Report of
NIDM Lecture Series –III,
Day: September 8, 2018, Venue: Juniper Hall, India Habitat Centre, New Delhi

Reservoir Operations in the Context of Flood Risk Management

by

Mr Himanshu Thakkar, Coordinator, SANDRP

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Sharing of Kerala Flood Visit Experience (NIDM Team) – presented

by

Prof. Chandan Ghosh, NIDM

Why this lecture!

In the backdrop of recent Kerala Flood (Aug 14-22th, 2018) lots of issues were being raised by expert groups and media, specially defining the role of DAMs in the aggravation of damage & losses. The Indian government had declared it a "calamity of a severe nature" that marked as the worst flood in Kerala after the great flood happened in 1924. Over 3,274 relief camps have been opened at various locations to accommodate the flood victims. It is estimated that 1,247,496 people have found shelter in such camps. On August 15, Cochin International Airport, India's fourth busiest in terms of international traffic, and the busiest in the state suspended all operations until 29 August, following runway flooding.

While the issues are many, mere delineation of the post disaster facts and figures by country's nodal agencies & policy makers have been running into rots. Several aspects dotted into the media and social circles. Rescue and relief process scored new dimensions in the history of disaster management in India started since 1995.Arguments and cross-cultural adaptations achieved by the people of Kerala are unparallel. The efforts made by rescues agencies, voluntary organizations, specially fisherman community, marked several milestones. It was at this juncture NIDM, planned to have a lecture on the topic: **Reservoir Operations in the Context of Flood Risk Management by Mr Himanshu Thakkar, Coordinator, SANDRP on 8th September 2018.**

Moreover, **NIDM** team consisting of Prof. Santosh Kumar, Prof. Chandan Ghosh and Dr Surya Parkash visited flooded affected area from 31st August to 2nd Sept, 2018. Therefore, on behalf of the NIDM, Prof. Ghosh gave brief presentation on the field trip.

About the speaker:

Mr Himanshu Thakkar is an Engineer from Indian Institute of Technology, Mumbai. He is currently coordinator of South Asia Network on Dams, Rivers & People (SANDRP). He has in the past been associated with the work of the World Commission on Dams, Centre for Science and Environment and Narmada Bachao Andolan. He has been involved in water sector related issues for over 25 years.

Context:

1. One of the benefits/ objectives put forward justifying dams is that it can help moderate flood. But every dam, when not operated properly, is a potential source of flood disaster.

2. Every Dam can help moderate flood, as long as there is space in the dam to absorb/ store flood water.

3. The DAM catchment's capacity to hold water, recharge and delay the flow of water to downstream is also important and how that capacity is changing should also be considered in flood risk management,

4. Since flood moderation requires lower levels, while hydropower, irrigation and water supply needs maximum level, there is conflict and flood moderation is likely to suffer as other objectives also involve revenue generation.

5. What are the checks and balances necessary to ensure that dams provide the flood moderation to optimum level and not disaster?

Key Issues discussed:

- Role of DAMs in recent Kerala floods
- Do DAMs change the mode of flood?
- Building of **huge storage dams upstream of the river** can control the impact of floods?
- What checks and balances exist to achieve better governance of reservoirs in flood risk management?

- A 2017 report by the Comptroller and Auditor General of India warned that not a single one of these dams in Kerala had an emergency action plan in place for disaster management. Pre and post-monsoon safety inspections had not been carried out for any of these dams either.
- Removing encroachments from traditional water flow zones and allowing excess water to flow smoothly into oceans?
- Most of the regions were affected by this monsoon were classified as ecologically-sensitive zones (ESZs) by the Western Ghats Ecology Expert Panel, the Gadgil Committee
- What resolutions are appropriate enough to develop resilience?

Conclusions:

- **Theoretically, storage can help moderate floods** and every Dam can help moderate flood, as long as there is space in the dam to absorb/ store flood water. But every dam, when not operated properly, is a potential source of **flood as disaster.**
- Since flood moderation requires lower levels, while hydropower, irrigation and water supply needs maximum level, there is conflict and flood moderation is likely to suffer as other objectives also involve revenue generation.
- Deciding about checks and balances necessary to ensure that dams provide the flood moderation to optimum level and not create disaster.
- The flood in the downstream area from water released by the dam is very different than the flood in pre-dam (ed) river.
- Flood from water released by dams comes much more suddenly.
- The damage potential of water suddenly released from dam is much greater than the damage potential of gradually rising flood in the river.
- The EU has created the Flood Directive. It is obligatory for all member states. http://ec.europa.eu/environment/water/flood_risk/index.htm
- Besides mapping the dangerous flood zones where you cannot build houses, infrastructure etc, the directive requires environmental options to implement: http://ec.europa.eu/environment/water/flood_risk/better_options.htm
- In Russia reservoir operation is governed not by reservoir owner but by respective Basin Commission -state run water management unit

- Reservoir is the most important component of a water resources development scheme. Flood moderation is one of the important functions of a reservoir. http://cwc.gov.in/main/downloads/Real%20Integrated%20Operation%20of%20Reservoirs%20.pdf
- Dam safety manual (CWC): https://damsafety.in/ecm-includes/PDFs/Guidelines_for_Preparing_O&M_Manuals_for_Dams.pdf