into some case studies to show how fly ash management is a big mess and killing the Mahanadi and jeopardising farmers' food security besides contaminating water in the river as well as in the basin.

Industries, mines and factories not only take away water but also pollute the area with discharge of polluted wastes. The Hindalco fly ash breach is another such example that has recently been seen as a great disaster for local food security. After heavy rainfall on August 4, 2012 when the 'temporary' wall of Hindalco's ash mount breached, the toxic fly ash ran over the crop fields of farmers and to a canal of the Sambalpur distributary under the Hirakud command area. The canal covers 10,000 acres of farm land and paddy crop was standing on the fields at the time. In fact, around 50 acres of crop land were covered with fly ash as high as a foot. A visit to the fly ash mount would make one believe that it was created to breach so that the company did not have to invest much in managing the fly ash but get it siphoned out through the canals, ultimately to pollute the Mahanadi⁵⁴. The rain God exposed this plan of the company and farmers' agitation brought the matter to the limelight. However, it could not move the company, the administration and the docile Odisha State Pollution Control Board (OSPCB) to any action.



Open dumping of fly ash is a common site in both Jharsuguda and Raigarh districts. These dumps not only encroach upon crop fields but also pollute rivers and other water bodies.

The rainfall continued and the mount's temporary wall, stacked with sand bags as against the prescribed concrete wall, breached again 10 days later. This time the breach was further severe and the farmers got highly agitated and knocked the doors of the company, the administration and the OSPCB. Even before the issue could be sorted out, the third breach occurred in the next two days, on August 16. And a few days after, it breached yet again.

OSPCB, PARTY TO THE CRIME

On August 20, a team of Water Initiatives Odisha (WIO), the leading water and environment watch dog of the state, made a visit to the area in a fact finding mission. It found out that the OSPCB, which very well knew about the impending disaster, came into action only after 11 days of the occurrence of the

54 From a fact finding report of Water Initiatives Odisha (WIO) on 20th August 2012.

first breach even though the farmers had brought the matter to their notice much earlier. The OSPCB gave a notice to the Hindalco on August 18 to shut its power plants⁵⁵. However, the company officials resorted to blackmailing tactics and gave media statements that stopping the power plants would mean stopping the smelter, which will be ecologically more devastating. On August 20, when the team from WIO visited, only one unit – the smallest unit of 67.5 MW – of the plant was stopped and rest were allowed to run. The company was dumping fly ash into the breached mount as usual putting thereby people to continued risk.

Despite giving an order to close all power plants, the OSPCB did not show any interest to see if its order was implemented. Rather, it surrendered to the arm-twisting trick of Hindalco that kept on maintaining that the shutting down of smelter would mean more dangers to the environment. The OSPCB first invited the company officials for a hearing and no one really knew what happened. Immediately after that the OSPCB sent an expert team to the area and within no time kept its closure order on hold⁵⁶. This sent out real dubious message on the role of the OSPCB, which, as WIO had already alleged, did surrender to the company's interest rather than performing its role as a regulator to see that no plant violates environmental norms.

On August 24, therefore, when the OSPCB ate up its own word and kept on hold its own order of closure of all captive power plant (CPP) units of Hindalco company at Hirakud, whose serial ash mount breach had already put the local people and environment at risk of severe health and environmental hazard, it raised serious questions on its own functioning and existence.

An expert committee, comprising a former general manager of National Aluminium Company (Nalco) and a professor from Indian Institute of Technology (IIT), Kharagpur, as mentioned in media reports, reportedly recommended that the smelter plant should not be closed since it will have severe environmental impacts on the local soil and water. WIO rejected this report on the following grounds:

1. Nalco had been a known culprit so far as ash pond breach was concerned and it had several times been shut down by OSPCB. So, having a former official of Nalco in the expert committee was a biased act.
2. There was no comparative assessment of damage done by the OSPCB between the pollution created by the ash pond breach and supposed closure of the smelter. Without doing this, no conclusion could be drawn about which one was a lesser evil and hence allowing the power plant to run was not justified.
3. The so called expert committee had given a 'green' signal to Hindalco's temporary arrangement of ash pond management while the entire closure notice was based on the breach of ash pond and also in response to the temporary and dangerous management of ash mounts by the company, among other things.

The hurried act of the OSPCB clearly showed that it was not acting as an institution to check pollution but to facilitate pollution and related devastation. In fact, one would find it as a laughable stuff when the OSPCB said that the order to hold the closure notice was to check environmental hazards that may occur due to closing down of the smelter.

55 Closure Direction Letter No. 18362, dated August 18, 2012 by Odisha State Pollution Control Board (OSPCB) to The Head-Hirakud Complex, M/S Hindalco Industries Ltd., Hirakud.

56 Letter Dated 24.08.2012 from the OSPCB to the company has incidentally no number. The Memo Numbers for copies sent to different officials bear numbers from 19035 to 19038.

The serious question here is, "If there is environmental hazard of even closing down a smelter, why was this not considered by the OSPCB while giving the closure notice earlier? Further, why, at the first instance, such plants are given license to operate, which pollute while running and even after being shut down?" Actually, can the OSPCB ever guarantee that no aluminium smelter of the state will ever be closed because they will have grave polluting impact?



A huge fly ash pond breach in 2012 affected thousands of acres of farmlands and severely polluted an irrigation canal and other water bodies affecting thereby water quality of the Mahanadi. However, there was hardly any action taken against Hindalco, the culprit in this case.

It is ironical that the OSPCB, which is supposed to be working to force a company in taking remedial measures to check pollution even if it meant shutting down a plant, is more interested to lobby for a polluting unit to continue to operate and pollute the local area, crop fields and water bodies.

OSPCB'S INACTION NO SURPRISE

In fact, OSPCB's this dubious role in the Hindalco's case did not surprise anyone in the state. It knew that the ash mount would breach and would spread the toxic and radioactive pollutant to the crop fields and water bodies, and expose people and other species to severe health hazard risks.

Way back in March 2012, the OSPCB had conducted a personal hearing⁵⁷ in respect of Hindalco in the matter of fly ash transportation and disposal in response to an Odisha Human Rights Commission (OHRC) notice on the issue. In the meeting held on March 15, 2012, the member secretary of the OSPCB, who had told the media after the Hindalco fly ash breaches that they could not stop the smelter, said to have desired the industry to ensure full compliance to the directions issued by the board vide a letter dating back to December 2011. In fact, the OSPCB officials were said to have made an inspection visit to the Hindalco ash mount area in February 2012 and had recommended several measures. Nothing happened since then and the OSPCB too did not take any follow up action.

⁵⁷ Proceedings of the personal hearing in respect of M/S Hindalco Industries Ltd., Hirakud Complex on March 15, 2012 at Odisha State Pollution Control Board, Bhubaneswar in the matter of fly ash transportation and disposal. Sent by OSPCB to its regional officer Sambalpur vide Memo No. 7088 dated April 9, 2012

As the OSPCB records show, way back in December 2011, the board had given the following instructions to the company as it was found to be breaching pollution control norms.

1. The current ash mount management practice of the power plant is faulty. They have stacked ash up to a height of 75 to 80 feet above the ground and the slope is much steeper than prescribed norms.
2. The earthen ash dyke has been provided for containment of surface runoff from active ash dump area which is not very strong and has failed to contain ash flow during heavy rainfall.
3. Slope protection measures like stone pitching has not been taken up.
4. Garland drains have not been provided around the dumps and settling ponds of adequate capacity have not been provided for containment of surface runoff. The existing surface runoff retaining system has not been provided with proper spillway to evacuate excess water during emergency situation.
5. The dyke of surface runoff retaining system has not properly been designed to cater to hydraulic load during untoward situation.
6. Extensive deposit of ash was observed in the surrounding agricultural field, nearby canal and agricultural field irrigated by the canal system.

This establishes how the OSPCB has been a party to the crime and now it is championing the cause of the company.

HINDALCO: A HABITUAL POLLUTER

Hindalco, an Aditya Birla Group company, has an aluminium smelter plant at Odisha's Hirakud. To support the plant it has four coal fired captive power plants (CPPs). Both the smelter as well as CPP units have been a cause of regular pollution in the area. The smelter produces 1,00,000 tonnes aluminium from alumina per annum and is planning to expand it. The four units of CPPs produce about 367 MW of power and generate 3,000 tonnes of fly ash. The smelter generates wastes containing cyanide and fluoride. Cyanide is a killer and fluoride kills plants and does a lot of other damage to humans as well through the contaminated crops and water. On the other hand, the fly ash from coal fired power plants contains several toxic elements. They are arsenic, beryllium, boron, cadmium, chromium, chromium VI, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium, along with dioxins and PAH compounds. The Hindalco, as records say, has all along been unable to manage these severely polluting elements.

Take, for example, the case of crop damage in 2008 due to discharge of killer substances by Hindalco's smelter. As confirmed by an inspection done by OSPCB team on September 27, 2008, the plant was found guilty of discharging untreated waste water directly into the adjoining waterways. At two places, it released effluents into Khajur *Nala*, a tributary of the Mahanadi. The third outlet opened into a storm water drain that joins the river. The wastewater samples found out fluoride contamination at those outlets up to 18 times the permissible limit of 2 mg/ litre. The fluoride level was also almost three times higher than the prescribed limit. This has been occurring regularly since 2003 and each time the OSPCB has been only warning the Hindalco but the 'green criminal' runs amok unabated.

VEDANTA FLY ASH POND BREACH CASE

On August 28, 2017, the fly ash dyke 2 of Vedanta at Katikela village of Jharsuguda district breached affecting hundreds of acres of farm land. The researcher visited the area on September 17 and found

out that the fly ash had covered the crop fields, forest areas and local streams and other water bodies by a height of more than a metre. In this case too, as in case of the Hindalco, the OSPCB as well as district administration were found to be complacent. The OSPCB, as can be found from their closure notice No. 12150, on September 13, 2017, had said it had pointed out defects in the fly ash dykes of the company long back in 2015 and corrective measures had been suggested. However, the company continued to flout the norms and went ahead dumping fly ash in a dyke that had defects and was prone to breach. Farmers in the Katikela village complained that it was a deliberate design of the company as they were not willing to give away their farm lands adjacent and below the fly ash dykes, which the company wanted to acquire at low cost because the fields were already being heavily polluted by the fly ash ponds and dust from the plant.



On August 28, 2017, the fly ash dyke 2 of Vedanta at Katikela village of Jharsuguda district breached affecting hundreds of acres of farm land. (Photo: Mehboob Mahtab)

Interestingly, the closure notice did not give any stipulated time for ash removal, nor talked about pollution of the Bheden river that bore a heavy amount of ash pollution due to the breach. It only asked to de-silt the stretch of the river but the company had not even done that till the time the researcher visited the spot – about 20 days from the day of the breach.

At least three to four feet of coal ash was deposited in the Bheden river. The Bheden is already heavily polluted due to heavy untreated discharge of industrial effluents, complain the people. About 2,500 people in the village have always been complaining of indigestion and gastroenteritis problem ever since the ash ponds have come up there. That is because of leaching from the ash ponds, confirms a local doctor on the condition of anonymity. Fisherfolk, a couple of hundreds of them, dependent on the Bheden river have been complaining of reduced fish catch and diversity and fish death. The Bheden enters the Hirakud reservoir just a few kilometres after this village.

In a meeting organised by WIO on August 3, 2016, fisherfolk who represented their communities fishing in Hirakud reservoir said about 20,000 fisherfolk depended on fishing from the Hirakud reservoir and

they have seen pollution affecting the fish diversity as well as fish production. They say that there has been a reduction of more than 50 per cent fish catch in the last two to three decades. They used to get 183 types of fishes from the reservoir before, which has now reduced to about 23 varieties. That is a great loss! But the OSPCB maintains a stoic silence over this.

Contrary to what the farmers, fisherfolk and other people of the region say, the latest report of the OSPCB on river quality monitoring for the half decade period 2011-2015 finds this stretch of the Bheden as well as the Ib river (that bears maximum burden of coal mines overburden and other industrial pollution of the Ib Valley and merges in the Hirakud reservoir) in a range between Good to Excellent (State Pollution Control Board, Odisha 2016). The same is their finding about the Hirakud reservoir and downstream. In another meeting at Dhama, a fisherfolk village downstream Hirakud dam and Sambalpur city, the people had raised similar concerns. They had complained about a 70 per cent reduction in fish catch and about 50 per cent loss in fish diversity in 50 years. They attributed the cause to be both Hirakud Dam (that obstructed water during most months of the year) and pollution from upstream: both industrial effluents and urban sewer.

Coming back to the Vedanta fly ash pond breach case in Katikela, the farmers lost their standing crops and the district administration was busy working out a compensation formula. A few meetings were held by the district administration along with local representatives but farmers were not yet sure what kind of compensation they



The carcinogenic fly ash from Vedanta's breached ash dyke polluted the river Bheden but there was no action by the company to clean up the river.

would get. The company, the people alleged, was now lobbying to put pressure on the people to sell the affected lands to the company in negotiated rates out of any government process. In a way, as the people rightly allege, the company has deliberately breached its fly ash dyke to force people to sell off their lands at distress rates and vacate the place. The company is yet to pay any compensation to the victim farmers, while the government has not been able to assure the same to them.

According to available data, the utilisation rate of fly ash in Odisha has shown an increasing trend. In 2005-06 and 2006-07, around 28 per cent of the total fly ash generated could be utilised. This year around 12 MT fly ash was generated from thermal power plants. The utilisation rate increased to 35 per cent in 2008-09, 44 per cent in 2009-10 and 50 per cent in 2010-11.⁵⁸

The larger issue here is about why do the power plants need more land when they are supposed to do 100 per cent utilisation of their fly ash within a period of maximum four years in case of plants existing before November 2008 and three years after that.⁵⁹ The first unit of the 2,400 MW integrated power plant

58 Press release of information and public relation department, Odisha government, August 14, 2012. This can be accessed at http://inpr.odisha.gov.in/News/2012/FLY_ASH_UTILIZATION.pdf

59 As per Notification published in the Gazette of India, Extraordinary, Part II, Section 3, Subsection (ii), MINISTRY OF ENVIRONMENT AND FORESTS NOTIFICATION New Delhi, the 6th November, 2008. This can be accessed at <http://envfor.nic.in/legis/hsm/2623.htm>

of Vedanta (previously known as Sterlite) at Jharsuguda was inaugurated by the chief minister of Odisha on August 21, 2010. Being a power plant that has started operating after the central government's November 2008 notification, it should have utilised all its fly ash in three years. However, the company is increasing the number of fly ash ponds by the year.

In another village, Bhurkamunda, the same company faced opposition from people while constructing a fly ash pond by illegally encroaching forest land. The villagers alleged in March 2015 that Vedanta's Sesa Sterlite Industries constructed its fly ash pond by illegally encroaching 246.74 acres of forest land in complete violation of the Forest Conservation Act 1980⁶⁰. While the locals have repeatedly drawn the attention of the forest department about the



Tilia villagers were displaced by Hirakud dam but yet to get basic amenities such as clean drinking water. Starting from children to aged women have to fetch water from tankers throughout the year.

illegal construction of the ash pond since 2009-10, the latter is said to have intervened in this matter only in 2013. As nothing happened at local level, the villagers filed a case with the National Green Tribunal (NGT) in 2016 with the primary contention that the company has been illegally using forest land measuring 246.74 acres without obtaining forest clearance on the basis of an illegal order issued by the Jharsuguda tahsildar⁶¹. The case continues and Vedanta's green crimes continue.

AT TILIA, HIRAKUD GETS ANOTHER FLY ASH POND BY DESTROYING FARM LAND

While people in the Vedanta and Hindalco cases are facing problems with regard to the existing plants and ash ponds, the people of Tilia village in Jharsuguda district are fighting against an ash pond being built by the Odisha Power Generation Corporation Limited (OPGC). The OPGC, which has already been operating two power plants at Banharpali of the Ib Valley area in Jharsuguda district, has embarked upon an expansion of 1,320 MW (two units of 660 MW each). For its ash pond, it has been forcefully acquiring land from the villagers at Tilia, as they complained when the researcher visited them for purpose of the current study. In fact, the villagers, who had been earlier displaced by the Hirakud Dam project, are still fighting for basic amenities. They get drinking water by tankers supplied by the MCL, but have many complaints about its quality and quantity.

When the people got land acquisition notices in June 2010 from the Odisha government informing them that the OPGC would be acquiring 277.30 acres of land from their village for a fly ash pond, they opposed it. However, the government and the company continued to pursue them and later forced them to leave their lands. They resorted to agitations that ranged from road blocks, torching of vehicles of government officials and pollution control board officials, obstructing company officials, meeting and petitioning the district administration and political leaders.

60 <http://odishasuntimes.com/wio-action-vedanta-encroaching-land-odisha/>

61 O.A. No. 151/2016/EZ, before the National Green Tribunal, Eastern Zone Bench, Kolkata.



The villagers look helplessly as the OPGC forcefully acquires their land to build a fly ash dyke adjacent to the Hirakud reservoir.

On October 30, 2015, villagers torched the vehicle of officials from the OSPCB who had visited the site of the ash pond. The officials were rescued by the police. The villagers continued their agitation as they did not want to get displaced. As the land acquisition did not progress despite government forcefully depositing the money in bank accounts of about 70 per cent of the villagers, police force was used to forcefully acquire the land on April 24, 2017. Armed police laid siege to the area and outnumbered the villagers who were on protest demanding higher compensation against the lands acquired for the project⁶². By then, the focus of the opposition had shifted from opposing the project to demanding more compensation.

During this researcher's visit Murari Pradhan, general secretary of the Tilia Paunsha Pokhari Khyatigrastha O Prabhabita Suraksha Committee (committee of the people fighting to protect people affected by the OPGC ash pond) said: "Initially we protested against the project but did not get any support from the district administration, who sided with the company. Hence, we have now been demanding for complete eviction as the OPGC has taken over all our farm lands, forest areas and water bodies but not the homestead areas".

Going by the abysmal record of rehabilitation, jobs and facilities provided by mining companies and industries who have been operating in the Ib Valley and polluting their land, water and air, the villagers are not feeling assured that they will get any proper job or compensation. That is the reason they have put up a 15-point demand that includes provision of proper compensation under the latest land acquisition Act – Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 – jobs, development of the last remaining pond, drinking water, health and other basic amenities.

"The government has provided much higher compensation to victims of nearby areas such as people affected by the NTPC Darlipali in Sundargarh. They have got approximately Rs.25 lakh per acre, but the

62 <http://www.newindianexpress.com/states/odisha/2017/apr/25/forces-deployed-to-acquire-land-for-opgc-expansion-1597504.html>

government is offering less than Rs.12 lakh here,” says Pradhan. The villagers have driven out OPGC officials thrice from the village with this demand but nothing has happened so far. At the time the researcher visited, in May 2017, the police officials were present in the village and the company was doing some digging work at the crop fields of the villagers, many of which was officially not yet acquired, complained the villagers.



The OPGC fly ash pond not only destroys farm lands but also engulfs several surface water bodies and poses new pollution threats for Hirakud reservoir.

The fight is on, even though the construction is also on. The collector of the district, MPs and MLAs all have tried to intervene but no one has been able to offer the compensation the villagers want. Nor has the company assured them of basic amenities, jobs and dignity they have demanded and they deserve.

What is important to note in this case is the fact that the proposed fly ash pond is just a few metres away from the Hirakud reservoir that is already stressed and highly polluted. Ironically, no fresh public hearing has been done for this fly ash pond that has the potential to impact one of Asia's largest man-made lakes supporting millions of people and local ecology. In 2015, replying to an RTI application by the villagers, the OSPCB had said: "No proposal for conducting public hearing in respect of ash pond at Tilia Village has been received and no such public hearing has been conducted by the OSPCB." Replying to another RTI application, the Lakhanpur tahsildar said: "Public hearing is not mandatory for acquisition of private land in non-scheduled area."

Interestingly, in response to another RTI application of 2017, the OSPCB said: "The project proponent had applied for public hearing for the expansion activity and ash pond was part of the expansion project." The public hearing for OPGC had apparently been done on June 24, 2008⁶³ and surprisingly none of the Tilia villagers even knew of it because the power plant of OPGC was located at Banharpali, a distant village and hence the Tilia villagers were not invited then. The villagers filed a writ petition in the form of PIL in the Orissa high court, however they alleged that the lawyer they had engaged was not responding

63 Letter No.4639/RTI/March/2016-17/12, Dtd. 28.03.2017 by OSPCB in response to RTI application of Muralidhar Pradhan of Tilia village.

to their repeated calls after going away with several important and original documents.

Odisha, the self-proclaimed 'victim state', has obviously not respected the Mahanadi at Ib Valley. It is evident from the way it is pushing through power plants and ash pond near the river and Hirakud reservoir. People of Tilia, as of many other villages, have lost their lands and livelihood for these power plants and are not even able to get proper drinking water from this so called development even after 70 years of getting displaced from one project.

The danger of having power plants near rivers and water bodies are well studied. Not only that they will pollute water sources, but they will also compete for the scarce water resources marginalising the local people further. Existing power plants are already facing difficulties due to non-availability of water, especially in the coal bearing states like Odisha, Jharkhand and Chhattisgarh (Vasudha Foundation 2016). Several thermal power plants had to shut down production in 2015-16 due to severe water crisis in many parts of the country.

The Vasudha Foundation study mapped the locations of all proposed thermal power stations along with the predicted ground water levels in the respective districts. It emerged that 52 per cent of the districts with no water stress in 2010 may become water scarce by 2025 (Vasudha Foundation 2016). A much more severe scenario emerges when the predicted water levels for 2050 are mapped. Their map highlighted the districts that had moved from non-water scarce to absolutely water scarce and found that almost 30 per cent of non-water scarce districts in 2010 are predicted to be water scarce by 2050 (Vasudha Foundation 2016). The concentration of power plants in the Ib Valley in specific and Mahanadi in general certainly awaits a dangerous future.

The state admits that the priorities of its water policy are in the order of: 1. Drinking water and domestic use (human and animal consumption); 2. Ecology, 3. Irrigation, agriculture and other related activities including fisheries; 4. Hydro power; 5. Industries including agro industries, and 6. Navigation and other uses such as tourism⁶⁴. However, in the cases described above, it is clearly evident that the government is favouring the industries over irrigation and even drinking water.

Odisha has not only failed in managing the river Mahanadi and need of the primary stakeholders dependent on it but also has failed to maintain coordination with the upper riparian state Chhattisgarh in maintaining a coordinated approach for health of the river and prosperity of the farmers, fisherfolk and common people. The way it has handled the case with the NTPC Lara power plant is a glaring example of that.

THE NTPC LARA POWER PLANT: A CASE OF INEFFICIENT INTER-STATE COORDINATION

NTPC is investing nearly Rs.12,000 crore for setting up 1,600 MW (Stage-I) Lara coal based super thermal power plant in Chhattisgarh, which is having two units of 800 MW each. The project, which would have a total capacity of 4,000 MW in two stages, is expected to see an overall investment of about Rs.30,000 crore. The Union ministry of environment and forests has already accorded environmental clearance for the project⁶⁵.

The project will be located in an area of 2,857 acres engulfing nine villages of Chhattisgarh (Armuda, Chhapora, Bodajharia, Devalpura, Mahloi, Riyapalli, Lara, Jhilgitar and Kandagarh in Taluk Pussore of Raigarh district).

64 Response dated August 22, 2011 of the Odisha government's department of water resources to an RTI application of Priya Ranjan Sahu (obtained by researcher from him)

65 MoEF EC granted vide Letter No. J-13012/97/2007-IA.II(T), dt. 13.12.2012.

The foundation stone of this first phase NTPC's Lara thermal project was laid by the previous Prime Minister of India, Man Mohan Singh, on September 19, 2013. The PM in his speech had said that the plant would provide 50 per cent of the total power gain of Chhattisgarh. He also spoke about the new opportunities to be created by the plant for the people of Chhattisgarh. But, there was no mention about the loss in Odisha. Even the Odisha government kept mum over the ill impacts it was going to have in its state.



The NTPC Lara power plant is one of the best examples of how inter-state cooperation is non-existent between Odisha and Chhattisgarh. This plant will draw water from Mahanadi and pollute Odisha villagers but the governments have shown little or no concern.

The project will have a devastating impact in Odisha, especially in the Lakhanpur block of Jharsuguda district. People of villages under six panchayats of Lakhanpur would be affected severely so will the flora and fauna inside the state. The gram panchayats of Odisha affected by the project are Kandheikela, Remta, Charpali, Pithinda, Kanaktura and Badimal. Pollution of the plant will also affect the food security of the Odisha villages. But these aspects have totally been ignored while giving permission to the plant.

During the operation of the plant 8 million tonne per annum (MTPA) coal will be required i.e. around 25,000 MT coal will be handled per day. About 3.2 MTPA ash will be generated out of which 2.56 MTPA will be fly ash. The unit has proposed 400 acres of land for ash pond at Lara village for ash disposal which is also about 1.5 km away from the inter-state boundary and 2.5 km away from Saraipali of Odisha.

It is to mention that gradient/ slope of the area is towards eastern and south-eastern side i.e. during rainfall run-off water from the project area will flow towards the eastern and south-eastern side towards which the villages of Odisha are located. Groundwater quality around the area shall also deteriorate due to the project, especially because of the ash pond. The Mahanadi and Kelo rivers are about 8 km (south) and 1.5 km (east) away from the ash pond respectively and Hirakud reservoir is located at about 10 km in south east. They will also be polluted by the effluents of the plant. Further, the plant has been given clearance to take water from the Mahanadi by the Chhattisgarh government without analysing the total capacity of the river. A lot of power plants are going to use Mahanadi water and there is no cumulative impact assessment done for this.

Unfortunately, the MoEF has given clearance to the plant without considering all these factors. There was no public hearing in Odisha, although it is mandatory. The regulatory authority, OSPCB, was supposed

to have advertised the public hearing date and venue and about the project at least in a major national daily and a regional language daily⁶⁶. A minimum notice period of 30 days should have been provided to the public for furnishing their responses. The advertisement should also have informed the public about the places or offices where the public could access the draft environmental impact assessment (EIA) report and the summary EIA report before the public hearing⁶⁷. In places where the newspapers do not reach, the competent authority should have arranged to inform the local public about the public hearing by other means such as by way of beating of drums as well as advertisement/ announcement on radio/ television.

No advertisement was published in any regional language (Odia) daily or none of the villages of Odisha state coming under study area (10 km) were informed, even once, about the public hearing by any means of announcement.

The EIA report submitted by the NTPC for obtaining clearance does not have any mention of the villages to be affected in Odisha. The people and most importantly the sarpanchs (local self-government representatives) of six gram panchayats that would be affected by the project have waged strong protest against it. They had met the Odisha chief minister and asked him to intervene with Chhattisgarh to stop the work of the project unless people of Odisha were properly benefited. But there was no response from the government.

The Sarpanch Sangha (an association formed by the local self-government representatives) also wrote a letter subsequently on September 16, 2013 to the chief minister for conducting public hearing in 13 villages falling under the buffer zone and to conduct an EIA of the area in Odisha. They said that if the government did not give assurance for conducting EIA, they would hold a protest rally and demonstration during the foundation laying event by the Prime Minister on September 19, 2013. They subsequently staged a protest at Kanaktura, the bordering village of the plant site, when the prime minister was laying foundation stone. They appraised the Jharsuguda collector, local MLA, MP and other government and project officials who were present at the project site at the time of the PM's visit about their plight. They demanded EIA of the area falling in Odisha and also intimated that they had not been informed about the public hearing. "When we are also equally affected by the project due to pollution caused by project activities, why people of Chhattisgarh would only get benefited?" they asked. The Odisha government did not act on the demands of the people.

There were many other deliberate gross violations of EIA notification 2006/2009 on part of project proponent as well as Chhattisgarh Environment Conservation Board (CECB), complained the Sarpanch Sangha leaders. There were also illegalities and faults in conducting public hearing and the preparation of the EIA report, they complained.

The term of references (ToRs) for the proposal of the NTPC were granted by the MoEF on August 1, 2007.⁶⁸ It was decided by the ministry⁶⁹ that "...from 01.04.2010, the prescribed ToRs would be valid for a period of two years for submission of the EIA/ EMP (Environmental Management Plan) Reports, after public consultation where so required. The memorandum further mentioned that, the period would be extendable to the 3rd year, based on proper justification and approval of the EAC/ SEAC, as the case may be. Thus an outer limit of three years had been prescribed for the validity of ToRs with effect from 01.04.2010". It is thus clear that ToRs accorded for the proposal had already expired, when the people in Odisha started to complain.

66 As per the EIA notification S. O. 1533 - New Delhi September 14, 2006 and EIA notification S. O. 3067(E) dated December 1, 2009 (amendment of S.O.1533 dated September 14, 2009).

67 As per MoEF's office memorandum No. J-15012/29/2010-IA-II (M), April 19, 2010, public hearing is conducted to address the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project.

68 Vide MoEF letter no. J-13012/97/2007-IA.II (T).

69 Through MoEF office memorandum No. J-11013/41/2006-IA.II (I) dated March 22, 2010.

According to EIA notification 2009, preparation of draft EIA report should be strictly in accordance with the ToR communicated after scoping (Stage 2). But the draft EIA report so prepared was not in accordance with ToR communicated by the MoEF vide letter dated August 1, 2007, complained the Sarpanch Sangha leaders.

EIA is based on old environment standards while new standards have come into effect from November 16, 2009. For example, it said: "It is proposed to install high efficiency ESPs to limit the outlet emission of Particulate Matters (PM) to 100 mg/ nm³". But it is 50 mg/ nm³ as per the new standards⁷⁰.

In view of a large numbers of power plants as well as sponge and steel iron projects coming up in the adjoining areas of Lara, cumulative and comprehensive environment impact assessment is a must to envisage overall impact on environment and people. Only thereafter any project should be considered for clearance. But, this aspect has not been considered at all.

The makeup water for the plant is proposed to be drawn from the Mahanadi. The estimated requirement of makeup water for the Lara STPP Stage-I (2x800 MW) capacity would be 5,290 m³/ hr. The Chhattisgarh government has approved the reservation of 50 cusec (45 MCM) water for the project from the Mahanadi vide letter dated January 17, 2011. The next stage of the plant will also require water and there is no assessment whether the Mahanadi can sustain this demand or not.

According to a report by Down To Earth (Juneja 2010) on Chhattisgarh's water use from Mahanadi, out of 118 proposed projects, for which data are available, 33 plan to withdraw water from the Mahanadi, Chhattisgarh's main river. The projects would require 1,500 MCM water per year. If water required for projects from tributaries Lilagarh, Hasdeo, and Seonath are added, the withdrawal goes up to 2,700 MCM. Assuming that the water withdrawal of the existing industries is 1,000 MCM, the total withdrawal from the Mahanadi would go up to 3,700 MCM. Coal fired power plants, known as

water guzzlers, alone would be withdrawing close to 1,500 MCM annually, as per the CSE study. Further, this estimate is based on the data of just a few of the projects planned. The dependable water availability in the Mahanadi (measured at Kasdol, upstream of Raipur) over the last 10 years is an average of 1,528 MCM per year, according to the state water resource department (Juneja 2010).

This is significant in quantity and cumulative impact on water availability would be very high if all the plants start generating power. So whether the Mahanadi has sufficient water to support this power plant is a big question. Even the industries will have to fight each other for water in the eventuality of all starting operations simultaneously. This will lead to further groundwater exploitation and not only worsen the condition of water already depleting water table (Panda 2015) but also make the farmers' access to water completely difficult. Industries are now masters of the dams and barrages as most of the dams and barrages are devoted to provide water to them throughout the year. Another important question is, what will be the cumulative impact on lean flow of the river i.e. during summer? Several dams and barrages are being built at upstream locations on the river as well as the tributaries. This will further reduce the flow of water into the Mahanadi. (Panda 2015)

The plant has been given clearance to take water from the Mahanadi by the Chhattisgarh government without analysing the total capacity of the river. A lot of power plants are going to use Mahanadi water and there is no cumulative impact assessment done for this

70 As per discussion with local pollution control board officials.

The NTPC plant will create one more serious problem for the locality and the river. It will generate at least 3 million tonnes of ash per year and there is every chance that most of the ash will find their way to the Mahanadi and its tributaries like Bad Kelo and San Kelo. There does not seem to be any proper plan for safe disposal and utilisation of coal fly ash.

LACK OF INTER-STATE COORDINATION AMPLY VISIBLE

After repeated agitation by the local people led by local self-government representatives, the government of Odisha woke up only in October 2013 when its environment secretary wrote to the member secretary OSPCB asking them to fetch the EIA report of the Lara plant⁷¹.

Interestingly, the Odisha government, which did not take any action when people agitated against the plant, had knowledge of the plan of land acquisition by the company in Odisha for its railway lines to be constructed to transport coal from the Ib Valley area. A letter⁷² from the Jharsuguda district office to the Lakhanpur tahsildar, written almost 14 months before the above letter of the Odisha government's environment secretary, shows that the company had submitted a plan towards the land acquisition proposal. The OSPCB's regional officer at Jharsuguda went on an inquiry visit to the Lara plant area on October 16, 2013 along with the divisional forest officer and additional district magistrate of Jharsuguda and confirmed most of the apprehensions the agitating locals had raised. Their report submitted⁷³ to Odisha's forest and environment department confirmed that the Chhattisgarh government had not informed Odisha about public hearing despite 27 villages and a proposed reserve forest falling under the 10 km radius of the plant that is normally considered as the buffer zone and where public hearing should have been taken up.

The above inquiry report also confirmed the fact that there is no coordination whatsoever between both the governments with regard to the polluting industries being set up, water being used and impact on local people, farmlands as well as biodiversity. The report also brought out the fact that the Union forest and environment ministry has a regional office at Bhubaneswar but that too did not have any information about the NTPC project. Obviously, the Mahanadi is at severe stress as the complicated institutional structures do not have any scope for working in cooperation considering cumulative impact of projects on it.

PEOPLE'S AGITATION ONLY HOPE?

It is only people's agitation that brings the system to some level of action, but that does not solve the real issue. The local MLA raised the issue in the Odisha Assembly once, the local MP raised it in Parliament once and the Odisha chief minister has written a letter to the central government. At the local level, nothing has changed. People in the affected villages are agitating. In fact, they are also complaining about reduced water flow and pollution in the Kelo river, which is their lifeline. During our visit to these villages, they said at least six lift irrigation points had been defunct ever since the Kelo Dam project started obstructing water.

NTPC is supposed to get water from the Saradih barrage (one of the barrages around which Odisha and Chhattisgarh are now fighting), but for the time being the Chhattisgarh government seems to have allocated water to it from the Kelo river. According to news reports, local women in Chhattisgarh protested against the diversion of water to NTPC's Lara plant as it was killing their crop fields. Ramesh Agrawal, a noted environmental activist from Raigarh, informed that he had filed a case in National

71 Letter No. 21239/F&E, October 17, 2013.

72 Letter No. 7180/Rev, dated August 24, 12 from Jharsuguda district office to tahsildar, Lakhanpur, Jharsuguda district.

73 Letter No.20827/Ind-II-NOC-Misc/163, dated November 11, 2013 from OSPCB to Odisha government.

Green Tribunal (NGT) against the NTPC Lara plant by citing that Mahanadi water is no more available for industries. He found it surprising that the Odisha government did not file any case against NTPC's Lara plant even after knowing about his case and the local people's agitation.

Ajit Panda of the Water Initiatives Odisha (WIO) said that the Odisha government is being warned for about a decade now about the problems in the Mahanadi due to mindless industrialisation, dam and barrage building and pollution. However, it never wanted to listen. The Mahanadi is being marketed as a water surplus basin without any proper statistics being offered (Panda 2015). In a meeting organised by WIO and Nadi Ghati Morcha of Chhattisgarh in December 2012, more than 100 people from both the states urged both the states to build a cooperation process by considering the Mahanadi as a 'river' and not a 'commodity'⁷⁴. They asked the governments to make a cumulative impact assessment of all the existing projects as well as proposed projects, put a check on thermal power plants and consider climate change impacts in planning a joint river basin management strategy. "We wrote to both the states and the central governments to take our recommendations seriously or else they have to wage a war against each other for Mahanadi water very soon," said Ajit Panda. "In response to our warning, the then Odisha water resources secretary told the media that Mahanadi was a water surplus basin and hundreds of barrages built by Chhattisgarh would not be a problem for Odisha."

Odisha's argument as a self-proclaimed 'victim state', therefore, has to be seen in perspective with all these issues. The question remains, does Odisha treat the Mahanadi any better than Chhattisgarh? The answer at the moment is a simple NO!

74 Press Release of WIO, dated December 24, 2012





A common scene at the coal fields of Mahanadi basin in both Odisha and Chhattisgarh, showing how people, their crop fields and forests have to give way to coal mines in the name of development that ultimately decreases the water availability in the basin.

Conflicts over Mahanadi Water and Marginalisation of Local Communities

There have been constant fights for water between industries and farmers both in Chhattisgarh and Odisha. We are focusing on Odisha here onwards to understand whether the state is managing its own share of water properly or else blaming Chhattisgarh for its undue favour to industries and power plants just to project its case as that of a 'victim state'.

As Odisha poses itself as a 'victim state' and blames Chhattisgarh for colonising water resources at the upstream of the river, it would be worthwhile to analyse the way Odisha itself has been managing its own stretch of the river. To start with, one needs to understand the biggest ever conflict over water that is going on between farmers and industries on the Hirakud Dam waters.

On October 26, 2006, farmers of five western districts of Odisha flocked the Hirakud reservoir to fight against 'water privatisation' as they called it. More than 30,000 of them formed a human chain along a stretch of about 18 km covering the dam from one end to another. It was a peaceful protest but the message was loud and clear. Farmers questioned the decision of the government to allocate water to industries while the command area was shrinking and it was not able to provide water to farmers. Their main allegation was about the 478 cusec of water allocated to industrial units from Hirakud reservoir which would – on a thumb rule basis – have given irrigation to 4,78,000 acres of command area irrigation.



On October 26, 2006, farmers of five western districts of Odisha flocked the Hirakud reservoir to fight against 'water privatisation' as they called it. More than 30,000 of them formed a human chain along a stretch of about 18 km covering the dam from one end to another.

The Hirakud Dam happens to be the first multi-purpose mega dam project of Independent India, which the first prime minister described as a 'modern temple'. At that time it was known as the longest earthen

dam of the world and had the largest spread of artificial lake in the Asia continent. This dam was built as a National Project and was enjoying that status for a few years, after it was handed over to the state of Odisha. Madhya Pradesh, the state from which Chhattisgarh was carved out, and Odisha were supposed to have agreements to manage the Mahanadi basin together – post the dam's construction – as majority of the catchment of this dam fell in Chhattisgarh (current state). However, there have just been sporadic and fragmented discussions but not any concrete agreement. That is the reason concerns have always been raised by both the states against each other with regard to water use and abuse.

The dam is located at latitude 21.31 degrees north and longitude 83.52 degrees east across the Mahanadi, about 15 km upstream of Sambalpur town. With a submergence area of 743 sq km, the reservoir submerged 1,23,303 acres of cultivable land and displaced 22,144 families officially. Unofficial sources dispute the displaced family statistics of the government. At least 3,540 of the officially recognised displaced families are yet to be compensated even 50 years after their displacement (Panda 2007). But other figures put it at 9,913 families⁷⁵. The dam had become functional in 1957. Talking to the displaced people of the Hirakud Dam, Pandit Jawaharlal Nehru had famously said: "If you are to suffer, you should suffer in the interest of the country."

These people are still suffering, and so also the supposed 'beneficiaries'. With the recent wave of industrialisation many families are again being displaced from their resettlements. Almost all villages in the area surrounding the Hirakud reservoir are re-settled villages. They are again being subjected to involuntary resettlements.

The live storage capacity of Hirakud reservoir at full reservoir level (FRL) is 3.910 million acre feet (MAF), which is the maximum volume of water available for use at the end of monsoon. As per project report, the reservoir was primarily conceived for flood control. The other purposes were indicated as irrigation and power generation. The reservoir has two power houses at Burla and Chipilima with installed capacities of 259.5 MW and 72 MW respectively, totalling 331.5 MW.

It was never envisaged to provide water supply to industries. Water lifting was totally barred from the reservoirs. Farmers in the surrounding areas were not allowed to lift water to save their dying crops. Numerous certificate cases have been filed against farmers who desperately drew water 'illegally' to save their crops.

The first major deviation to the reservoir policy came in the year 1990, when the state government added 'water allocation to industries' in the priority list. On November 26, 1990, the erstwhile irrigation department (presently water resources department) earmarked 0.350 MAF/ year of water for utilisation by industries from the Hirakud reservoir vide a government order (Panda 2007).

With the advent of liberalisation and globalisation, industrialisation in the vicinity of Hirakud reservoir picked momentum in the late 1990s and reached a feverish pitch since the beginning of that decade. Where poor farmers, who were forcefully displaced earlier, were prevented from using water from the reservoir to save their crops, industrial units were given liberal permission to have access to the reservoir water for their water requirements. In such circumstances, when the government began to grant permission to industrial units to draw water from the reservoir and when once already displaced were subjected to further displacements, public resentment began to simmer.

The situation was already bad in the Hirakud command area. In just two years from 1998-99 to 2000-01,

75 <https://timesofindia.indiatimes.com/city/bhubaneswar/Hirakud-displaced-families-await-compensation/articleshow/7810754.cms>

irrigation potential had shrunk by nearly 2 per cent in Kharif (monsoon crop) and 18.5 percent in Rabi (summer crop). The fresh wave of industrialisation made the farmers feel far more vulnerable.

When the farmers in the Hirakud command area and the area surrounding the reservoir felt that they were being deprived of their rights and when the fear of shortage of water for irrigation began to haunt them, they started a strong and organised fight under the banner of the Sambalpur Krushak Suraksha Sangathan (SKSS). The human chain in protest against water supply to industrial units from Hirakud reservoir on October 26, 2006 was the initiative of SKSS along with the Paschim Orissa Krushak Surakhsya Sangathan (POKSS). It was wholeheartedly supported by various other civil society organisations, political organisations and student groups.

The present industrial activities surrounding the reservoir have not only threatened irrigation to farmers of the command areas, it has also affected the communities surrounding the Hirakud reservoir, most of whom are tribal and other indigenous groups. Poor and vulnerable sections of the community have been the most affected.

While the farmers' agitation was gaining momentum, a civil society group, Hirakhandi Nagarika Parishad (HKNP) based at Sambalpur undertook professional studies of the issues concerning water allocation from Hirakud reservoir to industries and its implication on irrigation and other priorities of the reservoir. It came out with startling findings that more than 20,000 acres (by a conservative estimate) in the Hirakud command area were not getting irrigation coverage any more. In such circumstances allotting 0.350 MAF water for industrial use from the reservoir was strongly criticised by the HKNP and POKSS.

Where poor farmers, who were forcefully displaced earlier, were prevented from using water from the reservoir to save their crops, industrial units were given liberal permission to have access to the reservoir water for their water requirements

When farmers and civil society organisations failed to get redress from the state government, they approached the President of India. Taking cognizance of the appeal, the President asked the state government to appoint a committee to look into the issues raised by the HKNP. The Jayseelan Committee, appointed by the government, submitted its report and justified the water given to industries but the farmers rejected it outright. The agitation continued and it forced the Odisha chief minister to promise that "not a single drop of water from irrigation share will be given to industries" (Mahapatra and Panda 2007).

A study, titled Tail-enders and Other Deprived in the Canal Water Distribution, carried out by the Planning Commission in 2003 found that 80 per cent of the tail area in the Hirakud command system did not get water for irrigation. "Head-reach farmers could irrigate 100 per cent of their land, but only 35 per cent villages in the middle-reach were irrigated, in the tail-end areas water reached to only 18 per cent of the designated land," the report stated.

The dam became functional in 1957 with the prime objectives of flood control in the Mahanadi delta, irrigation to the famine- and drought-ravaged western Orissa districts and power production. It was not meant to provide water to industries. However, since it is located around a major mineral belt – the Ib valley has one of the largest coal deposits in Asia – from the day it was commissioned, industries started mushrooming around the dam, hoping for easy access to water.

While the demand from industry is increasing, the dam's storage capacity is decreasing. An analysis by the Central Water Commission (CWC) in 1995 and studies by dam authorities soon after revealed that its total storage capacity had gone down by 27.35 per cent due to siltation. A remote sensing survey has put the total amount of silt deposited in the gross storage at 2,209 million cubic metre. Gross storage in 2000 was reduced by 53.72 per cent, while live storage and dead storage by 17.16 per cent and 53.72 per cent respectively⁷⁶. In 1990, the decision to allocate 0.350 MAF of water to industries was based on the reported availability of 4.72 MAF in the reservoir. However, the way siltation is increasing, the reservoir might have already lost much more storage to siltation. Current assessments are due. A former chief engineer of the Hirakud Dam admitted that the siltation rate had grown by 2.5 times⁷⁷.

Water inflow to the reservoir is also slowing down, as being made out by Odisha government in the current conflict. So, the farmers are going to suffer more for sure. In fact, the agitation is not over, even though the farmer organisations are now busier in tackling the problem of farmers' income and pest attack menaces. And the Odisha government has not been able to deal with the issues confronted by farmers.

With the advent of canal irrigation, high external input based water-intensive paddy also invaded the Hirakud command area. Among Rabi crops, the area under paddy cultivation has almost doubled. The average withdrawal of water for irrigation in the non-monsoon season has increased to 1.364 MAF from 1.25 MAF between 1967-68 and 1981-82 (Mahapatra and Panda 2007). However, promised irrigation is yet to be delivered.

The original plan of irrigation from the Hirakud Dam project was to cover nearly 1,84,000 ha of land (minus the delta area). But it was reduced to about 1,54,000 ha of land (as per Integrated Development of Irrigation Plan for year 1963) in the Hirakud command area. These figures are about maximum land covered under irrigation and do not talk about amount of irrigation collectively done during Kharif and Rabi. The current irrigation potential during Kharif and Rabi crops is supposed to be 1,59,108 ha and 1,04,100 acre respectively⁷⁸. Hirakud thus has failed to meet its irrigation targets, while industrial allocation of water has increased by manifold.

In fact, over the years, the Mahanadi has emerged as the major source of water for industries inside Odisha. About a half of Odisha's population depends on the Mahanadi and nearly 70 per cent of them are farmers. Then there is growing water demand for urban areas as well. And the Mahanadi covering nearly a half of the state has to provide water to most of them. The pressure of industrialisation was earlier more on the Bramhani river, however for the last about one and a half decades, it has shifted to Mahanadi. A compilation of statistics from Odisha's water resources department made in 2012 (see table 8 for details) by this researcher, reveals that the Mahanadi is to bear brunt of about 128 industries (both existing and upcoming) of the total 488 across all river basins of the state. But the amount of water allocated from the Mahanadi is almost 61 per cent of the total water allocated to industries in Odisha.

76 <http://www.newindianexpress.com/states/odisha/2017/may/06/tussle-between-odisha-and-chattisgarh-over-mahanadi-river-continues-1601728.html>

77 Ibid.

78 Information on Rabi Irrigation Coverage during 2016-17 (Major & Medium Irrigation Sector), Department of Water Resources, Government of Odisha. The figure of 1,84,000 ha attributed to original project design has been taken from a report titled "The Story of the Hirakud Dam Project" by G. D. Agrawal of the Ministry of Irrigation and Power, Government of India.

Table 8: Mahanadi: More for Industries

River basin	Allocated		Under consideration		Total	
	No. of industry	Quantity in cusecs	No. of industry	Quantity in cusecs	No. of industry	Quantity in cusecs
Mahanadi	57	1,295.17	71	1,858.51	128	3,153.68
Brahmani	60	1,082.62	100	339.46	160	1,422.08
Baitarini	14	46.21	157	376.69	171	422.91
Subarnarekha	0	0	1	1.23	1	1.23
Budhabalanga	1	5.52	2	17.66	3	13.18
Rushikilya	5	11.72	2	39.04	7	50.76
Vasamdihara	0	0	0	0	0	0
Nagavali	3	12.53	4	14.82	7	27.35
Kolab	4	21.09	4	16.13	8	37.22
Indravati	2	9.16	1	0.28	3	9.44
Bahuda	0	0	0	0	0	0
Total	146	2,484.01	342	2,663.82	488	5,147.83

A compilation of statistics from Department of Water Resources made in 2012 by this researcher

Industries are not only getting priority over the water but also several other subsidies. They are getting subsidies in water tax and cess, all in the name of inviting investments into the state. Not only that. The government goes soft on tax defaulters. A typical case of the Vedanta Aluminium Limited (VAL) in Jharsuguda would show how.

A letter of the executive engineer, Main Dam Division, Burla, written on November 18, 2011, to the additional secretary of Odisha's water resources department recommended waiving of penalty to the tune of about Rs.9 crore due on the VAL against withdrawal of water from the Bheden river and later from Hirakud reservoir. The executive engineer, citing a telephonic instruction from the additional secretary, wrote that industries having government allocation should not be charged penal rate merely due to non-execution of agreement. In fact, based on such a telephonic instruction, as the letter describes, the company was not being charged any penalty since August 2008. However, a data sheet on assessment of water rate of VAL drawing water from river Bheden alone shows that the company has always been charged 'six times penalty' on almost each month from September 2007 onwards. The executive engineer recommended the waiver on the ground that VAL had a good payment record. The above record however shows that the VAL had always kept huge amount of arrears and never cleared its dues as charged by the department. It clearly shows how the officials favour industries found guilty of cheating water tax or drawing water illegally.

VAL has been found guilty on other counts also. It was also caught drawing ground water inside the company's premises without permission. A letter from the chief engineer, Odisha Water Planning Organisation (OWPO), addressed to the additional secretary of Odisha's water resources department clearly mentions how the company has been illegally extracting groundwater within its Jharsuguda complex through bore wells. The letter, dated September 17, 2011 mentions that the company had drawn "1.782 lakh Gallon Water from borewells without Agreement since 08/2007. So, 6 times penalty

has been imposed and intimidated the industries to seal all borewells from Sept 2010 vide E.E. Letter No. 15.12.2010”.

Accordingly the company, as per the said government letter, had a water rate arrear of about Rs.93 lakh pending against it. People from Dalki gram panchayat near the VAL have been complaining about drying up of their water sources and crop loss due to the illegal withdrawal of groundwater by the company. However, their complaints have gone unheeded.

WATER TAX EVASION BY INDUSTRIES

In June 2014, civil society group WIO got hold of an information that said various industries and commercial houses were yet to pay Rs.3,000 crore worth of water tax and fines for water they had been withdrawing from Hirakud reservoir. This was sufficient enough to fund 600 minor irrigation projects that can provide assured irrigation to at least 12,000 farming families, claimed the network of civil societies⁷⁹. Of this, the Odisha Hydropower Corporation (OHPC) was alone having a pending amount of Rs.2,700 crore. The issue raised by WIO prompted the opposition to ask questions in the assembly and the government admitted to the fact and said that industries in Odisha owed revenue of almost Rs.52,000 crore in pending taxes and fines⁸⁰. This amount included all sectors including water. Water tax, the government said, was pending to the tune of Rs.738.89 crore, excluding the amount pending with OHPC as the government was planning to waive that off. In September the same year, news reports confirmed that the government waived almost Rs.5,225 crores due on OHPC.

Water management has not been looked into in a holistic approach and improvements that would make situation of farmers better and farming practice more sustainable.

The government has not been efficient in collecting water tax from industries and due to weak regulation system, the industrial houses have found it easy to knock the doors of the high court and Supreme Court rather than pay tax. That is the reason why a lot of the above amount of tax has been pending for decades even for industries, which have closed their operations – such as Orient Paper Mills (OPM) in Brajarajnagar that used Hirakud waters from the beginning – and the government has not been able to do much.

Interestingly, in a meeting on the Hirakud Dam issues held on June 15, 1973 between officials (from irrigation and electricity departments) of Madhya Pradesh and Odisha, the officials of the latter had raised concerns regarding a diversion weir built by the former that would obstruct the source of water to the OPM. The minutes of the meeting said: “Secretary, Irrigation & Power, Orissa pointed out that Madhya Pradesh is constructing a diversion weir on Ib river. This river is a source of water supply to the Orient Paper Mill at Brajarajnagar as well as to Sundergarh, a District town in Orissa State. The Orissa government apprehends that the summer flows in the Ib river will get reduced at the above two places due to diversion in Madhya Pradesh.”⁸¹ So, while there was much concern for apprehended reduction in water supply for a company, no such sincerity was shown in collecting water tax from the same company.

79 http://www.hotnhitnews.com/The-great-Odisha-Water_scam-Water-Initiatives-Odisha-release-by-Ranjan-Panda-Hotnhitnews-00707022012.htm

80 http://www.business-standard.com/article/pti-stories/rs-51-941-13-crore-tax-revenue-not-realised-in-odisha-114061600674_1.html

81 Odisha Water Plan, 2004. Govt. of Odisha.

As on July 28, 2014, in response to an RTI query, the Odisha government informed that about Rs.6,170 crore worth water tax was pending with 129 companies. This included about Rs.53 crore of the OPM which had been shut down for decades. The RTI response showed that only 13 companies had brought stay notice on the payment from the courts. However, the government was yet to recover the taxes for decades.

Latest information obtained from the Hirakud Dam authorities found out that upto February 2016 there was a pending water tax and fine of about Rs.403 crore with 24 companies. The OPM alone had about Rs.82 crore pending water tax. Comparison between the two information of 2014 and 2016 gives a surprising figure about the OPM alone. Its arrear (tax plus fine) has increased by almost Rs.30 crore just in two years! This shows absolute lack of governance of precious water resources and the government has so far been ineffective in collecting water tax from industries affecting thereby its welfare functions for farmers and others.

FARMER SUICIDES AND DEPRIVATION

In 1957, when Nehru had asked the Hirakud displaced people to sacrifice for the nation, the nation had neither any proper law to compensate victims of a large dam nor the policy makers were equipped enough to see such projects as part of an integrated system that considers both the loss and damage and then decides how best the oustees could be compensated and/ or how such projects could deal with environmental and sustainability issues. Unfortunately, even today, the nation does not have any such laws, policies or programmes. Though the scripts of some of the policies might give an impression of dealing development projects in a holistic approach, the reality is different.

Promoted as Odisha's 'rice bowl', the Hirakud command area was touted to be the beneficiary sections of the society while the canal water the carrier of prosperity. The area saw an exponential increase in hybrid paddy cultivation with chemical fertilisers and pesticides promoted under first green revolution of the nation. The people who were displaced by the dam did not get assured irrigation and continued to depend on rain-fed agriculture if and when they were left with any agricultural land. The mining areas in the Ib Valley coalfields that we have described earlier have thousands of such families who were displaced by the Hirakud dam and are still struggling for basic amenities, let alone assured canal irrigation.

The farmers of Hirakud command area, however, started facing problems ever since the industrial allocation of water began from the dam and thus the agitation – that we have described earlier – followed. For a few years now, they have been facing newer challenges. That shows how water management has not been looked into in a holistic approach and improvements that would make situation of farmers better and farming practice more sustainable. While water has been made available, various other



Brunda Sahu, a middle aged farmer of Kalapani village in irrigated command of Bargarh district, committed suicide on November 1, 2017 after setting his standing paddy crops on fire. His crops were affected by pests and there was no solution in sight for this debt-ridden farmer. This photo was taken just a day before his death. (Photo: Umesh Biswal)

factors have started to make these farmers vulnerable and the 'canals of prosperity' seem to be failing in bringing prosperity to farmers. Recent cases of suicides by farmers in Hirakud command area makes this clear.

On November 1, 2017, Brunda Sahu, a middle aged farmer of Kalapani village in Bargarh district, committed suicide after setting his standing paddy crops to fire. Sahu had taken a loan of Rs.5 lakh to cultivate 15 acres of land which, despite being in Hirakud command area and getting water for irrigation, was destroyed by pest attack. The '*chakada*' (brown plant hopper) pest attacked his crops in a massive way and the crop that was supposed to be harvested within a month was destroyed completely. The government officials failed in responding to his pleas and the pesticides he bought to kill the pests did not work. In fact, by the time he died four farmers had already committed suicide for same reasons in the 'rice bowl of Odisha' as reported in local newspapers. Reports by November 7 found out that almost nine farmers had killed themselves due to the same reason⁸². While farmer suicides are nothing new for Odisha, for the Hirakud dam's command area, it is news for some years now, especially after the industries started drawing more water from the reservoir and canals. Over 2,600 farmers have committed suicide in Odisha between 2001 and 2010⁸³.

In 2017 something very shocking happened in Odisha, and in the Hirakud command area. The farmers, not finding any respite to the carpet attack by pests, burnt their standing crop fields and some of them then consumed pesticides to die. This is for the first time in the history of Hirakud Dam that the farmers' plight combined with governmental apathy and failure of pesticides has forced farmers to burn standing crops. In fact, flow canal irrigation by large dams in India have not only been propagated for promoting high crop yielding zones but also these are known as areas that are not affected by droughts due to assured irrigation. However, things are changing for various reasons.

During the drought in 2015, at least 138 farmers committed suicide in the state, out of which Bargarh alone accounted for over 40 deaths. Being a beneficiary of Hirakud Dam irrigation system has not helped Bargarh much because of high investment in paddy cultivation in the recent years⁸⁴. After consecutive drought years of 2015 and 2016, this year too Odisha was affected by drought. The government, in first week of November, declared severe to moderate drought in 70 blocks falling in 15 districts of the state. But the woes for the farmers did not end there. Crops were affected by unseasonal rains in mid-November affecting 19 districts. This damaged a total crop of more than 4 lakh hectares (ha) and the government announced a relief package of 364.76 crore rupees.

Bargarh farmers were not much affected with this unseasonal rain. However, they are now under attack due to multiple factors that cause crop loss. Global climate change is certainly playing havoc and the impacts are being aggravated by local climatic variations that may have been fuelled by the industrial development around the Hirakud reservoir.

HIRAKUD DAM, CLIMATE CHANGE AND THE IMPACT ON FARMERS

A few studies have shown how the Mahanadi is being affected by climate change and we shall be discussing about them later in this report. Here, in the context of Hirakud reservoir, observations and studies by local people and environmentalists have already reflected some worrying trends. And all that is linked to not only global warming but the Hirakud reservoir and related industrialisation, especially the coal fired power plants. Earlier we have already talked about how the Mahanadi's coal belts are

82 <https://www.msn.com/en-in/video/news/odisha-7-farmers-commit-suicide-claim-govt%e2%80%99s-pesticide-ineffective/vp-AAuxFKk>

83 <http://www.downtoearth.org.in/news/another-farmer-commits-suicide-in-odisha-s-deadly-farmlands-58985>

84 Ibid.

already recognised as a big climate culprit. Here, in this stretch, we shall be focusing on the Hirakud reservoir.

According to Arttabandhu Mishra, a noted environmentalist and retired professor from the Sambalpur University, the Hirakud reservoir has led to a process of desertification around it. Hirakud reservoir, like many other large reservoirs in the tropical and sub-tropical regions, is home to one of the biggest contributors of greenhouse gas (GHG) emissions. The ecological damage that the vast reservoir has caused has been largely overlooked over the years. The reservoir submerged a vast stretch of rich and diverse forest, which included Jamda reserve forest and a large portion of the present Debrigarh reserve forest. According to Mishra, who has studied the reservoir in depth, "at least 58,200 ha of forest, very rich in *teak* and *sal* species, were directly submerged under the reservoir." The trees were never cut and left to decay under the water which caused huge methane emission.

Until recently it was believed that dams and reservoirs contributed nearly 20 per cent of the total man-made methane emissions. However, a recent research in 2016 confirmed that they contributed 25 per cent more methane emissions than previously estimated (Bridget et al 2016). This study calculated that reservoirs are emitting the equivalent of one gigaton –or one billion tonnes –of carbon dioxide into the atmosphere every year.

Besides 'desertification', the Hirakud dam reservoir has caused 'massive micro climatic changes' in the region, Mishra says. "A huge area of more than 900 sq km is now under water. Earlier, this was covered with trees. There is a difference when an area is covered with trees and when an area is covered with water. When botanical index reduces, evapo-transpiration also reduces," he says.

In the context of Hirakud reservoir, observations and studies by local people and environmentalists have already reflected some worrying trends. And all that is linked to not only global warming but the Hirakud reservoir and related industrialisation, especially the coal fired power plants

In a study done along with other colleagues, Mishra has proved how the Hirakud reservoir has induced severe climatic changes. "When the earth is covered with trees, it gives two things, evaporation and transpiration – that means it draws water from the soil and sends it to the cloud. The reservoir also sends water to the cloud but the water is not drawn from inside the soil, so it is a one way story. It creates a sort of a cooling area. The transpiration effect is now gone and lot of moisture gathers around the clouds so when the monsoon clouds pass over the reservoir in the north-eastern side of the reservoir there is a lot of rain. This causes severe and recurring droughts in the opposite side of the reservoir in the KBK (Kalahandi-Balangir-Koraput) region," opines Mishra. The reservoir has not stopped at submerging rich forest, the study by Mishra has found out that "50 per cent of the reserve forest and government protected forests are gone, deforested in catchment areas and there is simply no forest left in the canal command area of the reservoir".

As Mishra apprehended, climate in the western region of Odisha, particularly the area around the Hirakud reservoir, is undergoing significant changes. While Odisha's average rainfall of last 25 years has been 8.5 per cent below the normal level, during the same period Sambalpur district's average rainfall was over 15 per cent less than the district's normal rainfall. Adding to that, rainfall and temperatures around the Hirakud reservoir has become far more extreme. The mean temperature is increasing far rapidly in the

areas surrounding the reservoir than in other parts of Odisha. While highest recorded temperature is growing, the lowest recorded temperature is gradually falling, more so in the areas surrounding the reservoir.

The changes in the local climatic conditions fuelled by a combination of factors including global warming, burning of fossil fuels in the vicinity and the reservoir has also impacted the farmers from the non-irrigated belts.

SWARMING CATERPILLARS AND FARMER SUICIDES

In 2011, Water Initiatives Odisha did an analysis of the suicides by farmers in 2009 and 2010. It found that almost all the farmer suicides of Odisha had happened in the non-irrigated belts and among the tribal, poor and marginalised farmers and share croppers. The cost of production in farming in these areas is not as much as in the irrigated belts and hence such serial suicides were not expected. Reports by government officials and other independent fact finding teams have found 'weather' to be the culprit. However, what most of these reports have failed to establish is that these have been unusual years and may well emerge as two of the most important years for the state in so far as devastating impacts of climate change is concerned.

In fact, 2010 had already been ranked as the hottest year since the meteorological records were scientifically maintained. What the people and government find as 'damage by pests' may actually have been climate's final warning bell for the state, which is already reeling under so many disasters that experts have started to term it as 'climate's favourite playfield'. Investigating into each death of this year would indicate this.

"The caterpillars sealed our fate forever", says Sumitra Bhoi, widow of Balaram Bhoi (35) of Gulamal Padhanpali village in Rengali block of Sambalpur district. Balaram consumed the same pesticide, which he had bought to kill the caterpillars. Unfortunately, the medicine which proved ineffective in controlling the pest menace successfully took Balaram's life. Balaram had one acre of parental agriculture land and was doing share cropping on another three and a half acres. "He was a daily wage labourer earlier and I kept insisting that he started farming. Everything was going well and last year we had succeeded. But this year the rain failed us. I curse myself now," says she. "He had borrowed about Rs.8,000 from moneylenders at 10 per cent interest and I took a loan of Rs.6,000 from our self-help group at 2 per cent interest per month. We were quite hopeful that we will have a good harvest this year and we would be able to repay all the loans and still feed ourselves. But fate had its own game plan and now that he committed suicide some more people come to me and claim that he had taken loan from them as well."

Sumitra, a mother of four children, now rolls *beedi* for a living and does not know how to repay the loans.

For Sankirtan Bhoi, Balaram's 75-year-old father, things are much more difficult to bear. While he will never be able to recover from the huge loss of his son's death, the fact that swarming caterpillars ate up almost all standing crops of the village is not less difficult to grasp either. "I have seen many drought years in my life but this year was completely different. The *hirni pok* (swarming caterpillars) multiplied by thousands in just two to three days and damaged all the crops, before even we could wake up to the menace," he recalls.

Former sarpanch Laxmikant Sandha (now dead) too found 2010 to be the most difficult year for the area in decades. "Caterpillars and other pests invade the fields but die or flee with the onset of monsoon. That year the monsoon never arrived and temperature also remained much above than we normally experience during this period. So, the pests multiplied by thousands and damaged our crop fields,"

Sandha, who had taken the lead in organising the farmers in demanding insurance and other benefits for the farmers against the crop loss, had told this researcher. For him and the agitating farmers organisations, Sumitra got Rs.2,000 from the government.

The situation was same in most of the monsoon fed villages of the district. Reports for that year indicated that out of 1,94,000 ha cultivable land in the district, paddy had been sown in more than 60,000 ha. While lack of rainfall had turned the paddy fields dry, caterpillars had swarmed over thousands of ha of land, completely eating away the green paddy leaves. "Farmers dread swarming caterpillars because the pests have the capacity to turn them paupers overnight. The pests multiply themselves rapidly and can completely damage crop in a hectare of land in one single day," says Arttabandhu Mishra.

He says that the increasing caterpillar menace in crop fields can be clearly attributed to climate change. In general, food crops are sensitive to climate change. Such change, which affects soil temperature and moisture levels, also determines the vitality of both beneficial organisms and pests. Due to the enormous uncertainties surrounding global climate change, estimates of cropland reductions vary widely – from 10 to 50 per cent. According to various reports, food production will be affected by changing seasonal patterns and temperatures. In India, a temperature rise of 2° C could lower yields of staple crops, wheat and rice by 10 per cent and reduce farm revenues by up to 25 per cent. But this much is clear: global warming is likely to alter production of rice, wheat, corn, soybeans, and potatoes – staples for billions of people and major food crops in several countries of the world.

In addition to the magnitude and pace of change, the stage of growth during which a crop is exposed to drought or heat is important. When a crop is flowering or fruiting, it is extremely sensitive to changes in temperature and moisture; during other stages of the growth cycle, plants are more tolerant. Moreover, temperature and seasonal rainfall patterns vary from year-to-year and region-to-region, regardless of long-term trends in climate. Temperature and rainfall changes induced by climate change interact with atmospheric gases, fertilisers, insects, plant pathogens, weeds, and the soil's organic matter to produce unanticipated responses. If temperatures continue to increase beyond a specific threshold, a crop's productive summer growing season could become shorter, thus reducing the yield. Further, rainfall is the major limiting factor in the growth and production of crops worldwide. Adequate moisture is critical for plants, especially during germination and fruit development.

In fact, the Odisha government has already recognised this problem as evident from its Disaster Management Plan (DMP) for Agriculture Sector prepared in 2013. The DMP says:

"In the present times owing to demand for food, feed and fodder the farmers indulge in and often induced to indulge in intensive agriculture in various combinations. This has led to a situation where there are increased incidences of pest and diseases and often in epidemic form. Conducive crop weather situation created by unsustainable anthropogenic activities coupled with the impact of climate change triggers multiplication of the races of pests and diseases often to epidemic scales requiring more comprehensive plant protection measures to keep things under control. The Bengal famine during 1942 was the result of such an epidemic form of Brown Spot of rice. Thus, disease and pest incidence have assumed greater significance in the framework of disaster management in the modern crop husbandry. The pest scenario and its incidence in the State vary from crop to crop and season to season because of erratic weather conditions. In case of paddy there was two major pests incidence during last five years viz. swarming caterpillar and brown plant hopper which resulted in devastation of thousands hectares of wet land paddy."⁸⁵

85 Government of Odisha, Disaster Management Plan for Agriculture Sector, 2013.

However, things do not change for the farmers because there does not seem to be any rigorous effort to understand the issue in totality. The Mahanadi basin, as can be seen from the above analysis, is creating a dangerous cocktail of heat, pollution and empathetic system for the farmers. At the one end, the basin has been opened for rampant coal mining and industrialisation including coal-fired power plants that is contributing to both global and local warming, and at the other end, it is not providing ample support for the local communities to cope with the disasters. While the irrigated belt of the basin are facing problems because their share of assured irrigation water is now being diverted to industries, the communities from the non-irrigated belts are fighting with increasingly scarce and inaccessible water resources.





Rivers and water bodies in the coal belt of Mahanadi are highly polluted adversely affecting both availability and species diversity of fish population in the region. Fishing in contaminated water also puts people in severe health risk both by exposure to the water and toxic elements in the fishes.

Conclusion and Recommendations

Battle over the Mahanadi is the latest in India's history of inter-state river water disputes. Thankfully, the conflict erupted late but unfortunately awareness about the plight of Mahanadi also came late to the riparian states that have locked horns over the river (Panda 2017). The Mahanadi conflict, like all other inter-state water conflicts, has become more of a political fight between ruling parties of both the involved states. As expected, a number of actors have already played a role in exacerbating the conflict. These include bureaucrats, opposition political parties, technocrats, organisations fighting for human and environmental rights, so on and so forth. There is a common perception among some sections of society, both in Odisha and Chhattisgarh, that the governments' involvement in the fight is more about votes than the real water crisis in the basin.

What is more important to note is the central government's role in this entire conflict. In the past, the central governments have tried to play a pro-active role with some of the prime ministers such as Indira Gandhi and Atal Behari Bajpayee taking active interest in solving the inter-state river disputes. However, the current Prime Minister of India has not yet shown any interest in the Mahanadi conflict despite the Odisha chief minister's repeated requests to him.

The appeal for peace and cooperation by one section of the actors has so far not been heard by the governments. In the history of inter-state river water disputes of India, resolutions of water disputes by 'agreement' are more readily forthcoming when the government at the Centre has been 'strong', not when the government at the Centre has been 'weak' (Nariman 2009). That is the reason why it was possible for the then prime minister, Indira Gandhi, to bring around the states involved in the Narmada water dispute to agree to give a small share of Narmada waters to non-riparian state Rajasthan. At the moment, we have a majority government at the Centre but the constraint seems to be the fact that the upper riparian state, which has allegedly been blocking the lower riparian state's share of water, is ruled by the same party which heads the central government.

Then the issue that needs to be pondered over is that both the Chhattisgarh and Odisha governments have been treating the Mahanadi in the same way by according industrial houses more priority than irrigation

MAHANADI IS A DEFICIT RIVER, GOVERNMENTS NEED TO ADMIT IT

Then the issue that needs to be pondered over is that both the Chhattisgarh and Odisha governments have been treating the Mahanadi in the same way by according industrial houses more priority than irrigation. And it is common knowledge at the moment in India that political parties have to depend on donations from these corporate houses to win elections. Election costs in India have grown by leaps and bounds over the last couple of decades and more. That is the reason, the same Odisha government, which presented about 'myth of surplus water' in the meeting between the chief ministers held in September 2017 on the Mahanadi, earlier claimed that there was 'surplus water' in the river basin.

The Mahanadi conflict has come to a stage where the 'victim state' has applied both political and official tricks needed under a federal structure to solve the crisis for its interest. However, as it happens in most of the cases, the conflict – that starts from a perception of scarcity – has led to a bigger political battle than

real efforts to solve the problem. While the crisis is real for people of the basin, who have been fighting a battle for equal opportunity to access their right to clean water and livelihood, the fight between the states seem to have happened, so far, at a different level.

Over these months, as we observe the role of various stakeholders in the process, it has become clear that the urban civil society and people, who have been at the forefront of many agitations inside Odisha in support of the “fight for Odisha’s *swartha* (interest)”, have basically been “conflict mongering” without seriously looking into its consequences.

Researchers who have studied river conflicts across the world believe that an elitist group of civil society actors emerge to support the decision-makers by defining water as an “existential necessity”. “Water is understood as something existential for the state by these elite decision-makers. Such a situation leads to increased intensities of conflict and reduced intensities of cooperation. This was the case in trans-boundary water interactions between Nepal and India over a relatively small hydraulic project on one of the Ganges tributaries (Mirumachi 2015).

Studies have found out that hydro-hegemon basin states have relative advantages due to their geography. The state that has the capacity to physically capture more water enjoys the advantage. In Mahanadi-like conflicts, those who jump to conflict mongering necessarily jump into judgements that decide, even before any proper assessments are available, the type of crisis. Their ability to mobilise funds and people, and organise protests helps them to create a public perception of the crisis without the necessary scientific and cumulative assessment of the exact crisis. Such supporters are vital for the lower riparian state no doubt, but that should not shut the doors for independent views and perspectives coming the government’s ways. Getting swayed away by civil society actors who toe government lines and howsoever powerful in forming public opinion, may not help in solving the water conflict (Panda 2017).

At the moment, the solution of Mahanadi conflict seems to be hanging around the formation of a tribunal. However, many experts who have worked on the ISRWD Act believe this is a toothless Act and ultimately the Supreme Court comes into deciding the fate of such disputes. Some of them have even suggested repealing the Act altogether. “I submit that the experience of the working (often, ‘non-working’) of a succession of water disputes tribunals makes it imperative for the ISWD Act to be repealed, and just as all other disputes between States are left to be decided only by Original Suit filed in India’s Supreme Court (Article 131), so also inter-state water disputes should be left to be decided directly by the country’s highest court.” (Nariman, 2009)

With the Centre’s new amendment⁸⁶ move to make one common tribunal for all inter-state river water disputes, we are yet to be able to understand what exactly would be the fate of the disputes. We can only presume that the cases will get further delayed as the tribunal will have many cases to handle at the same time. However, that will be too premature for us to make such presumptions even.

One should not also expect that a dedicated tribunal formation will solve all the real issues facing the Mahanadi. However, if that is the available legal course for a state government then the Centre must accede to that under current legislations. The position as of now is that the central government has

86 Ministry of water resources, river development and Ganga rejuvenation adopted a revised National Water Policy (NWP) in 2012. As per Clause 12.2 of the policy, a permanent Water Disputes Tribunal at the Centre should be established to resolve the disputes expeditiously in an equitable manner. However, the proposal to set up a standing tribunal to adjudicate interstate river water disputes is under consultation with the states. (Reply of Uma Bharti, Union minister of water resources, river development and Ganga rejuvenation, to Unstarred Question No. 1232 on Inter-State River Water Sharing Disputes to the Lok Sabha on March 3, 2016)

formed a tribunal after trying its best to delay it on the basis of a wrong argument and perhaps in expectation of an amended law to be passed by Parliament at a future date. This does not serve the purpose of cooperative federalism and has not been sending a positive signal towards solving the Mahanadi dispute.

While the tribunal has already been formed and it will initiate its process of hearing soon, the states should not shut the door to dialogue. The need of the hour for Mahanadi is a joint strategic action between both the major riparian states to help the river survive the stress and get rejuvenated. Statistics provided by Odisha confirms that there has been reduced flow of water at Hirakud and that means a great danger for farmers, fisherfolk and other people downstream, especially in the non-monsoon periods. However, there is no comprehensive study at the moment to tell us how exactly that is an impact of the dams and barrages built by Chhattisgarh.

Climate change is a major factor for growing distress of the Mahanadi. A study of 2010, done using various scientific models present a decreasing trend in the monsoon flows of the Mahanadi at the Hirakud Dam (Ghosh et al 2010). An earlier study on the Mahanadi river also observed a decrease in monsoon stream flow for the historic period. One of the possible reasons for such a decreasing trend is the significant increase in temperature due to global warming. Analysis of instrumental climate data has revealed that the mean surface temperature over India has increased at a rate of about 0.4 degree Celsius per century, which is statistically significant (read Ghosh et al 2010, and Rao 1995).

The government's own sources find a substantial increase in temperature in the Mahanadi basin. While in the year 1999-2000, the minimum and maximum temperature of the basin ranged between 7 degree Celsius and 45.5 degree Celsius, it went up to a range between 13 degree Celsius to 48.8 degree Celsius by 2012⁸⁷. This would certainly have negatively affected the water retention capacity of the basin. A latest study finds out that the water yields of major surplus basins, such as the Mahanadi, Godavari and West Flow River-I, have exhibited decreases in recent periods. The water yields show decreases of more than 10 per cent for the Mahanadi (Ghosh et al 2016). This is mainly because of significant decreases in rainfall.

While the tribunal has already been formed and it will initiate its process of hearing soon, the states should not shut the door to dialogue. The need of the hour for Mahanadi is a joint strategic action between both the major riparian states to help the river survive the stress and get rejuvenated

The study findings say that the decrease in the monsoon rainfall in the surplus river basins, which are mainly present in the core Indian monsoon zone, may be due to the drying of rainfall in these regions during recent decades. The monsoon over Indian region is typically associated with a strengthened cyclonic circulation, with the moisture flux converging over this region. However, when the changes in mean vertically integrated moisture flux (VIMF) and wind patterns are analysed, an anti-cyclonic circulation leading to divergence in VIMF was found, especially in the central part of India, along with convergence in the Gangetic plains. Hence, this could be the reason for which the major surplus basins have a decreasing rainfall trend.

It therefore means that one cannot singularly hold the dams and barrages of Chhattisgarh responsible for the decrease in water flow to Odisha. And it also brings to the fore the need of dialogue between

87 Analysis from Integrated Hydrological Data Books of the ministry of water resources.

both the states to combat climate change in a joint strategy. At present, the basin seems to be both a major contributor to climate change as well as is bearing a huge impact of the same.

Dams do a lot of damage to rivers and the damage to Mahanadi system had already started with the Hirakud Dam seventy years ago. Dams alter the flow pattern in a river, which in turn affects its aquatic biota (Poff et al 1997). A study in 2007 by the Central Pollution Control Board on impacts of Hydro Electricity Projects (as reported in Chopra 2015) found out that the populations of the sensitive species in the reservoir and downstream of the dam/ barrage declined 50-90 per cent compared to the reference stations, whereas the tolerant species' populations increased. This was due to changes in streamflow, it was argued. In Mahanadi, as we have already reported in previous chapters, fisherfolk have observed drastic reduction in fish catch and diversity both. That is mainly due to the Hirakud Dam, they said.

It is now understood that dissolved oxygen (OD) content decreases in storage projects due to stagnation of water. "River water quality changes are also directly related to changes in the flows pattern once a dam becomes operational. Storage of water transforms a riverine ecosystem characterised by high velocity, turbulence and mixing of water, high re-aeration, and suspended solids and bed load into a lacustrine one with slower velocity, low mixing and turbulence, limited aeration, sedimentation, thermal stratification, and longer residence times. These physical changes affect the water quality. Reduced flows downstream of dams and barrages reduce a river's ability to dilute pollution loads from human settlements" (Chopra 2015).

Build-up of nutrients from sewage disposal and fertilisers washing down from agricultural fields can cause eutrophication. In diversion projects, the amount of oxygen available in tunnels is sharply reduced, killing most life forms in the diverted water (Chopra 2015). In the case of Mahanadi, while Hirakud Dam has already done a lot of damage to the local ecology, the new structures built by Chhattisgarh will add to the damages. However, the current agitation does not focus much on the environmental concerns from dams as source of ecological disruption. Rather, both the governments seem to be justifying dam building for maximisation of resources.

As we have seen from the way the political fight over Mahanadi water has moved in the last one and a half years, more dam building in Odisha may anytime come up as a solution from among the government and the elitist movements that support the government now. As such also the Chhattisgarh government spokespersons, including its chief minister, have been asking Odisha – from the day one of the controversy – to utilise the water that is "getting wasted" into the sea. In February 2017, the Chhattisgarh chief minister said that 82 per cent of Mahanadi water goes to the sea and Odisha should utilise the same instead of complaining against Chhattisgarh that utilises only 4 per cent of Mahanadi waters.⁸⁸ In September 2017, briefing to media persons after the chief minister level meeting at Delhi, however, he said Chhattisgarh is using 15 per cent of Mahanadi water and 57 per cent of the river water is flowing down to the Bay of Bengal.⁸⁹

In September 2016, the Odisha chief minister had however said to the State Assembly that 52 per cent of the Mahanadi water flowed to the sea and that the state had taken up five projects, since 2000, to utilise the Mahanadi waters.⁹⁰ There have been protests around one dam projects of these (Lower Suktel) and these are not in the main Mahanadi river but in one of its tributaries. Another project (Lower Indra) did not face initial protest but the people are now agitating against the faulty compensation and

88 <http://indianexpress.com/article/india/mahanadi-water-issue-raised-to-divert-attention-raman-singh/>

89 <http://www.firstpost.com/politics/mahanadi-row-despite-failures-naveen-patnaik-govt-leads-the-battle-of-perception-3014576.html>

90 <http://indiatoday.intoday.in/story/52-per-cent-of-mahanadi-water-flows-to-sea-odisha-cm/1/773954.html>

rehabilitation package they have received.

There is also a constant lobby inside Odisha – especially among the politicians-bureaucrats-engineers-contractors lobby – to construct one of the two more dams on the Mahanadi main river as that had been envisaged in the original Hirakud project.⁹¹ Besides, there has been a constant attempt by the Odisha government to construct a dam at Sindhol, just a few kilometres below Hirakud, which has somehow been halted so far due to strong protest by local people and ecologists.⁹²

One (Tikarpada) of the two dam projects conceived in addition to Hirakud in original project has now been shifted to Manibhadra at a location above the Satkosia gorge. To explain its position as a victim state, Odisha has claimed that reduced water flow in the Mahanadi will badly affect the Satkosia gorge's ecology. The central government has been pushing for the project at Manibhadra as part of the Mahanadi-Godavari link of the grand Interlinking of Rivers (ILR) programme and the state government has not yet refused the proposal in concrete terms. The Odisha government has, on many occasions, raised concerns about the reports of National Water Development Authority (NWDA)⁹³ on this project – especially the water availability assessments – but there is no concrete instance to show that Odisha is not interested in this project. That is the reason the locals have been opposing the project,⁹⁴ especially after the new government at Centre has given a big push to the idea of ILR yet again⁹⁵.

We have been observing most of the movements and the way they are making the Mahanadi a mere political issue and a fight for “*swartha* of the state” (a fight for state's self-interest) without considering the Mahanadi as a complete ecosystem, demand for more dams may pop up from within Odisha as well. In fact, looking at interviews in television news channels of many of the leaders of these movements one can conclude that they are asking for more dams. This is a matter of concern, especially when it comes to the stakeholders' opinion on dam building in the public domain. Most of them demand more dams over the Mahanadi to capture the water flowing as “waste” to the Bay of Bengal.

Some Odisha politicians and civil society groups suggest dams as a “perfect response to Chhattisgarh”. But they forget that there is no “waste” water and competition with the other state causes more damage to the Mahanadi and Odisha (Panda 2017).

In the case of Mahanadi, while Hirakud Dam has already done a lot of damage to the local ecology, the new structures built by Chhattisgarh will add to the damages. However, the current agitation does not focus much on the environmental concerns from dams as source of ecological disruption

Both the riparian states have asserted their rights to grab water from the river to feed the increasing demand of the industries, coal fired power plants and urban areas. Farmers are losing their rights over Mahanadi water. What the Mahanadi needs is ecological rejuvenation, and not dam building. Conflict mongering people must, therefore, refrain from such demands. Or else, Odisha will have to engage itself with many battles: one with Chhattisgarh, and several with its own people – farmers, fisherfolk, forest dwellers and ecologists. Let the conflicts lead to cooperation, not dams! (Panda 2017)

91 http://www.india-wris.nrsc.gov.in/wrpinfo/index.php?title=Hirakud_Major_Irrigation_Project_JI02379

92 <https://timesofindia.indiatimes.com/city/bhubaneswar/Govt-scraps-Sindhol-power-project/articleshow/11175718.cms>

93 Comments of the Orissa government received by National Water vide letter No. Irr-I-PL-55/2005/24140/WR dated July 31, 2006.

94 <http://www.thehindu.com/news/national/other-states/People-vow-to-oppose-Manibhadra-project/article15423320.ece>

95 <http://indianexpress.com/article/india/india-news-india/uma-bharti-asks-odisha-cm-to-pay-back-people-for-electing-him-by-ensuring-water-3095345/>

RECOMMENDATIONS

With the above concluding analysis of the situation of Mahanadi in the background, a two pronged solution could be approached:

LEGAL RECOURSE THAT THE STATES CAN TAKE UNDER THE CURRENT LAW

The Mahanadi dispute is already in the tribunal, even though the hearings are yet to start. However, the fact that the Act under which this tribunal will be formed has been put to serious questions, a larger debate on this is needed at national level to change and/or update this Act or bring in new Acts. In fact, in the recently concluded 2nd Odisha River Conference⁹⁶ at Sambalpur, which was organised with the theme “Building an Inter-State Cooperation Framework for Management of Mahanadi River Basin”, the participants from both the states and experts on the subject called upon the governments – both at states and Centre – to recognise the ‘rivers’ right to life’ in line with the right enjoyed by Indian citizens, and help them flow freely in healthy conditions. The conference also demanded that the governments help cater to the needs of riparian communities, maintain biodiversity and other priorities in a sustainable manner.⁹⁷

The government of India says, “parties to Agreements/ decision of Tribunals are entitled to their share of water in concerned river basin as per provisions of such Agreements/ decision of Tribunals...supply of water to concerned States varies on year to year basis depending mainly on availability of water in the basin/ reservoirs in a particular year and other relevant factors and is monitored by the concerned Board/ Authority/ regulatory body functioning in a particular river basin project”⁹⁸

The government has also been trying to formulate a permanent water disputes tribunal as per the Clause 12.2 of the National Water Policy (NWP), 2012, which says that a permanent tribunal at Centre should be established to resolve the disputes expeditiously in an equitable manner. An amendment bill towards this has already been placed in Parliament. However, as experts believe and many cases described in this report amply depict, just a legal discourse is not going to solve a river water dispute. River basin management needs to be approached in a holistic manner.

The NWP 2012 has already dealt with a set of recommendations in this regard by talking about various aspects that need to be taken care of in case of river management. The NWP says: “There is need for comprehensive legislation for optimum development of inter-state rivers and river valleys to facilitate inter-state coordination ensuring scientific planning of land and water resources taking basin/ sub-basin as unit with unified perspectives of water in all its forms (including precipitation, soil moisture, ground and surface water) and ensuring holistic and balanced development of both the catchment and the command areas. Such legislation needs, inter alia, to deal with and enable establishment of basin authorities, comprising party states, with appropriate powers to plan, manage and regulate utilization of water resource in the basin”. (Government of India 2012)

Of course, the basin authorities have not so far been effective in India. The National Ganga River Basin Authority established in 2009 is an example. While the Government of India has given Ganga the status of a national river and has constituted the National Ganga River Basin Authority (NGRBA), the Authority

96 The 2nd Odisha River Conference was organised at Sambalpur on April 22 and 23 by Water Initiatives Odisha (WIO) and Mahanadi River Waterkeeper, along with about 25 partner organisations from across the nation. It witnessed active participation by about 150 people including basin communities from both Odisha and Chhattisgarh, civil society representatives, academics, researchers, water experts, activists and others concerned from across the country.

97 Press release of the 2nd Odisha River Conference dated April 24, 2018.

98 Unstarred Question No. 1232 on Inter-State River Water Sharing Disputes, replied to the Lok Sabha on March 3, 2016 by Uma Bharti, Union minister of water resources, river development and Ganga rejuvenation.

has not been vested with considerable powers.⁹⁹ In Odisha, with the support of the Asian Development Bank (ADB), a River Basin Organisation (RBO) has been established but there are many controversies surrounding the RBO that promotes Integrated Water Resources Management (IWRM) plans under the basic premise of 'privatisation' of water resources (Panda 2011). In case of the existing RBO of Baitarani in Odisha, that also lies defunct, it only takes into account the Odisha side of the river and not the river in totality.

The World Bank and ADB have played a substantial role in knowledge building on water resources development in India. Both these organisations consider water as a 'commodity' (Panda 2011a) and there lies a big problem. The NWP is said to have been influenced by this thought process of treating water as a commodity. Terms like 'river development' have been challenged by river experts for being engineering terms that basically talk about optimal utilisation (basically exploitation) of the river for human use without looking into other vital aspects of the river basin such as ecology.

Terms like 'river development' have been challenged by river experts for being engineering terms that basically talk about optimal utilisation (basically exploitation) of the river for human use without looking into other vital aspects of the river basin such as ecology

"What does 'river development' mean? We get a clue from the phrase used commonly in the Water Establishment, namely 'water resource development'. In the language of the water engineer, this means harnessing more water for use through dams, barrages, reservoirs, canals, etc. A part of that meaning gets carried over into the term 'river development' – where development means development for human use. There is also the allied term 'river training' which seems to suggest that a river is a household pet or circus animal waiting to be trained by its human masters." (Iyer 2014). The change of the name of "ministry of water resources" to "ministry of water resources, river development and Ganga rejuvenation" with the new political party in power at the Centre from 2014 onwards itself has been looked into a transformation of the scope of the department to a narrow one. "The addition of the term 'river development' to the name of the ministry is thus an indication of the intention to build more projects on rivers. How does that fit in with the term 'rejuvenation'?" (Iyer 2014)

While the approach of the ruling class is about 'river development', which means building more dams and projects that alter the flow and impact the ecology of the rivers, it gets very difficult to say what course will a river water dispute take in the court of law under an act that itself has been considered weak and even unwanted.

The NWP however has many positive prescriptions to make that may add to river conservation and rejuvenation. "Conservation of rivers, river corridors, water bodies and infrastructure should be undertaken in a scientifically planned manner through community participation.....; and, encroachments and diversion of water bodies (like rivers, lakes, tanks, ponds, etc.) and drainage channels (irrigated area as well as urban area drainage) must not be allowed, and wherever it has taken place, it should be restored to the extent feasible and maintained properly." (Government of India 2012)

99 <http://www.indiawaterportal.org/articles/river-basin-planning-ganga-lessons-murray-darling-basin-authority>

When it comes to preservation of lakes and water bodies, no government seems to have even read the NWP. The erstwhile Central Provinces of India, under which the Mahanadi falls, was known for its rich culture of traditional water harvesting systems. However, governments after governments have neither recognised them nor have done enough to restore them. This region, that was previously known as an agriculturally prosperous region before a century and more, is now a perennially drought prone region (Mahapatra and Panda 2001). A joint action plan between both the major riparian states of Mahanadi is needed to preserve all the surface water bodies.

Way back in 1975, the Central Water Commission (CWC) had circulated a “Model Bill on Flood Plain Zoning” for the state governments to take it up as a model for freeing flood plains from encroachments by empowering the authorities appropriately. The CWC had circulated the model Bill to all the states to help the state governments enact legislation. This Bill, if enacted, will have provisions like replacing dwellings in low-lying areas by parks and playgrounds so that vulnerability in terms of loss of life and property could be reduced. As per information available with us, the Bill had grouped different types of buildings and utility services under three priorities from the point of view of damage likely to occur. The model Bill provided clauses about flood zoning authorities, surveys and delineation of flood plain area, notification of limits of flood plains, prohibition of the use of the flood plains, compensation and most importantly removing obstructions to ensure free flow of water. However, that remains where it was. No progress has been made on that¹⁰⁰.

The recent case of Yamuna flood plain encroachment by a spiritual organisation has brought the flood plain zoning into limelight.¹⁰¹ In fact, the National Green Tribunal has fined the organisation for the damage done to Yamuna floodplains.¹⁰² In the Cuttack city on the side of Mahanadi, the Odisha government has been allowing encroachment of river bed for a yearly festival called Bali Yatra (literally meaning sand festival) and therefore doing similar damages to what the festival over Yamuna did. In this case as well the NGT was approached by environmentalists. However, the government continues to allow the festival to be held there.¹⁰³ Both the governments should work together to bring the Flood Plain Zoning Bill back to mainstream and enact a law in this regard.

Internationally, the extent of the floodplain that a river would occupy in the event of a 100-year flood has been recognised as the riparian extent of a river, which should be regarded as legitimately belonging to the river itself. All riverline planning should then be done keeping the integrity of such a floodplain in mind (Mishra 2015).

Under the Environment Protection Act of 1986, a river zone regulation was to be promulgated to protect riverbeds from any harmful constructions in future.¹⁰⁴ It is yet to be done. While our rivers remain unprotected by any law, the floodplains of our rivers too remain unprotected and hence continue to be vulnerable to mindless exploitation. Both Odisha and Chhattisgarh need to take this up as an urgent action and work towards bringing in force a strict river regulation zone which can help in proper river basin planning and management, and hence help the rivers from decaying further and also in reducing flood furies.

100 http://www.indiawaterportal.org/sites/indiawaterportal.org/files/Press_release_on_model_bill_on_flood_plain_zoning_WIO_2011.pdf

101 <http://bigwire.in/2016/03/10/living-fest-over-dying-yamuna/>

102 <http://www.thehindu.com/news/cities/Delhi/art-of-living-damaged-yamuna-floodplains-ngt/article21293122.ece>

103 <http://indianexpress.com/article/india/india-news-india/ngt-asks-odisha-to-not-allow-baliyatra-festival-on-mahandi-riverbed-3734038/>

104 Ibid 84.

Disputes in case of a conflict like the Mahanadi also have many of their seeds in how both the states are dealing with the Environment Protection Act, Forest Conservation Act and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights Act), 2006. Forest areas managed in the basin both by the government and communities need a synchronised effort without which it is not possible to protect the ecology and water retention capacity of the basin.

In fact, community rights over forests can play a vital role in river rejuvenation. That is why both the states should work towards recognising right of local communities including the indigenous communities on forests in the basin.

The greatest threat to the Mahanadi comes from coal mines, industries, thermal power stations and urban local bodies (through their discharge of wastes into the river). While there is virtually no check on disposal of urban wastes into the river by urban bodies, data provided by authorities on effluent discharge by mines, industries and power plants are not reliable. The Mahanadi is heavily polluted¹⁰⁵ and there is hardly any joint effort by the state governments to protect the river from pollution. Further, the central government is diluting norms and allowing thermal power plants to pollute more¹⁰⁶. The need of the hour is, therefore, to bring in strict regulations to stop pollution of the river and work towards enforcing them.

BUILDING PEACE AND COOPERATION FOR RIVER BASIN MANAGEMENT

Now that the scarcity has been realised by both the states, it is also time to realise that this gives them an opportunity to build a cooperation framework to manage the river basin for the benefit of both the states, people and ecology. The quantitative aspect of water supply and demand has been a recurring theme within hydro-politics in understanding the conflict over natural resources. However, using absolute water quantity as a factor to explain conflict is problematic (Mirumachi, 2015). Many experts feel that the level of water scarcity determines the level of cooperation conflicting states can achieve.

Different levels of scarcity stimulate negotiations between states that explore bargaining strategies for a mutually desirable outcome (Dinar 2009). This means basin states facing moderate water scarcity have the best chance of being able to negotiate and to cooperate; severe scarcity or abundance yields situations that result in low cooperation (Mirumachi, 2009).

In the case of Mahanadi, while it is very difficult to analyse the level of scarcity, because there is no comprehensive analysis of the basin's water resources available, the way the conflict has grown over the year shows that the scarcity for Odisha has grown.

Data obtained from Hirakud Dam authorities point at a huge decrease in inflow to the dam over the last five years. Monsoon inflow, as per the dam authorities, has reduced from 26.017 MAF in 2011 to 11.871 MAF in 2017. Website of the Odisha government's water resources department also shows a decreasing trend of inflow into the dam just at the end of monsoon. While it was 30,281 cusec in 2013, it has come down to 7,179 cusec in 2017.¹⁰⁷ If we look at these figures, a huge scarcity is staring the Mahanadi at Hirakud. At Tikarpada, an important flow gauging station downstream Mahanadi (and where another dam was proposed in the original Hirakud project), the flow has been drastically reducing in the last several years. Average annual runoff at that location of the river, which also sustains an important gorge ecosystem, has reduced from 46,477 MCM in 2002 to 43,420 MCM¹⁰⁸.

105 <http://www.thehindu.com/todays-paper/tp-national/tp-otherstates/campaign-to-save-mahanadi/article4865589.ece>

106 <https://scroll.in/article/855829/government-dilutes-norms-to-allow-thermal-power-plants-to-use-more-water>

107 Personal discussion with dam authorities.

108 Analysis from various Integrated Hydrological Data Books of the Ministry of Water Resources.

Our own analysis, done for purpose of this research, also confirms that the Mahanadi has already attained a high scarcity status. A technical study conducted as part of this research shows the scarcity scenario very well. Our calculation shows that after all proposed obstructions by Chhattisgarh, the total outflow (that means inflow at Hirakud) from that state would be 16,211 MCM at a 75 per cent dependability level, while the current requirement for Odisha is 18,175 MCM. And this does not take into consideration the minimum ecological flow requirement, which is supposed to be another 9,621 MCM. (See box below: Hirakud to be badly affected by Chhattisgarh dams and barrages)

HIRAKUD TO BE BADLY AFFECTED BY CHHATTISGARH DAMS AND BARRAGES *

The total outflow from Chattisgarh (75 per cent dependability) = 16,211 MCM

Hirakud dam project envisaged water use in 1947

- | | |
|---|--------------------------|
| 1. Water required for irrigation | = 2.94 MAF (3,628 MCM) |
| 2. Water required for power generation | = 8.74 MAF (10,785 MCM) |
| 3. Evaporation loss in dam | = 0.60 MAF (740 MCM) |
| Total water required for operating all functions of Hirakud | = 12.28 MAF (15,147 MCM) |

As per record the lowest run off that the dam site has experienced was 20.61 MAF in 1902. If the situation so arrives that the water inflow reduces to this level again, the dam would still be able to provide 8.33 MAF of water to the high lands (upstream areas in Chhattisgarh).

The planned utilisation by the Odisha government at present:

- | | |
|---|--------------|
| 1. Water required for irrigation including lift | = 5,722 MCM |
| 2. Water required for power generation | = 10,222 MCM |
| 3. Evaporation loss | = 682 MCM |
| 4. Domestic needs | = 134 MCM |
| 5. Industries | = 1,415 MCM |
| Total requirement at present | = 18,175 MCM |
| (This excludes the minimum ecological flow that comes to 9,621 MCM) | |

It therefore can be concluded that if Chhattisgarh dams and barrages obstruct water as per their designs, the Hirakud Dam will face a deficit of 1,964 MCM (18,175 MCM minus 16,211 MCM). What is more important to note here is, this figure does not include the ecological flow requirement.

*From analysis of Lalit Kumar Patnaik, a former engineer, done for this study.

Whatever may be the scarcity level technically, at the grassroots people are already facing the brunt and both states have been according more priority to industrial allocation of water than irrigation as evident from our study. It is therefore necessary to build a cooperation mechanism between the states that incorporates the active participation of the local communities.

The River Basin Organisations (RBOs) or IWRM projects as being run or envisaged with support of multilateral banks and other technical organisations have also not taken care of proper community

participation. In fact, they have been promoting top-down approach in forming institutional arrangements for river basin management in which rights, equity and ecology have not been recognised. For this to change, people of the basin must assert their role by persuading their governments to act together. The legal recourse may continue through the tribunal process, but an 'Agenda for Peace and Cooperation' must be built and adhered to by the basin states.

Below, we try to present some of the key aspects in which people should work for this agenda.

No further large dam building and no to interlinking of rivers

The Mahanadi conflict is all around dams and barrages with the Hirakud large dam at the centre. While Odisha is fighting with Chhattisgarh positing itself as a victim state, it also has no different policy on dam building. In fact, during the chief ministerial level meeting held in September 2016 under mediation of the Union water resources minister, the Odisha team, to make its argument strong against Chhattisgarh, mentioned about "ILR being a dream project of the central government that may be affected if Chhattisgarh continues with its dam and barrage plans."

That is ironical as Odisha is fighting with Chhattisgarh against dams with an argument that reduced water flow will impact ecological hotspots in the lower basin negatively. But by encouraging the ILR it then supports more large dams in Odisha such as the Manibhadra that communities in Odisha are opposing. Large dams and river linking project will further aggravate conflicts and marginalise the local communities, as has been the case almost everywhere. The Mahanadi states should therefore agree to not build any further large dams and say no to the ILR plan as the Mahanadi is already a stressed river and has no water to be flown to the Godavari.

The IIT study (Ghosh et al, 2016) says: "Our analysis also raises concerns about the suitability of major nation-wide projects related to river water-basin interlinking, in which the sustainability of water surplus conditions in river basins in response to a changing climate is not ascertained. Therefore, the water demand in a surplus basin first needs to be assessed and met under decreasing water availability scenarios before transferring water to the deficit basins. Hence, we argue that planning for inter-basin water transfer necessitates an immediate reassessment with a systematic approach".

The study findings are significant and have come at the right time when both Odisha and Chhattisgarh are grappling with water scarcity but not recognising climate change as a major factor of water reduction. The water cooperation agenda must work towards understanding impact of climate change on the river basin and plan all development projects and other activities accordingly.

Commonly agreed scientifically verified facts about the river water

In the Mahanadi dispute, the Odisha government had asked for the formation of an expert committee for the study of water availability in the basin taking all aspects concerned. In fact, civil society groups led by the Mahanadi River Waterkeeper had suggested to the Odisha chief minister to demand for the same as there was no comprehensive study available for the basin so far. However, Chhattisgarh asked

Large dams and river linking project will further aggravate conflicts and marginalise the local communities, as has been the case almost everywhere. The Mahanadi states should therefore agree to not build any further large dams and say no to the ILR plan as the Mahanadi is already a stressed river and has no water to be flown to the Godavari

for a joint control board. Now that a tribunal has already been formed, there is every possibility that an assessment will be done. We need a comprehensive understanding and analysis of the impacts of all these structures and availability of water in the basin. Let the tribunal decide how to make such an analysis and instruct Chhattisgarh to stop these obstructions if they are illegal.¹⁰⁹

Both the state governments have contradictory sets of data that have been presented to suit their positions. The need is for considering rights of the local and indigenous communities to the resources that are dependent on and part of the larger ecosystem of the Mahanadi basin. As such also, Indian governance is yet to demonstrate any foolproof mechanism to verify opposing facts and figures by warring states. Without having a comprehensive assessment of the basin's water holding scenario vis-à-vis rights of people over these, any strong monitoring can hardly be guaranteed.

It is because when it comes to the ground, it is the same administrative system like the pollution control boards and other agencies that have to do the job of monitoring irrespective of who has ordered the job – judiciary or bureaucracy or political bosses. Despite that, it is important to have at least a baseline of commonly agreed facts and scientifically verified (to the extent possible) indicators of water management and utilisation that can be available for monitoring progress of the cooperation agreements or tribunal orders.

Comprehensive ecological impact assessment and ecological restoration of catchment areas

The very term 'comprehensive' also needs to be discussed because that could be very vast and the states may not have the time to wait till that. As Wood (2007) rightly says, "I have frequently felt that a lifetime study of hydrology, climatology, geography, geology, seismology, soil science, biology, botany, zoology, epidemiology (including several diseases associated with water storage), various sub-fields of agriculture and forestry, several kinds of engineering, as well as law, economics, sociology and anthropology, might be required before one could confidently make any final judgement about the controversy-related facts." However, the Odisha government position on 'ecology' in the conflict so far can be a good point to be taken up by the tribunal. In fact, among all the inter-state disputes, this seems to be a new dimension in the Mahanadi conflict, as far as the major focus of the 'victim state' is concerned.

In the Narmada dispute, due to intervention by various activists and experts, this issue had come up. Compared to other inter-state river water disputes, Narmada dispute involved new features such as the enhanced concern for human rights and environmental protection that were non-existent or muted in other cases (Wood 2007). In the Cauvery dispute, Tamil Nadu always demanded sufficient water from Karnataka to save crops in the delta.

Odisha has gone beyond projecting the Mahanadi delta as an ecologically sensitive zone, and rightly so. However, Odisha too has not done enough to maintain the basin ecology that started getting destroyed with the construction of the Hirakud Dam. Then, many issues raised by Odisha with regard to problems in its ecological hotspots are also creation of the Hirakud Dam.

Now, Chhattisgarh dams and barrages will add to the woes. In the Cauvery case, environmentalists are now seeing a link between changes in coffee plantation practices in the Karnataka catchments as a huge issue. Odisha and Chhattisgarh have wasted the opportunity of protecting the Mahanadi catchment jointly. Rather, they have been promoting rampant mining of coal and industrialisation in the catchment creating more problems to the river than what the barrages could do.

In fact, to put it in perspective, the need for construction of more dams and barrages may have been fuelled by the destruction of the catchment as many small rivers and feeder channels to Mahanadi are

109 <http://www.thehindu.com/news/national/other-states/cooperation-can-resolve-mahanadi-dispute/article23651211.ece>

dying due to excessive exploitation of the top soil and destruction of forests. The tribunal as well as the states must build their understanding on this and put a plan for restoration of the catchment areas.

Green energy agenda

India's Intended Nationally Determined Contribution (INDC) targets to lower the emissions intensity of GDP by 33 per cent to 35 per cent by 2030 (below 2005 levels), to increase the share of non-fossil based power generation capacity to 40 per cent of installed electric power capacity (equivalent to 26-30 per cent of generation in 2030), and to create an additional (cumulative) carbon sink of 2.5-3 GtCO₂e through additional forest and tree cover. Based on the NEP, the Climate Action Tracker (CAT) calculates that India will significantly reduce its emissions and, by 2030, its emissions intensity will be 51-53 per cent below 2005 levels, exceeding its NDC target.¹¹⁰

To meet INDC targets as well as to take real green actions, India needs to bring in a strong integrated approach of GHG emissions by linking all sectors. While the focus on reducing emissions from fossil fuels is essential and must be the major focus, destruction of environment due to the existing coal fired power plants and other industries have to be looked into in sync with this. Our national forest cover stands at about 21.34 per cent¹¹¹ (with very dense forest being just 2.61 per cent) as against the prescribed 33 per cent by the National Forest Policy.

The existing coal fired power plants and other industries all are established by destroying huge chunk of natural forests and also by polluting the land and water resources. The country immediately needs to change this destruction. All existing plans for forest conservation and afforestation need to be strengthened making them more people and biodiversity oriented.

Even though the government has got an ambitious target of not building any new coal fired power plants between 2022-2017, the existing plans would need more than 3,75,000 acres of land to build these coal power plants and the associated infrastructure in addition to the land required for transmission lines.¹¹² These will increase emissions linked to the plants and also related to land erosion and forest destruction. It will also create a lot of pollution. Water resources will be stressed and serious equity issues will arise.

The Mahanadi basin is perfect example of how coal fired power plants have put the resources and people to severe stress. The basin states have got climate change action plans but there are doubts about their usefulness going by the way they are promoting coal fired power plants. The governments should immediately work out a green energy plan for the basin and phase out coal by a fixed target year.

The need for construction of more dams and barrages may have been fuelled by the destruction of the catchment as many small rivers and feeder channels to Mahanadi are dying due to excessive exploitation of the top soil and destruction of forests. The tribunal as well as the states must build their understanding on this and put a plan for restoration of the catchment areas

110 <http://climateactiontracker.org/countries/india/2017.html>

111 India State of Forest Report, 2015 that can be accessed at <http://fsi.nic.in/isfr-2015/isfr-2015-forest-cover.pdf>

112 Letter titled, "The Myths on the Relevance of Coal Energy and the Critical Need for Renewable Energy" written on August 23, 2017 by Shankar Sharma, power policy analyst to Arvind Subramanian, chief economic advisor, Union ministry of finance, New Delhi (accessed through personal correspondence)

Locals contacted during the course of our research gave a range of 20 years for phasing out of coal by the government. They said that the government must start phasing out coal from 2030 onwards and complete the process by 2040. The recently concluded 2nd Odisha River Conference, in its concluding declaration, said: “Coal fired power plants do a double damage to rivers. Coal mining adversely affects the flow of water to the river and coal burning uses water and pollutes rivers. We demand a complete ban on the establishment of new coal based power plants. We also demand a time bound phasing out of existing coal based power plants.”

Climate change, drought proofing and ecological rejuvenation of river

It is already established that the Mahanadi river basin is being seriously affected by climate change. The basin is also contributing a lot of greenhouse gases (GHGs) because of existence of so many coal fired power plants in one small geographical concentration. Drought has become a regular phenomenon in the river and both states are doing a lot of drought relief operations.

There is a need for both states to work together on climate change mitigation and suitable resilience building programmes that enhance the coping capacity of communities towards drought. For this to happen, all their irrigation, forest conservation, food and nutrition security programmes need to be integrated with each other.

And all these have to be done in such a way that it will also lead to river rejuvenation. Reviving and conserving surface water bodies and ecological treatment of catchment areas would help in this.

Flood Management

The Mahanadi is also a flood prone basin and both Hirakud Dam and climate change are aggravating the impacts of floods on the basin, especially in the Odisha state. Hirakud has created man-made floods due to mismanagement of the rule curve for reservoir operation.¹¹³ We contend that the rule curve is faulty for the dam's design, and it would force the dam authorities to release excessive water to keep the dam safe every time there is an adverse situation such as excessive rainfall upstream in Chhattisgarh (Panda 2017a).

There has always been problem of coordination with Chhattisgarh on the Hirakud Dam's flood management operations. Now, with growing conflicts and more number of dams and barrages, it becomes more important to have a better coordination mechanism. The Odisha government has recently announced a real-time monitoring system of flood data in the Mahanadi. However, we cannot assess its effectiveness unless they coordinate with Chhattisgarh dams and review the rule curve.

Floods do a lot of damage to communities by destroying their livelihood and dislocating them for days and sometimes months. With a proper coordination and cooperation mechanism between the two states, this could be minimised.

Sea rise and cyclones

The Bay of Bengal, in which Mahanadi falls, is one of the most vulnerable seas to climate change. What is worrying is the fact that fossil fuel based industries and power plants that are responsible for causing more cyclones are a dual problem for this bay: 1. Because of the global climate change, and 2. Because the mad rush for coal fired power plants in the Mahanadi basin, which may be a local driver of it. The rise in sea surface temperature (SST) is largely driven by global temperature rise due to increased CO₂ in the atmosphere. According to scientists, rise in SST is a major cause of increased intensity of cyclones that

113 A formula of flood water management for the dam during monsoon months.

ravage the Bay of Bengal from time to time. Worrisome also is the fact that mangrove forests, the richest among which are found in this bay, are also shrinking fast due to “development”¹¹⁴. Mangrove forests act as a natural shield against cyclones.

Both Odisha and Chhattisgarh need to work in tandem by integrating their climate change action plans, to mitigate these challenges faced by the Bay of Bengal that is already affecting the coastal communities in Mahanadi delta heavily. Sea rise, increasing damages by cyclones, relocation and rehabilitation of people affected by inundation of the sea, saline ingression, etc., are some of the aspects which need urgent attention in a Mahanadi cooperation agenda.

Recognising community right over resources and ensuring their participation in river management

There is no scope for participation of affected communities in river basin management. In fact, there is no law that governs participation of communities in this. The NWP 2012 has a mention about need for community participation but the governments keep following business as usual approach in taking up all development projects.

When it comes to the coal belts of the Mahanadi, on which majority of our field study focussed, people are forcefully evicted from their land, forest and water resources in the name of ‘development’ and then have no participation whatsoever in how these development projects work. The government mechanisms to monitor the compliance of rehabilitation, environment legislations and pollution of water resources are also flawed and the institutions show a great deal of complacency and inefficiency.

This needs to change. People should not only be ensured right to the resources but also right to basic amenities such as drinking water. Diversion of irrigation water to industries should be made under a sustainability framework that makes the distribution between all stakeholders equitable without marginalising the local and indigenous communities.

Development in the form of forest destruction, reduced rights of riparian and other communities, unsustainable urbanisation and such other aspects, are not considered real issues in the mainstream river basin planning. States have been reluctant to debate such real issues. Each development project that uses, diminishes and pollutes river waters is permitted with conditions of not hampering ecological conditions of the basin and riparian rights of the communities.

However, there is hardly any monitoring on these. ‘Riparian rights’ have been reduced to one the most neglected and ambiguous things in this country. This needs to be debated and the local people need to take centre stage.

While asserting their rights in the existing mechanisms such as gram sabha, environment impact assessment (EIA) public hearings, they also need to assert their rights on larger river basin management processes. And the governments must facilitate that.

In the NTPC Lara plant case that we discussed in this study, it is the local people and self-government representatives who brought to mainstream discourse cross border environmental and other impacts of a project even as the government was silent on the same for almost more than five years. There is a need for community members to assert their rights in many ways.

There is also a need for community vigilance on the various schemes like corporate social responsibility projects, district mineral funds and other such projects that are supposed to undo many injustices done by the projects to the river basin, its ecology, lives and livelihood of the local communities.

Both the states should recognise such local movements, people’s organisations and other institutions

114 <https://www.thequint.com/news/india/sea-change-bay-of-bengals-biodiversity-is-in-danger>

that can help towards making these projects and programmes integrate with the existing programmes that are aimed at and/or improving the river basin, its forest resources, land, water bodies, biodiversity and lives of people dependent on them.

Mahanadi, not a simple fight

As evident, the Mahanadi inter-state dispute is more than just simple fight over water sharing between two states. It is about survival of the people and ecology. While the governments are fighting a political battle, the people of the coalfields are fighting a battle for survival. The Mahanadi is gasping for life and with it the local communities. The governments have to integrate coal and the related woes into the dialogue if they are serious about resolving the conflict as well as keeping the Mahanadi alive and healthy.

All the controversial barrages including Saradih barrage have been constructed under guise of irrigation. However, while industrial houses have already started drawing water, irrigation is still a non-starter.





References

- Central Water Commission. 2017. 'National Register of Large Dams, 2017'.
- Chokkakula, S. 2012. 'Disputes, (de)Politicization and Democracy: Interstate Water Disputes in India', 'CPR Working Paper', Centre for Policy Research, New Delhi. January 2012.
- Chopra, R. 2015. 'What Hydroelectric Projects Do to Rivers' in R. R. Iyer edited 'Living Rivers, Dying Rivers', Oxford University Press, New Delhi. PP 388 – 407.
- Deemer, Bridget R., John A. Harrison, Siyue Li Jake J., Beaulieu Tonya, DelSontro, Nathan Barros, José F. Bezerra-Neto, Stephen M. Powers, Marco A. dos Santos, J. Arie Vonk. 2016. 'Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis', *BioScience*, Volume 66, Issue 11, 1 November 2016. PP 949–964 (<https://doi.org/10.1093/biosci/biw117>)
- Dinar, S. 2009. 'Power asymmetry and negotiations in international river basins', *International Negotiations*, Vol. 14. No.2. PP 329-360. (As reported in *Mirumachi 2015 PP 19-20.*)
- Greenpeace India Society. 2017. 'Pipe dreams Treated sewage will not solve coal power's water problems All these results indicate a growing water risk factor for coal power plants'. Chennai, June 2017.
- Ghosh S., D. Raje, and P.P. Mujumdar. 2010. 'Mahanadi Streamflow: Climate Change Impact Assessment and Adaptive Strategies', *Current Science*, Vol. 98, NO. 8, 25 APRIL 2010. PP 1084-91.
- Ghosh, S., H. Vittal, T Sharma, S Karmakar, K. S. Kasiviswanathan, Y. Dhanesh, K. P. Sudheer, S. S. Gunthe. 2016. 'Indian Summer Monsoon Rainfall: Implications of Contrasting Trends in the Spatial Variability of Means and Extremes', *PLOS ONE*, July 27, 2016. PP 1-14.
- Govt. of India. 2012. 'National Water Policy'.
- Hvistendahl, M. 2007. 'Coal Ash Is More Radioactive Than Nuclear Waste', *Scientific American*, December 13, 2007. (<https://www.scientificamerican.com/article/coal-ash-is-more-radioactive-than-nuclear-waste/>)
- Iyer, R. R. 2015. 'Afterwards', in R.R. Iyer edited 'Living Rivers, Dying Rivers', Oxford University Press, New Delhi. PP 435-444.
- Iyer, R. R., 2014. 'For rejuvenating, not re-engineering, the Ganga', *The Hindu*, July 16, 2014. (<http://www.thehindu.com/opinion/op-ed/for-rejuvenating-not-reengineeringthe-ganga/article6214337.ece>)
- Iyer, R. R. 2007. 'Towards Water Wisdom: Limits, Justice, Harmony', Sage Publications Pvt Ltd. New Delhi.
- Juneja, S. 2010. 'Chhattisgarh's Industrial Jungle', *Down To Earth*, Centre for Science and Environment, New Delhi. 15 September, 2010.
- Lahiri, K.K. 2016., 'Inter-State River Water Disputes Act: Genesis, Evolution and Analysis', Eastern Book Company, Lucknow.
- Mahapatra, R and R. Panda, 2001. 'The Myth of Kalahandi', *Down to Earth*, Centre for Science and Environment, New Delhi, 30th March 2001.
- Mahapatra R. and R. Panda, 2007. '30,000 farmers demand Hirakud dam water', *Down To Earth*, Centre for Science and Environment, 31 Dec 2007.
- Mishra, M. 2016. 'A Law to Protect Rivers' in R.R. Iyer edited 'Living Rivers, Dying Rivers', Oxford University

Press, New Delhi. PP 379 to 388.

Mirumachi, N. 2015. 'Transboundary Water Politics in the Developing World', Earthscan/Routledge, Oxon.

Nariman, F.S. 2009. 'Inter-State Water Disputes: A Nightmare!' in R. R. Iyer edited 'Water and The Laws in India', SAGE Publications India Pvt. Ltd., New Delhi. PP 32-57.

Panda, R. K. 2015. 'The Mahanadi: A Great River in Distress' in R. R. Iyer edited 'Living Rivers, Dying Rivers', Oxford University Press, New Delhi. PP 205-218.

Panda, R. K. 2007. 'Case of Growing Diversion of Water from Irrigation to Industries from the Hirakud Reservoir'. National Council for Advocacy Studies, Pune.

Panda, R. K. and Pandia, B. 2007. 'A note on Desertification in Odisha'. Water Initiatives Odisha.

Panda, R. 2017. 'More dams will not solve Mahanadi water conflict', *Down To Earth*, Centre for Science and Environment, New Delhi. 05 September 2017. (<http://www.downtoearth.org.in/blog/dams-will-not-solve-the-mahanadi-water-conflict-58601>)

Panda, R. K. 2011. 'Public good, private concerns', *Down To Earth*, Centre for Science and Environment, New Delhi, 31 March 2011. (<http://www.downtoearth.org.in/blog/public-good-private-concerns-33190>)

Panda, R. K. 2011a. 'India needs to go well beyond Vision 2050 for water', *India Water Review*, September 17, 2011. (<http://www.indiawaterreview.in/Story/GuestColumns/india-needs-to-go-well-beyond-vision-2050-for-water/379/5#.WiugW7pul2w>)

Panda, R.K. 2017a. 'Disaster in the making', Hardnews Media, 09/15/2017. (<http://www.hardnewsmedia.com/node/7448>)

Poff, N.L., J.D. Allan, M. B. Bain, J.R. Karr, K.L. Prestegard, B.D. Richter, R.E. Sparks, and J.C. Strombert. 1997. 'The Natural Flow Regime', *BioScience*, Vol. 47, No. 11. December 1997. PP 769-84.

Prayas Energy Group. 2011. 'Thermal Power Plants on the Anvil: Implications and need for rationalisation', Discussion Paper. Prayas Energy Group, Pune, August 2011.

Rao, P.G. 1995. 'Effect of Climate Change on Streamflows in the Mahanadi River Basin, India', *Water International*, Vol 20, No. 4. PP 205-212.

State Pollution Control Board, Odisha. 2016. 'Water Quality of Major Rivers of Odisha During 2011-2015'.

Tyagi, P.C. 2015. 'Caring for Our Rivers' in R. R. Iyer edited 'Living Rivers, Dying Rivers', Oxford University Press, New Delhi. PP 364-378.

Vaidyanathan, A. and B. Jairaj. 2009. 'Legal Aspects of Water Resource Management' in R. R. Iyer edited 'Water and the Laws of India', SAGE Publications India Pvt. Ltd., New Delhi. PP 3-13.

Vasudha Foundation. 2016. 'The Coal Water Nexus – India Database', New Delhi.

Wood, J. R. 2007. 'The Politics of Water Resource Development in India: The Narmada Dams Controversy'. Sage Publications India Pvt. Ltd. New Delhi.

Annexure

AS INTRODUCED IN LOK SABHA

Bill No. 46 of 2017

THE INTER-STATE RIVER WATER DISPUTES (AMENDMENT)
BILL, 2017

A

BILL

further to amend the Inter-State River Water Disputes Act, 1956.

BE it enacted by Parliament in the Sixty-eighth Year of the Republic of India as follows:—

1. (1) This Act may be called the Inter-State River Water Disputes (Amendment) Act, 2017. Short title and commencement.

(2) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

33 of 1956. 2. In the Inter-State River Water Disputes Act, 1956 (hereinafter referred to as the principal Act), in section 2,— Amendment of section 2.

(i) for clause (a), the following clauses shall be substituted, namely:—

10 ‘(a) “Chairperson” means the Chairperson of the Inter-State River Water Disputes Tribunal referred to in section 4B;

(aa) “existing Tribunal” means a Water Disputes Tribunal constituted prior to the date of commencement of the Inter-State River Water Disputes (Amendment) Act, 2017;

(ab) “member” means a member of the Inter-State River Water Disputes Tribunal and includes the Chairperson and Vice-Chairperson; 5

(ac) “notification” means a notification published in the Official Gazette;

(ad) “prescribed” means prescribed by rules made under this Act;’.

(ii) for clause (b), the following clauses shall be substituted, namely:—

‘(b) “Tribunal” means the Inter-State River Water Disputes Tribunal established under section 4; 10

(ba) “Vice-Chairperson” means the Vice-Chairperson of the Tribunal referred to in section 4B;’.

Substitution of new sections 4, 4A, 4B, 4C and 4D for section 4. Establishment of Inter-State River Water Disputes Tribunal.

3. For section 4 of the principal Act, the following sections shall be substituted, namely:—

‘4. With effect from such date as the Central Government may, by notification, appoint, there shall be established a Tribunal, to be called the Inter-State River Water Disputes Tribunal, for the adjudication of water disputes: 15

Provided that on and from the date of establishment of the Tribunal, all existing Tribunals shall stand dissolved and the water disputes pending adjudication before such existing Tribunals shall stand transferred to the Tribunal: 20

Provided further that the Chairmen and other members of the existing Tribunals who have attained the age of seventy years as on the date of commencement of the Inter-State River Water Disputes (Amendment) Act, 2017 shall cease to hold office on the expiry of three months from the date of such commencement:

Provided also that a dispute which has already been adjudicated and settled by an existing Tribunal prior to the date of commencement of the Inter-State River Water Disputes (Amendment) Act, 2017 shall not be re-opened. 25

Disputes Resolution Committee.

4A. (1) As and when any request under section 3 is received from any State Government in respect of any water dispute, the Central Government shall set up a Disputes Resolution Committee, consisting of members from such relevant fields, as it deems fit, for resolving the dispute amicably. 30

(2) The Disputes Resolution Committee shall try to resolve a water dispute by negotiations within a period of one year which may be extended to a further period of six months and submit its report to the Central Government.

(3) The report submitted by the Disputes Resolution Committee shall contain details of— 35

(a) the stand taken by each State Government during negotiation;

(b) the views of members of the Committee on such stand; and

(c) all relevant facts, information and data relating thereto.

(4) Any water dispute which cannot be settled by negotiations shall be referred by the Central Government, by notification, to the Tribunal for its adjudication within a period of three months from the date of receipt of the report under sub-section (2). 40

Composition of Tribunal.

4B. Subject to the provisions of section 12, the Tribunal shall consist of a Chairperson, Vice-Chairperson and not more than six members to be nominated in this behalf by the Chief Justice of India from amongst persons who at the time of such nomination are Judges of the Supreme Court or of a High Court: 45

Provided that the Chairmen and other members of the existing Tribunals (other than members who have ceased to hold office under second proviso to section 4) shall be nominated by the Chief Justice of India as Chairperson, Vice-Chairperson and Members of the Tribunal and they shall continue as such, subject to the provisions of section 4C.

4C. (1) The Chairperson shall hold office for a period of five years or till he attains the age of seventy years, whichever is earlier. Term of office.

(2) The term of office of the Vice-Chairperson and other members of the Tribunal shall be co-terminus with the adjudication of the water dispute and they shall cease to hold office upon dissolution of the bench under sub-section (2) of section 12:

Provided that no member shall hold office after he has attained the age of seventy years.

4D. (1) Subject to other provisions of this Act,—

Benches of
Tribunal.

(a) the jurisdiction of the Tribunal may be exercised by the Benches thereof;

(b) the Chairperson may constitute a Bench with three members, out of which the senior-most member shall preside over the Bench:

Provided that a member of a Bench may also be a member of another Bench.

Explanation.— For the purposes of this clause, the term “senior-most member” means that a Judge of the Supreme Court shall always be senior to a Judge of a High Court and their seniority shall be determined from the date of their respective appointment as the Judge of the Supreme Court or of a High Court.

(2) The Benches of the Tribunal shall ordinarily sit at New Delhi or at such other places as the Chairperson may decide.’.

4. In section 5 of the principal Act,—

Amendment
of section 5.

(a) for sub-sections (1) and (2), the following sub-sections shall be substituted, namely:—

“(1) On receipt of a reference in respect of any water dispute from the Central Government, the Chairperson shall assign such dispute to a Bench of the Tribunal to its adjudication.

(2) The Bench of the Tribunal shall, before investigating the water dispute referred to it under sub-section (1), take into consideration the report submitted by the Disputes Resolution Committee under sub-section (2) of section 4A, and forward to the Central Government its detailed report setting out the facts as found by it including on yield, efficiency in the use of water and such other matters as may be prescribed, and giving its decision on such dispute within a period of two years:

Provided that such report shall also provide for the distribution of water during distress situations arising from shortage in the availability of water in such manner as may be prescribed:

Provided further that if the report cannot be given within a period of two years for any unavoidable reasons, the Central Government may extend such period to a further period not exceeding one year.”;

(b) in sub-section (3),—

(i) for the words “on such reference, the Tribunal may”, the words “on such reference, the Bench of the Tribunal concerned may” shall be substituted;

(ii) for the proviso, the following proviso shall be substituted, namely:—

“Provided that the Central Government may extend the period of one year to a further period not exceeding six months.”.

Substitution of new sections 5A and 5B for section 5A.

5. For section 5A of the principal Act, the following sections shall be substituted, namely:—

5

Appointment of assessors.

“5A. (1) The Central Government may appoint two experts serving in the Central Water Engineering Service not below the rank of Chief Engineer as assessors for each water dispute to advise the Bench in the proceedings before it.

(2) The term of the assessors appointed under sub-section (1) shall be co-terminus with the adjudication of the dispute and they shall cease to be assessors after the dispute is adjudicated and the final report is forwarded to the Central Government.

10

Filling of vacancies, temporary absence, etc.

5B. (1) Subject to the provisions of this Act, if for any reason, a vacancy (other than a temporary absence) occurs in the office of the Chairperson, Vice-Chairperson or any other member of the Tribunal, such vacancy shall be filled by a person to be nominated in this behalf by the Chief Justice of India in accordance with section 4B.

15

(2) In the event of the occurrence of any vacancy in the office of the Chairperson by reason of his death, resignation or otherwise, the Vice-Chairperson shall act as the Chairperson until the date on which a new Chairperson, nominated in accordance with the provisions of this Act to fill such vacancy, enters upon his office.

20

(3) When any member of a Bench of the Tribunal is unable to discharge his functions owing to absence, illness or any other cause, the Chairperson may assign the work of such member to any other member of the Tribunal till such member resumes his work.”.

Substitution of new section for section 6.

6. For section 6 of the principal Act, the following section shall be substituted, namely:—

25

Decision of Bench of Tribunal binding on parties.

“6. The decision of the Bench of the Tribunal shall be final and binding on the parties to the dispute and shall have the same force as an order or decree of the Supreme Court.”.

Substitution of new section for section 9A.

7. For section 9A of the principal Act, the following section shall be substituted, namely:—

30

Maintenance of data bank and information.

“9A. (1) The Central Government shall, for the purposes of maintaining a data bank and information system at the national level for each river basin, appoint or authorise an agency which shall maintain data relating to water resources, land, agriculture and such other matter, containing such particulars and in such manner, as may be prescribed.

35

(2) As and when required by the Central Government, the State Government shall make available the data relating to any of the matters referred to in sub-section (1) to the Central Government or to the agency appointed or authorised under sub-section (1).

(3) The Central Government or the agency referred to in sub-section (1) shall have powers to summon and verify any data, record or other relevant information received from the State Government.”.

40

Substitution of new section for section 10.

8. For section 10 of the principal Act, the following section shall be substituted, namely:—

Terms and conditions of service of members and assessors.

“10. The salary and allowances payable to, and the other terms and conditions of service of, the Chairperson, Vice-Chairperson, other members and assessors shall be such as may be prescribed.”.

45

9. For section 12 of the principal Act, the following sections shall be substituted, namely:—

Substitution of new sections 12 and 12A for section 12.

5 “12. (1) After any water dispute assigned to a Bench of the Tribunal is adjudicated and it submits its decision or report, the Central Government shall, on the recommendations of the Chairperson, dissolve that Bench.

Dissolution of Bench.

(2) Upon dissolution of the Bench under sub-section (1), the members of that Bench (excluding Chairperson) shall vacate their respective offices:

Provided that where a member of a Bench is also a member of another Bench, such member shall continue as a member of such other Bench.

10 12A. (1) Upon the dissolution of a Bench of the Tribunal under section 12, the staff of such dissolved Bench shall be,—

Staff and assets of dissolved Bench.

(i) made available to any other Bench, if so required; or

(ii) repatriated to their parent cadre,

in such manner as may be prescribed.

15 (2) The assets and properties of the dissolved Bench shall be transferred to the Central Government or to the concerned State Government which provided such assets and properties.”.

10. In section 13 of the principal Act, in sub-section (2), for clauses (a) to (f), the following clauses shall be substituted, namely:—

Amendment of section 13.

20 “(a) the form and the manner in which a complaint as to any water dispute may be made by any State Government under section 3;

(b) the other matters, and the manner of providing for distribution of water during stress situations arising from shortage in the availability of water, under sub-section (2) of section 5;

25 (c) the other matters in respect of which the Tribunal may be vested with the powers of a civil court under clause (d) of sub-section (1) of section 9;

(d) the procedure to be followed by the Tribunal under sub-section (4) of section 9;

30 (e) the other matters in respect of which data is to be maintained, the particulars thereof, and the manner of maintaining such data under sub-section (1) of section 9A;

(f) the salaries and allowances payable to, and the other terms and conditions of service of, the Chairperson under section 10;

35 (g) the allowances or fee payable to, and other terms and conditions of service of, the Vice-Chairperson, other members and assessors under section 10;

(h) the manner in which the staff of the dissolved Bench shall be dealt with under sub-section (1) of section 12A;

(i) any other matter which has to be, or may be, prescribed.”.

Substitution of
new section
for section 14.

11. For section 14 of the principal Act, the following section shall be substituted,
namely:—

Matters
relating to
Ravi and Beas
Water
Tribunal.

“14. The Ravi and Beas Waters Tribunal constituted prior to the date of
commencement of the Inter-State River Water Disputes (Amendment) Act, 2017 shall
stand dissolved and the water disputes pending adjudication before it shall stand 5
transferred to the Tribunal:

Provided that the concerned Bench shall proceed to deal with such dispute
from the stage at which it was so transferred.”.

STATEMENT OF OBJECTS AND REASONS

On account of increase in demand for water by the States, the inter-State river water disputes are on the rise. Though the Inter-State River Water Disputes Act, 1956 (33 of 1956) provides for a legal framework to address such disputes, it suffers from many drawbacks. Under the said Act, a separate Tribunal has to be established for each inter-State river water disputes. Only three out of eight Tribunals have made awards which are accepted by the States. Though the Cauvery and Ravi Beas Water Disputes Tribunals have been in existence for over 26 and 30 years respectively, they have not been able to make any successful award till date. Further, there is no provision in the Act fixing time limit for adjudication by a Tribunal or for any upper age limit for the Chairman or a Member of a Tribunal. There is no mechanism for continuation of work on occurrence of any vacancy in the office of the Chairman or a Member of a Tribunal nor is there a time limit for publishing the report of the Tribunal. All these drawbacks are causing delay in the adjudication of water disputes.

2. The Inter-State River Water Disputes (Amendment) Bill, 2017 seeks to streamline the adjudication of inter-State river water disputes and make the present legal and institutional architecture robust. The Bill proposes to introduce a mechanism to resolve the water dispute amicably by negotiations through a Disputes Resolution Committee, to be established by the Central Government consisting of experts from relevant fields, before such dispute is referred to the Tribunal.

3. The proposed Bill further seeks to provide for a single standing tribunal (with multiple Benches) instead of multiple tribunals, which shall consist of one Chairperson, one Vice-Chairperson and not more than six Members. While the term of office of the Chairperson is five years or till he attains the age of seventy years, whichever is earlier, the term of office of Vice-Chairperson and other Members of the Tribunal shall be co-terminus with the adjudication of the water disputes. It is also proposed that the Assessors, who provide technical support to the Tribunal, shall be appointed from amongst experts serving in the Central Water Engineering Service not below the rank of Chief Engineer. The total time period for adjudication of a water dispute has been fixed at a maximum of four and half years. The decision of the Bench of the Tribunal shall be final and binding on the States concerned, with no requirement of its publication in the Official Gazette.

4. The proposed Bill also seeks to provide for transparent data collection system at the national level for each river basin and for this purpose, an agency to maintain databank and information system shall be appointed or authorised by the Central Government.

5. The Bill seeks to achieve the above objectives.

NEW DELHI;
The 1st March, 2017.

UMABHARTI.

FINANCIAL MEMORANDUM

Clause 3 of the Bill seeks to substitute new sections 4, 4A, 4B, 4C and 4D for section 4 of the Inter-State River Water Disputes Act, 1956. The proposed section 4 seeks to establish a single standing Inter-State River Water Disputes Tribunal with multiple Benches, which shall initially be constituted by merging of existing five Tribunals. As existing premises with necessary furniture are already available, no new premises or furniture are required for establishing the office of the new Standing Tribunal. Therefore, no non-recurring expenditure would be involved.

It is proposed to establish a single standing tribunal with multiple Benches, instead of multiple tribunals, by merging existing five tribunals. The new Tribunal shall consist of one Chairperson, one Vice-Chairperson and not more than six Members. Further, after the new Tribunal is established, the 107 sanctioned posts in the existing tribunals are proposed to be reduced to 80 posts. Therefore, on establishment of proposed new tribunal, the estimated annual recurring expenditure is likely to be reduced from existing Rs. 8 Crores to Rs. 5.5 Crores, thereby saving Rs. 2.5 Crore per annum.

The Bill, if enacted, therefore, does not involve any recurring or non-recurring expenditure.

MEMORANDUM REGARDING DELEGATED LEGISLATION

Clause 10 of the Bill seeks to substitute clauses (a) to (f) of sub-section (2) of section 13 relating to power to make rules. The proposed amendments seeks to provide for rule making powers in respect of—

(i) the other matters and the manner of providing for distribution of water during stress situations arising from shortage in the availability of water;

(ii) the other matters of which data is to be maintained, the particulars such data shall contain and the manner in which such data shall be maintained; and

(iii) the manner in which the staff of the dissolved Bench shall be dealt with.

The matters in respect of which the rules may be made are generally matters of procedure and administrative details and it is not practicable to provide for them in the Bill itself. The delegation of legislative power is, therefore, of a normal character.

ANNEXURE

EXTRACTS FROM THE INTER-STATE RIVER WATER DISPUTES ACT, 1956
(33 OF 1956)

	*	*	*	*	*
Definitions.	<p>2. In this Act, unless the context otherwise requires,—</p> <p>(a) “prescribed” means prescribed by rules made under this Act;</p> <p>(b) “Tribunal” means a Water Disputes Tribunal constituted under section 4;</p>				
	*	*	*	*	*
Constitution of Tribunal.	<p>4. (1) When any request under section 3 is received from any State Government in respect of any water dispute and the Central Government is of opinion that the water dispute cannot be settled by negotiations, the Central Government shall, within a period not exceeding one year from the date of receipt of such request, by notification in the Official Gazette, constitute a Water Disputes Tribunal for the adjudication of the water dispute:</p> <p>Provided that any dispute settled by a Tribunal before the commencement of the Inter-State Water Disputes (Amendment) Act, 2002 shall not be re-opened.</p> <p>(2) The Tribunal shall consist of a Chairman and two other members nominated in this behalf by the Chief Justice of India from among persons who at the time of such nomination are Judges of the Supreme Court or of a High Court.</p> <p>(3) The Central Government may, in consultation with the Tribunal, appoint two or more persons as assessors to advise the Tribunal in the proceedings before it.</p>				
Adjudication of water disputes.	<p>5. (1) When a Tribunal has been constituted under section 4, the Central Government shall, subject to the prohibition contained in section 8, refer the water dispute and any matter appearing to be connected with, or relevant to, the water dispute to the Tribunal for adjudication.</p> <p>(2) The Tribunal shall investigate the matters referred to it and forward to the Central Government a report setting out the facts as found by it and giving its decision on the matters referred to it within a period of three years:</p> <p>Provided that if the decision cannot be given for unavoidable reasons, within a period of three years, the Central Government may extend the period for a further period not exceeding two years.</p> <p>(3) If, upon consideration of the decision of the Tribunal, the Central Government or any State Government is of opinion that anything therein contained requires explanation or that guidance is needed upon any point not originally referred to the Tribunal, the Central Government or the State Government, as the case may be, within three months from the date of the decision, against refer the matter to the Tribunal for further consideration, and on such reference, the Tribunal may forward to the Central Government a further report within one year from the date of such reference giving such explanation or guidance as it deems fit and in such a case, the decision of the Tribunal shall be deemed to be modified accordingly:</p> <p>Provided that the period of one year within which the Tribunal may forward its report to the Central Government may be extended by the Central Government, for such further period as it considers necessary.</p>				
	*	*	*	*	*

5A. If, for any reason a vacancy (other than a temporary absence) occurs in the office of the Chairman or any other member of a Tribunal, such vacancy shall be filled by a person to be nominated in this behalf by the Chief Justice of India in accordance with the provisions of sub-section (2) of section 4, and the investigation of the matter referred to the Tribunal may be continued by the Tribunal after the vacancy is filled and from the stage at which the vacancy occurred.

Filling of vacancies.

6. (1) The Central Government shall publish the decision of the Tribunal in the Official Gazette and the decision shall be final and binding on the parties to the dispute and shall be given effect to by them.

Publication of decision of Tribunal.

(2) The decision of the Tribunal, after its publication in the Official Gazette by the Central Government under sub-section (1), shall have the same force as an order or decree of the Supreme Court.

* * * * *

9A. (1) The Central Government shall maintain a data bank and information system at the national level for each river basin which shall include data regarding water resources, land, agriculture, and matters relating thereto, as the Central Government may prescribe from time to time. The State Government shall supply the data to the Central Government or to an agency appointed by the Central Government for the purpose, as and when required.

Maintenance of data bank and information.

(2) The Central Government shall have powers to verify the data supply by the State Government, and appoint any person or persons for the purpose and take such major as it may considered necessary. The person or persons to appointed shall have the powers to summon such records and information from the concerned State Government as are considered necessary to discharge their functions under this section.

10. The Chairman and other members of a Tribunal and the assessors shall be entitled to receive such remuneration, allowances or fees as may be prescribed.

Allowances or fees for Chairman of Tribunal and assessors.

* * * * *

12. The Central Government shall dissolve the Tribunal after it has forwarded its report and as soon as the Central Government is satisfied that no further reference to the Tribunal in the matter would be necessary.

Dissolution of Tribunal.

13. (1)* * * * *

Power to make rules.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for or any of the following matters, namely:—

(a) the form and manner in which a complaint as to any water dispute may be made by any State Government;

(b) the matter in respect of which a Tribunal may be vested with the powers of a civil court;

(c) the procedures to be followed by a Tribunal under this Act;

(d) the remunerations, allowances or fees payable to the Chairman and other members of a Tribunal and assessors;

(e) the terms and conditions of service of officers and assessors of the Tribunal;

(f) any other matter which has to be, or may be, prescribed.

* * * * *

14. (1) Notwithstanding anything contained in the foregoing provisions of this Act, the Central Government may, by notification in the Official Gazette, constitute a Tribunal under this Act, to be known as the Ravi and Beas Waters Tribunal for the verification and adjudication of the matters referred to in paragraphs 9.1 and 9.2, respectively, of the Punjab settlement.

Constitution of Ravi and Beas Waters Tribunal.

(2) When a Tribunal has been constituted under sub-section (1), the provisions of sub-sections (2) and (3) of section 4, sub-sections (2), (3) and (4) of section 5 and sections 5A to 13 (both inclusive) of this Act relating to the constitution jurisdiction, powers, authority and bar of jurisdiction shall, so far as may be, but subject to sub-section (3) hereof, apply to the constitution, jurisdiction, powers, authority and bar of jurisdiction in relation to the Tribunal constituted under sub-section (1).

(3) When a Tribunal has been constituted under sub-section (1), the Central Government alone may *suo motu* or at the request of the concerned State Government refer the matters specified in paragraphs 9.1 and 9.2 of the Punjab Settlement to such Tribunal.

Explanation.—For the purposes of this section, “Punjab Settlement” means the Memorandum of Settlement signed at New Delhi on the 24th day of July, 1985.

LOK SABHA

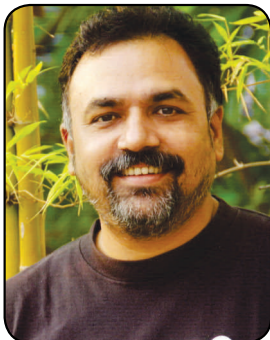
A

BILL

further to amend the Inter-State River Water Disputes Act, 1956.

*(Ms. Uma Bharti, Minister of Water Resources, River Development and Ganga
Rejuvenation)*

GMGIPMRND—4842LS(S3)—07-03-2017.



Profile

Ranjan Kishor Panda, a Master in Sociology, has more than two and a half decades of experience in leading several water and environmental initiatives in the state of Odisha and in India. Popularly known as **Water Man of Odisha** and also as **Climate Crusader**, he was awarded with the first "**Green Hero**" by NDTV in 2010 that was given away by the **President of India**. He has also been profiled as **Odisha's Conservation Master** by Hindustan Times and **The Aqua Guard** by The New Indian Express. Further, he has been recognized as **Mahanadi River Waterkeeper** by the New York based global 'Waterkeeper Alliance'. USA's SPAN magazine featured him as a **leading environmentalist of India** in its historic 75th Anniversary Issue, commemorating 75 years of Indo-US relationships. The **Everipedia** has also listed him as **Water Man of Odisha**.

Author of a book (in Odia) on "Traditional Rain Water Harvesting Systems and Structures of Western Odisha", editor of two bi-monthly newsletters on water in Odia, and contributor to many national and international media publications, Panda has written a chapter titled "The Mahanadi: A Great River in Distress" in Oxford University Press book 'Living Rivers, Dying Rivers' edited by Ramaswamy R. Iyer. He has contributed many articles and book chapters on water, environment and climate change issues, led several action and research initiatives starting from Odisha to South Asia level and held many prestigious positions in national and international civil society networks. He has also been visiting universities both in India and abroad to talk on these issues and has been speaking at several national and international seminars and workshops. He leads important networks and campaigns like 'Water Initiatives Odisha', 'Combat Climate Change Network, India', 'Healthy Rivers, Happy Cities', 'Mahanadi Peace Initiative', and is the honorary country manager for India for the global civil society coalition 'Climate Scorecard' that monitors climate actions of the most GHG emitting nations. He is currently also an 'External Advisor' to the 'Mahanadi Research Project' of the Sambalpur University.

Panda also regularly contributes articles and opinion pieces to many media publications at national and international levels. His areas of interests have been water, environment, climate change/ justice issues in both rural and urban areas and he is a strong advocate of community centric governance of natural resources for sustainable development.

Contact details:

Email: ranjanpanda@gmail.com

Mobile: +919437050103

Skype: [ranjan.climatecrusader](https://www.skype.com/people/ranjan.climatecrusader)

Tweets [@ranjanpanda](https://twitter.com/ranjanpanda) and [@MahanadiRiver](https://twitter.com/MahanadiRiver)

Heinrich Böll Stiftung, India

C-20, 1st Floor, Qutub Institutional Area
New Delhi 110016, India

+91-11-2685 4405, +91-11-2651 6695

info@in.boell.org

www.in.boell.org