Mapping Vulnerabilities

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Vulnerability as a concept, indicates the extent of effects or consequences of environmental hazards on land and waterbodies, and population groups as well. The use of local knowledge is crucial in hazard management taking into consideration the heterogeneous characteristics and implications of vulnerability. The notion of vulnerability is divergent and embedded in a number of ways in adaptation, resilience and capacity to recover from dislocation, and either the shocks of sudden changes or interruptions in environment and living, or the slow, gradual deterioration of environmental setting, dwindling resources and health. The components of vulnerability like exposure, susceptibility or sensitivity, and resilience in the forms of coping mechanisms and adaptive capacities, play integral role in urban planning and the formulation of legal and administrative frameworks for a specific site, a settlement, an administrative unit or a larger region. Environmental threshold, urban built-up space, as well as people's capacity to cope and adapt to sudden disruptions wreaked in by hazards, largely controls the magnitude of vulnerability and the potential to recover from structural damages, protect human lives and conserve environment, in addition to the dependent economic activities and social processes. Participatory and bottom-up approaches to reducing vulnerability often contribute by engaging local knowledge and resources in-situ; vulnerability assessment is another procedure that helps to understand the level of risk that a particular place or community is faced with. Dimensions, temporality, and scales of hazards are equally important in determining the means that help to incorporate and integrate plans and programmes and the interdependence of infrastructural growth, directed towards sustainable development, especially for fragile ecosystems. It is also important to consider how conditions of vulnerability are either environmentally created or are social constructs of anthropogenic processes. Pollution, environmental degradation, hotspots of hazards, exposure and ability to recover may be considered as significant elements in mapping approach, along with ecological consequences, demographic indicators and economic and social dimensions. The frequency and magnitude of hazards, elements at risk due to exposure to hazard, susceptibility and magnitude of damage, adaptation capacities and recovery from risk, in terms of environmental rupture and hazards in mine areas, river pollution, floods and risk management in cities, are some of the aspects that this research will focus on.

This Workshop endeavours to possibly put together nature of environmental hazards, consequences, and the approaches to mitigation, through the documentation of environmental hazards, owing to their interface with fragile ecology and topography, namely river front, extractive economy and life in the mines, the systems and sequences of development in cities, and the instances of hazards such as floods, droughts, etc.

Session 1: Keynote Lecture by Gopa Samanta

Sabyasachi Basu Ray Chaudhury Chaired the session. The speaker was Gopa Samanta. The title of her lecture was "Mapping Vulnerabilities: The Narratives of Structural Violence." She said that while perusing the titles under 'mapping vulnerabilities' in the search engine, I noticed that most scholars talk about methods and indices on how to capture the nature and intensity of vulnerabilities in many different parts of the world, and that a majority of these studies focus on climate-related crises, such as changes in the sea level and other catastrophic threats. These predominantly explore the incidence of threats and the impacts of those threats in terms of risk or possibility of loss. Therefore, I decided to talk about how these vulnerabilities are created worldwide by corporate capital in a nexus with international power houses and organizations in this globalized world. Vulnerabilities are rooted in certain geographies and in certain economies, mostly in Asia, Africa, and in Latin America, where the scale of poverty and associated problems are already significant.

While reading the concept note of this workshop, I could see that young researchers like you care a lot about the vulnerable people around the world, and you still believe with a lot of hope that we can change the direction of discourses towards a better, liveable world. You still have faith in urban planning, which you feel can lead us to a point where we can build ecologically sustainable, socially inclusive and socially just cities. I was very happy to read your abstracts as well, where you were talking about multiple dimensions of vulnerability across different geographical locations of the country. I am really looking forward to listening to you in this workshop. I feel that I will gain a lot, not only from the diversity of research material you will share here, but also from your optimistic outlook, which could help me to think differently.

For me, as an older and empirically engaged researcher, it is becoming increasingly difficult to perceive the idea of a better future where we would be able to stop creating vulnerable situations and stop pushing a chunk of people, especially the 'poor or disadvantaged', into vulnerable situations across the globe irrespective of the countries' geopolitical and economic conditions. Honestly, the ways in which we are changing the earth piece by piece are not encouraging at all; rather they are very depressing. By now, some of you may be wondering if you have chosen the wrong person for the keynote, and if you do so, I am not surprised.

In this talk, I will try to raise more questions, rather than giving answers related to mapping vulnerabilities, and in that process I hope to provoke you to think differently. There is no dearth of literature on the procedures and strategies of mapping vulnerabilities. The paper presenters will be giving us some ideas on how to map vulnerabilities in many different contexts, starting from heat islands and water scarcity in cities to floods in the river basin areas. I am sure these papers will offer useful insights into how to map the differential impacts of these threats on different community groups across class and gender through the lens of 'intersectionality'.

Therefore, I am not going to make another list of strategies for mapping vulnerabilities. Instead, I would like to question the process of creating vulnerabilities. Otherwise, we may get lost in the process of measuring vulnerabilities rather than looking into the structural processes vis-à-vis structural violence, which create these situations. I prefer the term 'structural violence' to define the processes which create vulnerable situations, as they are rooted in the political and economic structure of the national as well as global economies and lead to an unjust world. We all know that we do not have many solutions at hand and even if we did, such solutions would be ignored in favour of technology, capital-driven development and material progress. We have already crossed the tipping point in the context of biodiversity loss, ecosystem alteration, global warming and rise in sea level. However, we cannot spend our time doing nothing. As researchers, our priority is to critically look into the ground reality and understand how our practices of managing both natural and manmade environments can marginalize people and push them into more vulnerable situations. We should engage ourselves to analyze and explain how inequality works at every scale to make some people vulnerable for the benefit of others, especially those having power and the means to consume more ruthlessly and carelessly. I am leaving out the non-human species here. We do not even engage ourselves much in discussions about the vulnerabilities of non-human species in the anthropocentric world, although this aspect is equally important for the survival of human life on this earth.

Here, let me clarify my position as a researcher and scholar. When I was young, I tried to understand things differently, with lots of hope for changing the world. I used to think that my research would help people, would help policy makers and planners to think differently. But over time, I realized that I was not in a position to change even a single person's perspective, especially those who plan for us and map the strategies for development. As a consequence, my

perspectives have changed over time. The neo-liberal economy has created new narratives of development by prioritizing visible infrastructural development such as building roads and fly-overs, national highways, airports, dams, residential apartments and brand new smart cities, leaving out human development. As we all know, development in the true sense of the term is all about realizing human potential and capacity building. However, the social development necessary for such progress has now taken a back seat. We only opt for material development, even though we all know that material accomplishment does not add much to the quality of life; rather it increases inequality and violence, and creates disorganized societies where community, in the true sense of the term, is lost.

At present, I am more engaged in understanding how people who are facing vulnerabilities created by us perceive those threats and how they decide to cope with these extreme events. In our study on the chars of River Damodar, which Kuntala Lahiri-Dutt and I carried out together and which finally culminated into a book called "*Dancing With The River"*, we opted to understand how the people of the area see these fluid and ever-changing hybrid spaces called chars; how they cope with the threats posed by the river; and how they maximize their benefits from the experience of living in those spaces. That is why we chose the title "*Dancing With The River*"—dancing in a group, or even just two people together, needs a lot of co-ordination, they have to know each other's body movements very well, and each of them has to predict the other's next step to be in full co-ordination. We actually tried to understand how intimately these char people understand the river, its moods and its uncertain behaviours especially during the monsoon season. All the micro adjustments that they make with the river essentially develop out of their lived experiences. We geographers prefer to call this as the 'experiencescape'.

I deliberately use the term 'adjustment', as I do not like to use the term 'adaptation' the way it is often used by planners and policy makers. Adaptation is a long term phenomenon whereas adjustment is the bundle of short-term strategies to cope with vulnerabilities, which take place very quickly, sometimes without much prediction. On the contrary, adaptation takes place over generations and in a much more organized way, to adjust on a daily basis with vulnerabilities to gain a longer stability through practices of mutual coexistence.

Here we can cite one beautiful example of adaptation developed by the indigenous communities. The deltas of the world, especially those located in Africa and Asia, were settled and flourished

since ages because of the long-term adaptation to the cycle of floods faced over centuries. These people adapted with the help of technology like canal networks and small dams, but very slowly, with a holistic view of the entire river system and with sound geopolitical negotiations on the sharing of water, as the river often passes through many countries. The countries had to develop geopolitical stability to make those hydraulic systems sustainable over longer periods of time. Now, the systems of many rivers are compromised at different segments for the communities living in the upper and the middle catchments. As a result, deltas are now facing unprecedented problems, making it increasingly difficult for delta people to adjust with the changing river system and altered river ecology in the upper reaches of the river. In these encroached and disturbed river systems, the onset of disasters are often unpredictable and very quick, like the Glacial Lake Outburst Floods (GLOF) that happened in Uttarakhand and Sikkim in the Indian Himalayan region. Because of the indiscriminate interference in the natural system of the rivers, it has become far more difficult for riverine and delta communities to develop long-term adaptation strategies all by themselves.

We can bring in another example here from a completely different situation. Planners set out to change cities as per their prepared vision plans. They work on certain predicted growth patterns and changes, and prepare the plan to adapt to those changes. However, the ground situations completely change within 20 or 30 years' time. Therefore, city planning is often bound to fail. For instance, the long-term planning for cities set at the turn of the 21st century could not anticipate the Covid situation. Here I would like to remind you of the deplorable conditions of migrant workers working in different cities of India during the first phase of the Covid-19 lockdown in March–June 2020. Most of them could not stay back in the cities as they ran out of money to buy food and pay rent. They could not benefit from free rations provided under the PDS as they were migrants. They walked back or cycled to their native places 1500/2000 kms away, sometimes paid hefty amounts of money to get back home, and lost everything they had earned in the city. No city plans in India had given much thought to the migrant workers, who number in the millions, and without whom, no city in India can survive. Migrant workers continue to remain vulnerable in our cities as urban planning hardly takes into account the needs of the migrants. When we talk about vulnerabilities in cities, we must talk about migrant workers and their vulnerabilities as well.

I am quite unsure about the benefits of long-term planning and adaptation policies as top-down strategies made by the state and its bureaucrat planners as possible solutions to vulnerabilities. Those top-down strategies are bound to fail. We have interfered so much in the natural ecosystem that we really do not know how any further action is going to bounce back on us. People living in such vulnerable situations always have to adjust to unanticipated change. As a researcher, I am always interested in exploring the narratives of these pathways—how people adjust and exactly what kinds of help they need from the state to make their adjustments easier. Our research on those fronts can probably inform policies which are temporary, flexible and adjustable according to the local context. Although I am not a strategist or policy maker, I still believe that grounded research can better inform the policies. That is why our prime responsibility as researchers is to understand the ground reality through participatory research, rather than just collecting a bunch of data which are sometimes not even completely accurate.

There was a time when we used to think that we could find a permanent solution to all the problems created by nature, but over time we are beginning to understand that the more we think of permanent solutions, the more we create vulnerabilities. To solve one problem we create another. After independence, we thought that if we could upgrade the financial condition of the household, it would benefit all members of the family. However, by the end of the 1960s we realized that gender disparity in access to all kinds of resources within the family was increasing over time. By the beginning of the 1970s, we identified poverty as the main problem and went on formulating poverty-alleviation programs; we thought that the generation of livelihood opportunities and employment creation would help people come out of poverty. In neo-liberal India, we see that even after gaining employment and working hard, people remain poor because the income is decreasing for a massive proportion of people engaged in the petty informal economy, and the price level is increasing. This has resulted in the phenomenon called the 'Working Poor'—they work and yet remain poor. India currently has millions of such "Working Poor". The Indian labour market has gradually reached a precarious situation, giving rise to a host of non-standard employments over the last three decades of liberalization, privatization, and globalization. Extreme vulnerabilities faced by gig and platform workers in the shining cities of India dotted with skyscrapers, flyovers, shopping malls, and gated communities, is the newest addition to that list. In the heated cities of changed climate, with low pay, exposure to heat and water scarcity, these gig and platform workers are like foot soldiers of the city economy. How

are we going to save these extremely vulnerable groups of people from the forthcoming climate catastrophe? When we talk about heated cities, we need to bring in these intersectional class dimensions into the dialogue on mapping vulnerabilities.

We live in a consumerist society and to battle with the climate crisis we make frequent international trips to participate in the UN COP and other such meetings, leaving a huge carbon footprint. Sometimes, the sponsors of our international research grants such as the World Bank and European Union spend 20 to 30 per cent of their total grants on international travel for the collaborative teams scattered across the continents to attend two or three meetings in a year while the research project is supposed to focus on mitigating climate change and search for its permanent solution. That hefty amount of money could be better spent on easing the lives of people suffering from climate change. I am aware of one internal research grant working on the Sundarban that could not provide bio toilets as requested by the community groups to ease their lives. However, they chose to spend huge amounts of money on meetings and knowledge dissemination workshops for the travels of researchers and experts from all around the world. Sometimes I find myself questioning whether these funding agencies are really looking for solutions or do they just like to spend money under the aegis of their corporate social responsibility?

I also find the strategies devised by the UN and World Bank to 'save the earth' really problematic. For the first time, when I was reading in between the lines of the Sustainable Development Goals, I had more questions than answers on what to do. When we talk about the future, whose future are we really talking about—the future of those people who already enjoy a big chunk of the world's resources? What about the present? Can we even pretend that at present every person has access to minimum basic needs? In India, a huge segment of the population earns less than US$2/day which is considered the minimum amount a person should get to meet his/her bare minimum needs. In contrast, the richest one per cent owns a huge share of national wealth, leading to an inherently unequal society. The SDGs are nothing new or something that we do not know. We have been grappling with these issues for a long time. The reason why these SDGs seem to be inadequate to me is because they do not clarify how to stop the global corporate capital from overexploiting the earth's natural resources and how to disconnect its channels of negotiations with the governments in power across different countries.

Before we think of the UN as the saviour of this earth, we have to check who the sponsors of the UN are. The maximum share of funds comes from the United States of America and other powerful economies of Europe. These countries together have created and are still creating vulnerabilities in all countries of the Middle-East for the sake of control over petroleum, and other minerals in the countries of Asia and Africa. How can the UN talk about poverty alleviation when their funders are engaged in creating more and more poverty amongst low-income people in many developing countries of the world through pauperization of resources? These are just some fancy terms and lip service offered by international organizations, as they largely depend on these countries' financial contributions. How can we expect that an international organization that continues to create new vulnerable conditions in their member countries would be able to recommend strategies on how to rescue people from vulnerabilities?

When we talk about local knowledge, what do we mean by that? In today's world nothing exists as purely local. There is a term to define this condition called 'glocal', meaning every local is now connected to the global in some way or the other. Therefore, searching for pure local and indigenous knowledge is problematic for us. But I do not discard the importance of experience-based knowledge of the local communities in many different contexts. However, even if local people can explain to us where the problem lies and how we are creating more and more vulnerabilities, who is going to listen to them? Can we protect anything from being destroyed unless our research feeds activism?

The local people often feel helpless because the global capital of the neo-liberal economy is taking over every inch of the earth, and we are all big facilitators of those expansions. We need roads for tourism even in the highly vulnerable mountainous areas like those of the young mountain called the Himalaya. We need more and more power for growing towns and other densely settled tourist spots dotted with resorts and hotels, and for that reason we do not want to leave a single river of the Himalayan mountains un-dammed. These processes have already destabilized the entire Himalayan ecosystem, created enormous vulnerabilities, and pushed people further into the crisis of getting access to natural resources. But who cares? We need to build more and more physical infrastructure at the cost of livelihood resources of poor communities developed slowly over generations on the hilly terrain. On top of that glaciers are melting fast, and springs and rivers are getting dried up because of the changing climate.

Therefore, I would like to argue that the climate crisis is deepening the level of vulnerabilities already created by the process of structural violence in the name of development.

Neo-liberal economic practices demand the capital to move to places that offer cheap labour. Countries of the Global South compete with each other in showcasing themselves as cheap-labour destinations. It is more like inviting foreign direct investors to come and exploit our labour. No labour laws, no minimum salary comes under consideration. Bangladesh and Vietnam did this in the recent past and became successful garment exporting countries, but at the same time they created a terrible situation for a huge number of garment workers toiling day-in and day-out in sub-human conditions without any kind of occupational safety at their workspace. In India too, the wage share has shrunk while profit share has risen sharply during the last decade. Livelihood vulnerabilities are quite explicit in the countries of the Global South.

One of the papers today will be talking about the water scarcity in Delhi, and particularly in informal settlements. Every time I go to Delhi, the lush green lawns that line both sides of the roads in the city's elite neighbourhoods drive home this painful point. How do we spend so much water in a dry, parched city like Delhi on the maintenance of green lawns, while thousands of people fight every day to fill two or three buckets when the tanker comes? Delhi brings water from the *Bhakra* reservoir through canal networks and spends a huge amount of this water on the maintenance of lawns, fountains and swimming pools in the city. The 'Water Story of Delhi' should be written from the point of view of water justice. Similarly, in the resorts of Jaipur located in the same arid region, they maintain swimming pools for their high-end customers. This gross injustice prevails in every city of this country. We misuse enormous amounts of water on a daily basis, while some people literally die for water. When basic urban services like water become scarce, it increases the vulnerability of the poor people who have neither bargaining power over municipal supply, nor the money to access these resources in the market economy.

The mapping of vulnerabilities is also not free of bloodshed and death. In the war situation, Russia destroyed the reservoir which used to supply water to a large part of Ukraine. Israel has destroyed the water supply system of Palestine. In Pakistan, the farmers from Punjab province and the people of Karachi have taken all the water of the River Sindhu and the entire delta of the river has dried up because not enough water flows up to that point to join the sea. The erstwhile rich farming community of this delta has given up farming because of the lack of irrigable water.

Transgression of salt water is destroying the land and the river is retreating due to lack of enough flow to the sea.

I do not think flood itself is a disaster. It was rather a blessing for many different parts of the world historically. Floods used to deposit silt to make the land fertile. The earliest civilizations opted to live in flood plain areas so that they could easily grow crops. They believed that if there's no flood, there's no fresh silt. They used to pray for the flood. They did not build their empires on the river banks, because they knew it could get inundated, the river could erode the bank. Now, however, we have created big dams to control rivers. As a result, we are facing man-made floods, when those reservoirs are not able to hold so much water during heavy monsoon rains due to siltation. The silted reservoirs release water to protect the dam and create floods for the entire downstream areas.

The images of the tsunami of 2004 have perhaps disappeared from our memory, whereas the fact is that such a big event could happen again anytime in the future. Traditional communities left the areas closer to the river and the sea uninhabited. They used to pay attention to natural events and used to organize their communities accordingly. However, with advanced technology, we disregarded local wisdom and thought we could build anything anywhere. We could bring water from the aquifer located hundreds of kilometres away to the middle of a desert to create a city like Dubai. The city of Dubai is now turning to depend on big desalinization plants to create a sustained supply of potable water, as the distant regional aquifers have already been exhausted.

If we talk about the extractive economy, how could we neglect the ruthless exploitation of minerals in India, mostly from areas covered by forests and settled by powerless tribal people? We have given a fancy name for it—the 'greater common good'. Flood does not affect the rich, heat island does not affect the rich; mining does not affect the rich. Rather they benefit from all these activities which create vulnerabilities for others. The most mineral rich areas of our country are the poorest in terms of per capita income, as well as other human indicators. Therefore, we need to question from a holistic point of view to understand—who benefits, and at whose cost.

The time has come that we focus more on the processes that lead to the creation of these vulnerabilities rather than just measuring them. Mapping these processes is extremely important. For me, 'mapping vulnerabilities' means mapping of the processes which create vulnerabilities.

The stories of mapping vulnerabilities are stories of inequality and injustice too. Livelihood vulnerability is now not only a case of the Global South. In the developed countries of the North, the proportion of poor, unemployed, and homeless people is also increasing at a fast rate. But its proportion is undoubtedly more in the Southern countries and we cannot deny the fact.

To conclude, I would like to state that the narratives of vulnerabilities, as I mentioned above, are narratives of structural violence. The structural violence creates all kinds of injustice which marginalizes the poor and helpless people, and pushes them more and more into abject poverty and to deplorable situations. We must start talking about the structural violence and the resultant processes in the political economy which create vulnerabilities for certain groups of people and benefit the others. Lastly, I would also like to mention that in mapping vulnerabilities we need multi-scalar perspectives to understand vulnerability differentials at each scale, space, and time. Further, the contexts are significantly important to understand vulnerabilities. The 'one-size-fits-all' kind of idea does not help much to solve localized problems which are different from each other in many ways. We have to discard the idea of using a universal model for mapping vulnerabilities put forward by some international organizations, and rather develop our own contextual models.

Session 2: Environmental Hazards and Vulnerability: The Case of Bengal (Discussion on the CRG-RLS Compendium on Vulnerabilities)

The speaker Shatabdi Das began her presentation with a brief background of the creative project of CRG in collaboration with Rosa Luxemburg Stiftung. The study part of the creative segment of the research programme brings together a collection of essays looking into the vulnerable lives of people living in the deltaic region of West Bengal and a river valley that has witnessed rapid urban development. The first essay in the collection traced the history of coal mining industry and the consequent industrial and urban development in the Asansol-Durgapur region that subsequently experienced development of industrial townships and densely populated municipal areas. The coal belt here provides opportunities of earning livelihood but the practices of coal extraction also result into environmental hazards that raise vulnerability. The second essay described the ways in which a river valley development with plans for dams as part of a multi-purpose project in the Damodar valley opened the way for displacement and the challenges of rehabilitation. The third essay noted the problems that people crossing rivers, especially the river Ichamati that forms the international boundary between India and Bangladesh, face in terms of work and economic options, while exploring the resources offered by a riverine ecosystem. It reflected on the damages that extensive soil mining by brickfields cause to the river leaving behind a vulnerable group of people who depend on the brickfields for earning livelihoods. The fourth essay analysed the fragile nature of the wetlands in the eastern part of Kolkata and the risks that the city faces due to its location in a flat terrain close to the delta. With passing time, Kolkata along with several parts of the world, has been struck by growing number of extreme climate events. The network of canals and wetlands that run through Kolkata play an important role in safeguarding the city from disasters, while also providing essential services. However, those with limited access to resources remain the most vulnerable in the city.

The discussant Amites Mukhopadhyay elaborated on four aspects that the speaker highlighted and began by pointing out that vulnerabilities keep undergoing changes, and therefore it is difficult to document vulnerability. In the age of climate change and climate reductionism understanding the structures of asymmetries become important. Mukhopadhyay mentioned the difference between vulnerable and the less vulnerable and asked if one can look at the history of land-making, land development and market through focus on how the people with local knowledge had been forced to move away while initial urban developmental activities took place in the post-colonial times. The discussant stressed on the ways in which local knowledge and adaptations feature in policies or decision-makers documents and, if local knowledge traverse mitigation approaches. The issue of Kolkata and East Kolkata Wetlands are complex and damaging as infrastructural projects, modern accessibility, connectivity cuts across deltas and Himalayan mountains. While looking at climate hazard mitigation, it is important to move the gaze from legal frameworks and look into the structural changes that add to vulnerability. The chair of the session Ranabir Samaddar raised a few questions and reflected on the situations that compel people to develop plans with vulnerable situations, precisely prepared through planning, city plans, urban area plans, and if the planning processes or plan reports themselves lead the way to disasters. Samaddar underscored if the plans aimed at limiting vulnerability actually removed vulnerability or added tools to the disaster creating circumstances, and the policies for decision-making and justification through city development plans. There was mention of vulnerable people and the question of vulnerability, vulnerable situations and their subjects or vulnerability producing subjects, person-specific vulnerabilities. A number of questions were asked related to the gendered dimensions and policy interventions for combating vulnerability, alternate livelihood options for coal mine area residents, the problems of poverty and climate change, population groups being vulnerable before a hazard or disaster, or pushing people living in vulnerable places to greater dangers.

Session 3: Discussing Vulnerabilities: Water, Flood and Climate Change

Samir Kumar Das Chaired the session

Nirmalya Choudhury was the first speaker of the session. He was peaking on the studies that he is doing with the issue of floods in the Ganga-Brahmaputra basin. He focused on the floods that happened in the Maharajgunj district of Uttar Pradesh to the Karimgunj district of Assam. The area become an ideal hazard prone district due to climate change and the people lived in these has been displaced for several times. According to Choudhury the rehabilitation was one of the major challenges this area as most of the places are tend to be flood prone. Therefore, communities living in those areas facing different types of vulnerabilities. The losses they experienced has different dimensions. According to Choudhury at least fifty percent happened with the crops. The risk became higher after the dams, roads and other infrastructural measures has been taken after the independence. The studies related to the infrastructural development has proven the fact that the devastations due to floods has increased sixty-six percent particularly in the Ganga-Brahmaputra basin. Choudhury pointed out about some interesting facts. He said that the inhabitants living in the Ganga-Brahmaputra basin are habituated with these floods for long. According to some historical facts these floods helped the inhabitants at one point of as it increased the fertility of the land and help to grow quality crops. According to Choudhury the new technologies of dam and road building created different disasters and also increase the vulnerability of the marginal people. Explaining about the current trends of river bank erosion Choudhury mentioned that infrastructural disputes of flood protection has been discussed during dams and development. According to Choudhury the approach to the sustainable and economically profitable arrangements are more applicable than the large projects. The issue of the river-bank erosion should be focused and role of building resilience towards the big projects should be useful.

Roshan Rai

Next speakr was Roshan Rai. He was talking about the three memorandums- also to acknowledge- to all the bengals- role of the North Sikkim- Along with the floods brought down that burst open- photos of Dikchu the divastation of dickchu due to land erosion- top- Narrating the Sikkim disaster as the disaster declared by the Sikkim Government. Part of the rhetoric that we are here- Sikkim call it a disaster which Bengal did not. Size and scale of the Tista disaster. Outlook and intervention of the disaster- hidden narratives- Challenges- geographical narratives are important apart from gender and class narratives- It is not an one time event-Role of development and flash floods- Climate context discourse- development discourse is business as usual. Class also important and talkable. Caught up in the regional autonomy demand. News dies of in one or two cases. Thousands ware bounces back to normalcy- Relief and rehabilitation- Teesta as the transboundary river- river basins tend to start where the river basin begin-mountain never get a -role of restoration-

The comments began with Overwhelming Governmental apathy- The limitations of local knowledge- Urbanisation without the subjugation of local knowledge- Replacement of dikes- riverbeds simple gets choaked- bad role of embankments- vicious nexus of politicians and development professionals- irrigation engineers happened to be an IITans- Ganga action Protirodh Nagarik Samiti- limit which is a role of imperatives- Local knowledge is limited- lifeline of survival for the victims. Invisible Faultline – Chars-Role of erosion on -Nuance look of vulnerability- Kchio Lepcha- Sikkim University- Role of rapid public alert system- communication and indigenous knowledge- contributions to the public.