Abstract

With a global intensification of water-related disasters like floods, erosions and droughts, water as a medium becomes an important site of engagement. Flooding of the Brahmaputra floodplains has been a recurrent phenomenon causing acute devastation every year. The State's conventional technical efforts to reduce catastrophic floods are predicated on the idea of controlling and training the natural course of the river. The governance approach is different to that of communities who live at the edge of the river, as they acknowledge an existence with the river with reciprocity and not control. To grasp this active site of human-non-human engagement, the thesis examines the multiple ways of knowing water, in the context of adaptation to floods, in Dhemaji district of Assam, India.

As a part of the global water cycle, the Brahmaputra originates in the Himalayas, flows through China and Tibet, and then flows into Bangladesh through India. There are two stretches of floodplains in Assam, separated by this gigantic river. Furthermore, rivers flowing down from the hills are inextricably linked to these watery landscapes. During the monsoons, the Brahmaputra floodplains swell and flow inwards towards the landmass. However, riparian communities have adapted to this seasonal cycle by their traditional environmental knowledge. Floods were a boon for communities living along the rivers as the deposition of silt by floods would rejuvenate soil and hence enhance agricultural productivity for them.

In the following decades, this hydro-social cycle was thwarted due to both ecological reasons and human intervention. The massive earthquake in 1950 caused the riverbed to rise, resulting in massive flooding of these landscapes. Since then, the debate of hydraulic infrastructure to control floods has oscillated between embankments/dykes, storage dams, and the technocratic solution of hydro-power dams. The wider changing political scene in Assam and across India contributed to these debates.

In recent years, there is been a newfound interest of the Assam government to control floods and erosion by dredging the river. It stands out as one of the new initiatives on behalf of the government on the Water Resource Portal of Assam Government. By digging sediments out of the river basin, it is believed that floods and erosion would be minimized and the river basin would be entrenched. Emphasis on a scientific and

technical control of disaster is embedded in the idea of flood, essentially being a hazard. In other words, hazards are seen as a function of risk and vulnerability that can be mitigated through planning, prevention and control. Scholars have criticized this discourse of viewing 'disaster' from a hazard perspective as it makes the phenomena, 'ahistoric' and 'apolitical'. By labeling disasters as 'hazards' or 'natural' there is a tendency to oversee the human experiences to disasters. Additionally, a hazard perspective is based on the nature/society binary that do not reflect on the dialectical relationship between environment and humans.

The study is situated within the wider debates of the relationship between politics and disasters. Going beyond studying disasters only as a 'natural phenomena', the study is located at the interstices of two recent developments within the social sciences. First, focus on rupture rather than continuity. Second, focus on materiality (Guggenheim 2014:1). Disasters are ruptures in our society that not only affect humans but also the material backup of society and its material infrastructure (ibid: 1). Therefore, a focus on what goes into fixing the rupture caused by disasters is a starting point to explore a kind of politics that relate humans to technology and nature. Since, the relation between nature and technology is in itself a politics it can be used as a starting point to consider how politics cause disasters (ibid: 1).

Going beyond understanding disasters as 'natural', this study explores the scientific claims of governing disaster through the policies of disaster risk management. In following the everyday governance practices, this study aims to explore the gaps in knowledge to technical solutions of floods, including the socio-cultural contexts in which it is produced. Further, it explores how government policies and practices mould how people 'experience' disasters. This guides my primary research question of the study- how do different stakeholders (bureaucrats, engineers, experts) respond commensurately to floods with the necessary tools, knowledge and institutions.

This thesis is organized into six chapters. The first introductory chapter, introduce and contextualize the research problem followed by literature review and discussion of concepts. The second chapter discusses the methodology chapter. The third chapter discusses the first objective of governing floods at a bureaucratic level. By tuning our attention to the practices of adapting to floods, in the context of Dhemaji, the process of documenting the practices of preparedness to the natural disaster, in terms of lists and

documents (of people affected, relief required, lives lost), plans (the Assam Disaster Manual) and technology (communicating the onset of floods through artifacts like satellite imaginaries, textual messages and mails) form a vibrant set of primary data. This chapter explores artifacts constituting technology, documents and bureaucrats at the local level to explore the contingency of 'assemblage' in disaster risk management in Assam.

The fourth chapter deals with the chaos and complexity the annual floods harbor for the riparian Mising community. This chapter employs Tim Ingold's (2000) concept of dwelling as an analytical framework to explore why people inhabit hazardous zones. The criticality of space and location, mapping the efforts of the community to unfolding disaster is the crux of the chapter. The fifth chapter discusses the co-production of knowledge in using the discursive materials that are used to control erosion. It attempts to explore the negotiations between engineers and riparian communities to make use of hydraulic infrastructures to tame the natural course of the river. Geo-bags, dykes and concrete porcupines are the significant artefacts that are employed to control the process of soil erosion owing to the process of floods. The sixth chapter as a concluding section recommends a co-production approach in which community knowledge claims for flood adaptation are made in addition to the techno-scientific claims of water management.

Review of Literature

The major themes of literature review that were incorporated in the study are as follows:

- By drawing from literature of 'new materialism' in the context of environment management (Benson 2019, Robbins and Moore 2013) the study benefitted in deducing how a nature/culture and human/non human binary as an ontological stance is problematic. By reducing the material world into categories of 'natural' and not natural, in the context of environment management, there is a mechanistic view of adaptation and resilience paradigms. New materialism challenges this mechanistic view by acknowledging agency in the natural forces.
- Literature pertaining to disaster research around the themes of a) time and temporality in   disaster research (Chouhan 1994 Fortun 2001, Liboiron 2012) b) the role of knowledge production and expertise in disaster (Perrow 1984, Schmid 2015, Perin 2005).c) denaturalization of disaster disparities (Bankoff 2003, Manyena 2006).

Reviewing these strands of disaster research benefitted the study to explore the politics of knowledge production in socio-technical systems of governance. At the same time, expanding the time frame of understanding disaster aided to explore the varied temporalities to floods and the emergence of subjectivities in these complex temporalities.

- The dominant modes of expertise and representation that produce simplifications cause cumulative suppressions that take the form of disaster in the long run. These themes of disaster research aided to operationalize the meaning of disaster ethnographically, in terms that disaster do not lie in the suddenness of a catastrophic event of nature but in associated socio-political process of governance.

- Reviewing literature on 'materiality' provided an ethnographic design to follow the knowledge making practices of governance of floods, especially documents as an everyday practice to flood adaptation.

Methodology

In using research methods to collect data what is important is how the researcher interprets the 'lived experiences' of the respondents subjectively. Subjective interpretation is dependent on the conceptual toolkit that is employed by the researcher to make sense of the data collected.

This study makes an attempt to challenge the methodological orthodoxy of anthropocentrism that considers human centeredness in data construction, analysis and theorization. Therefore the standpoint of the study includes not only the humans but also the non-human. The materiality of preparedness to control and mitigate risk of floods, the documents and technology involved in the process of preparedness become a set of vibrant data. At the same time, the cues given out by the river and acknowledgement of these signs by the communities residing along the river is what makes the river a living entity to them. The analytical framework of assemblage provides affordance to the preparedness practices in governing data while Descola's (2013) conception of 'naturalist ontology' provides the framework to analyze the cues of the non-human river. To explore representation and expertise in governing floods, the study employs multi-sited ethnography. Further, to follow the everyday practices of flood governance the

researcher observed multiple sites of embankments construction, government departments viz Emergency Department, District Commissioner Office, Water Resource Department, Irrigation Office and sub-divisional office of Sissiborgaon in Dhemaji, Assam.

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