



Photo: Arup Jyoti Das

**PANOS**  
SOUTH ASIA

# Dams and Development

## A media guide for journalists

This media brief is produced by the Relay programme for journalists in Northeast India working on dams and development issues. The briefing aims to encourage journalists to further explore ideas and do further research themselves. To find out more about the Relay programme visit; [www.panosrelay.org.uk](http://www.panosrelay.org.uk)

### Introduction

India is embarking on an ambitious dam building programme in the northeast of the country which is causing controversy due to its impact on people and the environment. Most people recognise that India's need for unprecedented power is due to its model of economic development and that there is a need to re-look at the model as well as the mode of getting its projected need. In addition lack of consultation with affected populations, displacement and environmental concerns have fuelled anti-dam movements in the northeast. This media brief aims to shed light on the issues that have arisen out of mega-dams in Northeast India.

According to the report "Better Management of Hydropower in an Era of Climate change" published by Water Alternatives journal (Pittock 2010), hydropower has been categorised as an energy source with low greenhouse gas emissions under the Kyoto Protocol's Clean Development Mechanism (CDM). However, the report contests this

assertion, as all energy production emits some level of greenhouse emissions such as the production of construction materials concrete as well as emissions as a result of deforesting areas to be inundated for example. As a result, the CDM is providing incentives for hydropower with few environmental constraints, the report finds. With the expiration of CDM with the Kyoto Protocol in 2012, it is an opportunity to revise the policy to include more safeguards to the environment and people.

Critically, the anti-dam movement in the northeast is more nuanced than simply rejecting the building of all dams because people recognise that they can provide much needed electricity. The issue here is the size and scope of the dams that have sparked a cause for concern - it is the era of the mega-dam. More importantly, the debate is centred around the rights over the natural resources of local communities of the region.



This media brief discusses **four issues** that are affected by dams:

✎ Dam plans in the northeast

✎ Environmental Impacts

✎ Social Impacts

✎ People, power and development

The guide also provides key questions for journalists to ask in interviews as well as possible newspage, research contacts in the northeast and abroad; and a list of research cited.

## Dam plans in the northeast:

With international incentives for dam building as well as India's own need to plug its energy gap, the country is expanding its dam building programme in the Northeast. The Northeast has been picked because it has ideal terrain for such structures. India's competition with neighbouring China is also a contributing factor in stepping up these projects. According to the report, "Dams on the Brahmaputra: Concerns in Northeast India" published by Institute of Peace and Conflict Studies (Rahman 2010), the state of India is concerned by China's ability to control the headwaters of the Yarlung-Tsangpo and other major river systems that flow from Tibet to South and South-east Asia.

The Yarlung-Tsangpo originates from Tibet and enters India through Arunachal Pradesh as the Siang. The river is joined by two tributaries: the Dibang and the Lohit to become the Brahmaputra on entering the state of Assam. As a result, Arunachal Pradesh has been earmarked as a region for numerous hydro-electric projects that are in various stages of planning and construction. Other than the Brahmaputra river basin, the Barak river basin, with its source in the state of Manipur, has also been identified for exploitation of large hydropower in the Northeast.

According to the February 2010 report

of Inter-Ministerial Group on NE hydro, the assessed hydroelectric power potential of the Northeast is 63,257 MW. There are 11 mega-dams already in operation with a total capacity of 1,686MW.

Large hydro-power projects currently under construction in the Northeast:

- Sikkim: Chujachen, Teesta III, Teesta VI, Rangit IV, Jorethang Loop
- Arunachal Pradesh: Kameng, Lower Subansiri, Pare
- Meghalaya: Myndtu, New Umtru

Arunachal Pradesh will be the biggest hydropower player in the region with plans to harness at least 57,000 MW. As of October 2010, 132 agreements have already been signed for 40,140.5 MW.

The Lower Subansiri dam is one such example. It is currently under construction and is scheduled to be completed in 2014. The project is being carried out by a Government of India enterprise called the NHPC (National Hydroelectric Power Corporation). The project has been under tremendous conflict over the years, first because of its impacts on important wildlife habitats and then due to a major movement related to its downstream social and environmental impacts.



Photo: Tania Ghosh

The on going 2000 MW Lower Subansiri Hydroelectric Project

## Environment Impacts:

The seminal report by the World Commission on Dams(WCD) of 2000, that suggests best practice on dam building to reduce the impact on people and the environment, finds that dams significantly impact on freshwater systems by changing the quantity, quality and timing of water flows, creating barriers to movement of wildlife, sediments, nutrients and inundating particular habitats.

The WCD also finds mentions that Free, Prior and Informed consent (FPIC) have to be obtained from Indigenous societies if they are going to be affected

by any dam proposition. In India, large hydroelectric projects need to get environmental clearance from Ministry of Environment and Forests (MoEF) to evaluate their viability on environmental and social grounds, a process which involves public consultation. But hearings have been termed farcical by local communities (e.g. Idu Mishmis in the Dibang Valley in Arunachal Pradesh) and FPIC is far from being practiced despite the fact that India is a signatory to the United Nation Declaration of the Rights of Indigenous Peoples (UNDRIP) which clearly recognizes FPIC.

The dams will submerge and fragment forests in the Northeast, part of two global biodiversity hotspots (Himalaya and Indo-Burma). For example, the proposed 1500 MW Tipaimukh project in Manipur will involve the felling of close to 83,00,000 trees as evident from official papers related to application for 'forest clearance' for the project.

According to a report, "Are big dams leaving India high and dry?" published by Sanctuary Asia, (Vagholikar 2011), possible environmental impacts of dams in the northeast in the downstream included; loss of water species, changes in wetland ecology in the floodplains, impacts on agriculture on chapories (riverine island and tracts).

The report cites that species such as the critically endangered Bengal Florican (bird species) breed in grassland in chapories and lay their eggs in the ground or reed beds. Their breeding is seasonal and is dependent on moisture and status of grasslands and swamps between January and March when the habitat is 'dry'. A wildlife biologist and wetland expert, Dr Goutam Narayan says, "The massive increases in water flow for a few hours even in the dry season (releases due to power generation) will cause daily floods in large parts of these low-lying chapories. The behaviour of ground breeding birds, reptiles and mammals is not adapted to this daily level of flooding in the breeding season." (Are big dams leaving India high and dry? 2011)

Regardless of these impacts, the Environmental Impact Assessment (EIA) report of the 1750MW Demwe Lower project did not include the downstream impacts of the project on critically endangered grassland birds including the Bengal Florican.

As dams alter the river environment, increases in vector-borne diseases such as malaria and schistosomiasis in tropical and sub-tropical regions has been well documented in several large dam projects. "Health Impacts of large dams", published in the Environmental Impact Assessment Review of 1999 (Lerer and Scudder 1999), found that these structures can have negative effects on human health not only at the reservoir site but also up, and down, stream. In resource-constrained areas, the added strain of increases in disease can be potentially devastating for health care systems and the local economy.

Furthermore, many studies have reported that large dams can potentially trigger earthquakes. This is because impounding large bodies of water can result in 'reservoir-induced seismicity' especially if the impounded water is on a fault line. In other words, storing large quantities of water such as a reservoir puts strain on the rocks below, which may trigger an earthquake. Worryingly, the northeast is already a seismically active region which can mean that mega-dams may increase the probability of an earthquake. If an earthquake breaches a mega-dam, the results could be devastating.

Loktak Lake of Manipur, the largest freshwater lake in India, has faced serious environmental threat due to the construction of Ithai Dam as a part of The National Loktak Multipurpose Hydro-Electric Project. The lake is used as reservoir to maintain sufficient volume of water for the project. This has caused flooding of agricultural lands and fish farms around the Lake, damage of Aquatic plants, and has increased accumulation of phumdis (Floating Vegetation)" inside the lake and so on.

Photo: Arup Jyoti Das



Loktak Lake of Manipur



## Social Impacts:

Many studies have cited that infrastructure development projects such as dams will lead to displacement. The Three Gorges dam in China has been reported to have displaced over 1.2 million people, the International Rivers Network (2008) finds. In comparison, the low population density of Arunachal Pradesh in particular has meant that small numbers of people can be displaced at the site of mega-dams. Although these numbers are 'small', these have to be looked at in the context of the state being home to small populations of indigenous communities, with potentially serious impacts on these groups.

According to the report "Damming the Northeast (Vagholikar and Das 2010), the 2700 MW Lower Siang project in Arunachal Pradesh will submerge most of the arable lands available of the Adis in the Siang valley. This means that their livelihood will be seriously impacted as a result of the dam and will be displaced. Many people in the northeast also practice 'shifting cultivation'. In other words, farm different lands for different years following cyclical design. People's culture and livelihoods will be greatly affected by mega-dams as these shifting cultivation cycles will be destroyed or shortened when forest land are submerged.

According to the report, "Development Induced Displacement and Resettlement" published by the *Forced Migration Online website* dam-forced displacement disproportionately affects economically, socially and politically marginalised groups. Indigenous populations and ethnic

minorities have borne the brunt in this type of displacement. For example, adivasis (tribal people) in India account for eight per cent of the population but are estimated to make up 40 to 50 per cent of those displaced by development projects.

Most discourses on development-induced displacement find that it causes traumatic psychological and socio-cultural consequences for those facing displacement. This is because displacees are deprived of their political power to decide where and how to live, their social groups and institutions will be disrupted as well as loss of resources. Those dependent on forests and rivers for their resources will be further marginalised.

The report, "Mountains of Concrete: Dam Building in the Himalayas" published by the International Rivers Network (2008) finds that the Idu Mishmi tribe based in Arunachal Pradesh are facing a similar plight by the 3,000MW Dibang project in Arunachal Pradesh. Like many local communities, land is intrinsically tied to the Idu's identity. The project will change the fragile ecosystem as well as expose the Idu to an influx of construction workers that may fuel tensions and might replace them one day.

However, the impacts of dams are not just restricted to those that have been displaced. As the environment section notes, people living downstream will also be affected.

The Lower Subansiri project will dramatically alter the flow of the water in the river. In winter, the flow will fluctuate from six cumecs for approximately 20 hours (when water is stored in the dam) to 2,560 cumecs for around four hours when water is released for power generation. This means that growing crops and grazing cattle on these chapories will be seriously impacted, thus stopping a farming culture that people have practiced for centuries. Livelihoods such as fisheries and navigation will also be impacted in the downstream.

"The construction of the Talon/Dibang multipurpose project will completely displace our Idu people who are very much dependent on the river as a source of their livelihood. The Idu Community's tradition, custom, faith and beliefs are greatly attached to the Talon/Dibang." According to memorandum submitted by two spokespeople for the tribe, Kotige Mena and Ingore Linggi, to the state pollution control board in 2008.



A fisherman crosses the damaged Dirpai Bridge, constructed by NHPC. The fisher communities are likely to effect adversely due to Subansiri Dam.

Photo: Arup Jyoti Das

## People, development and Power:

The region is not only known for its biodiversity, it also has one of the most ethnically diverse and yet in many ways overlapping populations in the world. The northeast has had a troubled history and natural resource exploitation has exacerbated tensions with local populations and the state over the years. Now the influx of mega-dam proposals is further fuelling discontent

According to the report, “Damming the Northeast” (Vhagolikar and Das 2010), the region has witnessed many protests in response to prolific building of large dams. The report argues “whether these dams mean development for the region and more importantly, whether free, prior and informed consent of indigenous groups has been obtained before crafting these development policies.”

To further complicate matters, only those whose lands are going to be directly acquired for different project components have been identified as 'Project Affected Persons (PAPS)'. But, in fact, a large number of additional people will be impacted both in the upstream and downstream who are not counted as per current policies. For example, people in the upstream impacted due to restriction of land use and rights in forest areas identified for Compensatory Afforestation and Catchment Area Treatment as per India's environment and forest norms are not counted as affected. Similarly, fisherfolk, agriculturists, drift-wood collectors, cattle graziers and others impacted in the downstream are also not

counted as 'project-affected'.

One suggestion is the use of an Integrated Resource Planning strategy assesses a mix of supply and demand-side solutions while giving equal importance to both. It combines cleaner centralised energies, decentralised renewable energies that together can provide energy services at least cost.

Girish Sant, leader of an organisation working on public interest on power sector issues, says, “Development needs increased energy services. But demand forecasts that planners make are usually overestimate and there is a bias towards centralised projects to meet this highly inflated demand. This is not the 'least cost' way of getting the required services. With increasing conflicts over the siting of new power projects, we urgently need an alternative approach to power sector planning such as Integrated Resource Planning (IRP).” (Damming Northeast India, 2010)

The question now is “how to combine the technical and the economic with the social and environmental gains and costs”, according to book “Uprooted for Whose Benefit? Development-Induced Displacement in Assam 1947-2000” (Das 2011). In a region that has a troubled past, further fueled by economic development projects, officials in New Delhi urgently need to come up with a solution that incorporates rights of people and sustain the environment.

“Meaningful development, not destructive development!” slogan of the Affected Citizens of Teesta during the Indefinite satyagraha in 2007-2009 against the rush of dams in Sikkim.

The Thoubal Dam (popularly known as Mapithel Dam), a part of the Thoubal Multipurpose Project is being executed by IFC Department of the Government of Manipur with the multiple objectives of irrigation, power generation and supplying potable water to Imphal by damming and storing the water of Thoubal River. However, the Mapithel Dam Affected Villagers Organisation argues that many upstream villages would be submerged and more than 500 families would be permanently displaced once the dam is completed.



Photo: Arup Jyoti Das





A villager from Tingri Village, Dhemaji, Assam is being interviewed by Journalists during a Study Tour organised by Panos South Asia.

### Institutions Recommended for consultation:

1. Department of Geographical and Geological Sciences, Gauhati University
2. Department of Environmental Sciences, Gauhati University
3. Department of Zoology, Gauhati University
4. Department of Botany, Gauhati University
5. Department of Civil Engineering, IIT, Guwahati.
6. Omeo Kumar Das Institute of Social Change and Development, Guwahati.
7. North Eastern Social Research Center, Guwahati.
8. Aaranyak-A Scientific and Industrial Research Organization, Guwahati.
9. Department of Botany, Lakhimpur Girls college.
10. Department of Sociology , Tezpur University.
11. Department of Applied Geology, Dibrugarh University.
12. Department of Civil Engineering, IIT Guwahati.

### Newspegs

- World Water day
- Protests on dams in the northeast
- UN Climate Change Conference June 2011
- New research on dams
- UNEP events on dams/water management/environment
- Seminars on dams and impacts
- Endangered livelihoods and/or species
- Indigenous People's day (UN)

## Key questions journalists should ask:

### Questions for displaced populations

- ? How did you learn about this dam project? Were you asked what you think of it? If so, how did they ask you?
- ? Have you been offered compensation? If so, what kind and were you offered the chance to negotiate?
- ? What can you do with the compensation being offered? What would you advise the government/dam-builders to do instead?

### Questions for dam builders

- ? Why has this site been chosen for dam building?
- ? Have you carried out an environmental impact assessment of the dam?
- ? How will the dam contribute to development?
- ? Many studies say the disadvantages of dams outweigh their benefits. How will this dam ensure that this isn't the case?
- ? Which best-practice guidelines are you following?

### Questions for local/national government

- ? Why did you agree to build a dam in this area?
- ? How are you planning to mitigate the socio-economic and environmental costs associated with dam building?
- ? How will the dam contribute to development?
- ? Explain the consultation process for dam building in India.
- ? Which alternatives to this dam did you consider? Why did you decide on this project? Which financial and socio-economic studies and projections did you carry out?

### Questions for civil society organisations

- ? How will the dam help foster development in the northeast?
- ? How might it adversely affect development?
- ? What was your involvement in the consultation during the proposal stage of the construction?
- ? Do you see any negative aspects as a result of the dam?
- ? How do you think the dam will affect the local population?



Ithai Dam protest at Thanga area at Loktak, Manipur

## Experts Recommended for consultation:

### 1. Dr. Bhagawat Paran Duwarah.

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## International research organisations:

### International Rivers Network

International Rivers has been working for  
25 years to protect rivers and defend the  
rights of communities that depend on  
them. The website has several resources  
divided into regional section on dam and  
other river related issues.

Tel: +1 510 848 1155  
2150 Allston Way, Suite 300, Berkeley, CA  
94704-1378, USA  
<http://www.internationalrivers.org/>

### Nile Basin Initiative

This initiative was set up by the riparian  
states of the Nile River through the  
Council of Ministers of Water Affairs of  
the Nile Basin states (Nile Council of  
Ministers, or Nile-COM). The NBI seeks to  
develop the river in a cooperative  
manner, share substantial socioeconomic  
benefits, and promote regional peace and  
security.

<http://www.nilebasin.org/>

### World Bank

The World Bank has a section dedicated  
to the safety of dams. The resources  
include publications and fact sheets.

Tel: +1 202 473 1000  
1818 H Street, NW, Washington, DC  
20433, USA  
<http://web.worldbank.org/>

### The World Commission on Dams (WCD)

The website includes the 2000 WCD  
report and information about how and  
why the commission came about.  
<Http://www.dams.org/about/history.htm>

### International Institute for Environment and Development

An independent research organisation  
based in the UK that finds solutions for  
the challenges arising from climate  
change, governance, human settlements,  
natural resources and sustainable  
markets.

Tel: +44 (0)20 7388 2117  
4 Endsleigh Street, London WC1H 0DD  
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## Research cited:

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### Cover Image:

Children from the Tingri Village of Assam. The smiling faces may disappear as experts fear that the residents will be displaced by the Lower Subansiri dam.



The Relay programme brings researchers and journalists together to improve media coverage of critical development issues. Relay works in Eastern Africa and South Asia in collaboration with Panos Network institutes.