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Sucharita Sen

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South Asia Consortium for Interdisciplinary Water Resources Studies
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Executive Summary

The individual and the gendered roles around water are well-recognized in the existing social science discourses, as also the traditionally masculine and elite nature of water management. The latter is disconnected from realities on ground since the lives that depend centrally on water in particular and natural resources in general are predominantly of the rural poor, shaped by pluralities of caste, ethnicity, and spatial contexts which are essentially gendered. The connection between those who govern water and those that are governed is not made adequately, far less so in the context of transboundary water management. It is nevertheless important to recognise that if the perspectives of the ‘governed’, i.e. the people whose lives revolve around these rivers, are not incorporated in the governance of the transboundary rivers, it would be impossible to ensure environmentally just and sustainable processes. The river impacts lives of people that are commonly ‘voiceless’ or do not have the agency to articulate their perspectives in relevant forums. *This study aims to learn from these voices, paying particular attention to people living ‘with the river’ Brahmaputra, those from marginalised classes and social groups, including women. It is hoped that this report lays a base of socio-economic information that feeds into a successful dialogue.*

The concept of genderscape of Brahmaputra River incorporates the idea of fluid spaces that are containers of gender relations along the river. The river is a context around which these spaces are produced and lived. The use of the term genderscape in this study attempts to superimpose the physicality of the transboundary river of Brahmaputra on the gender space, with the specific objective of bridging the gap between the geo-hydrological characteristics of the river and the social characterization of the space through which the river flows. Taking on from the theoretical perspectives that exist on gender and space, in particular, physical space, this work is an endeavor to meaningfully contribute towards a larger framework of transboundary river management, foregrounding the concerns of those that live ‘with’ the river.

This study has been conducted at two levels; a macro view has been used to link the upstream-downstream physicality of the river and the associated genderscape using quantitative data from an existing gender atlas, albeit only for India. A more detailed analysis, based on qualitative narratives of men and women in selected locations in Bhutan, India and Bangladesh, form the central part of the report to sketch out a microcosmic view of the social realities around the river.

The first part of the analysis highlights the finding that measurable indicators expressed as a gender development index, and in particular, relative (female to men) work participation ratios, are more adverse in the lower reaches of the river than its upstream context. Foregrounding natural landscapes of the river in the gender constructs underlines the fact that such constructs are not random, but follow a spatial logic. The basis of the strong spatial underpinnings of the gendered patterns have been explained, drawing from arguments made in the existing literature, through the differential



quality of land in the upstream and downstream, both in terms of fertility of land and its accessibility, which in turn shapes land price and private property right regimes around it. It has been argued that better land quality, associated with river valleys and downstream reaches, historically attracted male domination of economic activities around land, while reducing the demand and value for female labour, forming strong patriarchies around it alienating women from control of such lands. On the other hand, the hills or the upstream reaches that are less fertile and accessible, are historically characterized with dominant common property regimes, male selective outmigration, and high demand for female labour. This makes women more visible in public work spaces, explaining higher work participation and share of women cultivators in such regions. Importantly, the analysis goes on to establish that at a very broad level, the policy actions have further entrenched these spatial patterns instead of balancing out such biases in recent times.

The micro-view based on the gender narratives in the three countries throws a more nuanced insight into the broad outline derived from the first part of the analysis. Though this reveals a reiteration of the more diluted gender divides in terms of the workspace in the upstream areas like Bhutan and Arunachal Pradesh, and sharper ones in Assam and Bangladesh, a careful interpretation of the narratives enables a deeper understanding of the problem. It highlights a multiplicity of patriarchies that express themselves in the spaces that we focused on, cannot be understood in terms of their respective strengths or taking the forms of a soft or hard patriarchy; these patriarchies are qualitatively different, though at times they can be also distinguished in terms of their magnitude vis-à-vis limited yardsticks. Bhutan is characterized with a favourable and just property inheritance, though the decision-making in public spaces weigh heavily in favour of men. Arunachal Pradesh, having plural tribal norms and a greater degree of private ownership of all natural resources including the river, have women occupying the work space only when they are required to. In no other way does this social order challenge the traditional norms, whether it be in terms of property ownership, decision making in the private or the public sphere or the way in which policies have dealt with gender issues. Assam, within itself emerges as plural genderscape; in upper Assam women can exercise limited choices, even in case of paid work, with some degree of acceptance of the such restrictions; Majuli in middle Assam is characterized by similar trends, though there is a ready recognition among both women and men of the uneven burden of work on women; lower Assam reveals a socially alienated environment which is marked by poverty, and can be understood in relation to gender-religion and gender-caste intersectionalities, where the two cases highlighted in our survey produce completely different outcomes for women. These plural patriarchies offer varied opportunities of women's potential roles in a transboundary dialogue. In Bhutan, keeping the difficulties of working with a centralized government structure aside, involvement of women in a dialogue platform is likely to yield far better results than having only men. In Arunachal Pradesh and Majuli, a nested structure of women's involvement may have to be explored. Given women's deep understanding about the river and other natural resources in these two places, which are in most cases better than that the men, their inputs are likely to be crucial. However, this may not be



effective in a hierarchical neat structure where women have to negotiate a gendered power structure. In cases of Upper Assam, Lower Assam and Bangladesh, the government and NGOs have to play an instrumental role in harnessing women's capacities in public engagement.

One of the important insights from the study is that in almost all our study sites, there is evidence that it is *only the poorest of the poor who stay back by the river to face increasing uncertainties that come with it*. People who have the agency and resources have moved away from the river. Thus in a dialogue of transboundary river, it would be crucial to have the poor men's perspective as also that of the women, whose lives are as dependent on the river as that of the women, though in different way.

Our analysis reveals that while the gender divides are very high in most cases in the pre and post disasters periods, it dilutes substantially during the period of the disaster, indicating potential for having similar mechanisms to involve men and women on issues of mitigation at the time of the disaster. The issue of riverbank erosion needs to be taken up as a rallying point in transboundary dialogues as a common concern across borders.

The study throws up possibilities of building solidarities across borders around common socio-economic issues in transboundary water management to build a far more nuanced understanding about flood management particularly vis-à-vis the structural measures of prevention that has till date been taken up as a unitary and acceptable strategy.

1. Introduction and Objective of the Study

The individual and the gendered roles around water are well-recognized in the existing social science discourses, as also the traditionally masculine nature of water management, since the water domain is predominantly vested with some men, who are also predominantly engineers. Such a practice of water management is disconnected from realities on ground since the lives that depend centrally on water in particular and natural resources in general are predominantly of the rural poor, drawn from pluralities of ethnicity and occupations and shaped by spatial contexts that are essentially gendered. The connection between those who govern water and those that are governed is not made adequately, far less so in the context of trans-boundary water management. It is nevertheless important to recognise that if the perspectives of the ‘governed’, i.e. the people whose lives revolve centrally around these rivers, are not incorporated in the management decisions that are often negotiated at international platforms, it would be impossible to ensure environmentally just and sustainable processes that at the very least maintain the status-quo of the livelihoods dependent on the river, and preferably alleviate them. In this context, while the need for generating and sharing information about technical and hydrological information across countries that share transboundary rivers is relatively well articulated, learning about the livelihoods that depend on these rivers has been accorded far less importance. The learning stemming from such needs is crucial too, as these lives often belongs to the more marginalised, i.e. the poor as against the rich, women as against men, people living in the rural as against those in urban areas, and so on. There are also therefore intersectionalities involved in the way the river impacts lives, dealing with people that are commonly ‘voiceless’ or do not have the agency to articulate their perspectives in relevant forums. *This study aims to learn from these voices, paying particular attention to people living ‘with the river’ Brahmaputra, those from marginalised classes and social groups, including women. It is hoped that this report lays a base of socio-economic information that feeds into a successful dialogue.*

In particular, this report addresses the following questions:

- *How does the physical landscape of the Brahmaputra river expressed in its upstream and downstream characters play out on the spatial patterns of gender roles?*
- *What are the ways in which the above portrayal inform the institutional platforms currently engaged in transboundary water management of Brahmaputra in particular, and other transboundary rivers in general?*

2. Rationale for adopting a ‘Genderscape’ approach

Historically and often customarily, the symbolic nature of the gender space spills into the characterisation of the river. There are various examples of gender stereotyping of tributaries of Brahmaputra River in Bhutan of the male and the females rivers characterised by their perceived natures in the society at large, where the male river Po Chu is said to be rough, dangerous, under frequent influence of glacial outbursts, and the female river Mo Chu (both tributaries of Brahmaputra), that is seen to be gentle and safe. Ironically, the above is true in a country where gender relations can be understood to be more equal and among the most progressive countries in South Asia, where, as per traditional norms women daughters inherit the parents’ property.

Transboundary management is centrally about a multi-polar governance where the operative governance is “dispersed to separately constituted bodies with overlapping jurisdictions that do not stand in hierarchical relationship to each other” (Skelcher 2005:89). Though realistically, there are asymmetric power equations among the riparian countries, a bio-regional approach is a basic requirement for working towards a (co)adaptive management of any water governance (Huitema et al 2009) and could be the starting point of an interdisciplinary transboundary dialogue. A common spatial framework of a river basin that brings together its upstream and downstream linkages could be a base to bring together the scientific and the social. It has been observed that a number of international water treaties have underscored the importance of geographical (and historical) perspectives of the river basin (Wolf 1999). While the spatial framework of a transboundary river, or any river for that matter, is commonly encapsulated as a basin, catchment or a watershed, there is little available in terms of socio-economic information around the river in the nature of this kind of geography. Thus, while there is an agreement that an interdisciplinary approach that ties the ecological with the social and political aspects of the river for its efficient management (Timmerman & Langaas 2005, Sneddon & Fox 2006, Hiwasaki & Arico 2007, Raadgever et al 2008, Swyngedouw 2009), there is very little actual work on the latter to generate such information that adopts a common framework. This study attempts to partially bridge this gap. In contrast with the existing literature on transboundary governance which are about the concerns of policy makers and implementers, *this study concerns the ‘governed’, seen through a gendered lens which, according to the author and the donor, is of crucial importance to transboundary governance of Brahmaputra.*

The concept of genderscape of Brahmaputra River incorporates the idea of fluid spaces that are containers of gender relations along the river. The river is a context around which these spaces are produced and lived. The term ‘genderspace’ has in the past been used to capture complexities in gender relations, and not necessarily linked to space as such other than a few exceptions (Correa 2002, Käng 2014, Kannabiran 2015). Krishna’s usage of the term ‘genderscape’ is a response to the older forms of environmentalism to work towards an alternative perspective that focuses more explicitly on gender and natural resource management (Krishna 2008). She argues that ‘genderscapes enable us to find a way around the methodological problem of understanding and representing the linkage between word, work and action, and the ideological and material features that make up the entirety of women’s selves, their lives and livelihoods’ (p 19). Though she does not, in her conceptualization of genderscape, bring in the issue of physical space, the connectedness she portrays between gender and natural resources, and how through the latter, an empowerment of women can be sought beyond sexual divisions of labour around natural resources, indirectly foregrounds issues of space and gender. Datta, however, argues directly that the terrain conditions and the physical landscape shapes cultural regimes, which in turn ‘work in tandem to construct and sustain regional gender constructs’ (Datta.2011: 354). She connects the nature of the physical conditions to the demand for women’s labour, and implicitly to the way historically the patriarchy has been shaped in a particular region. She draws home the point that gender and space are not only connected at the abstract level, but also plays out tangibly in real world. The Gender Atlas (Raju, Sen and Das 2016) conforms to this idea put forward by Datta, and reveals that in spite of intra-regional differences, the spatial patterns of variables like 0-6 sex ratio, work participation, literacy rates etc. roughly follow the north-south and hill divide.

The use of the term genderscape in this study thus attempts to superimpose the physicality of the transboundary river of Brahmaputra on the gender space, with the specific objective of bridging the gap between the geo-hydrological characteristics of the river and the social

characterization of the space through which the river flows. Taking on from the theoretical perspectives that exist on gender and space, in particular, physical space, this work is an endeavor to meaningfully contribute towards a larger framework of transboundary river management, foregrounding the concerns of those that live 'with' the river.

3. Methodology

This study, like the dialogue effort undertaken by SaciWATERs, involves the three riparian countries of Bangladesh, Bhutan and India. Though the main river of Brahmaputra does not flow in Bhutan, the analysis includes the country in an attempt to capture a holistic catchment view; many tributaries that are important water sources in Bhutan culminate in river Manas which in turn joins Brahmaputra 104 km after crossing the Bhutan border in the state of Assam, India in Jogighopa.

This study has been handled at two levels, at the macro and micro levels. The macro analysis uses the Gender Atlas (Raju, Sen & Das, 2016), that makes possible a district level analysis to understand the spatial patterns of selected gender indicators along the river Brahmaputra. The comparisons have been done at two levels, firstly, the patterns along the river and away from the river, and that in the upstream and downstream (hills and the plains). The limitation of this analysis is that it is restricted to India, since the Gender Atlas undertakes district level mapping for India only. However, the interpretation of the spatial patterns can be extrapolated for both Bhutan and Bangladesh, though in a limited way.

The second part, which is the central to the study is based on the gender narratives, carried out in a series of primary field work by SaciWATERs and its partners; this is based on the understanding that women have been represented inadequately, if at all, in the dialogue process. The involvement of the civil society organizations in the dialogue process throws up concerns of the community, which is an extremely importance part of the dialogue. But this process suffers from two limitations. First, the organizations, understandably, have their own thrust, and their work is related to the river in different ways. For example, Centre for North East Studies (CNES), Guwahati, deals with health concerns of communities living on the river through the boat clinics. Aranyak in Guwahati and Jagrata Juba Sangha (JJS) in Khulna works in a wide ranging issues, but not necessarily restricted to engagements with the river. Royal Society of Protection of Nature, Thimphu, works primarily with wild life protection, and only tangentially with the tributaries of Brahmaputra. Given these differences, the kind of community members that the CSO partner organizations initiated into the dialogue process were not necessarily from the same background. As a result, many times the directions that the dialogues take are shaped by people who are not the actual water users. The second limitation stems from a common problem of absence of women's voices in the engagements with the local community. This problem exists in all the countries, though the nature and degree of the problem varies from one place to the other. Thus it was necessary to fill the gaps, to carry out this supplementary research which would 1. Ensure that the the voices of people having a direct engagement with the river is documented and 2. Enable a gendered understanding of the people's interaction with the river. It is hoped that the micro treatment in this piece that collates narratives of community members who has a direct stake in the river will bridge the gaps pointed out above.

The second part of the analysis is based on a qualitative approach that draws from a survey conducted by SaiWATERs and its partners under its supervision. There were three main sources of information that the survey depended on.

1. **Observation:** of the river geography, human settlement and nature of houses, including distance from it and behaviour with respect to the river, like fishermen and farmers in action, (example fishing groups, observe who works in the field, how people live (nature of houses)- are they indicative of adaptation to flood or river shifting) etc. Detailed field diaries were made out based on such observations that included the exact location.
2. **Photographs:** A tool essentially to supplement the observation, with narrations.
3. **Interviews:** This was the main survey tool. Interviews that informed the study were of two types.
 - a. **Key persons' interviews:** Those who are knowledgeable about the particular field site (i.e. village, tehsil/union parishad and upzilla) where the interviews is being conducted. On an average around two interviews were taken for each field site, one typically being an elderly woman. The information collected was about the river (changes/ flood/ drying up), both in the long term and short term, village setting and infrastructure, occupational dependence of the areas with particular focus on those that are dependent on water and the river (ex: agriculture, fishing), the gender division of work, presence of women in productive activities, and about education and mobility.
 - b. **In depth Interviews** with men and women to talk about their lives with a focus on their interaction with the river. The broad themes around which the interview was conducted were their occupation, the detailed nature of work (domestic and others) they do, major challenges they face in their lives, particularly if it has to do with the river; their individual perception about the river and the expected and unexpected changes it has undergone over their lifetime, the ways in which these changes altered their lives directly (ex: water available in river impacting irrigation/fishing/ time in water collection/ forced migration), or indirectly (ex: changes in agricultural productivity and/or livestock rearing leading to a change in occupation).The field sites in the different countries are given in Table 1.

Table 1 – Details of the Field Sites

Country/ State	Sites	Number of Key Informants	Number of In-depth Interviews
Bhutan	Punakha	1	3 (2)
	Wangdue	2 (1)	3 (2)
	Zemgang	2 (1)	2 (1)
India/ Arunachal Pradesh	Rowing	1	1 (1)
	Ziro	1	3 (2)
Pradesh	Pasighat	2 (1)	2 (1)
India/Assam	Sadiya	2 (1)	5(4)
	Majuli	2 (1)	5
	Barpeta		2
	Dhubri	1	2
	Goalpara	1	2
Bangladesh	Jamalpur district/ Islampur Shreirajgunj /Kazipur Upzila	2	2

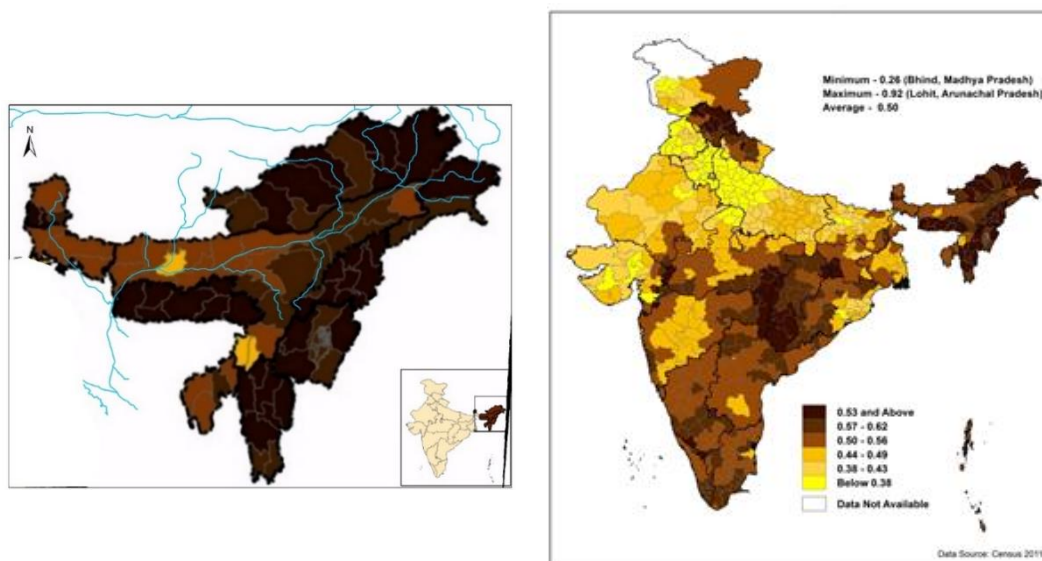
4. The Macro Genderscape of Brahmaputra: A Historical Perspective

Developing on the argument made on the section on genderscape, the nature and quality of land have historically evolved the socio-cultural regions around it (Smith 1984). Though this may extent seem deterministic, it has been previously argued that space is essential for sustaining structures, and that ‘general structures do not float above particular contexts but are always (re)produced within them’ (Sayer, 1989, p. 255). Hence, space, in this particular case, the agricultural land and its quality, is a means of production (see Lefebvre, 1976), which through the specific kind of production process that it allows for (Smith, 1984, pp. 85-86), can and does shape social relationships. This is not to say that such relationships do not change over time, and large structural shifts in economic processes like capitalism could redefine or re-entrench the kind of social structure that has been historically produced.

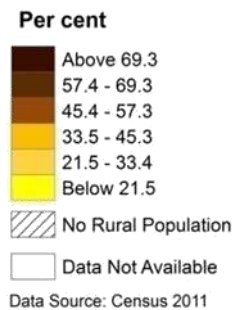
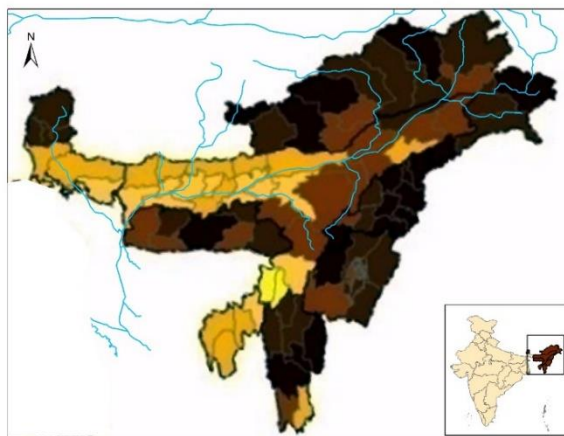
The analysis for this section, as mentioned in the section on methodology, is based on interpretations of the inputs from the Gender Atlas (Raju, Sen and Das 2016). Figure 1 portrays the Gender Development Index that reveals the female status relative to the males in terms of sex ratio (0-6 age group), literacy rates and work participation rates. The north eastern part of India through which the Brahmaputra flows, when compared with the rest of India, is much better placed in terms of the gender status as revealed from the selected indicators. The vulnerable gender space in India is occupied by the Hindi heartland of Indo-Gangetic plains and western part of India (the latter region is a relatively new entrant in this deprived category). However, within the north-east India, as can be seen from Figure 1, the districts through which the river flows are worse-off compared to the ones away from it.

There is one thing common in the national level and the regional level patterns (north east India). The only difference is in terms of scale, wherein at the national level the pattern is more pronounced compared to the regional level. The common thread is that the space around the river valleys are characterized by more vulnerable gender indices. There is a caveat in the regional scale, in the sense that when the hilly districts and districts in plains through which the river flows are compared, the former set of districts is better off compared to the latter.

Figure 1 – Gender Development Index, 2011



**Figure 2 –
Ratio of Female to Male Work
Participation Rates**



**Figure 3 –
Share of Women among Cultivators**

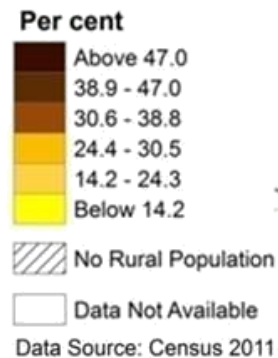
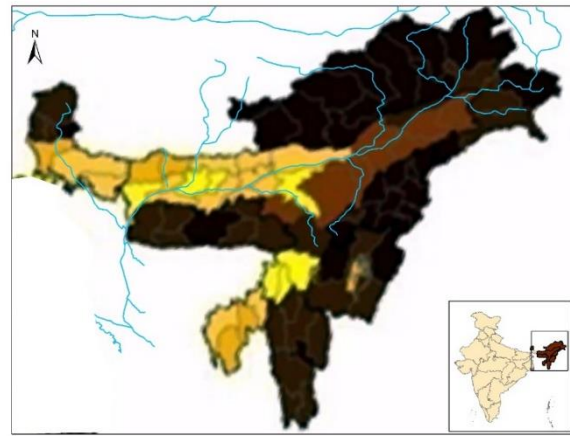


Figure 2 which presents the ratio of female to male work participation rates. Work participation rates, are quite complex, however, since the gender intersectionalities with class and caste plays out in a major way. For example, the restrictions on women in terms of their mobility outside the homespace among the upper castes and higher income groups particularly in rural areas are typically higher. Nevertheless, Figure 2 reveals that the pattern of relative female to male work participation rates, reflect exactly similar patterns as in Figure 1.

Figure 3 represents the share of women among cultivators, which reproduces the patterns visible in Figures 1 and 2. The category of cultivators as opposed to the category of agricultural labour, in a somewhat crude manner, indicates control over the agricultural land. In other words, a person reports herself as a cultivator when she is working in her own land as her main occupation. In reality, mostly, in such cases, these are unpaid family work, and may have actual control or decision making ability. However, other things remaining the same, this may open up possibilities of increased access to productive resources, particularly in cases of male selective outmigration. It may be observed that Figure 3 also to a large extent conforms to the Figures 1 and 2, where the plains of Assam have much lower share of women cultivators compared to the hills of Arunachal Pradesh.

While the roles and structures that shape the gender relations may have undergone some change, it appears from such spatialities, that the historically evolved material basis that determines

women's labour is important to understand. With the three examples provided above, the common pattern observed in the three above indicators begs an interpretation. River valleys that has been the nucleus of colonization of land have historically been spaces around which civilization grew due to their fertility (Subba Rao 1958). Agriculture flourished in these areas, with high demand for labour and at the same time the returns for land was higher. Men stayed back and took control over this land, with a corresponding high value of land. These areas offered the line of least resistance for peopling of India. On the other hand, the adjacent forest and upland represented areas where the marginal communities were pushed into, where the basis for livelihoods were collecting and foraging remained the major occupation for long which yielded less returns. The separation of these two regions thus was based on *quality of land*, which encapsulated two characteristic features of ease of access and fertility of land for agricultural purposes, making them perennially nuclear region and zones of isolation (Datta 2011). The nuclear regions also have historically defined the concentration of political power in the zones of access. The importance of the natural regions on political power has had a common manifestation over time, irrespective of the power in question that has governed these zones and this has been the tendency of administrative regions coinciding with the natural regions, whether it be *mahajanapadas*, the Mughal administrative units, the *subahs* or the modern states (Ahmad 2004). This is one way the importance of physical regions have been superimposed on to the political formulations.

The more crucial point here was that at the initial stages, the natural landscape laid the foundation of the economy of the regions described above, which in turn decided the demand for female labour in the respective regions (Datta 2011). The nuclei or the prosperous river valley had immigration of men and establishing of stricter private property right regimes due to the high values of land. The construct of the gender roles in the nuclei was based on the devaluation of the women's labour and their restriction to more in private spaces. These were further entrenched by rites and rituals and gender roles around purity and pollution, that not only segregated gender but caste roles (Krishna 2009). The economic and the social processes in the river valleys thus lay the foundation of a *brahminical* patriarchy, different from those in the regions of relative isolation, which were based on tribal patriarchies, which were by no means the same, but had some similar characteristics. These economies were based on hunting and gathering and in places with swidden agriculture, where the ratio of labour to capital was much higher than that of the plains. The high demand for female labour around these occupations required the presence of women in the public spaces that may have, in some cases, shaped the matrilineal descent in some tribal societies. There were, however, competing gendered hierarchies in these societies, as while the land in some cases were owned by the female line, men were still the managers of the land, and a role in public rituals (Nathan 1974). Thus patriarchy was still at work even in these societies, albeit in a more muted fashion and more importantly, very differently.

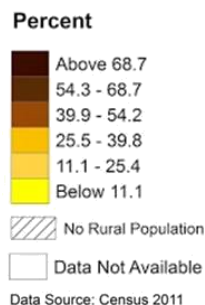
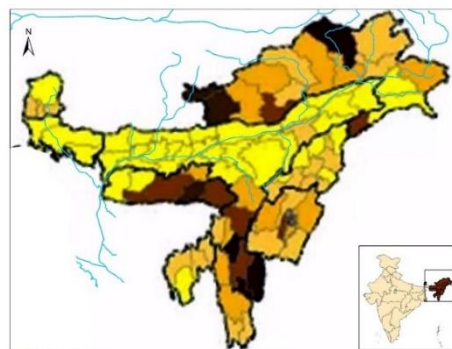
The above explanations provide a base for the current spatial patterns that we observe in Figures 1, 2 and 3, where we see that even in recent times, the differences in the relative gender roles and structure of the patriarchy gets manifested in the gender development index, but particularly in the work participation rates as well as the women's role in agriculture and their connection with land.

Having analysed the above, we will examine how some of the indicators that gets directly influenced by policies and their influences in reducing/re-entrenching the inequalities in gender relations across space. This would throw light on at least two issues:

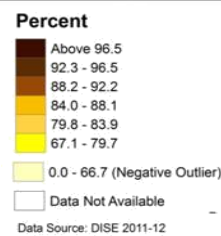
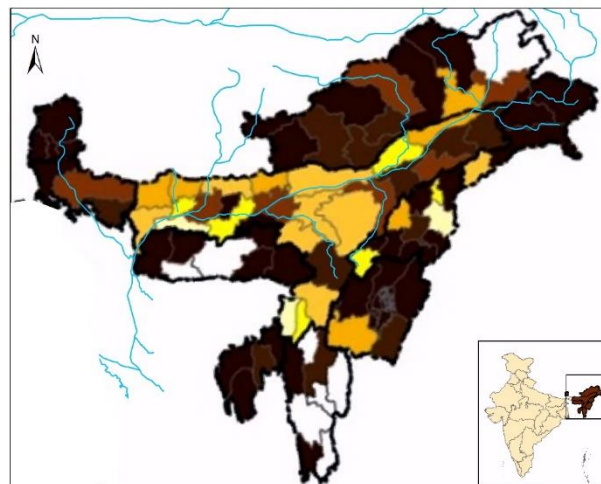
1. Whether the policies have been working towards correcting some of the inequalities that were visible on ground.
2. Whether the policy outcomes as it is visible now provides an input for the future policy directions in terms of management of Brahmaputra.

Figure 4 depict the spatial pattern around the river Brahmaputra the share of households having safe drinking water within the premises. This has implications for the burden to be borne by typically the woman of the household to fetch water. Figure 5 shows the percentage of government schools (primary to secondary) having girls' toilets, which is an indicator that has been related to girl children's drop-out from school, particularly in the adolescent age not only in India but in other developing countries too (Lloyd *et al* 2000, Sommer 2010, Chugh 2011). Notably, these two indicators to a large extent captures the way policy initiatives could reduce the women's domestic burden in one case, making it easier for them to participate in paid work, and facilitate the environment of them going into higher education, on the other.

**Figure 4 –
Share of Households having Treated
Source of Water within their premises**



**Figure 5 –
Share of Government Schools
with Girls' Toilets**



The spatial patterns observed in the two figure actually reveal that far from correcting the balance that is observed in the gendered patterns across regions that may have existed, they have actually

been reinforced by the policy variables. Taking the first indicator as an example, the availability of water along the river is likely to be much higher in the Assam plains compared to the Arunachal hills. In this specific case, the natural resource related abundance does not seem to have shaped the policy directions, and the differences in investments seem to have been fed either by the existing status of women in the society or the economic constraints. The lower per capita net state domestic product in Assam, for example, could be a reason for under-investment on both the counts.

In the context of policies, Krishna's insights about natural resource related programmes provide a useful understanding of the way these programmes are typically shaped (Krishna 2009). She points out that the basic premises of gender 'mainstreaming' for example, should be grounded on what conservation does for women, rather than what women can do for conservation. She highlights some of the assumptions made commonly by natural resource management programmes, and in the backdrop of the spatial patterns of gender analysis that is captured in this section, they can provide useful inputs to the transboundary dialogues. The assumptions she lists out are as follows:

- There is an inevitability of convergence of interest between women's needs and resource sustainability.
- Community control will inevitably benefit women.
- Poor women have inexhaustible time and labour.
- And most importantly, cultural constraints to women's participation are best left untouched.

None of the above can or should be taken for granted. One has to, for example, plan resource sustainability in a manner that can be suited to women's need and this process is not automatic. Community norms are often as or at times more patriarchal than that of the household, and providing decision-making ability to the community does not automatically guarantee changing the power equation across gender groups. Very often, since the 'poor' woman (along with the poor man) interacts closely with issues of land and water due to the specificities of their occupational bases, the uneven responsibilities of managing and maintaining resource health often falls on them. The joint forest management plan in India is a case in point. The cultural constraints are rarely ever disturbed by any of the policy frameworks, and this is in line with the way the colonial rule under the British era frequently operated (Sinha 1999).

The above backdrop, needs to be supplemented by a micro gendered view of the lives and their relations with the river.

5. A Gendered View of Lives along Brahmaputra: A Transboundary Perspective

The dialogue around transboundary river in South Asia and in particular in the Ganga - Brahmaputra -Meghna basins have moved around environmental conflict issues, which has been shaped by the asymmetry of both hydrological and political powers, in many cases the two working in the same direction. In other words, the upstream countries typically have an edge over the downstream riparian since they can divert water without having to consult the

downstream country. Both China and India have either already acted on this or have plans to do this. This hydrological asymmetry becomes more skewed if the upstream country in question enjoys greater political power compared to the lower riparian. If the hydrological and political power does not coincide, this may balance out the situation and lead to collaboration. For example, Bhutan and Nepal see opportunities in hydroelectric power generation, but would under natural circumstances do so with aid or collaboration with India.

However, the environmental conflict issues do not preclude the possibility of having dialogues around meaningful issues on what Detraz terms as environmental security issues and ecological security issues respectively, with the former focusing on human beings and the latter on environment (Detraz 2009). The former set of concerns rotate around impact of environmental degradation on human beings while the latter around human actions on the environment. These two, as may be imagined, could have a two-way relationship, and is often connected.

It has been argued that focusing on local issues is probably the need of the time, as it has been noted that the recent transboundary conflicts have not been inter-state or international, but locally rooted between the river developers and the locals who are or expect to be adversely impacted by these projects (Conca 2005). More specifically, in spite of clear linkages between gender and water, gender has not been a part of the discourse in transboundary water management. Women disproportionately bear the water provisioning burden in South Asia in terms of collection and management of drinking and domestic water and these activities are fundamental to household sustenance needs. It has been pointed out that understanding the ways in which gender shapes control and access over water and the differing needs and positions of women and men, is crucial to issues of poverty and water insecurity (Wallace and Coles 2005). The analysis of the micro-level gendered narrative across the riparian countries draws its relevance from the above backdrop.

6. Women's voices from Bhutan: Caveats of a Progressive Gender Space

Bhutan has four major river systems: the Drangme Chhu; the Puna Tsang Chhu, also called the Sankosh; the Wang Chhu; and the Amo Chhu. Each flows swiftly out of the Himalayas, southerly through the Duars to join the Brahmaputra River in India, and then through Bangladesh where the Brahmaputra (or Jamuna in Bangladesh) joins the Ganges (or Padma in Bangladesh) to flow into the Bay of Bengal.

One of the main characteristics of Bhutan is that the major rivers such as Puna Tsang Chhu and Drangme Chhu (Manas Chhu at the lower reaches) are not used very frequently. However, there is a high amount of awareness of the linkage between the small streams and springs which are the main sources of drinking water, domestic water and irrigation. Since the main river in all three sites, Punakha, Wangdue and Zemdang, are located at a level far below the settlement, it is primarily the men who occasionally use it to collect logs for fuel, fishing and rafting in some cases. There is a widespread concern in three of the two sites that small streams and springs are drying, though the knowledge as to why this is happening is not there for the most part. There is a perception that there is an increasing shortage of rainfall which may cause this phenomenon. Most women interviewees fear that in the future there is likely to be a serious shortage of irrigation water, drinking and domestic water. The main river, though difficult to access, is at times used as a supplementary source of domestic water and for the purpose of irrigation, by pumping from the main river.



One of the main rivers Po Chhu, which is far below the settlement and hence difficult to use, though terrace cultivation is practiced adjacent to the river

In Bhutan, the traditional norm was that women inherited the immovable property, both land and houses. However, it was reported by all men and women who participated in the interviews that in recent years, as per a recent inheritance law, now sons and daughters inherit ancestral property equally. However, a practical outcome of the inheritance norm is that the offspring, which is most often a daughter, who looks after the old parents, inherits the house that the parents stay till their death. The equal inheritance norm among sons and daughters, is much more favourable for women compared to the norms in most part of India and Bangladesh. It cannot be denied that such norms are empowering for women and provide them a status higher than in other parts of South Asia, and this is visible from the fact that there was hardly any difference in the way the men and women responded to their perceptions about the river, or their knowledge about regulations with respect to water. It was also observed that the Village Representative (*Chiwog Tshogpa*) and the Local Government Office (Block Administration) is as accessible to the men as well as women. Such interactions are particularly used during a disaster like GLOF (Glacial Lake Outburst Flood) or a flash flood, which have been experienced by most of the interviewees. As per the law, Local Government Office is meant to assist the community during any disasters and disseminate information on any matters, and they reach out equally to men and women, as per our survey.



Woman in Punakha District who has inherited her parent's land and is decisive about the nature of support she needs from the Government to manage the river to facilitate irrigation

It is observed that women work much more in agriculture than men, sometimes because they have inherited the land in the past. The men of this generation is engaged in the non-agricultural sector. This appears to have made women more decisive about the nature of changes they wanted with respect to water availability for irrigation. For example, a woman in Punakha, a cultivator in her own land, wanted government assistance in diverting the main river in a channel, so that she could use the pump in the channel, since she finds it challenging to do the same in the main river due to its velocity. There are, however, three caveats in the gender relations in the country, which appear to be more balanced compared to the other countries. Firstly, the gender division of work, particularly in terms of domestic and extra domestic work, is the similar to that one observes in the more conservative parts. Women's participation in the economic activity, particularly in agriculture, is more than that of the men. The implication of this is that there is a double burden of work, though the demand for female labour in the economy itself creates scope for women's participation in the public space. Secondly, despite the high participation in agricultural work, women are alienated from the use of machines in agricultural operations. Thirdly, in spite of their participation in the public space, women's presence in the community meetings, and their vocal intervention in case they are present, is limited for the most part. In many of such cases, this leads to non-inclusion of women's issues like provisions of drinking water, which the women complain is not fit for drinking during the flash floods or even during the monsoons when the stream water becomes dirty.



A man seen using power tiller in the agricultural field. Women typically, despite their high work participation in agriculture, do not use machines, including irrigation pumps.

The gender space in Bhutan is close to what Nathan describes as having a certain balance, though in the case of North East India; ‘...these hierarchies are not controlled either by men or by women’ (Nathan 1997: 274). However, the de facto access to land for women tends to reduce when the economy shifts to high value agriculture (Nongbri 2003). Thus the genderscape of Bhutan appears to be somewhat more patriarchal than it appears to be on the first sight. However, the women's voices are heard articulating their demands, and they appear to be as connected to the local level government functionaries almost as much as the men in the society. Bhutan, thus despite the caveats of patriarchy that it displays, offers an opportunity to involve women into decision making processes of the management of the river.

7. The Upstream Brahmaputra in India: Tribal Voices from Arunachal Pradesh

The three sites chosen in Arunachal, close to three different rivers all of which drains to Brahmaputra. Pasighat is the site closest to River Siang, which becomes Brahmaputra in Assam and the region primarily has a predominance of Adi tribe. Roing valley, inhabited by Idu Mishmi tribe is located in the lower Dibang valley while Ziro, is drained by a small river Kele, which drains the plain of the Apatani valley. The latter flows to the south for some 40 km before it meets the Panior River near Yazali, which subsequently joins the Subansiri river, which is an important tributary of Brahmaputra river.

Like in Bhutan, the direct dependence for drinking, other domestic use as well as irrigation is from rivers that are small, more of rivulets. The bigger river are down in the valley and the direct impact of the same is only felt during the floods or disaster of any kind. Recently, for example, there is a great concern about the quality of water in Siang river, as it has turned black and has not cleared after the monsoon. This was reported during the field work conducted in November. The locals fear a larger impact on the water quality and fish yield in the river, though fishing is by and large only a recreational activity in the state. There is an unknown fear, based on the devastating 2000 flood in Pasighat, which was believed to have occurred due to sudden release of water by China, that some activity upstream in China may have caused this (The Wire, 14/12/2017).



Use of small rivers cut into irrigation channels to irrigate the wet paddy fields

One of the main insights that the field work in Arunachal Pradesh has thrown up is the way the tribal groups interact with the river, which manifests itself in the *de facto* and at times *de jure* (by tribal laws) status of property rights of the natural resources including rivers, forests and hills. The property rights of these resources can be fuzzy between common to completely private rights of the households. The property rights of Siang and its smaller tributaries were explored further. As per a farmer in Mebo village near Pasighat, stretches of river belongs to different households, his family being one of these having control over a 1 km stretch, which is subcontracted out to a member of the clan through a process of clear bidding, through a written contract valid for a period of one year. A fixed part of the tendering money is paid to the village council for its

general expenditure, while the rest of the money is retained by the household. This gives the contract awardee the rights to oversee sand mining. Anyone from the region can come with a truck to fill it with sand from the river bed and as per the 2017 rates, they had to pay Rs. 200/- per truck to the contractor. On an average, the respondent informed that 100 to 200 trucks come every day. In case of overmining of sand, anyone from the local residents can report to the government, which in turn has the right to intervene. However, the property rights of the river with respect to the river is different for different uses. For example, in case of fishing, which is looked on as a recreational activity and not a commercial one, an informal permission from the owner is socially acceptable. For collection of logs and timbers from the river, or using it for transporting bamboos, which is a frequent use, the river for all practical purpose is treated as a common resource without any requirement of permission from the owner.



Sand mining on the bank of Siang by subcontracting of a river stretch by an individual family



Collection of floating logs for fuel: Example of river used as a common resource



Gathering of bamboos to transport from Pasighat, Arunachal to Dibrugarh in Assam

The property right mechanism described for Siang also extends to smaller rivers or rivulets in the villages. An example from one of the villages near Pasighat that came up in the course of the survey was of a clan owning the rivulet close to it. They, through involvement of the village council, gave the tender for fishing rights, reportedly to a single woman the first time. Notably, due to a decline in fish population as a result of over-fishing, this practice has been temporarily stopped, indicating adequate common control over the resource to work towards sustainability. Complex cases of forest property rights were noted in Biiri village in Ziro valley inhabited by the Apatani tribes, where parts of the forest could be owned by an individual household, a clan or a mix of clans (the latter being effectively a common resource). The products that one can harvest from each of these are differentiated as per the norm. For example, non-timber forest product like mushrooms could be harvested from the privately owned forest plot, whereas fodder is commonly gathered from the part owned by a clan. Fuel can be collected from the forest, irrespective of its ownership norms, though there are strict social norms against cutting down live trees or its parts.

With the complexity of interaction with the river and other natural resources on the one hand, and community and individuals on the other, one issue of importance can clearly be discerned. There is a strong sense of ownership of these resources among the different tribal groups in the state of Arunachal Pradesh, and under these circumstances, transboundary management of the river excluding the locals, or the village councils, would neither be desirable, nor feasible. There is little surprise, therefore, that the so called anti-dam movement has gained so much strength in the state, so much so that the state machinery had to retreat significantly with respect to the dams it had commissioned in the past in consultation with the central government. An interview with a leader of the Siang's People Forum revealed that though they are not against dams per se, they in totality resist the idea that the technical and civil representation of that locals whose lives would be impacted can be kept out of the process of decision making. They are also opposed to the idea of large dams which they feel would be disastrous for the ecology of the river and the lives that the river sustains. The experience of Ranganadi project in the Lower Subansiri district that has led to the drying up of the downstream of the river, severely affecting both marine and human lives, has hardly been encouraging for them. Such movements, though visible in other

stretches of the river where it is usually considered a common resource and operationally a government resource, have not gained the kind of traction that it has in Arunachal Pradesh.



Dry course of Ranganadi after the Dam project was set up by NEEPCO

The tribal societies in the hills, as also pointed out in the earlier section is generally perceived to be more equal both in terms of social groups and gender. It was found based on primary field insights, however, that this is not a realistic assumption to make.

The specific tribal group identification was historically preserved through distinctive tattoos for each tribe, and within the tribe the pattern is different between men and women. The smaller the tribal group (Apatanis for example), more severe appears to be the norms for preserving 'purity', often through stricter norms for women, including the resistance towards inter-tribe marriage.

Also, among the Apatani tribal groups for example, there are three hierarchical social orders, the *Gyuths* the *Gyuchis* and the *Miiri* (the slave category), the former being at the top of the hierarchy. The last category, which could have served either of the former two categories at some point in the past, could belong from the tribe or outside of it; in either case, debt of any kind, be it economic or social, was paid off by serving the family that had helped those belonging to the slave category in some way or the other. The relationship however remained hierarchical over the years, long after the debt was paid off. Even now, there appears to be a distinction in terms of who should do 'unclean' work like burying the dead bodies, which is undertaken by the *Miiris*. It was however reported that by and large, in many cases the *Miiris* have been merged with the *Gyuchis*, who are the residual group, and not considered as pure blood. This social grouping is akin to the caste system in the plains of India, though obvious social discrimination, if any, was not visible in the short duration of the field work.



Two Apatani women, the older one with the characteristic tattoo marks and nose plugs



Predominance of women laborers harvesting labour intensive wet paddy in Ziro valley

The gender norms appear to be more biased against the women, compared to what was observed in Bhutan. Inherited properties that are immovable goes to the eldest son, while the beads of the mother, the value of which has reduced drastically over time compared to the precious and semi-precious beads earlier bartered from the Tibetans, belong to the daughters and are divided equally. There is hardly any comparison in recent times between these two sets of properties as the former remains in today's monetary transactions of far greater worth. In the recent times, for

example, beads for one necklace can be purchased for anything between Rs 200 to Rs 5000. The sons other than the eldest son can be and are usually given purchased properties by the father. It was reported by a 35 year old resident in Hari village in Ziro valley that the wet paddy area would not be available to most other sons other than the eldest. The demand for labour is high as the degree of mechanisation is extremely low. For this reason, two things have followed: first, the share of women labour is high which has further gone up due to male selective outmigration, and secondly, due to labour shortage at times, an increasing share of the wet paddy cultivation area is being left fallow. Sometimes this area is given away for cultivation for no or little nominal rent. Though the wet paddy area traditionally goes to the elder sons, the younger sons do get some private rights to the forest land. The individual ownership is transferred by the fathers to the sons. In recent years, horticultural practices are carried out by the owners of privately owned forest (at times Kiwi fruits that are historically alien to the valley) to sell it to contractors in Assam. The left over products are typically converted into traditional wine.

The physical burden on the women was clear from the lower Dibang Valley near Roing, expressed by Kherepe Meme, the oldest woman in Kebali village situated on the bank of Ephri Pani, a tributary of Dibang River. She, being a widow, has little help for doing the wet-rice cultivation and terrace cultivation. She is realistic about her children, who are educated, not wanting to come into agriculture due to its low profitability and increasing risks. Though the water from the river sustains her agricultural produce, she also reported about losses in oranges and ginger due to a recent flood. She does not perceive a possibility where her traditional knowledge in agriculture can be transferred to the next generation. A common source of income for the women is by selling home-made rice beer (*yu* or *apong*) depending on the location. The excessive burden of work on women, to sustain their livelihoods on the one hand and carry out domestic labour on the other, has been also echoed by Hage Tado Nanya from Hari village in Ziro valley, who an empowered woman herself, feels that there is unequal work burden on the women. Nanya won the Miss Arunachal title last year at the age of 56, because she developed and profited from innovating fish farming in wet paddy land, increasing the household income manifold. This had a demonstration effect in the village due to which many of the other villagers took up fish farming, also in response to wet paddy cultivation is going down. Nanya who also works for social groups that fight against the social ills of polygamy and drinking, recognizes that other women in the village is not as privileged as her. The former problem has led to the dispossession of use of husband's property for many of the first wives, who technically is still bound in the social contract of marriage. Over time, she feels, women's burden is going up and says:

Over time the work burden on women is going up. In constructing the field channels for irrigation, there is a gender division of work; men set up the bamboo borders on the side, while women dig the channel and carry out the mud from the channel to the fields. While there is never any shortage of women for the job, many times we have to wait for adequate number of men to come and carry out their job, which requires strength. In agriculture, too, particularly in families where men migrate out, the burden and responsibility of cultivating the paddy lie on women for the most part. There is little help from the next generation, as they are educated, sons and daughters alike, and for understandable reasons do not want to do this work.

In Pasighat, Iki Tayeng a 33 year woman who is a school teacher and a cultivator, says:

Our knowledge about cultivation practices is better than that of the men since we do most of the work, except in some households. In spite of this, we do not get any property. We are also as educated as the men as there is no gender discrimination in our area about educating children. Nevertheless, for most women there is a social restriction in taking up jobs of their choice since this would take them away from agricultural work. My case is exceptional. Wet paddy cultivation is looked on as social duty in our villages rather than an economic activity, and women primarily bear the burden to carry out this activity.



A group of Adi women cultivators in Mebo village near Pasighat

The presence of women in public space or in work arena thus does not necessarily provide women the decision-making power in the tribal societies in Arunachal Pradesh. From all the three sites that were part of our field survey, the women unanimously said that they hardly get the time to attend the meetings, and they are not expected to, either. Sometimes when women's issues come up in particular, their opinions are selectively asked for. For example, in All Apatani Gaon Burah Welfare Association, Ziro-I, the number of women member are 10 out of 60. Though in the executive council, there are 8 women out of 20 members, their positions are of general members or of joint secretaries, who assist the general secretaries. These women, or *Gaon Buris*, it was admitted even by men, do not speak up; most women feel they are not expected to intervene while the men think they do not since they do not have complete understanding of the problems.

The above insights add greatly to the generic trends visible in the earlier section, where Arunachal had better gender indicators compared to Assam. In fact, the presence of women in public space, the case studies reveal, are not an efficient indicator of their control over resources like land or water, or their role in public decision making. To the contrary, most women feel overburdened with the kind of labour they are expected to carry out, where wet paddy cultivation is looked on as a social responsibility rather than a private economic one. Their lack of participation in public decision making partially stem from lack of time and availability in these spheres which are exclusively controlled by men.

8. Perspective from the Assam Plains, a Heterogeneous Gendered Space

The Brahmaputra is called Dihang as it emerges onto the plains at Pasighat (elevation 155 m). Near Kobo in Assam, 52 km downstream from Pasighat, the Dihang is joined by two large rivers—the Lohit and Dibang, and from here the river is known as Brahmaputra. The Brahmaputra flows for about 670 km through the state of Assam along the Assam Valley (Figure. 1) and within Assam, the Brahmaputra receives 103 tributaries—65 on the right (north) bank and 38 on the left (south) bank. The large tributaries are the Subansiri, Jia Bharali, Manas and Sonkosh on the right bank and the Burhi Dihing, Dhansiri and Kopili on the left bank. The Brahmaputra Valley and its adjoining hill ranges are seismically unstable. The effects of 1897 and 1950 earthquakes, each measuring 8.7 on the Richter scale, include extensive landslides on the Himalayan slopes, subsidence and fissuring of the ground in the valley and changes in course and configuration of the main Brahmaputra and several tributaries (Poddar, 1952). This, according to some local experts, have changed the water holding capacity of the river significantly, along with incidence of flood in the long run. Also, the slope of the river decreases suddenly as the river descends from the Himalayas and results in the large-scale deposition of sediments and a braided channel pattern. The Brahmaputra channel in Assam is characterised by mid-channel bars, side bars, tributary mouth bars and unit bars. The channel of the Brahmaputra River has been migrating because of channel widening and avulsion, which leads to the rapid abandonment of a river channel and the formation of a new river channel, due to extremely gentle slopes (Sarma 2005).

The above physicality of the river impacts the society living around the river in a significant way, which in itself is highly diverse as the river flows from upper to lower Assam. The root of Assamese society goes back to almost two thousand years, when the first cultural integration took place with Tibeto-Burman, Indo-Aryans, and Austroasiatic people. There were three waves of cultural assimilation in Assam. First, it was the Tibeto-Burman tribes which had arrived from Tibet, Yunnan and Szechuan provinces of China who got integrated with the scarcely populated Austro-Asiatic people. Then there was a wave of Indo-Aryans from Northern India, which brought the Vedic culture and Hinduism into Assam. This wave of migration was that of the Ahoms who added to the Assamese culture. This gives a mix of a numerous ethnic groups in the state, the lives of many of whom closely interact with the river. In the more recent times, Bengali-speaking Muslim migrants came into the North East from the erstwhile East Bengal, which later became East Pakistan and then Bangladesh and this inflow is said to date back to 1820s though this stream of migration has continued till the recent times (Fearon and Laiitin 2011).

Three locations have been covered for the field study in Assam – Sadiya district in Upper Assam, Majuli and Lakhimpur district in Middle Assam, and Goalpara and Dhubri districts in Lower Assam. The Sadiya (Balijan and Kundil river) region is densely populated by Deoris, who historically served as priests in the Chutiya and Ahom rules. Apart from the Deoris, the Ahom community is also quite predominant in that area. Majuli (Brahmaputra and Kherketia River) is dominantly populated with Mishing and Deori communities. The locations around Barpeta, Goalpara and Dhubri in lower Assam along Brahmaputra and Gadadhar River, are densely populated with Bengali Muslim community (called the Bhatias locally), apart from the numerically small but significant (in terms of their interaction with the river) people from the Bin community in the Dhubri district.

8.1 Upper Assam, Sadiya

8.1.1 Societal interaction with the river

The river is full of uncertainties particularly in this part of Brahmaputra, since the break of slope happens very close to it. Thus unlike the middle or lower Assam, the flood warnings, as most of the respondents have reported, does not work for them. The disaster thus comes with a greater degree of difficulty in this part of Brahmaputra, and the residents have articulated the desirability of transmission of such information from Arunachal Pradesh.



Balijan river, tributary to Brahmaputra, flowing through Sadiya

This situation has made the living close to the river a risk that the communities do not wish to undertake. 60 year old Pushpa Devi mentions that there is a spatial pattern in which the communities are broadly organized with respect to the distance to the river. Typically, the Deoris and the Ahoms, who are the early residents live the farthest from the river (2-5 kms), the Das community, belonging to the scheduled caste population live closer to the river, and the Nepalis, who are the most recent migrants live the closest to the river. The Nepalis and the Das communities do not have traditional adaptation skills to live close to the river and are frequently impacted by flood, and have adapted the Deori way of keeping grains and livestock on raised platforms. These are in recent times made out of concrete too.



A Das household's bhoral (granary) for storing rice, which as an adaptation borrowed from the Deoris. Usually the empty part of the bhoral is used for the domesticated animals.

The poorer households in the former two groups are also forced to live closed to the river, like an Ahom household in our sample. 56 year old Bimala mentions

We used to live very close to the river earlier. We have shifted our house thrice, but have not been able to move far enough from the river till now, though we are still trying to find a convenient place. During the flood we sent the daughter-in-laws to their paternal homes due to lack of food and fresh water, while I stayed back with my husband to protect the house and property.

The use of the river has minimized for all the above-mentioned communities as they have mostly shifted to tube wells for both domestic purposes and irrigation. Those living closer to the river have a problem during the flood as the tube wells submerge during this time. They have to filter the water from the river for drinking, in spite of which they consume highly contaminated water, depending on the incident and location. The poorer households who are typically the ones living close to the river, like a Nepali household in our survey, still use the river for some domestic uses, and complain of sediments in the river that hamper activities like washing clothes or vessels, particularly around the monsoon. Livestock generally graze close to the river, and a Deori household has reported loss of goats during a sudden flood. For the Deoris, the river hold a greater ritualistic value and some who have moved 2-5 kms away from the river, still retain a community prayer house (deoghar) near the river. Direct interaction with the river, thus, in general, has reduced substantially and is limited to rare recreational and ritualistic uses; it goes without saying however that the groundwater and the soil moisture recharge significantly impacting the agricultural yield is positively impacted by the river.

The lives of those who are forced to stay back have been reduced to a subsistence level. The responses from both the Nepali and the Ahom household living very close to the river reported that they neither sell paddy nor vegetables to the market since they have lost land due to river erosion, while in the residual land that remains, agricultural productivity gets impacted by every flood. They sell off their livestock when they get old or the family requires money during emergency. Those that have been able to purchase land away from the river do not suffer loss of erosion as well as the floods. Mukheswari Deori, of hundred years of age, reported that recent losses of agricultural productivity due to high amount of sand deposits in agricultural fields, which was earlier not the case. This issue, in many of the recent literature have been attributed to breaches in embankments (Das 2012).

8.1.2 Adapting to Disasters: Role of Individuals, Community and Government

Ironically, in upper Assam, the Deoris who are better adapted to the floods now have the means to shift away from it, while the communities living close to the river have taken on the former's means of adaptation; reportedly, the river have become shallower and less predictable for the inhabitants of Upper Assam, as more recently, a relatively small variation in the rainfall amount causes Brahmaputra to swell and merge with the Balijan river near Sadiya, a tributary of the former. The devastation caused by erosion has been reported as extensive, though, the interviewees often did not distinguish between the havoc caused by flood or erosion. The way that this can be interpreted is that most people living in upper Assam see a causal relationship between the two events. In general, the government aids appear to be what people depend on the least. From the responses in the field it was observed that individual efforts, community collective actions followed by government aid, in that order, are the mechanisms through which the people cope with flood and erosion. Among the individual and household level efforts,

examples of migration away from the river or investing on adaptation techniques learnt from other communities are common. The individual households have to stock up food for the floods as they cannot depend on the government, either in terms of the timeliness or adequacy. The panchayats suggesting plantation of grass on the river beds to the government have gone unaddressed in Sadiya, though this is an example of community's awareness and proactive response. Also, during the floods women have seen the community working together to repair damages on embankments along the Balijan river built by the government. There have also been examples of communities coming together to construct bamboo porcupines for prevention of erosion, where the materials were also contributed jointly by the community members. The relief centres run by the government are mostly in a poor condition, and people, primarily women and children occupy if the situation turns very adverse. The respondent have been admittedly helped by the relief materials provided by the government and they claim their due when they get impacted. The health crises become acute during the floods, and it is both due to lack of infrastructure development and getting cut-off by water that women of reproductive age group and the elderly in particular face a great deal of distress.

Gaon Buras are individuals heading the villages to sort out social issues like in Arunachal Pradesh. One of them in a village adjacent to Kundil river have reported that earlier these individuals would get the position based on hereditary grounds or selected by the residents of the village. Nowadays, they are selected based on an interview with Government officials that has politicized the process. This impacts the efficacy of the *Gaon Bura* since his job is to bring problems of the village to elected members of the panchayat.

8.1.3 Gender Divides in Upper Assam

Like most other societies practicing settled agriculture, there are gender divides in the workspace in Upper Assam, as revealed by our case studies. Some of the notable examples are that weeding and sowing of the field are done almost exclusively by women, though harvesting is an operation that is jointly done. Ploughing the field and irrigation are men's jobs. Women typically do not work as an agricultural labourer in others' fields, unlike men, unless the family is very poor. Livestock rearing is at times done by both, but in cases where the livestock have to be taken far to say the riverine islands (*sopory*), it becomes a man's job. The onset of tubewell technology has eased women's duties of water collection for drinking and domestic water use from the river. Men are the ultimate caretaker of the property during the floods; women and children are sent to the ill-equipped relief centres when the water enters the house in most cases. Childcare becomes particularly difficult during flood, and in the past some of the interviewees reported incidents of children being drowned and helplessness of women in these matters since they have to perform multiple tasks during these times. Fishing for self-consumption is often done by women. Marketing for daily household commodities is commonly carried out by women, but by elderly women, typically by the mother in laws.



Traditional method of fishing employed by women for self-consumption; the jakoi is used for catching the fish, while the khaloi (the one around the waist) is used for storing the fish that has been caught.

On the first instance, most men and women we interviewed felt that there is no gender discrimination in education in the region. However, it was noted that some of the women interviewees had to drop out of school due to constant migration of the family though this did not apply to their male siblings. Almost all women agree that the mobility required to participate in jobs as well as adequate opportunities outside of agriculture for women is limited. Bimala from a Deori household says that she would encourage her daughter or daughter-in-laws if they got a job and wanted to leave agriculture: ‘*They are tired of agriculture*’. Jaya Buragohain, her daughter-in-law, who trained as a nurse, could not, however, pursue this career after the birth of her child. Given an opportunity, she would like to take up this profession.

It was observed that there was a clear aversion both on part of the men and women we interviewed to admit that there is a gender difference in private and public decision making, barring a few women interviewees. Phulonti Das, 74, for example, does not attend any of the meetings though she thinks this does not matter since she is informed about it by her husband. Participation in public meetings are common for some women, but not for others, who report they cannot participate due to the household chores. Pushpa Devi from a Nepali household feels that she not only participates in the panchayat meetings, but she is also quite vocal about issues she feels strongly about. Luhit Barua, a *Gaon Bura*’s response about the matter can be interpreted otherwise.

Women participate in panchayat and speak and the points they raise are also considered if they make sense. Though the women’s opinions are taken into consideration in the meetings with respect to personal disputes, they should act individually within the domains of the house rather than coming to a public forum to solve their problems.

The implications above response are important in two respects; women’s responses according to men, particularly male heads of villages is most often not taken seriously; also, the burden of solving domestic disputes lay on the women and bringing these to public platforms is seen as their failure to make amends.

Pushpa Devi, who felt she could intervene effectively in public meetings, thinks while nothing stops them from talking to the *Gaon Bura*'s about their problems, interacting with a woman head or a *Gaon Buri*, would have facilitated matters for women. It was also reported by Jaya Buragahon, a young married woman from an Ahom household that she felt more comfortable discussing the village issues with one woman panchayat member, who is her neighbour, in private and not in the public meeting. It was admitted by a *Gaon Bura*, Luhit Barua, from Bishnupur Pahukhua Village in Sadiya, that in the entire region, they did not have a single *Gaon Buri*.

Many of the women felt that within the households, they were joint decision makers with their husbands. Mukteswari Deori, however, 100 years of age, pointed out that the important decisions were taken not only by men, but by male head of the households. She however, is a regular voter, taking pride in being able to make this political choice that the constitution accords to her. Polygami is quite common in the Deori community though none of our respondents brought it up as an issue of discrimination of women, unlike in case of Apatani women in Arunachal Pradesh.



These Deori women are almost around 100 years old and are wives to the same husband. The Deori women wear the head scarf (gamusa) after marriage so that their hair is not visible to any man elder to her husband.

There is clearly a restriction in women's mobility, which prevents them from effectively engaging in paid employment as well as occupying public space. Bohagi Barua, now 67, relates how she used to enjoy the freedom of mobility when she went fishing for household consumption, using *jakoi* and *khaloi*, fishing implements made by her. She however, feels that that now there is a lot of freedom for women: '*earlier we were beaten up if we roamed around too much*'. She also feels that a woman should not be a *Gaon Buri* since she will not be able to manage her household work along with it. Her son's response as a head of a village that '*the society is much more liberal now. They were not allowed to participate in Bihu public celebrations, but times have changed and they are doing so now*', indicates even women's participation public celebration is considered a societal privilege for women. This is not to say that women's contribution in the economy is any less. Bimala Buragohain's life is a case in point; she narrates how she could not continue her education since she was responsible for looking after her younger siblings. She participated in a significant way in sustaining her family income before her marriage by participating in agricultural activities, and

selling the agricultural produce with her father. Till date, her work in the agricultural field is indispensable, since her husband's grocery store was destroyed by river erosion.

The women hardly mention about the property ownership issue with the exception of one woman, who states that daughters never get any land from their father. The father-in-laws' land is only given temporarily to a son's widow to supervise, till her son is not old enough. In our particular case, the silence about women's inheritance to property is because of two reasons; first, those living next to the river has such a volatile interaction with their land because of flood and river erosion, that the use value of land is far more significant to them compared to the ownership value; second, which is most commonly the case in other regions in South Asia, they do not think their choices about claiming land ownership would be socially acceptable.

The case studies in Upper Assam reveals that though there is a strong evidence of patriarchal norms which does not allow women to easily make choices of their own, this is not so apparent even to them, unlike in case of Arunachal Pradesh. Our field insights reveal that the patriarchal norms are perpetuated by women as well as men. Finally, the responses of women in front of the men varies vastly compared to when they are heard out in isolation.

8.2 Middle Assam (Majuli)

Majuli is not a usual representation of middle Assam. It is the largest riverine island in the world but shrinking very fast a result of erosion. It is estimated that over the last century the island has shrunk over more than 25%, with only 523 sq km remaining now compared to 734 sq km in 2014 (Sarma 2014). This loss of land is due to severe erosion in river Brahmaputra, which is believed to have been accelerated due to faulty mechanical solutions for flood prevention along with natural causes (Kotoky *et al* 2005). Simultaneously, the population is increasing and continually adjusting to the reducing geographical areas.

8.2.1 A common identity of an 'Islander' over social identities as a response to disasters, natural and manmade

The field work revealed that though the Mishing tribe is the most numerous in the island, around 25% of the population in Majuli belong from at least six other tribal groups, non-tribal Ahoms, belonging from all castes, including scheduled castes, and Bengali immigrants from Bangladesh, mostly Hindus; interestingly, the few immigrant Muslim households who have made the island their home are locally called 'Hindu Muslims' as they, keeping with the cultural traditions of the island, do not consume beef. Culturally, Majuli is an expression of a mix of Vaishnavism and tribal traditions. In usual circumstances in the country, such a cultural mix is a rarity. It is common, for example, for unaffected households and religious institutions (*satras*) to donate land to erosion affected people, whose land has been submerged. Our field survey reveals that Hindu households allow Mishing groups to build new houses in the land over which the former have a *de facto* right. Nilamon Sarkar, a fisherman, whose father migrated from Bangladesh to be given land by the *satra* (Neo-Vaishnavite institution), mentions how people in the island donate money for the following some of their customs. Girin Chetia, Director, North East Affected Area Development Society (NEADS), in Dhekiakhowa who specializes in understanding flood in the area, relates how Mishing women make the traditional wine *apong* to sell during and after flood to tide over the distress period. This often becomes a collective work, where women guests regularly help the women in the household with the task.



Mishing household making traditional rice beer, apong

Flood is the major natural event that impact the island for a major part of the year. A hotel owner in the island reported that other than some areas that are the upper reaches of the island, most of the area is under water for 4-6 months in a year. However, each community view this event differently and have historically coped with the flood management on their own in accordance to this perception (Thakuria 2000). It has been also argued that till recently, flood was in general perceived as an active agent of bringing in prosperity (D’Souza 2006). This perception has believed to have changed in the recent past. The recent field work in Majuli also threw up the plurality of ideas surrounding flood. However, the much of the field insights confirm that a large share of the population still perceived the nature of traditional flooding that they distinguish from the current events of flood disasters as benign which they ‘lived with’ and was an essential part of their organic paddy cultivation economy. Notably, some years back, a demand for embankments from the residents was made to keep them protected from floods, though over time they have realized that it is these structural measures that are greatly responsible for the kind of disaster that they face in the recent years. Mitu Khataniar, a young journalist in the region believes that though the incidence of flood has reduced due to the embankments, the disastrous nature of the flood and erosive activities has increased to these measures.



The devastation in Majuli due to river erosion (photo credit: Mitu Khataniar)



A primary school breaking away in Majuli due to river erosion (photo credit: Mitu Khatanar)

The culture of Majuli has evolved thus into a somewhat more culturally homogenous form of society, while retaining its diversity, where though people from different tribes and mainstream Hindus practice their own customs, others participate in it. The food habits also have evolved, and taken a more homogenous form. Disasters and the geographical limits of the island that is shrinking further lends to the homogenization and collective life of Majuli. Thus unlike in what was observed in upper Assam in Sadiya, the nature of the river in the island has brought together people rather than segregating them.

8.2.2 About the Embankments: A view of the people in Majuli

Though there is no one view about embankments along the Brahmaputra river, the people in Majuli over a period of time by and large agree that embankments have caused more harm than good. To some extent, experts agree that the loss of land of the island is related, among other things, with the embankments in the upstream reaches of the river. Brahmaputra's volume, Girin Chetia from NEADS argues that Brahmaputra cannot be trained by embankments, since it is going to have disastrous impact in terms of erosion, on the areas where the river can move. In particular, he reported a construction of 8048 km embankment in more than 43 tributaries along the length of Brahmaputra. He argued that there was a distinct increase in the silt deposition after construction of the embankments, and erosion of the river channel, simultaneously a view that is borne out by other literature (Das 2014, Varma and Mishra 2017). In many parts, the river has shifted many kilometres away, while in other places, it has expanded many times compared to its original width. This has created havoc both in terms of destruction of the habitations in the bank, and displacements years after years on the one hand, and changed the nature of flood in a very major way, on the other. He held the nature of embankment attempting to 'train' the river responsible for 50% submergence of Majuli Island. 74 year old Loknath Kutumb, a retired teacher in Majuli, also believes that embankments have only brought disaster to the island. It is failure by the government, he says, that it has not recognized that the people in Majuli are not distressed by flood but by erosion. With a low-lying area that grows one organic crop a year, the people of Majuli are used to 'living with the river'. The embankment forces sand deposits on the river side and breaches in it causes water to rush in with these sand deposits (as opposed to silt as used to be the case earlier), rendering large parts of the cultivable land in the island unfit for cultivation. The embankment does not allow the water to be drained out to the river easily, and this permanently leads to waterlogging in some of the agricultural land. The breaches, it was reported is never repaired by the government. Loknath Kutumb says 'if the

embankment has to be built, it should have a sluice gate that releases the water slowly everytime the river level rises, or better still, it should not have the embankments at all'. He mentions the work of the late activist Sanjoy Ghose, who provided leadership to the people of the island to stabilize the island by biological measures to prevent erosion.



Community effort to stabilize the embankment in Majuli



Waterlogged area after the flood. The residents say this is a permanent feature, since it is difficult for the water to find its way out to the river due to the embankment



Organic paddy of Majuli, the quality of which is highly regarded, is under threat with declining land available for its cultivation

Mitu Khataniar, a journalist working hard to get government's attention to act against the devastation of erosion, feels that the nature of the flood disasters changes in a big way when the embankments break. Instead of the water flowing in slowly, which is the situation without the embankment, the water rushes in with great speed when the embankments breaks, as was the case in October 2017. Also, the river erosion increases when the embankment is built. Since the river is trained and restricted, the force with which it breaks the unprotected banks increases. According to him, the erosion increased after 1951 earthquake, since the capacity of the river reduced. He sees an inverse relationship with the frequency of flood and the erosion. When the water spreads out over a long stretch, minus the embankment, the water slowly comes in and drains out causing less disaster. Since the incidence of the water coming in has reduced, people have lost their skills of adaptation, particularly those living on the other side of the embankment. Now though flood is less frequent, when it does come it causes greater disasters, particularly for those practising settled agriculture.



A typical Mishing house, adaptable to flood situation

There are some farmers, however, like Anita Das, a 29 year cultivator in Majuli, who feel that embankments are good for them. She belongs to the small percentage of farmers whose land is in an elevated area which are mostly not impacted by the flood unless the situation is really adverse.

8.2.3 Majuli, sans gender differences?

Contrary to the expectations that one may have due to the framework laid out above of disaster muting social differences among ethnic groups in the island, this principal does not work for gender differences. Unlike in upper Assam, the Mishing women in Majuli are fairly clear about these differences and the social positions that come with it. Also, the men we had conversation with, unlike in case of any other study site, were by and large in agreement with this view. Though during the actual disaster, whether it be erosion or flood, the gender division of work reduces during the emergency, for the most of the other periods, whether it be getting prepared for the flood, or at other time of the year.

Padmavati Tahu, a Mishing woman, 58 years of age, has no difficulty in recounting that she and her brothers were brought up very differently. The brother was taught to focus on consolidating the land property rights by registering it, managerial skills for carrying out agriculture and its marketing, when necessary, while she and her sisters were engaged in learning weaving, harvesting of crops and other household chores. Though some basic dowry is given to daughters during their marriage, she knew from her childhood that she and her sisters do not have a share in the immovable property belonging to their parents.



Girl children frequently drop out of school during and after floods; seen here collecting domestic water from flooded fields

The work associated with the household chores, like collecting fuel, drinking and domestic water from the river, is always done by women and sometimes by young girls. Preparation for the flood involves pounding and storing the rice and other foodstuff, and this is done entirely by the Mishing women. The women take care of the livestock, even when they have to take them down the river. At times, the men help them, if the cattle has to be taken to other smaller islands for grazing. However, the women generally exclusively retain the income from pig rearing, selling local liquor and small scale weaving. The Mishing women go in groups for fishing, though this is for self-consumption. Though a market outside Majuli for the selling local handloom like

mekhala-chador which is made by the women for the household use could have increased income of the women many-folds, in the island there is hardly any demand for it, since all women have this skill. Most paid jobs, including the NGNREGA work is exclusively done by the men.

The lack of health and education infrastructure in many villages of Majuli adversely impact the women in particular. Padmavati Tahu, for example had two miscarriages before she delivered in a hospital in Sivasagar where she had to undergo a caesarian operation. The access to the hospital was extremely difficult since she had to travel by a boat till Dikhomukh for around 2 and a half hours and subsequently by car. Her second daughter died during the flood due inaccessibility to a health facility. Many of the new villages have no educational facilities, and while the boys mostly have cycles to commute to schools, most girls do not, and hence have to drop out of school at a very early age.



MGNREGA work of strengthening embankments done by men



A young Mishing girl, sitting next to her brother, at the weave. She is introduced to this skill at a very early age, since she is expected to weave for the entire household she gets married to



A group of Mishing women fishing for household consumption. The yield of fish increases during the flood

There is a vast difference among the Bengali migrant fishing community that stay on the island. Nilamon Sarkar informs that in their community women do not go out of the house, and never participate in the activity of fishing, which is done for commercial purposes. The Mishing Autonomous Council contracts out stretches of the river to contractors and the current rate is Rs. 20000/- per kilometer. This is further given out to sub-contracts, and he is one of them. Fishing does not bring high profits, according to him, but goes on the entire year, unlike agricultural activity, which is only seasonal due to the flood. He feels that the men in their community does all the work, while *'the women have a lot of leisure time'*. He thinks it is only *'efficient'* that men get to decide almost everything in the house, as the women are not aware of the outside world.



Nilamon Sarkar, a second generation migrant from Bangladesh, waits for a good catch

Most of the Mishing women are so overburdened with household chores, that like the women in Arunachal Pradesh, they do not have time to attend any of the panchayat meetings. The low participation is true of women from other communities as well. Phulomani Deori informed that

even when she attends these meetings, she feels hesitant to speak up since she is not very educated. The leaders of the panchayats are almost always men, mostly by heredity among the Mishing tribe, occasionally nominated by elderly male members of the community. The women are at times members of all women self-help groups, which lend money to members of these groups.

Yamini Payeng, 40 years of age, an empowered Mishing woman, who works for a NGO and owns a handloom shop, has single handedly taken care of her elderly parents till their death. Her family was a victim of river erosion, and they had to migrate 6 times due to river erosion from her childhood. She is unmarried, and is engaged in social activities in the island, and has substantial knowledge about the flood and embankments. She feels gender discrimination is rampant in their society, though most of the livelihood sustenance activities are done by the women. Their situation worsens post flood when men go out looking for jobs that are in any case not stable, and the women are left to normalise the non-functional house along with the other household chores and care burden. Though she is not married, she reports being in this situation with respect to her brothers. She says with a lot of emotion *‘if I had another life, I would like to be a very powerful man, something like the Satradhikar (head of the neo-vaishnavite institution highly regarded in Majuli) and would like to change the way the island functions for the betterment of its people’*.

Majuli, thus, in spite of being under the influence of the Bhakti Movement, a site of substantial community action, as also being on the government focus, is characterized by a gender space which is unfavorable for women in many ways. The point that needs to be noted, however, is that the women in the island are acutely aware of this, and may respond well to an external impetus to come together to manage the river in a way that has not been attempted so far, since they negotiate with it somewhat more closely than the men.

8.3 Lower Assam (Barpeta, Dhubri and Goalpara)

The floods from the upper Assam reach the lower Assam in about three days. But the other complicating factor is that the rivers of north bank of Brahmaputra particularly Manas from Bhutan are big and cause flood every year. The frequent shifting of channels, heavy rainfall and Himalayan snow melt converge in impacting the region significantly.

8.3.1 The vulnerable occupants of Chars (riverine islands)

The lower Assam region, particularly the field sites that were chosen for the study are *chars* or riverine islands that are inhabited by the most vulnerable communities, but those who have a high degree of interaction with Brahmaputra. They live on the river, with the river, and face its uncertainties as a matter of inevitability. The lower Assam region is influenced by migration from Bangladesh and West Bengal. Dhubri could be considered as a trade center, with people from various regions residing in the area. Dhubri thus does not have an Assamese majority population. Similarly, the Goalpariya dialect has traces of Bengali mixed with Assamese. The Bin community are a fishing community from Bihar, who migrated decades back to Assam (before 1947). They are a Scheduled Caste populace who are considered to be quite unorganized. They feel that they don't share the same social significance as the 'migrant' communities from Bangladesh in terms of their numbers, as per our field observations, that they are considered as outsiders by the people of Assam. Similarly the Bengali Muslim community residing in the char regions of Assam are frequently considered by most of Assam as Bangladeshi refugees that increase their vulnerability. The chars or the islands on the River Brahmaputra and the *chaporis* or the high lands on its banks

with its own peculiarities constituted a natural division in the valley. Despite possessing voter ID cards, they don't feel secure in their own nation because of the alienated treatment that they receive. Both communities are firm religious believers, with the Bin community worshipping the river as their mother and the boat as their source of life, while the Bengali Muslim community deals with the river along with the flood and erosion it brings as their mighty Allah's wishes.

The literacy rates and the level of education attained by this population are low, partially due to the cyclic effect of poverty and partly due to the lack of access to educational infrastructure. Most people, including men, have not completed high school level education. The possibility of mobility in the next generation thus remains limited. They are financially almost always unstable, frequent natural disasters being the major reason.

8.3.2 Living nimbly with the river

As it is to be expected, the insecurities makes for a high degree of social cohesion and this is evident from the fact that almost everyone knows each other in the village. They assist one another during emergencies, provide boats when required and reconstruct houses together after the devastation during flood and erosion. Though the annual floods regularly submerge their *chars* every year (during our 2nd visit within four months, there was already one round of submergence for some of the areas following a flood), the residents continue to live in these islands only partly because the river water provides them with a source of livelihood through agriculture. Due to their lack of acceptance by the government, they ironically feel secure in these no-man's lands, where property rights are not established and they do not come into contested territory where their adversaries may be 'true' citizens of the country.

Salema Khatun, 40 years of age, lives with her husband whose primary occupation is agriculture, which is completely dependent on the river. They cultivate paddy and jute, the former for self-consumption and the latter for sale in the market. The husband also does fishing as a supplementary activity, for own consumption. For drinking and domestic water needs, they have a tubewell installed.

During the floods, the water level reaches knee-height, and enters the house most of the time. In these times, they create raised platforms by putting chairs over the bed inside the house, and high platforms outside the house for the animals. They put all their belongings and valuables, on top of the raised platforms inside the house. Salema finds it difficult to arrange food for the cows during these times. They have to prepare a chulha (stove) in the machan (it is small and transferable also), and boats are primarily required at that time for transportation. They also own a small boat, like everyone else in the village.



The tin houses are quite common in the char areas among the Bengali speaking Muslim communities in the lower Assam district of Dhubri, as they are transferrable and more durable during floods and erosion



Jahangir points out the raised platform or machan that has been constructed inside the tin house to live on when the water begins to come inside of the house. These machans are also used to store the valuables during the flood. The insides of the tin houses is uncomfortably hot and humid, all the more because there is no electricity in these villages.

After floods, they sometimes need to reconstruct parts of the house and floor due to the damage caused during the floods. Sometimes they have to migrate to a new place, when the floods are more severe with accelerated erosion. When the water level is very high, people just take off the roof and migrate out on their boats, which would be parked right next to the house. Since these villages don't have access to any sanitation infrastructure, and government interventions are non-existent, they just take the boat towards the river, both for toilet and bathing purposes. These boats are central to their existence, due to the frequency with which they face floods and need to move. Every year during the monsoon months (June-July), the flood occurs often 2-3 times during the season. The flood then recedes but there is a high probability of re-occurrence of flood during September-October, though during this time the water level would not commonly be as high as the monsoons. Rice is also dried before the arrival of rains, if possible, so that the same can be sold on time without getting spoiled and also consumed during the floods, when they have less means to get food supplies from outside.



The boats that every household owns, and they not only assist in providing mobility and a livelihood but also act as a shelter at times during the flood and provides a space for cooking their meals

Typically every five year, a flood of major proportions occur, when they are forced to migrate to a different char. After the submergence of the char they used to live before due to erosion, Salema's family have shifted to the current one in 2012. The furniture was buried under the sand and had to be recovered by digging them out. Salema, however, never feared for her life as she had immense faith in Allah. She feels that floods are as essential as dangerous. Without the river, she feels their lives would cease to exist. Lakshmaniya Devi from the Bin fishing community, who works as a domestic help in Dhubri town, echoes Salema's sentiments, 'River is like our home. Mai baap sab nadi hi hai!' Salema points out that the alluvial soil deposition helps in sustaining agricultural production with very little inputs. Her husband, Sohrab Ali, has a very different sentiment. He feels he would be better off without the river, cultivating on the mainland with the help of a tubewell, probably for a while discounting the irony of their continued existence in the chars.

8.3.3 Varied patriarchies in Lower Assam

Women are mostly confined to their homes and hardly ever go out of the villages. The villages they reside in, however, frequently change, due to submergence of the islands forcing them to migrate from one island to the other. The hope that they will ever have access to infrastructure is limited, partially due to the transitory nature of the space they occupy and partially due to their social status bringing alienation. The women almost never go to the markets and have extremely limited mobility. One of the significant difference in this gender space with the others that have been discussed is in terms of the overt patriarchal norms where women have no involvement in either the agricultural field activities or fishing activities. The primary goal of a woman's life, as per the assertions of our elderly male respondents, is *'to get married and look after their family'*, and other aspirations are openly not encouraged.

40 year old Salema says she does not go for fishing, because no woman from the community is expected to do so. She does not go to market either, other than when she is at her parental home at Lakhipur. Usually her husband goes to the market to get the necessary items for the household. It is apparently feared by the men in the community that if the women are mobile, they would leave their husbands for someone from the town. This sentiment not only has significance for gender relations, but also acutely for the class insecurities of the men of the community and reflects their utter helplessness about their circumstances.

During floods however, according to the women, both the husband and wife have to work equally. The husband rows the boat, harvests the rice, gets grass for the cows from the far areas of the char. The wife stays within the compound of their house and feeds the cows, does household chores, cuts bamboo and prepares the raised platform to store their belongings.

The Bin community has somewhat different gender norms in terms of the woman's engagement with the public space. Basanti Devi, 40, living in a village called Bin Patti in Dhubri district, works as a domestic help in the town. She supplements the income of her husband, whose main activity is fishing. Recently they have installed a tubewell that provides water for drinking and cooking, donated by Basanti's employer living in the city.

Basanti Devi appears somewhat impatient with her husband, who she feels earns less but refuses to take up any occupation other than fishing. She is practical about their economic situation and has guided her three children, two sons and one daughter to work. She is not apologetic about advising them to drop out of school, as she realistically points out that the limited resources they have is not adequate to ensure an education, based on which a job can be acquired for her children. Her eldest son runs a grocery store, her daughter works as a house help like her while her younger son works as a daily wage labourer in Mumbai.

Likewise, though Lakshmania Devi, again from the Bin community, still lives under the shadows of patriarchy, agreeing not to board any other boat other than her husband's as per the social norm, since, she still has a rebel inside her. She feels that when her husband isn't working in periods when the fish is not available, she is the primary earning member for the household, and she should be the one to be making the important decisions for the household.

Salema on the one hand, and Basanti and Lakshmania, on the other, live out diverse sets of patriarchal values and negotiates with them differently. The social group differentiation and the gender- religion intersectionality in the first case and gender-caste interlocking on the other is

one reason for such differentiation, though there is a class commonality in both cases. The physical environments are different in these two cases, too, with the *char* producing a restrictive space for the woman in the first case, and living in the mainland near a large town with opportunities of paid work in the second, which provides alternative paths that can be charted out by the woman, though in very constraining circumstances.

8.4 Narratives from Bangladesh

Bangladesh is known as the ‘land of rivers’ and major rivers that flow through Bangladesh are Ganges, Brahmaputra and Meghna with a complex network of 230 rivers including 57 international trans-boundary rivers. Due to its geographical location, Bangladesh is extremely vulnerable to several natural disasters. Every year natural climates upset people’s lives in some part of the country or the other. Major disasters occurring on a regular basis in Bangladesh are floods, cyclones, flash floods, droughts, tornadoes, riverbank erosion and land slides.

Jamalpur district, the field site in Bangladesh for this study, lies on the bank of the river Jamuna (Brahmaputra) close to Mymensingh near the India border. Due to its adverse weather condition, it is an area of continuous flooding and its image is that of an area which is always flooded. Every part of the district is however not equally vulnerable to flood. Some upazilas (administrative unit in the hierarchy lower to the district) are more vulnerable than other due to their location. Severe periodic flooding is also common in the district. Almost every flood that strikes in Bangladesh affects Jamalpur district. Extensive floods greatly affect the marginal population, who lose whatever assets they have and suffer from lack of work and wages. Floods also cause serious damage to crops, property, fisheries and livestock and other resources.

8.4.1 Uncertainties of living close to the river

According to Md. Joynal Abedin, the newly elected chairman of Shapdhori Union Parishad, Islampur Upazila, Jamalpur District and the Headmaster of Shapdhori High School, around 15000 people are living in this union. Most of the people of this union are Muslims with only a few Hindu (10 to 15) families. The main earning source of the people of Shapdhori union is agriculture. Majority of the people are tenant farmers, and very few of them have own land. Major crops of these areas are maize, pepper, pulses, wheat, paddy, nuts, onions and vegetables like brinjal. Most of the farmers now cultivate maize instead of paddy as it needs less labour and yield more profit. Ironically maize requires far less water than paddy, which is currently chosen over the latter, in spite of the area being water abundant, due to considerations of labour. Ground water is the main source of irrigation in this area, though the aquifer is recharged due to the presence of the river. Some people are also engaged in fishing but they cannot harvest fish regularly from river because of government restriction on fishing during breeding time. Around 100 - 150 fishermen families are live around the region. Unfortunately most of these families feel that the time allocation from the government is insufficient for supporting their livelihoods.



Maize, the popular crop in Shapdhuri Union preferred over paddy in recent times

Floods, river erosion and sand storms are very common in area. The former is the most frequent phenomenon which is occurs almost every year. Almost every year flood inundate the lands, wash out their crops and destroy their homes and assets. Flood in this area occurs in the monsoon months and stay for about 3 months at their homestead land and six months at the low land. In 2016, there was a severe flood which was about 6 to7 feet higher than the normal water level. It creates huge problems on their livelihoods. Male-selective out-migration is one of responses due to the frequent floods. Due to the adverse effect of climatic disasters, unemployment and in search of better livelihood opportunities, men, at times with women, often move to the cities of Jamalpur, Dhaka and Sylhet. They typically work as rickshaw pullers, in garments industries, jute mills and construction activities.

According to Joynal, education is seriously hampered in Shapdhuri Union due to frequent flood and continuous river erosion. He added that Shapdhuri High School was established in 1994 and the school has shifted his buildings 12 times because of continuous river erosion. Last year due to the severe flood, the school building washed away by the river. The makeshift arrangements that were made took a toll on the enrolment and attendance in the school. Communication problem is another challenge in Shapdhuri Union particularly during the flood. A speed boat is the most appropriate vehicle for emergency rescue during flood and river erosion.



Washed away school building in Shapdhuri Union

There are several chars in this region of Bangladesh similar to those in lower Assam. Fuladdi Mondal lives in Char Kasaridoba that falls in Islampur upazila. He is around 60 years old and he engaged in agriculture and agri-product business (jute and nut). He has seen the Char break up about 18 times in his lifetime. He said that his settlement had destroyed during the flood of 1988. He had lost his 2-3 acre Agri-land due to river erosion. During the flood of 1995, the area was submerged under water for about 3 months. One of his daughters had died during that episode. The girl was about 3 years old and she died due to a water borne disease. During the flood of 2016, due to the good work done by two NGOs that helped them raising their household plinth. However, the flood extensively destroyed their crops.



River erosion in the Char causing frequent and extensive losses of land

Only the poor live on the bank of the river. Anyone with resources and agency have shifted to Islampur upazila to avoid the extreme hardships they face in the *char*. The poor who stay back, like in Lower Assam, migrate from one char to another char over time. Communication system for people living in the *chars* is even more challenging for the residents than those living in the bank. Boat is the main communication system but its service is poor. The regular and cheaper boats are available only 2 times in a day. Residents, in times of emergency have to pay 1000-1200 *takas* to the boatman, which is not affordable for all. Embankment are thought to be the answer to many of these problems, though such investments are yet to come from the Government. The NGO's do not have adequate funds to help people adequately during floods.



The infrequent boats available twice a day for the residents in the Char forms the only mode of communication with the mainland



Fishing as an activity is primarily performed by men



Shahida Begum: In spite of having to struggle with poverty, she participates in social work for the NGO in her area

The poverty particularly in the char somewhat dilute the gender division of work that are traditionally there in Bangladeshi societies. Despite significant increases in school attendance among younger women in the recent past in Bangladesh in general, the flood affected areas like our study sites have not experienced favourable changes in terms of the general education levels, particularly for that of women. Women's links with the outside world is more limited than men. The work that both Shahida Begum and Laki Akhter do are central to sustaining their families livelihood. In case of the former, she is the primary cultivator with her two young sons, since her husband has been paralysed. Laki Akhter, also a school teacher from a comparatively better off family, is nevertheless scared of the devastation the river may cause to their lives. Norms governing segregated and asymmetric gender roles and restrictions strangely work more in the latter case than in the former. On the one hand, the extreme poverty limits the choices that Shahida can exercise, but the responsibilities she has to fulfill forces her into a position of relatively higher mobility. The entire burden of domestic and extra domestic activities are borne by all women in the area, like all of rural Bangladesh. Women and girls have to travel long distances for collecting safe drinking water from deep tube-wells in the area. Women and girls face acute problem because of social safety and lack of sanitation facilities. Pregnant women and the elderly suffer the most while accessing health facility in the main land.

9. Concluding Remarks

This research was undertaken to bridge a crucial gap in understanding the social realities of Brahmaputra to inform transboundary issues better. Not only does this report aim to deepen an understanding of societal interactions with the river in the three of the four riparian countries, it also examines the relationship between the physical landscape and the genderscape of the river. The hydrological dynamics of the river tend to be over-emphasized in any discourse or dialogue around transboundary rivers, neglecting the social realities surrounding the river. In particular, the specific element of gender, undeniably relevant for any kind of engagement around water, is conspicuous in its absence in the dialogues among even the civil societies across national or provincial borders.

This study has been conducted at two levels; a macro view has been used to link the upstream-downstream physicality of the river and the associated genderscape using quantitative data from an existing gender atlas, albeit only for India. A more detailed analysis, based on qualitative narratives of men and women in selected locations in Bhutan, India and Bangladesh, form the central part of the report to sketch out a microcosmic view of the social realities around the river.

The first part of the analysis highlights the finding that measurable indicators expressed as a gender development index, and in particular, relative (female to men) work participation ratios, are more adverse in the lower reaches of the river than its upstream context. Foregrounding natural landscapes of the river in the gender constructs underlines the fact that such constructs are not random, but follow a spatial logic. The basis of the strong spatial underpinnings of the gendered patterns have been explained, drawing from arguments made in the existing literature, through the differential quality of land in the upstream and downstream, both in terms of fertility of land and its accessibility, which in turn shapes land price and private property right regimes around it. It has been argued that better land quality, associated with river valleys and downstream reaches, historically attracted male domination of economic activities around land, while reducing the demand and value for female labour, forming strong patriarchies around it alienating women from control of such lands. On the other hand, the hills or the upstream reaches that are less fertile and accessible, are historically characterized with dominant common property regimes, male selective outmigration, and high demand for female labour. This makes women more visible in public work spaces, explaining higher work participation and share of women cultivators in such regions. Importantly, the analysis goes on to establish that at a very broad level, that the policy actions have further entrenched these spatial patterns instead of balancing out such biases in recent times.

The micro-view based on the gender narratives in the three countries throws a more nuanced insight into the broad outline derived from the first part of the analysis. Though this reveals a reiteration of the more diluted gender divides in terms of the workspace in the upstream areas like Bhutan and Arunachal Pradesh, and sharper ones in Assam and Bangladesh, a careful interpretation of the narratives enables a deeper understanding of the problem. It highlights a multiplicity of patriarchies that express themselves in the spaces that we focused on, which cannot be understood in terms of their respective strengths or taking the forms of a soft or hard patriarchy; these patriarchies are qualitatively different, though at times can be also distinguished in terms of their magnitude as well, with respect to limited yardsticks. Bhutan is characterized with a favourable and just property inheritance, while the decision making in public spaces weighing heavily in favour of men balances that off. Arunachal Pradesh, having multiple tribal norms and a greater degree of private ownership of all natural resources including the river, have women occupying the work space only when they are required to. In no other way does this social order challenge the traditional norms, whether it be in terms of property ownership, decision making in the private or the public sphere or the way in which policies have dealt with gender issues. Assam, within itself emerges as plural genderscape; as revealed from the survey, in upper Assam women can exercise limited choices, even in case of paid work, with some degree of acceptance of the such restrictions; Majuli in middle Assam is characterized by similar trends, though there is a ready recognition among both women and men, of the of the uneven burden of work on women; lower Assam offers an interesting variation of a socially alienated environment which is marked by poverty, and can be understood in relation to gender-religion and gender-caste intersectionalities, where the two cases highlighted in our survey produce completely different outcomes for women. These plural patriarchies offer varied opportunities

of women's potential roles in a transboundary dialogue. In Bhutan, keeping the difficulties of working with a centralized government structure aside, involvement of women in a dialogue platform is likely to yield far better results than having only men. In Arunachal Pradesh and Majuli, a nested structure of women's involvement may have to be explored. Given women's deep understanding about the river and other natural resources in these two places, which are in most cases better than that of the men, their inputs are likely to be crucial. However, this may not be effective in a hierarchical neat structure where women have to negotiate a gendered power structure. In cases of Upper Assam, Lower Assam and Bangladesh, the government and NGOs have to play an instrumental role in harnessing women's capacities in public engagement. The policies, in some way, need to find a way to engage with the existing social structure to enhance women's agencies believe that they can have a more meaningful role in shaping their own livelihoods dependent on the river.

One of the important insights from the study is that in almost all our study sites, there is evidence that it is only the poorest of the poor who stay back by the river to face increasing uncertainties that come with it. People who have the agency and resources have moved away from the river. Thus in a dialogue of transboundary river, it would be crucial to have the poor men's perspective as also that of the women, whose lives are as dependent on the river as that of the women, though in different way. Gender can be looked as a useful entry point to understand social equity issues of various kinds in this context.

Our analysis reveals that while the gender divides are very high in most cases in the pre and post disasters periods, it dilutes substantially during the period of the disaster, indicating potential for having similar mechanisms to involve men and women on issues of mitigation at the time of the disaster. The effect of the disasters such as flood or erosion need to be, however, problematized by occupation, age, caste, ethnicity and space. For the Brahmaputra basin, erosion has emphatically come out as a far more feared disaster compared to floods and the direction of public attention to the latter at the cost of the former needs to change. The issue of riverbank erosion needs to be taken up as a rallying point in transboundary dialogues as a common concern across borders.

The study throws up possibilities of building solidarities across borders around common socio-economic issues in transboundary water management to build a far more nuanced understanding about flood management particularly vis-à-vis the structural measures of prevention that has till date been taken up as a unitary and acceptable strategy.



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