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IN-DISCIPLINE(S):
DIVERSITY, DISCIPLINARITY AND THE HUMANITIES
Kailash C. Baral

IRON AND SOCIAL CHANGE IN
PRE-COLONIAL NORTHEAST INDIA
Amrendra Kr. Thakur

CITY-BOUND OUT-MIGRATION FROM THE NORTH EAST INDIA:
A CASE STUDY OF DELHI
Babu P. Remesh

'NO IMMIGRANT MUST BE ALLOWED TO SETTLE':
MYMENSINGHI IMMIGRATION AND THE MAKING OF THE ASSAM
LAND AND REVENUE REGULATION (AMENDMENT) ACT OF 1947
Binayak Dutta

A STUDY ON REGIONAL DISPARITY OF DEVOLUTION OF
RURAL INFRASTRUCTURE DEVELOPMENT
FUND - EVIDENCE FOR INDIA
S. K. Sen, S. Guha & N. Chakraborty

ECONOMIC MANIFESTATIONS OF CHANGED LANDSCAPES:
FLOOD, SAND AND LIVELIHOOD IN AN
UPPER BRAHMAPUTRA VALLEY
Kalyan Das and Dadul Chutia

BOOK REVIEW- IDENTITY AND VIOLENCE
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Contents

In-discipline(s):
Diversity, Disciplinarity and the Humanities
Kailash C. Baral 1-14

Iron and Social Change in
Pre-Colonial Northeast India
Amrendra Kr. Thakur 15-36

City-bound Out-Migration from the North East India:
A Case Study of Delhi
Babu P. Remesh 37-59

'No Immigrant Must Be Allowed To Settle':
Mymensinghi Immigration and the Making of the Assam Land and Revenue Regulation (Amendment) Act of 1947
Binayak Dutta 60-71

A Study on Regional Disparity of Devolution of
Rural Infrastructure Development
Fund - Evidence for India
S. K. Sen
S. Guha & N. Chakraborty 72-90

Economic Manifestations of Changed Landscapes:
Flood, Sand and Livelihood in an Upper Brahmaputra Valley
Kalyan Das and Dadul Chutia 91-119

Book Review- Identity and Violence
Nivedita Goswami 120-124

In-discipline(s): Diversity, Disciplinarity and the Humanities

Kailash C. Baral*

Preliminaries

Diversity is our challenge. Not in the sense how academic disciplines negotiate with diversity as such but how disciplinary singularity also seeks a plural horizon to signify itself. Indiscipline as an antinomy of discipline is employed here not as a binary opposition but having a third position being hyphenated as 'in-discipline' in order to imply that indiscipline is not external but internal to any discipline as such. 'In-discipline' therefore would mean seeking normativity or the logic of disciplining whatever that may mean in fixing the boundary of a discipline and without a hyphen would mean something that is external to the discipline that defies the disciplinary logic. A similar dynamics also operates in academic protocols of preparing syllabi, setting pedagogic objectives, doing research, teacher recruitment, admission of students and so on in our universities. In this context, it is therefore pertinent to examine the force of 'in(-)discipline' as a referent in the context of Indian universities.

Following some of Arjun Appadurai's concerns in his essay "Diversity and Disciplinarity as Cultural Artefacts" (1996), it is pertinent to ask how does diversity operate and what modalities does it seek at the domain of disciplinarity as well as at the sites of higher education; say at a postcolonial university in the production and dissemination of knowledge. Further on to engage with the problematic, it is equally important to look at the way Appadurai sets forth his discussion considering diversity and disciplinarity wherein diversity means "plenitude, having an infinity possibility and

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limitless variation" and disciplinarity means "scarcity, rationing and policing" (p.23). To reduce his concerns to an opposition between a limitless plurality versus disciplinary particularity is not, I guess, Appadurai's intention, for he examines diversity in a broader context of the social and the political, in the context of different constituencies of the American society in terms of affirmative action; the way such interventions impact the university in terms of teaching and research. He further looks critically at the shift "from cultural diversity to a culture of diversity" in pointing at an aporia that underlines a deficit in "a substantive articulation of an epistemic inwardness" (Ibid). Even though Appaduari's anxieties apparently seem to concern American Research Universities, they have serious implications also in the Indian situation. In the face of external interventions what is important to Appadurai is "Epistemic inwardness." "Epistemic inwardness" to me would mean, having an in built system of self-critique as well as self-reflexion that creates the possibility of open dialogue. This is a responsibility without alibi. It is more challenging than diversity because if the episteme is fractured and lacks coherence in terms of its structure and manifestation then in what voice it would talk to itself and to others. This problematic is a double bind and a paradox. A double bind in the sense that the foundational principles of a discipline if get subverted by its own action its object of study gets obfuscated, leading to an inimitable blindness that constrains the very process of seeing, may be seeing reason; a paradox because what is meant or supposed to be done ends up in doing something else.

The Scenario

In postcolonial times, we who represent different constituencies of higher education are also implicated in its processes often losing our voices to those who control and manage the system. There is an exponential growth of universities in the country today (when I joined Northeastern Hill University in 1979, it was the 7th central university now there are forty central universities, more than 100 state and hundreds private universities, including special universities such as forensic, petroleum, shipping and so on). We in India hardly discuss or debate what type of university we need wherein opening up of universities has been either a government prerogative or it is left to private players for commercialisation of education. The story becomes bizarre when Ajit Jogi allowed many foreign private

universities to open shops in Chattishgarh with the plea of getting FDI in education sector. Even the MHRD ministry is also keen to invite foreign universities using the same plea and justifying its stand in the name of quality education. Is quality a prerogative of foreign universities? Cannot we ensure quality in our own universities? What stops us in doing so? The Supreme Court of India derecognised the universities opened in Chattishgarh. Is there a lesson for us to learn from this judgement of the Supreme Court? The story does not end there as in the case of hundreds of Deemed to be Universities the problem of recognition still continues. It is high time that we debate on the type of university we want in asking has the colonial grafting of a university into a multilingual, multicultural, multiethnic and a caste ridden society outlived its objective. If so, it would be pertinent to ask how the university as an institution could provide critical-intellectual direction to our socio-cultural and political conflicts while providing space for competing aspirations. If education is a creative engagement with life it is further pertinent to ask how is it integrated to our cultural practices and social life? These questions take us to the other relevant question that of the status of humanities education in Indian universities today. As the scientific-technology paradigm underwrites the intellectual quest, production of knowledge and pedagogic practice, we need to relook at humanities education today critically. It seems redundancy meets the creative and intuitive aspects of humanities. If humanities have to justify as disciplines there is a need to look at it critically both in terms of diversity and disciplinarity in the changing times. Challenged by new social conflicts, on the one hand, and, on the other, afflicted by disciplinary decadence, humanities education seems to be in a crisis today in an ever expanding university system in India.

The University as an Idea

The University is not a physical entity as such but has evolved as an idea in the West. Wilhelm von Humboldt established the first modern university in Berlin in 1810 and this university became a model for all modern universities in the West. The idea of a university largely was a product of Western Enlightenment and held forth by Kant under his three regulations of reason, culture and excellence. Humboldt, a great advocate of liberalism visualised a sublimation of the normative force of reason in a culture of liberal thinking that could make a university a place, reclusive in character,

but suitable to pursue and produce knowledge for wider dissemination. The Kantian discourse of rationality was expanded by Weber with his argument of "logical consistency" that would systematise beliefs as much as organise actions (Talgeri, 1999: 74). Hence it is not just concretising an idea but translating the idea into organised action. The establishment of the modern university in the West coincided with radical transformation in the social context of knowledge production with the separation of religion from education that ensured the stability of scientific knowledge and its enquiry, and ensured its institutional autonomy from the state. The epistemic shift from religious to secular learning was further reinforced with the stated motto of Wilhelm von Humboldt that a university is a place for the "unity of teaching and research" "engaged not only in the assimilation, transmission of existing knowledge but also become centres for the creation of new knowledge"(Bèteille, 2010: 22). Considering the roots of American universities in imbibing the German philosophy, Bill Readings in his work *The University in Ruins* (1996), further dwells on the Kantian context as a story of modernity:

> The characteristic of the modern University is to have an idea that functions as its referent, as the end and meaning of its activities. . . . In general the modern University has had three ideas. The story begins, as do so many stories about modernity, with Kant, who envisioned the University as guided by the concept of reason. Kant's vision is followed by Humboldt's idea of culture, and more recently the emphasis has been on the techno-bureaucratic notion of excellence. The distinguishing feature of the last one in this list is that it actually lacks a referent. That is to say, the idea that functions as the University's referent–excellence–itself has no referent. The University of Excellence is the simulacrum of the idea of a University (p. 54).

Readings' argument exemplifies how an idea seeks a referent, a modern concern of seeking an epistemological mooring in the form of a university wherein ideas internal and external to a university stated and unstated keep on evolving and become generative. If the generative character of an idea is reduced to a techno-bureaucratic concept such as "excellence", a non-referent, it remains as a simulacrum of that idea. The modern university, as it were, in Germany has a philosophical foundation besides Kant, in Hegel's understanding of institutional structures reflecting the 'objective

spirit', in Dilthey's attempt to balance natural science with humanities in using the modalities of explanation and understanding that continued to be reflected upon in Habermas's insistence on "moral culture" in that " the entire intellectual life of a nation can be focussed in the institutions of higher learning" (Talgeri,1999: 7). In England, Cardinal Newman in his work *The Idea of a University* (1907) further elaborates on the context of a modern university adding to its function the true and adequate end of intellectual training wherein thought or reason is exercised upon knowledge (p.140). The instrumentality of reason seems to be the very life force of the modern university. However, it was never separated by implication and practice from the ethical. Robert Young (1996) in his "The Idea of a Chrestomathic University", although critical of the older Universities of England—Oxford and Cambridge—formally being historically outside the provenance of the new universities, finally, concedes to the inseparability of the ethical and the rational. What exactly is the ethical/rational frame within which a university functions? For me, ethicality is a process of self-discipline that defines a person's social character and integrated self. Such self-discipline is necessary to cultivate a habit of mind that works at the command of the rational. Hence at the site of intellectual practice, there happens a sublimation of the ethical-rational. Fichte has visualised this as the guiding principle of a university, for he considered the university as the birthplace of a future emancipated society. Of course, he did not mean emancipation in the political sense but predicated emancipation to liberation of the mind in teaching, thinking, doing research and producing positive knowledge for good life.

However, the so-called moral consciousness of a university, a product of the integration of the ethical/rational, under industrial societies resulted in the "disintegration of the unified metaphysical interpretation of the world as an ordered totality" (Talgeri, 1999:10).Whereas the modern university, in its structure, continues to be a composite totality that functions with a commonality of purpose and cooperative consciousness. As an institution its objective, among other things, is to play a pivotal role in fulfilling the educational needs and objectives of a society through integration of curricular goals with intellectual pursuit of knowledge, its production and dissemination.

University in India: Tradition and Modernity

The university in India is a colonial transplant. The establishment of Calcutta, Bombay and Madras universities by the colonial Govt. in 1857 did not have any "genealogical and historical connection with India's ancient and medieval centres of learning" (Bèteille, 2010: 23). These universities are primarily extensions of the European-modernist paradigm. Through these universities teaching of modern western education was reinforced in that colonialism became a pedagogic enterprise. As a transplant, the colonial modern university in India overlooked or ignored the real India as an object of study with its socio-cultural complexities and their imperatives. For Rao (2010), "It [the university] is a European implant with all its political, philosophical and cultural baggage. It is a graft imposed with utter disregard for the tissue texture of the host culture. For the graft itself was conceived as a part of a whole good bestowed upon a "nation" to be civilised". The colonial civilising mission was also defined in linguistic terms; Macaulay emphasised, among other things, the English language's "intrinsic superiority of reason" (Talgeri, 1999: 9). Be it as it may, there are other concerns and contestations that have been written about and debated, such as university education vis-à-vis Indian nationalism, secularism, western knowledge systems, postcolonial modernity in translating the colonial agenda into action with the objective of producing educated workforce for the colonial government and so on. As it were, the colonial pedagogic enterprise had two clear objectives: first, to teach Indians a diffusion of the improved arts, science, philosophy and literature of Europe; in short, European knowledge" (Seth, 2007: 2), secondly, to supplant indigenous knowledge (Oriental knowledge) that was condemned as ""superstitious," "mythic," "primitive," and, more generally, untrue" (Seth, 2007: 1). European modernity through the agency of colonial rule reached India not only through the universities, but through other institutions and agencies as well that "A textbook of 1897 told its audience of Indian school boys that the Penal Code, public works, railways, irrigation and civil works, schools, the post office and telegraph and a free press were all forces working to educate India" (Seth, 2007: 2). To educate India was not certainly to emancipate India but to construct Indians differently as knowing subjects of the European knowledge thereby creating a redefined context for the genealogy of knowledge.

Modelled after the newly established London University, the colonial Indian university was not a template of the European university as such with its philosophical foundation. It was simply a transplant and the curricular goals were meant primarily to serve the colonial objectives. Even so, the education that was imparted had consequences outside the colonial agenda. Macaulay's children were not mechanical products with/without the debate between the Anglicists and the Nationalists; some of them, the deviants with university education were able to reinvent themselves and the Indian cultural context even while adhering to the educational objectives of a colonial university. The civilising mission with its operative logic of reason worked to produce good (loyal) subjects instead of good Indians. Gauri Viswanathan's political-anthropological position in the context of conversion and modernity in India provides a window to another development in the mother country having its contrary effect in the colony. The Tory Government at home awarding the Catholics and Jews equal political status and liberty to practice their religion freely had the agenda of having good Englishmen instead of 'good Anglicans' but not in the colonies. The participation of the missionaries in Indian education in general reinforced the argument that the colonial Indian university although secular in character was implicated in a theological reason to produce good subjects for the colonial government. "Since the colonial good was assumed to be an *a priori* good, the host's potential or possible response to the intruding good remains foreclosed" (Rao, 2010). The colonial project of education succeeded in two ways: it did not overwhelm the traditional social hierarchies in India (including caste) and produced a group of loyal subjects to work for the colonial government. Thus the dispassionate pursuit of science and scholarship in a liberal climate did not constitute the basis of British-Indian university from the very beginning unlike its counterpart in the West. The postcolonial university in India continues with the colonial organisational structure and objectives because the university in India did not evolve as an idea. Hence its priorities and objectives were/are misplaced and misconstrued, for the universities continue to be challenged from within as well as from without. The recommendations of Commissions on education, most famously of the Radhakrishnan and the Kothari Commissions with Edward Shils as a member of the later with their comprehensive and productive contributions to reform Indian education system did not take place in its entirety if at all only partially. The Indian universities in Shils' view become mass universities where students come

for degrees for suitable employment not for enlightened knowledge. Further, the university with the policy of inclusive education has to bear the responsibility of educating the diverse and differentiated social groups thereby changing in character and moving away from its foundational goal of dispassionate pursuit of knowledge within an ethical-normative frame. It is in this context Andrè Bèteille's work *Universities at the Crossroads* (2010) is significant. The work is a compilation of his articles and convocation addresses on the state of Indian universities reflecting on its history, curricular, non- curricular mandate and other challenges including the social dimension of higher education in the country. With his vast personal experience, having taught and hold many positions at different universities in India, Bèteille expresses his anxieties and articulates forcefully the malaise that afflicts Indian universities today. He maintains, "The awareness of the continuing changes taking place in our universities—and the universities throughout the world — obliges us to take a historical view of the university as both a centre of learning and a social institution" (p.4). Besides its history, what is more important for discussion here is the changing character of the university as a social institution.

The Demographic Challenge

The university today is challenged in trying to adjust with the changing demography and governmental policies. It is therefore important that the disciplinary economies need to factor in the effects of caste, tribe and other social groups under whatever designation they may appear having been protected under the policy of protective discrimination in the form of quotas and quotas within quotas factoring in caste, community, gender, religion and so on. The marginal, the stigmatised and the excluded within Indian society have arrived not seeking only education but also with diverse aspirations where 'top is easy to find not the bottom' (Appadurai, 1996) challenging the university and its disciplinary mandate supposed to function within the so-called ethical-rational frame. Such a challenge has forced the universities to stretch their capacity in terms of admission, accommodation, classrooms and other infrastructure. The university, in spite of being conceived as a secular- democratic institution, with policy interventions of the government, in changing times, has become a centre for conflicting interests and competing politics. Such conflicts have a spiralling effect on ideology, caste interests and community solidarity. In

the process, new icons have adorned the walls and new slogans dominated campus politics. The so-called commonality of purpose and cooperative consciousness with the university's reclusive character for dispassionate pursuit of knowledge about the world and the human society in transcending narrow grooves of social boundaries are fragmented. Mass has replaced merit, and the voice of the enlightened minority is silenced.

Nehru's optimism that the university in India should promote equality as enshrined in the Constitution of India was sensitively articulated by Radhakrishnan that: 'education is a universal right, not a class privilege' (Bèteilie, 2010: 14) and was endorsed by Kothari in saying if the change has to happen without a violent revolution, the social equality could be achieved only through the instrument of education. But social equality has taken an aggressive turn in the name of social justice. The two premises of Nehru: (I) that "a university stands for the adventure of ideas and for the search of the truth" (Bèteilie, 2010: 156-57) and (II) that the spirit of the age shall triumph in bringing about equality in society have resulted in negation wherein the autonomy of the university is severely compromised with interventions from outside and with corrosive politics from within. The search for the truth if equated to self-cultivation of the mind following the rigour of rational enquiry, the question arises could we then arrive at truths that may be self-reflexive and other sensitive. The violence that haunts the universities speaks in many tongues and takes many forms encoded in ideological, caste, class and gender discourses. In such a scenario, I think Gandhi may be relevant. Mahatma Gandhi's, Nai Talim is an integral part of his own vision of a "good society"; of the "India of his dreams." His "basic national education" of 1937 was planned as the basic preparation of Indian children for sharing in a national society which itself aims at founding every aspect of its life, social, economic, political, cultural, based on truth and on non-violence - in other words, a new social order totally different from the existing one. Gandhi's view is primarily to change our mind-set not to close it, for education is not only liberation but a transforming process (Sykes, 1998). We have never given any importance to Gandhi's views instead have followed an ambivalent policy towards higher education at our own peril.

Disciplinary Protocols

In the present context, it appears that education in general has suffered an acute cultural and intellectual alienation. The disciplinary protocols of Indian universities, is challenged by a techno-scientific model with the assumption that it will redeem us from all our socio-economic maladies. This model that promotes research following the postulates of universal reason has pushed the humanistic education to the background within the university structure. As a consequence, research has become an endeavour for aggregation of numbers instead of authentic contribution to knowledge in terms of worth and value (comparing Ph.Ds produced at Indian universities to Chinese). Diversity and differentiation in marking disciplinary specificity and justifying their existence (for example, the department of resource generation at EFLU) have not been able "to find in these disciplinary differences any rigorous analysis or interrogation of the ontological necessity of the disciplinary frame" (Rao, 1999: 11). The value-coding of a discipline needs to be responsive to the university frame work from where it originates in terms of teaching and research and then its relevance to culture, society and to its representational contexts.

Humanities and Disciplinarity

Although the university is primarily a humanistic concept, the space for meaningful study of Humanities is shrinking today. The university, a place for producing archival and referential knowledge in a broader sense advancing our knowledge and understanding of man or the human self, his existence, aspirations, bondages and even the ends of man has to address the concerns of humanities and humanistic education. In a general sense, it is assumed that humanistic education brings together the imaginative-creative and the rational with an objective of awakening in a learner an integrated consciousness. It also looks at education as a cultural process, in traditions as captured in the arts, histories and philosophy or in human sciences. Among the three basic functions of a university "the freedom to teach and learn" constitutes the core of the humanistic perspective of education. Hitherto parameters of knowledge and "knowing" within the humanities are held suspect today. Humanities is an embattled field now, challenged and interrogated by diverse forces and discourses. What in the process has become central to the context is what and how

to teach and to ensure the freedom to the learner from his/her discursive struggle bringing him/her to dialogue. The ambivalence that entangles the failure of dialogue is the problem of agency.

Problem of agency in today's universities concern three major issues: structure, system and process. The structure of the university as a secular-democratic institution, with its mandate of dispassionate pursuit of knowledge and its dissemination with the objective of liberating minds towards a better society has been subjected to debilitating interventions. The 'Agency of indiscipline' as Foucault (1995) maintains surrounds the very exercise of authority of a university as an autonomous liberal humanist institution; authority to its own power is constantly challenged today in the coercions of the discourse of popular illegalities as "the affirmation of inalienable rights" (p.290) and a particular type of "liberty" (p.291-92) thereby destabilising the ethical-moral frame/system of a university. Foucault further maintains that agency of those who practice the "subjugated knowledges" or who otherwise give attention to the basic causes/nature of power in an approach to power relations from the point of view of the institution ignore the very processes that are designed to ensure the survival of the institutions. Further on following Foucault (1982), power relations conceptualised as the power of action to induce other actions makes one realise that power relations are "rooted deep in the social nexus, not reconstituted 'above' society as a supplementary structure..." (Foucault, 1982: 222), so that there is a possibility to criticise workings of an institution, (the University), neutral and independent and examine its process whether or not it fulfils its social obligations without compromising its mandate (here dispassionate pursuit of knowledge and truth) as well as to criticise the violence in the name of rights and privileges that is exercised through/upon the institution. There is a need to unmask these forces in order to "ascertain the possibility of constituting a new politics of truth" (Foucault, 1980:133) and change the regime of production of truth that detaches the legitimacy of institutional power with social and political illegitimacies.

In our context, pedagogic transaction is pathologised to the extent that the caste of a teacher has become problematic not how he teaches or what he teaches. The ideological and genealogical motifs attributed to texts (Ramanujan's *Many Ramayanas*). The minority that stands for reasoned

voice in a university is silenced even by legal intervention. It is no longer possible to ask whether a teacher is enlightening or not; whether a text is deep and enriching. How do we then negotiate between the core values of humanities and the dissemination of humanistic knowledge to enrich the self-knowledge of the knowing subject? If teaching of humanities has to be a sustained effort to strengthen the continuity of life and culture, as Steiner (1969) maintains, and to differentiate between the universal and the contingent, nature and culture, local and global, tradition and technology for the purpose of pedagogic practice we need to rethink on many issues. Gadamer argues that humanities to sustain itself has to be placed in a philosophical hermeneutics that allows a diffusion of horizons (1977 cited in Baral, 2002: 13). Unfortunately, Gadamer may not be relevant in our context today, for humanities education no longer seeks a philosophical hermeneutics with a historical awareness and literary-aesthetic understanding instead its study is directed to challenge the idea of "knowledge as culture" asking whose knowledge, whose culture leaving little or no room to draw together diverse methods and pursuits for diffusion of horizons. Teaching of humanities following its primary goal to know the world with an awakened self-knowledge is constrained by other considerations. The new humanities have paved the way to recast humanities keeping in mind the changing times. Foucault's concern to "ascertain the possibility of constituting a new politics of truth" bears upon our fresh endeavours to recast humanities having a deeper understanding of Gandhi's advocacy for a 'new social order' using education as a transforming process. It is not difficult to do so as two of my colleagues have attempted to in redefining humanities education (even if in a limited way) having courses on 'Jati and Genre', 'Critical Humanities' (Rao, 2010) and 'Culture and Biopolitics in the Construction of the Nation' (Dilip Dash) with the intent of moving away from the narrow boundaries of social division in producing positive knowledge in understanding our social malaise in a deeper way. Often such courses face closure or erasure by the powers of those who perpetuate the politics of social division within the university structure. There is a need to create space for alternative humanistic knowledge production and its dissemination.

If teaching at the universities has to be on the side of truth and critical judgement allowing a learner to discover the depth, richness and beauty of humanities it is time we ponder over the crisis that afflicts humanities education in our country. As it battles to survive in a techno-commercial-utilitarian academic structure and burdened with caste, class, gender and

other social factors where truth is no longer self-evident but manipulated and manufactured, there is a need for humanities to redefine itself in the changing paradigm of education.

Postscript: Future of an Indian University

Future of anything is unpredictable. To speculate on the future of a university, say any institutions' future may be preposterous. Around 2007-9 many American Universities set up commissions to prepare a vision document on the future of each university. These commissions as expected to make a review of the present scenario and propose the changes starting with the patterns of student intake to faculty recruitment to opening of newer disciplines, infractucture, funding and the techonological requirements etc. All these may sound mundane but my purpose here is to take note of the foundational values that it seems reiterate for a future yet to arrive. One such example is the university of Virginia:

These core values guide the discussions, actions, and funding of the University of Virginia's community of teachers and learners are:

- Honor and ethics
- Faculty excellence
- Innovation and collaboration in the pursuit of knowledge
- Diversity
- Leadership for the Public Good and Education for Freedom

These values for me have not changed across centuries as the guiding principle for the life of a university to prepare the youth to be enlightened leaders ready for effective engagement in public life in their communities,their professions, and the world. milproj.dc.umich.edu/publications/change/download/change.pdf

If these are supposed to be core values and universal to the life of any university anywhere the reality of Indian universities seems to be disturbing.

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Iron and Social Change in Pre-Colonial Northeast India

Amrendra Kr. Thakur*

Studies indicate that the use of, and working in, iron contributed to the making of history and culture among various communities around the world. These studies have shown that iron technology brought about certain changes not only in the techniques and modes of production but also in social organisation.[1] Such changes came to be manifested in social complexities among the people, including social stratification.

It has been argued that at a given point of time, society is characterised by a 'social formation' or a structure in dominance[2] - a dominant element that organises the social/political hierarchy and its inter-relations with the various other social groups and their practices. Social formation is thus understood as the total complex of the 'superstructure' and the underlying economic infrastructure which opens up possibilities for a proper historical understanding of social reality. The practical relevance of this conceptual framework is being debated among scholars the world over.

Surprisingly, the above outline which connects technology, history and society remains untested in the study of the history of northeast India. Historians have rarely tried to understand the role of iron in the socio-economic lives of this region. This paper looks closely at the Khasi-Jaintias, Khamptis, Monpas and Ahoms in an attempt to bridge this gap that exists in the historiography of the area.

At this juncture, it is important to point out that in its attempt to bridge the above-mentioned gap in the historiography of the region, the paper

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seeks to move beyond the colonial hangover that still ails some of the historians as well as the nationalist and/or communal stance adopted by yet others. Interestingly, even as one tries to stay clear of the confines of these approaches and the inevitable bias that they bring to historiography, it becomes clear that even the historians of other schools have ignored the study of iron in northeast India.[3]

Studying the role of technology beyond confined approaches is very important to perceive and analyse it comprehensively. It is so because no society grows in isolation. We certainly cannot agree on several views and approaches to the study of European technology as adopted by Lynn White Jr. but he is correct to opine that, 'technology knows neither chronological nor geographical frontiers'.[4] Thus, in spite of northeast India's comparatively isolated geographical location and a rather slow pace of technological development in the past, especially during the precolonial period, its technology needs to be studied carefully.

It is not only the region of northeast of India that has always been neglected in the studies at all India level but other tribal areas of India have also faced the same academic apathy. This is clear from the outcome of the survey of research conducted by Ajit K. Danda on the subjects of researches on tribes in India. He has observed that the sense of aesthetics, crafts, arts, including fine arts, for which tribal people enjoy a distinction, has received practically no mention. He further adds that it was found that out of the altogether 926 items that dealt with aspects of tribes in India during the decade under consideration, 336 among them can broadly be categorised as ethnographic accounts. The total number of articles highlighting aspects of tribal culture and change during the decade is 564, among which 167 deal primarily with change and the remaining 397 reflect some or the other aspect of culture. Other 26 items concentrate their attention on problematic areas as well as developmental issues related to the tribes. David R. Syiemlieh's survey of historical research on the land and people of northeast India has also similar findings to suggest. It is clear that the historians of modern India dealing with technology could not pick up the trend of studying tribal iron technology from Verrier Elwin's *The Agaria* which remains one of the earliest works dealing with the same in depth.[5]

Some other reasons behind such neglect can be well explained by using

the ideas of Eric Hobsbawm. He writes, "So long as trade has not become worldwide, and is not based on large-scale industry, the technological advances due to these developments remain **insecure**. They may, being locally or regionally based, be lost in consequence of barbarian invasions or **wars**."[6] (Empahsis added) The term 'insecure' used by Hobsbawm can be explained as unnoticed/un-researched in the case of northeast India because the smelting, use and trade of iron never became part of worldwide trade. However, it was thriving in northeast India including neighbouring areas of contemporary Bengal and Bangladesh during pre-colonial period. And the expression 'consequences of ... wars' in the case of northeast India can refer to colonial onslaught. The British iron easily replaced the indigenous iron and the volume of import of iron in Assam by the end of the nineteenth century reached 2,85.527 *mounds* valued at Rs. 15,34,707.[7] The changed situation of the source of iron has certainly influenced the general lack of research interest in this field.

Meghalaya:

For the study of technology in the Khasi-Jaintia society, the earliest pieces of information are provided by the reports, accounts, notes and books left behind by the British administrators, surveyors and other official functionaries.

The British undertook preliminary survey and mapping of the land corresponding to the Khasi Hills soon after they had established their base camp in the neighbourhood following their entry into the part of northeast India by the beginning of the nineteenth century. Initially the exercise was in the nature of geological explorations,[8] conduct of surveys on the geographical and linguistic features of the land,[9] as well as recording the first impressions on the physical appearance and cultural traits of the people.[10]

The British first encountered the people of northeast India in 1767 following the establishment of the East India Company in Bengal. But it was only in the aftermath of the Treaty of Yandaboo (1826) and the resultant British occupation of various hills and valleys that the imperative of establishing their rule was felt by them. It was only after the British occupied the Khasi Hills and the subsequently felt the need of establishing their rule that a concerted effort was made to have a better grasp of the history and

culture of the people in the larger context of the history of India's northeast region (then known as Assam). Thus William Robinson was the first to have made (limited) references to aspects of Khasi history and culture in his book, *A Descriptive Account of Assam*.[11] Subsequent writers followed suit.[12]

Similar has been the case of iron with several officers writing about it and the practices related to it. These are important sources. Subsequently, after the Independence, some Indian scholars working on the land and people of the region have studied the same. The problem, however, in these attempts to study iron of this region of India is their isolated nature. Scholars have mostly confined their works either to an area or a particular tribe, scantly showing linkages between different areas of the region and the influence of the neighbouring areas and/or tribes. The problem of iron has always been that it has been studied within the confines of contemporary political boundaries.

Other works in the nature of descriptive narratives drawing on the notes and reports left behind by the British are those of J.N. Chowdhury[13] and P.N. Dutta.[14] They were not impressed by the 'primitive' mode of agriculture that prevailed among the Khasi-Jaintia people, but realised the significance of the Khasi hills owing to its vast deposits of minerals, the iron ores and limestone whose fame and market, especially that of the latter, spread to Mughal Bengal. Of these minerals, iron is said to have been worked on by the Khasi-Jaintia themselves.[15] As Dutta declares:

> Indeed within half a century after the British occupation of the country, agriculture, mineral manufacture, trade and commerce were not only expanded but new avenues of material prosperity were also opened out for the tribe.[16]

Apparently, these writers were influenced by the ways of colonialist historiography and tended to be dismissive of the culture that existed among the Khasi-Jaintia attained prior to British rule.[17]

Lt. Yule, whose note of 1842 on the iron industry in the Khasi-Jaintia hills was written after extensive travel and observation of the entire process of production had this to say, "So numerous and extensive are the traces of

former excavations, that judging by the number at present in progress, one may guess them to have occupied the population for twenty centuries. The principal sites for the mining operations were around Mylliem, Nongkrem, Laitlyngkot, around Mairang and Cherrapunji."

The mining and smelting of iron was not a year round operation. Those employed in the industry included women and young boys.The iron ore was often not smelted in the villages adjoining the mines. It was sold in baskets containing three *maunds* of ore, and carried often for many miles to the villages where the smelting furnaces were located. Again, the manufacture of artefacts in the hills was done in workshops differing entirely from the huts in which the first smelting was done. The artefacts manufactured in the hills were swords, arrowheads, spears and the tools for their manufacture.

Robert Lindsay, Collector of Sylhet in the 1770s recollects in his memoir *Anecdotes of an Indian Life* that the Khasi Hills produced wood of various kinds, adapted to boat and ship building, and also iron of a very superior quality, "it is brought down from the hills in lumps of adhesive sand, and being put into the forge, produces excellent malleable iron without ever undergoing the process of fusion, the hammer and fire discharging the dross and courser particles at once, thus producing what is called virgin iron, superior to any made in Europe by charcoal."[18]

Much of the iron was sent to markets located in the northern and southern foothills. A reference in Lindsay's memoir explains its transport to the markets in Sylhet, "I had the gratification of witnessing a caravan arrive from the interior of the mountain, bringing on their shoulders the produce of their hills, consisting of the coarsest silk from the confines of China, fruits of various kinds- but the great staple was iron. In descending the mountain...the tribes descending from rock to rock...In the present instance the only descent was by steps cut in the precipice. The burdens were carried by the women in baskets supported by a belt across their forehead, the men walking by their side, protecting them with their arms."[19]

Iron constituted the principal industry in the Khasi hills and was the chief item of export. Limestone too was exported in large quantity though not from as early a date as iron. While the hill people made no use of lime

other than as an ingredient in the consumption of *pan*, it was exported from the southern hills to the processing villages in Sylhet such as Chunamgunj. It may be assumed that the Khasi limestone was used in Mughal Bengal before the East India Company and British traders took interest in it. Limestone was easily exported, as the mines were located close to the numerous rivers flowing into the Sylhet plains. Other commodities for export such as those given in Lindsay's account were carried to the markets by human labour. Imports were few and consisted largely of rice, fish, cotton, silk cloth and salt. These items were traded using barter, for the economy was not a money economy. That the Jaintia and Khyrim *himas* minted coins- *Khattra* rupees, need not necessarily imply that there was a circulation of money within these states. Apparently, the trade was in favour of the hill people. They appear to have exported more than what was imported. The items of export would have fetched more, even in barter terms to enable the Khasis to convert some of the profits of the trade into gold and silver. This could be an explanation why the Khasi-Jaintias have a fondness for jewellery.

There was an old trade route from Rahar in Nowgong, Assam, through the Jaintia Hills and down to Jaintiapur in Sylhet. The route linked Jaintiapur in the southern plains to the large village of Nartiang in the hills and the Jaintia territories in the duars adjoining Assam. Less certain is the route which would have passed the Khasi Hills. The construction of a road through the Jaintia *hima* was made possible as that *hima* was more advanced in structure and economy. Moreover both end points were within that state's territory. There being many Khasi *himas*, large and small and without any confederation among them other than at times of war, with poor state resources, it was not possible for them to construct a stone road going through the Khasi Hills. However it must still have been possible for Khasi traders to move commodities from the *duars* opening into Kamrup, going through Khyrim and the base of Sohpetbneng, up into Nongkseh, and Jirang *himas*, passing the larger states of Cherra and Nongkhlaw and down into Sylhet in the description given by Lindsay.

P. R. T. Gurdon, the Deputy Commissioner of the Khasi and Jaintia hills district in his monograph *The Khasis* noted in the early part of the last century the "export of iron in any form from the district has now almost dried out, only a few hoes being brought down by the Khasis from Laitdom

in Khadsawphra to the Burdwar and Palasbari markets in the Kamrup district of the Assam valley."[20]

The disadvantages in expanding and improving the Khasi iron technology were many. Mining was expensive and laborious for it was only surface mining with insufficient concentration of iron ore. Transportation added to the cost and the impure state in which the iron was sent out added to the weight and ate on the profits.

The decline of the Khasi iron production and trade was evident soon after the British took control of the hills. What really rang the death knell for this industry was the competition it got from the superior and cheaper English iron. This iron was soon finding markets in the plains areas where the Khasi iron had so long found markets. By the second half of the nineteenth century, the production and trade in iron had all but ceased as the import of English iron far exceeded what was being produced locally.

Arunachal Pradesh:

The control over iron by the Khampti chiefs in their hills, the technology evolved by them for the *Daos* (hatchet) and other war weapons and the settled agriculture that they practiced in the Dihing river valleys must have positively contributed to the socio-political formations and expansion of the pre-colonial states of eastern Arunachal Pradesh by the medieval period[21]. The permanent place of Khampti chief in the "Great Council" of Ahoms is also indicative of the power and privileges enjoyed by them. The works in iron of the Khamptis during pre-colonial period have attracted the British after the occupation of Assam.

The British had proposed to procure the Khampti *Daos* for their soldiers stationed in the area during the early phase of expansion of their rule. The proposal of 1840 clearly mentions:

> "I would beg to recommend that Khampti *Dhaos* be purchased for the whole of the sepoys at an estimated expense of 1350 rupees as proposed by Captain Vetch ...that the *Dhaos* should always be kept up complete hereafter and be mustered as a part of the regular equipment of the Regiment...

> I would also urge the great advantage, may necessity for adding Khampti *Dhaos* to the equipment of the corps as in the jungle warfare in the Frontier, the men are in a measure helpless without some instrument of the kind, either for cutting into an enemy's stockade, or in erecting one for themselves ... and calculate the average price of each at Rupees 2, 8 it would require an expenditure of Rupees 1350 to complete the equipment for the whole regiment but as these *Dhaos* are brought from a great distance it would probably a year or two before enough would be procured if my suggestions be approved... There is a silver mine in the Bor-Khampti country, but it has never produced more than 8,000 rupees a year. It might be turned to much advantage, but the possessors are afraid of increasing its revenue, lest by doing so, they should excite the avarice of their neighbours."[22]

Verrier Elwin has also highlighted the efficiency of Khampti metal works. He discusses their expertise in wood carving, ivory work, making shields, jewellery etc. He writes, "Wood carving and ivory-work have persisted to this day... The Khamptis still make embossed shields and are fond of masks, mainly of the horror type..." He also describes specific practices of the Khampti chiefs, "It is customary for the chiefs also to employ themselves in useful and ornamental arts. They work in gold, silver and iron, forge their own weapons and make their wives' jewels. They also manufacture embossed shields of buffalo or rhinoceros hide, gilding and lacquering them with skill and taste."[23]

It is indeed interesting at this point to also look at the Monastic Order of Tibet in the Tawang area of Arunachal Pradesh. When it established its control over the area initially, for administrative reasons, it divided the area into a number of territorial units, Tsosum: (a) the Pangchen-Ding-Drug (whole of Zimithang area), (b) the Dakpo-tso-gye (below Zimithang area), (c) the Shar-ngima-tso-sum (proper Tawang and nearby area up to Sela Pass), (d) Drangnang-chu-gye (below Sela Pass, i. e. present Dirang Circle, Bomdila) and (e) Hrongnang-toe-me (present Kalaktang Circle, Bomdila). However, one needs to point out that even before the establishment of the Order, social formation had already taken place in this area and the Tawang area had already been divided into three territorial units: (a) the area from Tawang to Kitpi as Shar-tso, (b) the Lhou area as Lhou-tso and (c) the Jung

area as Sher-tso (also known as Jung-tso).[24]

Field studies provide us clues to suggest that the control over the area provided the initial material base for establishment and subsequent expansion of the order in Arunachal Pradesh. The structural organisation of the Government of Lhasa in Arunachal Pradesh, for example, was quite elaborate. The whole area under Tawang Deo Raja or Deo Abott was divided into three dzongs : the Tawang, Dirang and Kalaktang, each under a dzongpen. However, the Galong (an officer under 'dzongpen') was responsible for the collection of taxes and tributes and performing religious rituals in the area. The Lamas at the village level assisted him. An important network of communications along with a large bureaucracy provided it with the necessary condition to achieve this. The existence of a common script (the Tibetan / Bhoti) must have helped the process.

An attempt at bringing about homogeneity is reflected at the level in which the policy of Lhamaism was followed and Gonpas were constructed all over the area. It was made to be a vehicle of persuasive assimilation, not in the form of military confrontation. The three to four storied buildings of the dzong at Gyangher (near Tawang) and Dirang sometimes also served the purpose of jails to punish the defiants of the Order.[25]

This success of the state has been the result of the clear influence that the corresponding control of iron exerted. The mining and forging of iron (Leh Cheme Rong) near Tawang Monastery for building a bridge connecting Kitpi and Mukto with Tawang also contributed significantly to better communication leading to effective control. The Monastery controlled the iron mines and the extracted iron was also utilized for making weapons. Subsequently, the hold over iron became the symbol of power and control in the area. Among the weapons, spear (Dung) and sword (Podung) are most common while the gun is rare. Iron remained under the exclusive control of the Monastery and it clearly led to the expansion of the state. Its use in the plough was never promoted though.

The development of indigenous weapons and tools is not something however limited to the Khamptis or the Monpas. Other tribes of the state also show similar developments. One at this juncture obviously contests the claim of J. B. Bhattacharjee who has claimed that pre-colonial state formation was absent in the state.

The tribes of Arunachal Pradesh practiced agriculture and produced crafts of various types for which they had indigenously developed tools and equipments. The tools and the methods of *jhum* cultivation (slash and burn) had technology of an incipient type, whereas the use of plough was an improvement, which was a revolution in agrarian technology and agricultural production[26]. They used knives (daos) and hoes made of bamboo and/or iron.

Though the dao and the hoe had some variations and differences in shape and size, the basics of these are almost similar among the tribes of Arunachal Pradesh. Abstaining from any attempt towards parochial glorification of the technological past of Arunachal Pradesh, one at this juncture attempts to concentrate on the plough technology. It is important to mention here that like the absence of uniformity in the polity formation and defence technology among the people of Arunachal Pradesh, the plough technology also did not have a uniform form. For example, among the Apatanis, Akas, and the Mijis, plough cultivation is generally unnoticed while among the Nishis it is hardly 20 to 25 years old. The ploughs in practice in Arunachal Pradesh are the outcome of the mixture of indigenous origin and the exposure to the neighbouring areas and consequent response to it.

In Arunachal Pradesh, with its average density of 10 persons per sq. km., it seems unviable to talk of shortage of land. However, in the agrarian social formations and changes for every practical purpose, the larger part of the area of Arunachal Pradesh has nothing to contribute because of the presence of high mountainous zones. These days, the scarcity of cultivable land and the exhaustion and erosion of some tracts of land are clearly visible. All these have contributed to the change in the pattern of the *jhum* cultivation. People have shifted from it to wet rice cultivation with the help of animal drawn plough. In the Seppa area, the use of plough in agriculture hardly dates back to 20 to 25 years and it has nothing to do with indigenous agrarian technology. Neighbour Assam is the main source for the introduction of plough technology in the area.

With this introduction, an agrarian class, the *halua* is developing fast in the area (ploughman). The *haluas* are almost bonded labourers working for their masters (who have facilitated their migration from Assam to

Arunachal Pradesh) on monthly wage or in some cases, negotiated with their parents for some years of fixed payments. The plough technology at various places also seems to have been the outcome of the contact of the people of the state with neighbouring Assam or Tibet and China. However, this is not the case with some parts of the West Kameng and Tawang districts. As claimed by the natives, plough technology has indigenous origin and is much older than even the establishment of the Monastic Order in the area. Neither the Monastic State was involved in encouraging or supporting the specialist technicians nor did it provide the necessary materials, especially iron for the same.

On the basis of serious scrutiny of the ploughs (during and after field studies) in the western part of Arunachal Pradesh, one can say that one does not find the use of iron in the plough of Tawang and Bomdila areas as yet with scarce exceptions in the Kalaktang area. Even in case of the latter, the use of iron is hardly a decade old. Iron is yet to replace wood completely. It is worth mentioning that a new term has developed recently in the area for the plough with iron. The plough with wooden ploughshare is termed as *thongpa* whereas the *perthogpa* is the term for the plough in which iron is used. In some cases, iron is also used as the strip (Khamer) to tighten the *thongpa* in the *langli*. This is a recent change marking the improvement in the agrarian technology of the Kalaktang area. However, in the neighbouring society of Shergaon, no such change is witnessed. Here, it is important to mention that the said change in any way has contributed necessarily to any increase in production. In the Tawang and Shergaon areas, a special type of locally available, hard and durable wood is used in the *thongpa*. In other important parts of the plough too, specific types of woods are used.

Despite the variations regarding the use of iron, the plough of Kalaktang and Shergaon areas are very much similar to each other. However, they differ from that of Tawang and Thembang areas. The variations can be observed in both parts (a) the *Sur* (plough part) and (b) the *Ngyashang* (yoke part). In the *Sur* of Tawang area, technically the arrangements of some more implements have been found for desired tilling deep or shallow. On the other hand, in the *Ngyashang* the provision is made to shift the *Chui* for tilling even to corners of the field. This provision in the *Ngyashang* is known as the *Ngyasa*. These technological innovations in the plough of

Tawang area are generally not found in other cases. The absence of a uniform technology of the plough in the Tawang and other discussed areas of western Arunachal Pradesh suggests its indigenous roots. It also appears that the Monastic Order and the *Bapus* of Thembang who also had political control in the western part of Arunachal Pradesh were not instrumental in the promotion of plough and other allied technology. However, they utilised surplus production and consequent chain reactions were initiated in the form of craft specialisation, stratification of the society and the emergence of large scale trade, market and money and states in Arunachal Pradesh. One has discussed the aspects of trade in detail elsewhere.[27] The detailed report[28] about the Singphos also provides sufficient clues in this regard. It mentions that buffaloes were commonly used for agricultural purposes. There is a pointed bamboo used in the hilly ground both for tilling and to make holes. Besides, we also get detailed accounts of wooden implements used in agriculture.

Assam:

The natural availability of iron mixed clay (loa-mati) and iron (lo) in Doiyang Dhansiri Valley (southern bank of the river Brahmaputra in upper Assam) and the existence of the process of iron smelting at Bossapathar, Doiyang, Dhekial, Kamargaon, Kamarbandha, Hamdai and at some other places, clearly support the view about the growth of native production and trade in iron since early Christian era in Assam.[29] Slag heaps scattered over an area of about one forth of a sq.km around Rahdhalapukhuri indicate the vastness of this iron extraction and smelting site. Some slags are heavy in density and some are found embedded in burnt clay. However, one cannot ignore the impact of neighbouring areas in the working of iron.

A pair of brass coated iron architect's plummets was found at Kharua gaon in Barpathar while the digging a pit. The iron core of the plummet is exposed in its round socket. The plummets have pointed ends at bottom flanked by two pointed ends terminating in a lotus bud each. Their central parts are adorned with a number of horizontal lines. The pair of plummets in their shapes and forms is similar to a Gupta metal plummet found in the Surma river. On this basis, the pair found at Barpathar may be dated to A. D. 600. The pair of Barpathar plummets being a direct imitation of the rare example of Gupta metal work made of bronze coated iron confirms

that the alloying tradition in metal, like that of the Guptas, possibly flourished in the Valley. Besides this technological advance, the pair of Barpathar plummets suggests the availability of iron, blacksmiths and the presence of manufacturing process of metallurgical crafts, apart from the existence of a specialised class of builders of brick architecture in the Valley during A.D. 600 who were conversant to the use of such instruments in raising architecture.[30]

The prevalence of iron in Assam is also supported by the mention of Assam iron in the texts of ancient and medieval periods.[31] According to Plinny, the iron of Serica (Assam) was considered to be the best. The articles of merchandise mentioned by Ammenius Marcellinus, from Serica (Assam) consisted of skin, iron, aloe, musk and horns of the rhinoceros. These classical sources therefore point to the working on iron from ancient times. The writers of the medieval period were also attracted by the iron industry of Assam. Shihabuddin Talish wrote that the Ahoms "cast excellent matchlocks and barchadar artillery and show great skill in the craft." Along with fire arms, the manufacture of gunpowder was an equally important industry during the time of the Ahoms. Thus, one can clearly discern that much before the British writers, other writers have written about the iron in Assam during the pre-colonial period.

The first Ahom ruler of Assam, Sukapha, promoted the smelting of iron and manufacture of iron implements on a large scale. The hill where iron was smelted was called Tiru hill. In Tai language, *tiru* means the place where iron was smelted (*ti* = smelting of iron and *ru* =caves). There was a small hill stream flowing through this area and this stream was also called Tiru. This stream ultimately drained into the Dikhou river. Sukapha established villages of iron-smelters as well as iron smelting workshops in this area. Remains of some iron-smelting furnaces can still be seen here. A big pond is also found here that was possibly dug by some Ahom monarch as a source of water required for the process of smelting of iron. Due to the presence of many iron smelting furnaces and workshops, this place was known as Tiru loha khat (loha khat, the place where iron is manufactured).

The workers employed in the Tiru loha khat as iron-smelters were known as Tiruwal. Some historians opine that the tiruwals or the iron-smelters

belonged to the Bodo tribe of Assam. There were three big villages of Tiruwals namely Lohakhat, Pachikhat and Perakhat. The industry was practiced in two parallel forms – iron smelting run by a distinct class of artisans known as *loh shalias* while the smithy work was done by the blacksmiths locally known as *kamars*. Usually, all the blacksmiths did not perform the welding of iron. There were special groups of black-smiths to do the welding works, known as dhekar garha kamar. The smelted iron was cast into various shapes and forms by adopting various methods. The format which gave shape and size to the object was earthen. Some of the cast manufactures of Assam are cannons, guns, axles of cart-wheels and various domestic goods.

Royal officers were commissioned by the Ahom rulers to look after the iron workshops and the workers. The Tiruwal Rajkhowa was the overall administrative in-charge of the entire iron workshop region and the Boras and the Saikias were the in-charges of the iron workers' villages. The officer who maintained the account was designated Tirukakati. The *paiks* or the workers who were employed in the iron workshops had to deposit a certain amount of iron to the king and they utilised the remaining for their own purposes or sold/exchanged with others. Iron in huge quantity was required for the manufacture of a large number of fire arms and other weapons by the Ahom state.

Hiteshwar Barbarua has provided an interesting list of the types of artillery guns and fire arms used during the Ahom days. Five types of cannons are listed: Biyagom Bartup, Hatimuria Bartup, Turbuki Bartup, Mithahuleng Tup, and Baghmore Tup. Eleven types of hilois or muskets are also listed. These include: Gothia Hiloi, Jonbur Hiloi, Polongi Hiloi, Ramsangi Hiloi, Soru Hatnolia Hiloi, Kamayan Hiloi, Zomur Hiloi, Kasai Hiloi, Tuwa Hiloi, Khoka Hiloi, and Bosadari Hiloi.[32]

Other than the above mentioned weapons, swords [royal (Hengdan), warrior's (Tarowal), royal swords ornamented with gold (Sonia hengdan), royal sword ornamented with silver (Rupar hengdan), long bent sword (Chandrahans), double edged sword (Bumukhia tarowal), very large sword (Dakhar)], Dagger (Churi), Chopper (Daa/Dao) - the most common weapon, [Nakoi daa, Mit daa, Kopi daa, Mechi daa, Khari daa, Khangara daa, Bali kata daa (sacrificial daa)], axe (kuthar), knife (katari), spear (jathi), leaf

shaped spear (barsha), barbed spear (xel), simple rod spear (xul), trident spear (trishul), multiple barbed spear (khapar), arrow heads (kar/teer), iron rod fencing (xingari) [the Ahom forts were invariably protected by gorges and iron rod fencing], fishing implements dentate fishing rod (pocha), single fishing rod (Koch), fishing harpoon (obhota kol), fishing hook (barasi), iron weights of fishing net (jalar guli) etc. also consumed a large amount of iron in their making. Not just the State but the commoners too used iron in everyday life.

As far as the use of iron as household implements is concerned, the following are important to be mentioned: kor (spade), phal (ploughshare), chiprang (pick axe), joboka (hoe), kanchi (sickles), gul (pounder head), akuki (anchor) and sikali (iron chain). Iron was also used as accessories for horses and elephants in pre-colonial Assam, such as khura (horse shoe), hatir tongi or haoda (elephant seat), bagh jari or lekam (reins), langching (elephant pincher), hati bandha sikali (elephant chain), rekabi (saddle) etc. Excellence in cannon making is witnessed with the expansion of the Ahom kingdom. At Tirugaon and Hattigar, traditional iron making was still being practiced. "... for classing the iron workers under Hazaree Keihs and Saikeahs and they amounted at one time to 3,000."[33]

Initiatives of the Ahom rulers as well as the contribution of certain specialised communities made the iron industry in Assam reach its pinnacle during the pre-colonial period. It was in the early sixteenth century with the subjugation of the Chutias, that the *kamars* were first settled in the valley as a distinct *khel*. The Chutia prisoners of war, excellent iron workers, were settled in Bossa and some other places in upper Assam. They were liable to supply to the royal storehouse swords, guns and cannons from the iron smelted by the *loh shalias*, who resided in their vicinity.[34] This was the starting point of the formation of the *kamar khel* in the Ahom kingdom. During the reign of the Ahom king Pratap Singha, a number of artisans were brought from the neighbouring states (Koch for instance) and people from the Kalita caste (a higher in the social order) were taught blacksmithy.[35] Buchanon Hamilton has also observed that blacksmiths in Assam were mostly *Kalitas* and *Koch* (Assam-Bengal border) who could make locks, padlocks, sacrificial knives, matchlocks, spears, spite nails and clamps for building boats. According to him, there was an iron mine in Boyang, which supplied ore in abundance to the whole of Assam.

Though the decline of the Ahoms resulted in the loss of magnitude of iron industry in pre-colonial Assam, the trait did not die. In the nineteenth century, writers like S. F. Hannay and William Robinson, who wrote on the subject, found the remains of furnaces in the vicinity of Jaypur, Borhat and along the bank of Suffrai river in upper Assam which convinced them about the existence of this industry in the region. Besides the remains of the furnaces, the relics of locally manufactured iron guns found in these places, particularly in Sibsagar, also help one to come to the conclusion that upper Assam was the home of this particular branch.[36]

One can easily conclude from the above discussion that iron constituted an important component of trade. It also contributed to the expansion of the Ahom state as fire arms and other weapons were made of it. This improved production and tax. Contrary to this, though Sudeshna Purkayastha provides us valuable information collected from various published sources of the medieval and the British periods, her generalizations regarding the use of iron in the ploughshare and its consequences are not tenable. She writes, "...where plough cultivation was in vogue neither heavy plough drawn by several bullocks nor seed-drills were in use in the **region**" (emphasis added). Contrary to her position, we have the evidence to show that in the case of Arunachal Pradesh, especially among the Singhphos, Khamptis and Adis (the closest neighbours of the people of upper Assam) that iron was used as the ploughshare and it was drawn by trained elephants especially in case of the Singphos and Khamptis. Ploughs drawn by elephants were popular amongst the two whereas buffalo or ox/bull was used in case of the Adis. On the other hand, Purkayastha does not take into her consideration the factors related to ecology. The soil type, early and long rainy season, availability of wood, root etc. have not been examined in her analysis.[37]

However, what becomes obviously clear from the overall discussion in the paper about the three states is the important role that iron played in social change. It contributed to the strengthening of the Khasi-Jaintia state in Meghalaya. And unfortunately, British iron led to the consolidation of British rule in the area. A similar picture emerges in Arunachal Pradesh. Iron technology played a key role in the consolidation of Khampti power in the area as well as in the expansion of the Tibetan Monastic Order. In Assam too, the Ahoms used iron extensively. It does seem however that

the process needs further comprehensive study not only in the above mentioned areas but also the other areas of northeast India. This will not only help in bridging the glaring gap in the historiography of the region but also evaluate the applicability of the social-framework model that one has tried to apply in this case.

Notes and References

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2 This line of argument became highly influential by the third quarter of the twentieth century following the publication of Louis Althusser's *For Marx*, Penguin Books, Harmondsworth, 1961. A Marxist scholar, Althusser viewed developments that had taken place at the spatial and temporal levels as 'social formations'. The concept of social formation was used to indicate the nature of social organization in a given historical timeframe commensurate with a particular dominant mode of production. It was preferred to (what Althusser perceived as) the overly humanistic connotation of 'society'. More recently, social formation is seen as the connection of social and economic aspects in a structure. However, much like all concepts, it is not comprehensive. Tom Bottomore in Tom Bottomore *et.al.* (ed.) *A Dictionary of Marxist Thought*, Maya Blackwell, New Delhi, 2000 claims, and rightly so, that the concept of social formation ignores ideological elements.

3 Indian northeast region does not figure in the schema of either Arun Bandyopadhyaya's *Science and Society in India: 1700-2000*, Manohar, New Delhi, 2010 or B P Sahu (ed.) *Iron and Social Change in Early India*, OUP, New Delhi, 2006. A similar brief can be held about Dilip K Chakrabarty's, *The Early Use of Iron in India*, OUP, New Delhi, 1992.

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15 *Ibid.*, pp. 12, 158, 167.

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[25] Here it is worth-mentioning that the Monpas have resented the exaction of tributes and forced labour by the Tibetan Government to the British. The extension of the British rule in the areas of Buddhist influence was smooth unlike the other areas of Arunachal Pradesh because people had in their minds that the British rule would not be so harsh and exploitative in nature as of the Tibetans. For the same reasons, the Tibetans are called Zakpas in Dirang area, meaning the plunderers. For some more details see, Robert Reid, *History of the Frontier Areas bordering on Assam*, Shillong, 1942, pp. 288-89; J. N. Chaudhury, *Arunachal Through the Ages*, Shillong, 1982. For the Tibetan oppression in Sikkim and Bhutan see, J. Ware Edgar, *Report on a Visit to Sikkim and the Tibetan Frontier in October, November, and December 1873*, Calcutta, 1874, pp. 23-24.

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City-bound Out-Migration from the North East India: A Case Study of Delhi

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In the light of the findings of a research study conducted in Delhi Region, the paper discusses the dynamics and dimensions of the city-bound out-migration of youth from the North Eastern States of India. Juxtaposing and verifying the extant secondary data on out-migration against evidences from the field work, the paper portrays the processes of migration and patterns of integration of migrants to the city life. By highlighting the unique dimensions of the youth migration from North East India, the paper questions the validity of perceived notions and received theories in explaining this stream of migration.

I. Introduction

Out-migration of youth from the North East India[1], on a large scale, towards far off cities in other parts of the country is a recent phenomenon. The relatively thinly populated region is traditionally considered as a receiving pocket of migrants and accordingly most of the scholarship on migration pertaining to the region is confined to issues and dimensions of in migration. However, with a steady and steep increase in out-migration since 1980s[2], a trend that got further strengthened in the immediate

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1 North East India comprises of eight states namely Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim.

2 Using Census Data, Chyrmang (2011) estimates that the proportion of out-migration from NER has increased from 1.7 per cent to 2.9. per cent during 1981 to 2001. While 1981-91 period marked a steady growth in out-migration, in the next decade (1991 to 2001), the increase was double.

past[3], there has been growing concerns over the determinants and implications of such migration (Shimray, 2007; Singh 2007).

National Capital Region (NCR) - or broadly 'Delhi Region' - is one of the most favoured destinations of migrants from North East India. Estimates suggest that currently in Delhi region, there are 90 to 100 thousand residents from the states of North East India. The other major urban centres include Bangalore, Mumbai, Calcutta, Chennai, Chandigarh, Pune and Hyderabad. Along with this city bound movements, some proportion of the migrants also move to smaller towns and suburbs of far off states within the country[4].

In this backdrop a field based study was conducted, covering 402[5] working migrants[6] from four selected localities ((Vijaya Nagar, Munirka, Moti Bagh and Kotla Mubarakpur) in Delhi[7], to explore various dimensions of the out-migration from North East India to the Delhi

[3] Rough estimates and reports suggest that there is a considerable expansion in out-migration from North East India in the first decade of the present century. For instance, a recent report claims that in 2010 alone around 1 lakh people migrated to from the region to other cities of India (Assam Chronicle, 2011).

[4] For instance, a recent research suggests that there are 8000 Assamese youth working in plywood factories in Perumbavoor, a town in far off Kerala (Das & Chutia, 2011).

[5] Though the study had not followed any strict statistical procedure, attention was given in selecting a representative sample giving due attention on various attributes such as gender, age, state of origin, occupational categories and so on.

[6] As the specific focus of the present study was on migration for employment and labour related issues confronted by migrants in the city, the sample did not include students from North East India. However, during the course of the present study, it is strongly felt that the analysis in the study could be further enriched, if it is supplemented with a field study of students from North East India and their collectives.

[7] These localities were selected on the basis a detailed mapping of pockets with higher concentration of migrants from North East India - subsequent to some pilot visits and discussions with some key resource persons. For further details on the methodology of the study, refer Remesh (2012 a).

region[8]. The present paper, based on the findings of this study, captures some of the crucial dimensions of out migration. To situate the outflow to cities in a larger context, the available secondary data is analysed in the second section. The specific dimensions explored in the essay include: determinants and processes of migration profile of out migrants, formation of migrant-neighborhoods; emerging occupational patterns and so on. The role of social and institutional/agency networks in facilitating migration and negotiating the life in the city is also discussed.

II. Migration and North East India: Some insights from NSSO data

A preliminary analysis of data from the NSSO 64th round (2007-08) provides some broader characterisation of migration from North East India. The data suggests that the states of North East India generally show higher proportion of migrant households to total households. While the national average is 19 per 1000 households 4 states Sikkim (43), Arunachal Pradesh (40), Manipur (34) and Nagaland (26) show comparatively higher figures (Appendix Table 1).

The data on migration rates (per 1000 persons), however, shows that all of the states of North East India (except Sikkim; 336) lag considerably behind the national average (285) - for total population; rural and urban included (Appendix Table 2). The pattern holds true even when we take the data pertaining to females alone. However, when migration rates for males are considered, two more states, Mizoram (143) and Nagaland (121) join Sikkim (233), with rates higher than all-India (109). The first impression that one gets from this secondary data on migration rates is that it does not adequately capture or reveals the actual status of increasing trend of migration from North East India. For instance, the migration of males and females from Manipur is given as only 7 and 10 as against national rates of 109 and 472 respectively, which does not truly confirm

[8] To collect supplementary, qualitative information, 40 case studies were also prepared. Further to this, a brief field-visit to some of the source regions was conducted (covering 4 states in the region - Assam, Meghalaya, Sikkim and Nagaland).During this visit, first hand information/views from key informants (such as migrant families, church authorities, researchers, labour department officials, social activists and so on) were gathered.

to the facts at ground level. Notwithstanding this, a closer analysis shows that the data on female migration is reasonably fair, if we consider the fact that more than 90 per cent of women's migration from other states of India are subsequent to marriage (though the figure attached to Manipur is still contestable). This aspect is further followed in the subsequent discussion on reasons for migration.

Analysis of disaggregated data pertaining to different Monthly Per Capita Expenditure (MPCE) quintile suggests that the relatively rich segments migrate, which is true for both rural and urban areas (Appendix Tables 3 & 4). This explains that abject poverty or search for basic employment is not the pressing reason for migration from these states. Higher migration from upper quintiles also suggests the enabling aspects of assets and financial resources in migration. Further, it is evident from the data that migration of temporary nature but with longer duration of stay (i.e. 12 months or more) is much more for states of North East India than the national average (Appendix Table 5).

Distribution (per 1000) of migrants by location of last usual place of residence suggests that some of the states of North East India are much far ahead than the national level, in terms of shifting residences to other states. For instance, in the case of migration of rural population as against the national figure of 15 (per 1000), Meghalaya showed a highest figure of 114, followed by Manipur (77), Sikkim (27), Nagaland (20) and Arunachal Pradesh (20). This to some extent, corroborate with the trend of increased migration of people from North East India to urban centres. However, here, it should also be noted that states like Assam (3), Mizoram (1) and Tripura (1) are with extremely lower figures compared to the national average. For urban population also the trend more or less holds good, though there is an exceptionally striking low figure for Manipur (1), which is the most prominent state in terms of out-migration. A better understanding of the out-migration can be arrived at by analysing the data on out-migrants. Here too, all the states show figures much below the national average, though states like Manipur show much higher figures (35 for Total; 48 for Male; and 21 for female). The distribution of out-migrants across present place of residence provides useful insights on the migration patterns. The category 'outside the state' shows very high rates for Manipur and Tripura (372 and 259 respectively) as against the all India average of 232.

An analysis of the reasons behind migration suggest that migration for studies and employment assume much more significance in the case of states of North East India states than rest of India (Appendix Tables 6, 7 & 8). For instance, while the all India figures related to employment reasons and studies are 99 and 24 respectively, for Manipur these figures are 222 and 241 respectively. Nagaland (338, 72); Sikkim (238, 66) and Meghalaya (211, 54) are some of the states with distinctly higher figures. While these reasons prominently come for both urban and rural (male and female), the findings are strikingly so in the case of female population. To cite some instances as against the all-India figures of 99 and 24 for employment and educational reasons, for Manipur females the figures were 222 and 241 respectively. To some extent the data is confirming with the increased outflow of youth from Manipur to urban centres of other states (for educational and employment pursuits).

The data on the distribution of out-migrants across reasons shows the above pattern clearly. All the states except Sikkim show very high proportions under employment related reasons with Manipur topping the states 629 (which is followed by Arunachal Pradesh (609); Mizoram 596; Meghalaya, 496; Tripura, 494; Assam, 477 & Nagaland, combined the picture becomes more vivid with Meghalaya (884) and Manipur (835) and Mizoram (744) leading the list (Appendix Table 9). All the states show higher values than the national average of 346, with Assam showing the lowest (490) among the states of North East India. It is important in this context to note that a very small proportion of migrants from these states belong to the category of illiterates, compared to the national average (448) which is in tune with the above pattern. Interestingly, barring Assam and Tripura, all the states have high proportion of migrants with education 'graduate and above'.

III. Profile of migrants, determinants and unique aspects of migration

Out of the 402 respondents 214 (52.2 per cent) were males. Around three-fourth (74.8 per cent) of the respondents were from the age cohort of 25-30 years. Altogether 15.2 per cent of the respondents were still younger (18-25 age group). These strongly indicate the 'youth' aspect of the migrants. We found 93 per cent of the

respondents were unmarried. A small proportion of them (1.2 per cent) were either separated/deserted. This pattern can be explained as follows. As the influx of youth from North East India to the new economy occupations are fairly new, the age profile is rather young. Partly, recruitment of youth is also an objective function of the firms in the new service sector occupations. Further, as most of the respondents are within the first five years of their migration/ entering into work they are mostly single and sharing same residential premises mostly with their friends from the region (same locality or same tribe)

In our sample 44.3 per cent of the respondents were from Manipur[9]. This was followed by Mizoram (17.2 per cent); Assam (16.2 per cent); Nagaland (7 per cent); Arunachal Pradesh (6.2 per cent); Tripura (6.0 per cent); and Meghalaya (3.2 per cent). There was no respondent from Sikkim[10]. We found 57.2 per cent respondents belonging to semi-urban areas of their respective states. This is followed by urban (30.3)

[9] While drawing the sample, due attention was given in selecting a more or less a representative sample of respondents. Thus, the higher proportion of Manipuris in all the study areas reflects the overall dominance of the people from this state among the migrants. This increased presence could be because of the increased intensity of socio-political tensions in the state, compared to other states of North East India. Though many of the states in the Region have some internal tensions or other, the intensity of such troubles is much more in Manipur. Due to this, a large number of Manipuris prefer to move out of the state for educational and livelihood options. Even after continuing their education, many of these youth prefer to stay back in the city or move to some other city/destination, as they find it difficult get suitable avenues for employment in the native states. Thus, it is the 'higher retention rates' of migrants from Manipur compared to their counterparts from other states that result in their predominantly higher share among the overall migrants from North East India.

[10] Absence of migrants from Sikkim in the sample is partly due to the negligible proportion of people from this state among the total migrants from North East India. From the visit to Sikkim it is evident that compared to other states in the region, there were not much internal tensions or instabilities in the state – which to some extent explains the lower presence of migrants from this state in Delhi.

and rural (12.4)[11].

Majority of the respondents reported as Christians (49.75)[12] or Hindus (45.02 per cent). Altogether 48 per cent of migrants from Arunachal Pradesh reported that they belong to Buddhism. Manipur and Tripura are other two states reported Buddhism (6 and 4.2 per cent respectively). Respondents belonging to Muslim Community were only 0.2 per cent of total. In the sample 57 per cent reported themselves belonging to scheduled tribes category and 35.2 as reported as forward caste category. In the sample 6 per cent were from backwards casts and 1.7 percent from scheduled castes.

Educational profile of the respondents is impressive. There are no illiterates among the respondents and those who are with less than intermediary (plus two) education is less than 3 per cent. Around 84 per cent of the respondents have at least graduation/professional diploma or similar higher qualification. Altogether 47.3 per cent in the sample reported as graduates, 30.3 per cent as post graduates, and 6.6 per cent as with professional diploma and higher vocational skills. Apart from this several of the respondents were found studying for some other courses along with their present employment.

The reasons/determinants of migration could also be grouped as 'push' and 'pull' factors, as done by NESC & H (2011). Such binary segregation allows situating the emerging situation of migration within the broad categories of 'compulsions' and 'attractions'. An important reason behind the migration of youth from the states of North East India to urban centres is *'educational and employment considerations'*. It is widely understood that despite a high literacy rate[13], the region is characterised by a visible lack of adequate avenues for higher or technical education or vocational

[11] The above sets of information also prompt one to question the validity of available secondary data on Migration with respect to states of North East India. For instance, the NSSO data shows higher migration rates for Sikkim and lower rates for Manipur, which is not in line with the pattern that one gets from the present survey data.

[12] The proportion of Christians in total population varied from 98.6 and 96.4 per cents in Mizoram and Nagaland to 0 per cent in Assam in the sample.

[13] As per the latest available estimates the regional literacy rate of North East India is 65.7 per cent. Most states in the region are much ahead of the national average in terms of literacy rate –e.g. Mizoram 88.5 per cent; Tripura 73.6 per cent; Manipur 68.8 per cent; Nagaland 67.1 per cent.

training. There is also a felt mismatch between the demand in the job market and the weak local educational system –especially to meet the requirements of the new economy occupations and professional service sectors (Lyndem & De, 2004). These conditions, coupled with inadequate economic infrastructure, may have definite implications on the migration decisions of educated and ambitious youth to urban centres for higher learning. It widely understood that a good proportion of this youth continue in urban centres after education, for employment[14].

The bleak employment prospect in the local labour markets is a critical determinant of migration of youth from the states of North East India to urban centres in the country. Increasing educated and youth unemployment in the region owe considerably to the abysmally lower level of industrialisation and lower expansion of modern service sector occupations. Saturation in the government/public sector jobs also intensifies the unemployment situation. Lower labour absorption capacity of local labour markets and perceived employment prospects in the local urban centres together prompt the aspirant youth to migrate to cities (at least for sometime) to explore better opportunities.

Political unrest, violence and poverty of the region also often influence the decisions of youth in favour of migration (Shimray, 2004, 2007). Most of the states in the region have unrests and tensions (which include ethnic and communal clashes, tensions between local and infiltrated population, insurgency, tensions between people and army, insurgency and so on). Due to these tensions the normal life of the people in the region is affected. For instance, reports suggest that in Manipur in recent years the life has become a nightmare for the ordinary people. With about 100 days of public strikes a year, markets shut, schools closed and public transportation off the road, it is difficult to pursue studies and livelihoods in the state. Such tensions together with poor educational infrastructure and employment prospects are prompting the youngsters to try their luck in urban centres in other parts of the country.

Charm of working in cities /and in new economy jobs and possibilities of

[14] 'Educational considerations' is found as the second major reason for migration of youth from North East India, after employment.

getting jobs in the city also add to their decision regarding migration. The relatively better command over English (among educated) and friendly attitudes of the youth often help them to easily find a job in the cities – especially in hospitality and care works. Further to this, it is commonly perceived that getting a central government job in the migrated destinations is relatively easy for those belonging to Scheduled Caste or Scheduled Tribe communities – as many of them are rightly qualified for reserved jobs both in higher and lower positions.

Migration from North East India to urban centres is distinct from the usual patterns of migration of rural poor to urban centres in the country. As discussed earlier compared to the migrants from other parts of the country, the migrants from North East India are from better economic and educational backgrounds[15]. Due to this, we do not find them in low paid manual employment. For instance, in Delhi it is hard to find a rickshaw puller or urban street vendor from North East India. Further, their presence is also very minimal in factory works in National Capital Region.

Seasonal migration, which is a prominent pattern with those migrants from other North Indian states is almost absent in the case of migration of youth from states of North East India. Compared to migrants from Bihar, Haryana and UP the migrant from North East India stay for more months and a larger portion subsequently opts for permanent stay in Delhi region[16]. Given the better financial status, educational profile and better human resources of the migrants, this pattern needs to be understood in detail. As we have indicated earlier the states of North East India are crippled with some forms of tensions –insurgency, ethnic clashes or tensions between natives and infiltrated. This prompts the families with some resources to send their children to urban centers of the country especially for education. Moreover, lack of adequate number of institutes for higher and technical education is also the cause propelling students to urban centers. Further, after obtaining better education in the city most migrants choose to continue in the city in order to 'best utilize' their capacities.

[15] This observation is particularly true in the case of migrants in Delhi.

[16] The survey data suggests that more than 50 per cent of the respondents continued in their present occupation for more than a year and 28.4 per cent was with more than 2 years.

Thus, while tensions and lack of educational infrastructure jointly act as the driving force for first-stage of migration, it is lack of appropriate employment opportunities that deter the return of migrants.

Most of the youth came to the city were single migrants, without their family or friends in a group. As per the survey data, 93.2 per cent of the respondents reported as single migrants. But many of them had someone (family members, relatives, friends or someone from the same community/ locality) to provide initial support and help. Thus, a lower share of marriage migration is a unique aspect of the migration from North East India to urban centers.

The patterns of savings and remittances showed interesting results. Unlike the migrants from other states to Delhi region (e.g. those Bihar or Kerala), the migrants from North East India are not found remitting considerable portions of their income to their family in the native states[17]. A majority rely on formal banking system for saving and remitting money back home. Despite the difficulties narrated apropos opening Bank accounts 93.3 per cent reported that they do have a bank account in Delhi with more than two third actually using the formal banking system on a regular basis.

From the survey, it was evident that given their unique cultural background, most of the youth are found spending a good proportion of their income on outfits, food, traveling and organising frequent gatherings of friends and community members. This feature is quite distinct from the migrants in Delhi belonging to other parts of the country. Another uniqueness is in terms of investment on educational pursuits. Several of the respondents were studying for higher qualifications, in correspondence courses or in evening/weekend classes.

Yet another aspect that needs mention is the absence of institutional/ community networks or agency networks in migration process. Mostly the

[17] Linking this negligible amount of remittances and huge costs incurred by states in the North East India, due to loss of human resources, Singh (2007) explains the migration from the region to rest of the country as a clear example of brain drain, where receiving regions (developed and advanced states) are reaping all benefits at the expense of states of North East India.

migrants are not coming to the city through agents or with the help of institutions/community organisations (e.g. church), which is prominently seen in case of migration of workers from other regions (e.g. in construction sites; or migration for domestic work)[18].

IV. Emerging occupational profile and process of accessing jobs

Owing to the better educational background, migrants from states of North East India are more inclined towards pursuing higher studies or entering into office jobs/white collar occupations in government or private sector firms. The proliferation of jobs in the modern service sector industries, in the recent years also opened up considerable occupational avenues for youths, who have 'right' aptitudes for the customer oriented service economy.

Till early years of the present century, a major proportion of the migrants in Delhi from North East India were found working in government jobs. Provision of reservation for the scheduled communities made jobs accessible for youths belonging to tribal communities from the states of North East India, given their better educational backgrounds and fluency in English. But in the recent years, with the emergence of new occupations in the globalised era, there are more avenues coming in the private sector and service sector occupations (NESC & H, 2011). Accordingly, a major chunk of youngsters were found working in a host of private sector occupations (including administrative and office jobs, BPO jobs, customer care activities, hospitality jobs – waiters/waitresses, receptionists, sales executives and so on)[19]. The four pockets selected for detailed case studies, most of the people were found working in such private sector or MNC occupations (in office-based white collar jobs) and in a variety of service sector occupations in the new economy – ranging from sales persons to air hostess.

[18] However, in some cases (e.g. domestic helps from Assam) some presence of private recruitment agencies is noticed.

[19] In a study covering 34women workers from 6 states from North East India, Shingmila (2007) also observes that majoriy of the new migrants are working in service sector (e.g. showrooms, shops, hotels, beauty parlours, hospitals and call centres).

In our sample 67.3 per cent of the respondents reported that the present occupation is their first job, which point towards the phase wise shifting from studentship to worker status. Altogether 81 per cent reported their job as permanent. But from detailed probing, it was evident that the permanency is a notion, as most of them worked in projects/contracts or with term based appointments. In view of this, it is more appropriate to conceptualise them as regular but semi-permanent.

A prominent pattern of getting access to city jobs was through referrals. This is truer for those who work in new service sector occupations. *"the company promotes a `bring your own buddy' policy and it was easy for me to find a job as my cousin was working there"* said a Mizo girl who works in a BPO firm. Several others got the job through applying to the firms, of which they had some understanding through their kith and kins. Other important means was to apply directly in response to advertisements (especially in newspapers and internet) and to appear for direct/telephonic interview.

There were also instances were the employees were recruited directly in the region, in recruitment melas organized by the company or through placement agencies/training centres, where they got basic knowledge about the jobs. During the visit to the states, it was noticed that several of the BPO firms had some arrangements with training centres in Shillong, Kohima, Dimapur and Guwahati to recruit candidates with right aptitudes.

Irrespective of the mode of selection, the respondents had to undergo several rounds of testing which include aptitude tests, group discussions, and telephonic/direct interview, written tests and so on. More than academic qualifications, the respondents feel that, it is their positive aptitudes and attitudes that were counted by the firms. The pleasing appearance, fluent English, trendy dressing styles and free mingling nature of the youth often help them to find a job in the hospitality sector. For instance, during the Common Wealth Games period, thousands of youth from the region got temporary but nicely paying jobs in the reception and hospitality related sections of the organising committee.

The docile but committed and hard working nature of the youths is often preferred by the employers. *"They are hardworking, honest and committed"*, *"pleasing appearance"*, *"soft-spoken and with nice behavior"*, *"They won't group against the interests of the company"* – These are some of the typical and oft repeated responses of the owners and managers of the firms. Yet another attraction is the higher retention rates (or longer period of continuance) of workers from the states of North East India. The survey data suggests that more than 50 per cent of the respondents continued in their present occupation for more than a year and 28.4 per cent was with more than 2 years. The Mongoloid features of the youths are also preferred often by the employers (e.g. Chinese restaurants, Momo stalls in multiplex shopping malls[20] 21 This is despite the fact that many of them had no other connection or exposure regarding Chinese cuisines or ways of hospitalities. Further, to its surprise the study team could not find any street-side Momo stalls run by people from North East India. Mostly, such stalls are run by people from either Darjeeling, Nepal or from Tibet. It may be that such lower end jobs are not preferred by the youths from the states of North East India, star hotels and hospitals etc.) – as it helps the firms to give some international/cross cultural/ethnic ambience to their establishments.

V. Patterns of migration and migrant neighbourhoods

A prominent pattern of migration involves two stages. In the first stage, the youths will come to the city as students and after the completion of their course or after few years of study, they get into some suitable jobs available in the city. Confirming this pattern, several of the respondents of the study initially came for education in prominent education institutions (like Delhi University, Jawaharlal Nehru University and Jamia Milia Islamia) and during their stay in Delhi found out a suitable job and continued in the city. While most of these migrants came for post-graduate education,

[20] This is despite the fact that many of them had no other connection or exposure regarding Chinese cuisines or ways of hospitalities. Further, to its surprise the study team could not find any street-side Momo stalls run by people from North East India. Mostly, such stalls are run by people from either Darjeeling, Nepal or from Tibet. It may be that such lower end jobs are not preferred by the youths from the states of North East India.

in most recent years, several of the youngsters are found coming for undergraduate studies or even for basic schooling. In such cases, the migration often becomes family migration. For instance, some of the respondents pointed out that their primary aim of migration to the city was to educate their children. A closer examination suggests that migrants from certain states (e.g. Manipur) show stronger cases of such two-stage migration.

Migrants are found living in pockets where there are more people from same region/locality/tribes. Sharing of same residence/room by two-four persons is the most prominent form. In the survey, 44.2 per cent of the respondents reported that they stay with their friends or colleagues. Another, 17.6 per cent also reported staying in groups – but with close relatives or family members. In the former category also, the preferred arrangement is to stay with those people, who are from same community/tribe or region. When the group becomes that of close relatives even the number goes up. During the survey, the study team saw many such groups where 8-10 members of same family (or close relatives) stay together. This pattern of staying in groups inter alia has led to the emergence of migrant neighborhoods with high concentration of population from the region. All the four selected study regions of the study are such migrant neighborhoods.

Several of the groups that the study team came across were that of either single migrant girls or boys. Very rarely mixed groups constituting of boys and girls were found – these groups were mostly of close relatives /family members. Staying all alone and with spouse/ fiancé was also noticed, though not very frequently. But, even such smaller units preferred to stay in a locality with more concentration of people from their own region/ community. Some of the respondents (17.6) were also reported staying independently in rented accommodations. A few also reported staying as paying guests (2.2 per cent). Even those were with single accommodation status reported that they prefer to stay in localities where community people are concentrated.

Staying in close groups and in migrant neighbourhoods was preferred by most of the respondents on various counts. To quote typical responses: *"As we do share common food habits, eating habits and cultural background, being together means a kind of mutual support to each other";*

"We can understand the problems and puzzles of other person, as we also face those of same sort". Migrant neighborhoods provides other advantages apart from having a feeling of togetherness and understanding. There are shops run by people from their locality or sometimes shops that sell the goods from their native states. For instance, a restaurant being run by a Manipuri in a migrant-locality in South Delhi is one of the most frequented eating joints by people belonging to all parts of North East India. Within migrant neighborhoods, the members also get opportunities for get- together on occasions such as festivals and state formation days etc. It also helps them to closely work with community based collectives.[21]

It was highlighted by most of the respondents that migrant neighbourhoods provided them a security feeling and many of their tensions back home are forgotten. For instance, members from communities which are at conflict in Manipur, live harmoniously in a Delhi settlement. Thus, these neighbourhoods provide the migrants a feeling of togetherness and binding, which is often lacking in their native places.

VI. Institutional support and migrants' collectives

Concerned state and central government bodies are not much effective in providing support to migrants on various aspects – such as facilitation of informed migration; career guidance; provision of legal support in times of need and so on – as per majority of respondents. *"The functions of various state bhawans are limited to those of guest houses and restaurants"*, points out a social worker dealing with issues of migrants from North East. The collective of Parliamentarians from North East India (e.g. North East MP forum) also is not found effectively intervening to improve the plight of the migrants (NESC & H, 2011)

Detailed discussions with the respondents revealed the presence of some social networking activities and collectives. A major form of social

[21] For instance, Munirka has a fellowship belonging to Vaiphie Christians from North East India, the meetings of which are even used to discuss common issues and challenges confronted by them in the city. In Dwarka, in a Church Sunday service is reportedly attended by more than one thousand people from the states of North East India.

networking and collectivity is in the lines of community connections. People from same tribes and communities are found meeting at common places to celebrate festivals or to discuss issues concerning that particular group. Such collectives are often organized at the behest of or with the support of Church and related organizations (e.g. Vai Phei Christian Fellowship; North East Support Centre & Helpline). While some of these organisations confine them mostly to religious and community related aspects, some organisations like NESC &H provides more detailed help including assistance in situations of discriminations and harassments, which often attain characteristics of racial abuse[22].Legal support and pressure group building are also found successfully done by some of these collectives, despite their limited financial and physical resources, compared to governmental agencies.

One of the most effective groups in addressing the issues of migrants from the states North East India are the various student unions with respect to various states (e.g. unions of Manipuri students, Naga students, Mizo students etc.).These student organizations. based on central university campuses (Delhi University, JNU etc.) are the first to react on many of the atrocities against the migrant population. Contrary to community based organizations[23], these students' organizations are found working closely on issues of mutual interest– at least on an issue based, case to case mode.

Virtual collectives are other stronger way of collectivity that is actively present among the migrants (e.g. website of epao – an internet forum of Manipuris). These collectives provide the youth to reach to other similarly placed migrants and share their concerns. A regular following up of internet discussions related to their common issues in urban centres reveals the efficacy of such virtual discussion forums to debate on important concerns of the migrants.

[22] For a detailed discussion on these aspects, see Remesh, 2012 b.

[25] From the discussions with some key resource persons it is understood that a major hurdle for collectivity of community based organisations of people from North East India is the lack of unity among groups representing people from different states and different tribal communities. Often these organisations compete each other in organising or protesting.

VII. Concluding remarks

On the whole, the foregoing analysis suggests that dynamics of migration of youth from the states of North East India to urban centres are quite unique and distinct. It may be wrong to conceptualise the reasons and determinants of migration of people from the region to urban centres in the same way as of those from other parts of the country based on stereotyped assumptions rural-urban migration. The findings of the study suggests that the increased presence of youth from North East India in urban centers has more to do with the backwardness of the source regions in terms of economic development, facilities for higher education and availability of gainful employment opportunities. These coupled with the social tensions (due to multiple reasons) necessitates the city bound exodus. Thus, any policy measures to address out migration from North East India have to adequately focus on strengthening the higher educational scenarios and in promoting matching employment avenues for educated youth in local labour markets.

Appendix Tables

Appendix Table 1: Number of migrant household per 1000 households during the last 365 days preceding the date survey for each state/U.T

State/u.t./all-India	Rural	Urban	Rural+urban
(1)	(2)	(3)	(4)
Arunachal Pradesh	39	42	40
Assam	12	60	18
Manipur	38	26	34
Meghalaya	5	11	6
Mizoram	9	32	19
Nagaland	14	61	26
Sikkim	38	76	43
Tripura	12	26	15
All-India	13	33	19

Source: NSS 64th Round (2007-08)

Appendix Table2: Migration rate (per 1000 persons) for each State/ U.T./ rural+urban

State/u.t./all-India	Male	Female	Male+female
(1)	(2)	(3)	(4)
Arunachal Pradesh	17	9	13
Assam	45	236	134
Manipur	7	10	9
Meghalaya	38	32	35
Mizoram	143	164	153
Nagaland	121	148	134
Sikkim	233	448	336
Tripura	66	169	117
All-India	109	472	285

Source: NSS 64th Round (2007-08)

Appendix Table 3: Migration rate (per 1000 persons) in different MPCE quintile class for each State/U.T.- Rural male + female

State/u.t./all-India	MPCE quintile class					
	0-20	20-40	40-60	60-80	80-100	All
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Arunachal Pradesh	7	1	7	10	16	8
Assam	129	135	128	88	124	120
Manipur	8	2	2	4	12	6
Meghalaya	9	14	23	38	84	33
Mizoram	118	113	112	51	158	110
Nagaland	46	39	50	78	168	76
Sikkim	192	228	232	288	560	300
Tripura	131	81	107	95	134	110

Source: NSS 64th Round (2007-08)

Appendix Table 4: Migration rate (per 1000 persons) in different MPCE quintile class for for each State/U.T. Urban male + female

State/u.t./all-India	MPCE quintile class					
	0-20	20-40	40-60	60-80	80-100	All
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Arunachal Pradesh	29	55	18	24	40	33
Assam	231	213	194	267	443	270
Manipur	4	1	0	54	30	18
Meghalaya	32	18	22	69	80	44
Mizoram	135	157	198	176	366	206
Nagaland	318	296	224	418	365	325
Sikkim	629	520	712	525	719	626
Tripura	131	96	190	154	210	156

Source: NSS 64th Round (2007-08)

Appendix Table 5: Distribution (per 1000) of migrants by nature of movements for each State/U.T./Rural + urban; male + female

State/u.t./all-India	Nature of movement			
	Temporary with duration of stay			
	Less than 12 months	12 months of more	Permanent	All (incl.n.r.)
(1)	(2)	(3)	(4)	(5)
Arunachal Pradesh	28	783	98	1000
Assam	3	79	918	1000
Manipur	136	819	40	1000
Meghalaya	0	382	606	1000
Mizoram	1	180	813	1000
Nagaland	9	708	270	1000
Sikkim	1	409	589	1000
Tripura	7	141	849	1000
All-India	3	90	906	1000

Source: NSS 64th Round (2007-08)

Appendix Table 6: Distribution (per 1000) of migrants by reason for migration for each state/U.T./ Rural + urban male

State/U.T./all-India	Reason for migration						
	Employment related reasons	Studies	Forced migration	Marriage	Movement of parent/ earning member	Others	All (incl .n.r)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Arunachal Pradesh	687	96	6	0	23	43	1000
Assam	368	52	214	50	170	130	1000
Manipur	435	80	0	0	470	0	1000
Meghalaya	273	76	17	351	205	54	1000
Mizoram	442	35	22	14	383	61	1000
Nagaland	585	110	6	0	211	73	1000
Sikkim	575	51	3	6	232	132	1000
Tripura	256	27	379	15	167	146	1000
All-India	456	82	24	44	241	148	1000

Source: NSS 64th Round (2007-08)

Appendix Table 7: Distribution (per 1000) of migrants by reason for migration for each state/U.T./ Rural + urban female

State/U.T./all-India	Reason for migration						
	Employment related reasons	Studies	Forced migration	Marriage	Movement of parent/ earning member	Others	All (incl .n.r)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Arunachal Pradesh	215	82	0	359	108	61	1000
Assam	13	4	27	828	69	27	1000
Manipur	63	355	0	63	369	37	1000
Meghalaya	134	26	0	426	318	42	1000

Mizoram	172	56	16	144	509	51	1000
Nagaland	124	38	6	406	373	46	1000
Sikkim	47	74	0	607	231	38	1000
Tripura	16	13	115	680	114	59	1000
All-India	11	10	4	836	107	27	1000

Source: NSS 64th Round (2007-08)

Appendix Table 8: Distribution (per 1000) of migrants by reason for migration for each state/U.T./ Rural + urban; male + female

State/U.T./all-India	Reason for migration						
	Employment related reasons	Studies	Forced migration	Marriage	Movement of parent/ earning member	Others	All (incl .n.r)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Arunachal Pradesh	533	92	4	118	51	49	1000
Assam	77	12	60	688	87	46	1000
Manipur	222	241	0	36	412	21	1000
Meghalaya	211	54	9	384	255	50	1000
Mizoram	299	46	19	82	450	56	1000
Nagaland	338	72	6	218	298	59	1000
Sikkim	238	66	1	390	232	72	1000
Tripura	83	17	190	492	129	84	1000
All-India	99	24	8	681	134	51	1000

Source: NSS 64th Round (2007-08)

Appendix Table 9: Distribution (per 1000) of out-migrants by reason for out-migration for each state/U.T./ Rural + urban, male + female

State/U.T./all-India	Reason for migration						
	Employment related reasons	Studies	Forced migration	Marriage	Movement of parent/ earning member	Others	All (incl .n.r)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Arunachal Pradesh	607	219	0	92	28	31	1000
Assam	477	13	1	442	57	6	1000
Manipur	629	206	1	93	43	24	1000
Meghalaya	486	398	3	96	3	10	1000
Mizoram	592	152	1	225	18	8	1000
Nagaland	401	154	1	433	5	8	1000
Sikkim	270	298	0	349	45	37	1000
Tripura	494	61	0	379	40	21	1000
All-India	298	48	1	543	85	22	1000

Source: NSS 64th Round (2007-08)

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'No Immigrant Must Be Allowed To Settle': Mymensinghi Immigration and the Making of the Assam Land and Revenue Regulation (Amendment) Act of 1947

Binayak Dutta*

Over the years, immigration of people into Assam across the boundary with Bengal has been a subject of intense debate, both in the officialdom and civil society. Though general attitude towards immigration across the Bengal border had been one of resistance, the onset of colonial rule led to the migration of people from many provinces into Assam. The colonial desire of the Company followed by the Crown to earn a profit through expansion of agriculture paved the way for migration of people into Assam under colonial patronage. But it was only by the first decade of the twentieth century that the officialdom and the articulate sections of the civil society in Assam began to perceive this migration as a demographic threat. This threat discourse constructed around the East Bengali migrants had the migrants from Mymensingh at its core. It is this perception that brought migration at the core of the twentieth century politics in Assam. A major articulation of this politics is the formulating a legislative response to it. This paper locates law making as an important articulation of this anti-migrant policy and tries to contextualise the Ammendment of the Assam Land and Revenue Regulation in 1947 as the culmination of a political process that begins in the second decade of the twentieth century. It is this context that the paper attempts to construct.

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The second decade of the Twentieth century exposed colonial Assam to a true Dickensian paradox. It was the most eventful of times and the worst of it too. If the annulment of Partition of Bengal in 1911 revived Assam's autonomy, it also exposed Assam to the reality of large-scale migration of people from East Bengal, more so from Mymensingh. This led to a serious debate among the officialdom on migration. The Census was a small reflection of the same. After the publication of the Census of 1911, colonial officials were repeatedly confronted with various demands for controlling this population transfer. One suggested solution was amending the Land and Revenue Regulations. But concrete effort towards checking this problem could only be evolved at the dawn of independent India. The Government came with a legislation which amended the Land and Revenue Regulation and added the Tenth Chapter to it in the form of the Assam Land and Revenue Regulation (Amendment) Act of 1947 which attempted at meeting the political crisis that emerged with the immigration of cultivators from across the Border of Assam from Mymensingh. Though the migration of people from Bengal was not limited to only one of the districts but the overwhelming number of migrants from Mymensingh in the second and the third decade of the twentieth century turned popular and official attention to them.

By the second decade of the twentieth century, the shadow of Bengal loomed over Assam; though the dimension and character of this interprovincial interface was different from the Bengali influence of the earlier century. The Census of 1921 brought to light statistical information about the unchecked population transfer from Bengal to Assam, especially from the district of Mymensingh which alarmed the local population. The Census Report for 1931 articulated the alarming position. It observed that,

> "[p]robably the most important event in the province during the last twenty-five years- an event moreover, which seems likely to alter permanently the whole future of Assam and to destroy more surely than did the Burmese invaders of 1820 the whole structure of Assamese culture and civilization-has been the invasion of a vast horde of land hungry Bengali immigrant, mostly Muslims, from the districts of East Bengal and in particular from Mymensingh..."[1]

[1] Census Report, 1931, pp. 49-50

The Report of 1931 was a culmination of a process that was started in the Census Report of the earlier decade. Though immigration was an inalienable part of the colonial policy on arable expansion and revenue maximization, it was only in the twentieth century that population trickle from Bengal turned into a tide. The Report of 1921, pointed out that,

> "In 1911, few cultivators from Eastern Bengal had gone beyond Goalpara, those censused in the other districts of the Assam Valley numbering only a few thousands and being mostly clerks, traders and professional men. In the last decade (1911-1921) the movement has extended far up the valley and the colonists now form an appreciable element in the population of all the four lower and central districts..."[2]

The alarmist tone of the report had its impact on the politics of the day and the Report of 1931 generated excitement. Mullan, the Census Superintendent created a stir by his observation that,

> "...by 1921, the first army corps of the invaders had conquered Goalpara. The second army corps which followed them in the years 1921-1931 has consolidated their position in that district and has also completed their conquest of Nowgong. The Barpeta subdivision of Kamrup has also fallen to their attack and Darrang is being invaded. Sibsagar has so far escaped completely but the few thousand Mymensinghias in North Lakhimpur are an outpost which may, during the next decade, prove to be a valuable basis of major operations."[3]

There could be no doubt that Mullan set the tone for a prolonged debate on land management and settlement policy in Assam by the publication of the Census Report of 1931. The inter provincial migration of people from Bengal to Assam militated the minds of colonial officials and public spirited Assamese middle class leaders. The issue came to be first articulated as early as 1916, when the then Director, Land Record first put forward a proposal to create positions of Special Colonization officers to regulate

2 Census Report, 1931, p.50
3 Census Report, 1931, p.51

the settlement of immigrants The matter died down as it was not favoured by the Commissioner. It was revived by Sir Williiam Reid, in 1920, when He tried to formalize the practice of drawing lines in the villages across which the immigrants would not be allowed to settle, a practice which had already started in Nowgong and Barpeta by 1920. By 1923-1924, the practice had taken deep roots in Nowgong. Concern over immigration led to division of the land into various categories intended to restrict immigration. When the Government of India Act 1919 expanded participation of Indians in the government concern over immigration echoed in middle class leadership. When the Swarajists entered the legisiative Council, Shri Rohini Kanta Hati Baruah of the Swarajist Party proposed to move a resolution recommending restriction on Immigration.[4] In 1925, he again moved a resolution seeking preferential treatment to the Assamese settlers during settlement of land. By the middle of the third decade of the twentieth century, the tide of popular opinion was slowly but steadily turning in favour of protectionism in favour of 'children of the soil'. In a report submitted on the 8th of July, 1926, the Deputy Commissioner Goalpara was of the opinion that, " Public opinion seems generally but not unanimously to be in favour of legislation prohibiting transfer of periodic patta lands to Bengal immigrants."[5] The proposals in favour of protecting the rights of the indigenous cultivator figured again and again in the Council. The provisions of the Assam Land and Revenue Regulations 1886 also figured in debates on the settlement question in the Council.[6] In 1926, the issue of immigration was again discussed in the colonial officialdom and it was proposed that a conference of Officials and 'non-officials' would be convened at Shillong to discuss the subject.[7] With the object in view, a draft Bill was prepared proposing an amendment to the Land Revenue Regulations whereby it was provided that transfer of land between the Assamese and the immigrants would be prohibited.[8] But the move for introduction of such an amendment was abandoned for want of public opinion in its favour.[9] But the assessment of the colonial officials

4 M.Kar, Muslims in Assam Politics,p. 34
5 Line System Enquiry Report, Vol. III
6 Speech of Khan Bahadur Sayidur Rahman in the Council as indicated in M.Kar, Muslims in Assam Politics,p.39
7 Report of the Line System Committee, Vol.I, p. 3
8 Report of the Line System Committee, Vol.I, p. 3
9 Report of the Line System Committee, Vol.I, p. 3

returned a favourable report in favour of the Line System but gave ominous indications of a conflict between the settlers and the Tribals who had been the first settlers of certain areas. In 1934, a report from Nowgong indicated, that, serious difficulties were experienced by the Lalungs who were the original settlers of certain villages, when the Colonial state decided to settle migrant settlers from the Surma valley of Assam in the Southeastern areas of the District.[10]

The notification of the Government of India Act,1935 changed the dynamics of Indian politics. Assam was equally affected. While it significantly widened the scope of representative politics in colonial India, It also transformed the idea of people's participation in politics and governance by introducing provisions for popular government at the provinces elected by a widened, qualified electors on the basis of territorial constituencies. In the context of Assam, possession of landed property was one such qualification which distinguished the electors from the non-electing subjects of the province.[11] Part IX of the Schedule of the Act, which deals with Assam, clearly pointed out that,

> "No person shall be qualified to be included in the electoral roll for a territorial constituency unless he has a place of residence in the constituency, and a person shall be deemed to have a place of residence in a constituency if he ordinarily lives in the constituency or has his family dwelling place in the constituency and occasionally occupies it..."[12] (Government of India Act:1935)

The Act of 1935 and the politics that came in its wake drew both popular and government attention to immigration. The religious affiliation of the immigrants was not lost on the political parties who entered the electoral arena in the elections of 1936. The Muslim League which began its political fortunes in Assam in 1928 in the height of the Simon Commission

[10] Report of the Line System Committee, Vol.I, p. 4

[11] I am thankful to Professor Bhupen Sharma, OKDISCD, for highlighting this relationship between land holding and the new politics of post 1935 Act in one of my meeting with him as part of the project appraisal, something that had missed my attention.

[12] Government of India Act, 1935, p.282

Agitations began to use these immigrants as a vote bank and began to steadfastly espouse the cause of the immigrants.[13] The success of the Muslim League in Assam was spectacular. In view of the fact that it drew a blank in those provinces which later came to constitute Pakistan, League victory in 24 of the 34 seats reserved for the Muslims in Assam was immensely significant and helped it to claim some influence in colonial political space. This success also coloured Muslim League politics in Assam after the elections were over and the Assembly was convened.

Muslim League Members of the Assembly, convened after the elections of 1937 began to condemn Mullan's classifications of the immigrant as land hungry 'vultures' and 'ants'[14]. But it also began to expose the threat faced by the Tribals from unchecked immigration from Bengal, that had been one of the main focus of Mullan's Report of 1931. It also began a new phase of tribal politics in Assam with a contest over the retention of the Line System. The system was viewed by the articulate elite leadership as a means of safeguarding Tribal interests.[15] The line System Enquiry Committee under the chairmanship of a planter Member, F.W. Hockenhull was set up in January 1938 which, inter alia, highlighted that the tribals were the worst "victims of unregulated encroachment of vacant land by the aggressive immigrants from Mymensingh resulting in disappearance of many tribal villages. The tribal villagers moved further into sub-montane zone."[16] It was also the opinion of The Revenue member in the Colonial Government, Mr Scott[17] that "there was much to be said for protecting the indigenous people if any good means could be devised of doing so."[18] On

[13] For a detailed discussion on the impact of mobilization in the elections see B. Dutta, Religion in Politics, Eastern India,1905-1947, Varanasi, 2009; also see Political History of Assam, Vol.II.

[14] Census Report, 1931, p.51

[15] For a detailed note on the issue see Suryasikha Pathak, Tribal Politics in Assam, EPW, Vol. XLV, No.10

[16] B. N. Bordoloi, Report on the Survey of Alienation of Tribal land in Assam,p.6.Also see Report of the Line System Enquiry Committee, 1938

[17] Reply of the Revenue Member Scott, in the Legislative Council on the 1st of October, 1936, on line System, in Line System Enquiry Report,1938, Shillong, 1938

[18] Reply of the Revenue Member Scott, in the Legislative Council on the 1st of October, 1936, on line System, in Line System Enquiry Report,1938, Shillong, 1938

perusal of the Line System Enquiry Committee, it was evedent that public opinion were articulated in favour of devising special protection of the tribes. In his deposition before the Committee, Dehiram Bora candidly observed before the Line System Enquiry Committee in his capacity as the Mouzadar of the Sekhar Mouza, Mongaldoi,

> "If special protection is not given to the tribal sects they will sooner or later be extinct. Therefore no immigrant should be allowed to settle near them".[19]

The Deputy Commissioner Kamrup, Mr.C.B.C Paine was of the opinion that restriction such as the line System had to be retained, and argued that

> "as it stands especially in areas inhabited by the Kacharis, Rabhas and other tribes that are unable to look after themselves. The protection of such people is an obvious duty of the Government."[20]

This demand of legislating and preserving exclusive tribal spheres of habitation was echoed not only in Kamrup but also across other districts. The Line System, was, in a way, perceived as a useful intermediary between the tribes and the immigrants. The officiating Deputy Commissioner of Darrang, pointed out that,

> "The Mymensingh Immigrants are aggressive by nature and to protect the indigenous people the presence of the line system is necessary for years to come. In Mangaldai Subdivision where Kacharis, Rabhas and other aboriginal people predominate the line system will be very useful."[21]

The Deputy Commissioner Nowgong reported instances of clashes between the immigrants and the tribal people over forcible dispossession of tribal land and cattle trespass.[22]

[19] Report of the Line System Committee, Vol.III
[20] Report of the Line System Committee, Vol.III
[21] Report of the Line System Committee, Vol.III, p.28
[22] Reference could be made to the case King versus Hapsing Kachari, Line System Enquiry Report, Vol II, p.19

The coming of the Bordoloi Cabinet in Assam brought into the Government sensitivity over the alienation of indigenous communities from their land in the face of reckless immigration across the provincial borders with Bengal. The Bordoloi Government accepted the report of the Line System Enquiry Committee but could do little else as it had to resign in view of the Congress agitation against a unilateral declaration by the Viceroy making India a part of the Allies in the Second World War. The Saadullah Cabinet which came back to power did much to enhance the interests of the immigrants but little for the protection of Tribal interests and protection of Tribal culture. The new government called a conference in May, 1940 which was attended by almost all parties in the dispute on immigration, officials and non-officials alike and which admitted for the first time the necessity of special protection for the tribal classes.[23] But its core focus was to evolve schemes for legitimizing the expansion of immigrants into new areas of habitation. This new scheme came to be called 'Development Schemes'.[24] In a Press Note dated the 3rd of August, 1940, the Government claimed to have evolved a consensual compromise between indigene and immigrant interests on the basis of the dual principles of "justice" and "live and let live".[25] But despite perfunctory references to the balancing indigenous and immigrant interests, the practice of the Saadullah Government was tilted towards protection of immigrant interest. The Tribal people were greatly uncomfortable with the presence of the immigrants in their close proximity. The life-style, habits and behavior with regard to land, cattle and women made them, in tribal perception, undesirable neighbours and often at war with each other.[26] Therefore there were demands made to amend the Land and Revenue Regulations, 1886, to secure the interests of the indigenous, especially the tribals.[27] But despite popular local sentiments which were against it, the Saadullah government introduced a scheme called the 'Land Development Scheme'[28] according

[23] Resolution on Land Settlement dated 6th March, 1942, government of Assam, 1990
[24] Resolution on Land Settlement dated 6th March, 1942, government of Assam, 1990
[25] M.Kar, Muslims in Assam Politics, p. 55
[26] Line System Enquiry Report, Vol II, p.45
[27] Line System Enquiry Report, Vol II, pp.17,20
[28] Announced on the 28th of July, 1941, see A.C. Bhuyan,(et.al.) Political History of Assam, Vol. III,p.38

to which "all waste lands were to be divided into blocks and allotted to different communities including immigrants on the payment of a premium of Rs 5/- per Bigha. This policy further aggravated the situation since many immigrants were given settlements even in areas predominantly by tribals."[29] The political instability brought about by the Congress agitations against the War effort led to the fall of the Saadullah cabinet and the resumption of the administration of Assam by the Governor, Sir Robert Reid under Section 93 of the Government of India Act, 1935 on 25th of December, 1941. One of the important steps taken by him was the scrapping of the Land Development Scheme. But with the return of Sir Saadullah to power in August 1942 the fortunes of the immigrants were revived through the 'grow more food' campaign. The Government of Assam came out with a resolution on the 24th of August 1943 which clearly pointed out that,

> "The cultivated area in Assam has been increasing steadily for some time; and the present urgent need of growing more food, coupled with the desirability of increasing the revenues of the Province and of providing for an increased number of landless persons having led government to review the present policy of land settlement...."

But the interests of the Tribals were blatantly ignored. Tribal interests were articulated only in 1945 when the Coalition Ministry came out with a land settlement policy. This policy which superseded all previous policies and resolutions and stated inter alia that, it was the proposal of the Government to ensure,

> "protection of tribal classes in areas predominantly occupied by them against aggressive elements which are apt to endanger the normal economic and social basis of village life..."[30]

This Resolution on land settlement introduced the possibility of forming tribal belts and blocks in Assam. The government proposed to compile a report about cultivable waste lands in Assam and the percentage of tribal people living in those areas. It was decided that areas where the tribal

[29] B. N. Bordoloi, Report on the Survey of Alienation of Tribal land in Assam,p.7
[30] B. N. Bordoloi, Report on the Survey of Alienation of Tribal land in Assam,p.9

population exceeded fifty percent would be indicated on maps, and on the completion of the enquiry, Tribal Belts would be notified with boundaries of such belts being fixed along easily recognizable geographical features or the boundaries of the mauzas.[31] It was further proposed that,

> "[P]rovisions will also be made for creation of Tribal Blocks side by side with the blocks of other communities in the Planned Settlement Areas where Tribal people have their villages and homes."[32]

But with the resignation of the Saadullah cabinet and the dissolution of the Assembly in1945 these proposals were put on hold. The return of the Bordoloi ministry in Assam after the elections of 1946 led to revival of initiatives to secure the interests of the tribal communities in the Assam valley. Shri Hem Borah was appointed as the Special Officer to prepare a guide map for identifying those villages in which the tribal population was above fifty percent. The Government therefore came with a legislation which amended the Land and Revenue Regulation and added another Chapter to it on the basis of his report.[33] This amendment came in the form of the Assam Land and Revenue Regulation (Ammendment) Act of 1947. The Ammendment led to the constitution of compact areas in regions predominantly inhabited by the tribes. In accordance with Section 160 of the Assam land and Revenue Regulation Ammendment Act 1947, Belts were large areas, 'Blocks had smaller areas considering with boundaries of the Mauzas.'Therefore as many as 35 Belts and Blocks were created in Assam till 1964. The same section enjoined the Government of Assam to notify those classes of people who were considered entitled to protection. Accordingly, Government of Assam came out with a notification No.RD. 2/47/43 dated the 20th of April, 1949, which declared that the Plains Tribals, Hill Tribals, Tea Garden Tribals, Santhals, Nepali Cultivator graziers and Scheduled Castes were the protected classes under Section 160(2) of the Amendment Act of 1947. However the Rules that were formulated in the wake of the Regulations for the first time in 1894 and were printed in Part II of the Assam Land Revenue Manual, Volume I[34] held the ground facilitating the operation of the Regulations.

[31] B. N. Bordoloi, Report on the Survey of Alienation of Tribal land in Assam,p.9
[32] B. N. Bordoloi, Report on the Survey of Alienation of Tribal land in Assam,pp.9-10
[33] B. N. Bordoloi, Report on the Survey of Alienation of Tribal land in Assam,p.10
[34] K.N. Saikia, The Assam Land And Revenue Regulation, 1886, Gauhati, 1965,p. 8

The significance of the issue of immigration in the legislative history of Assam lay in the fact that, for the first time it brought the land question and tribal rights within the domain of colonial politics in all its dimensions. The popular sentiments were surged on the issue and demands arose for the protection of indigenous rights from all sections of Assamese society. The debates and the Enquiry Committee depositions highlighted the fundamental unity between the tribal and nontribal populations of Assam which was also echoed in the debates on various issues affecting the community rights, in the Assam Assembly. The unique position of the Anti Immigrant debate in Assam lay in its success at appropriating the question of law making from exclusively official to the domain of the popular. Legal change was recognized as a legitimate and just method to meet an impending political crisis and the amendment of 1947 was a product of a sustained movement. It is in this background that the historicity of the Amendment to the Land and Revenue Regulations of 1886 must be located. Though deep connections exist between social histories and the history of laws and legislations, it is something that historians of this region are gradually waking up to. This article is only a partial attempt to bridge this historical hiatus.

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A Study on Regional Disparity of Devolution of Rural Infrastructure Development Fund - Evidence for India

S. K. Sen, S. Guha & N. Chakraborty*

The paper attempts to examine the normative criteria of RIDF devolution by NABARD in reducing inter and intra state disparity in terms of sanction of per capita RIDF over the study period 1996 to 2010. Following Spiezia (2002), Adjusted Geographic Concentration index has been used to test the nature and sources of concentration of per capita sanction of RIDF. The empirical findings support a relatively high degree of concentrations in devolution of such fund among the states. The study also identifies the sources of such concentration. The underlying reasons behind such inter and intra state disparity in per capita sanction of RIDF is mainly the matching grant scheme applied to all the states and the twenty percentages reward formula under such devolution criteria. This study strongly recommended the review of the normative criteria for devolution of RIDF set by the NABARD by removing the matching grant scheme and restricting the twenty percentage reward formula, for the less developed states including the states in the north eastern region only for achieving the goal of balanced regional development of rural infrastructure.

I. Introduction:

Balanced regional growth has always been a significant objective of the Indian national plans. Starting from the First Plan, to achieve the goal of balanced regional development, the Finance Commission and the Planning Commission have been determining devolution of the funds to state governments by assigning a significantly high weight on relative backwardness of the states. The contemporary literature on balanced vis-à-vis unbalanced growth doctrine differs significantly in this devolution

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formula of transfer of funds from the central government to the different state governments. The proponents of the unbalanced growth doctrine argued for selection of investment projects purely on the basis of larger total linkage effects which is the sum of backward linkage effect and forward linkage effect. The benefits arising out of such investment projects are expected to trickle down to the other sector. If it is established that national growth will lead to convergence in regional incomes then growth in richer states will trickle down to poorer states in due course of time. In that case, emphasis should be on economic growth rather than regional backwardness while distributing resources to the state governments. This policy of deliberate unbalanced growth strategy is likely to be useful for any economy which is yet to 'take off' or just reached the take off stage. The convergence theorem as propounded by Barro (1991) postulates that when the growth rate of an economy accelerates, initially some regions with better resources would grow faster than others. But after sometime, when the law of diminishing marginal returns set in, first growth rates would converge, due to differential marginal productivity of capital (higher in poorer regions and lower in richer regions), and this in turn would bridge the gaps in the levels of income across regions over time. Though, the cross country empirical results are some time controversial, the reduction in the level of regional disparity in China after economic reform supports this proposition.

On the other hand, the alternate hypothesis advocated for achieving balanced regional growth and proposed in favour of sacrificing some growth if divergence in regional incomes has stronger ground. Needless to mention that in India, different regions with different resource bases and endowments level would have a dissimilar growth path over time. One of the reasons why centralised planning was advocated earlier on the expectation that it could restrain the regional disparity. In spite of planning, however, the regional disparity remained a serious problem in India. In India, the growth rate of gross domestic product (GDP) accelerated since 1980s. The average annual GDP growth rate in the first three decades (1950s to 1980s) was only 3.6 percentages. During the 1980s, the GDP growth rate accelerated to 5.6 percent, and after economic reforms in the 1990s, it has further accelerated to 6.0 percentages or even expected up to 8.5 percentages. The pattern of sectoral composition of GDP growth in India is predominantly service led growth coupled with a declining trend in its contribution from

the primary sector which becomes a serious concern among the development planner and policy makers.

During the Budget speech of 1995-96, the then finance minister of Government of India expressed the consciousness over the declining trend in public investment in agriculture and rural infrastructure mainly due to severe resource crunch experienced by the different state governments on the one hand and the inability of the commercial banks to channelise 18 percentages of their total lending to agriculture as required under priority sector guidelines due to inadequate infrastructural base in rural and agricultural sector. Against this backdrop, the Government of India announced a scheme for setting up of Rural Infrastructure Development Fund (RIDF) with NABARD as the nodal agency towards financing of, at that point of time, the ongoing rural infrastructure projects in irrigation sector. Subsequently, RIDF was made available for new projects as well and its ambit was broadened to cover almost all important aspects of rural infrastructure.

During the launch of RIDF schemes by NABARD, the devolution of state wise allocation of this fund was decided to be made available in accordance with the normative criteria which include geographical area, population, inverse of infrastructure index, inverse of rural cash deposit ratio and the previous performance under RIDF sanctions and disbursements. Clearly, this was a move towards performance based programme budgeting system to achieve the twin goal of generating infrastructural base for rural economy and reducing the intra and inter rural disparity among the different states and or region of India.

Against this backdrop, the objective of this paper is to investigate the nature of disparity of per capita availability of such RIDF sanction across the different states and evaluate its actual performance against the expected standard. For this, we consider the Adjusted Geographic concentration (AGC) index over the period of study and analyse the trend of disparity of per capita devolution to understand the nature and extent of such spatial concentration of sanction of per capita RIDF for the different states.

The paper has been divided into five sections. Section 2 provides the

theoretical exposition and related studies with this study. Section 3 deals with sources of data and the methodological framework utilised to test the nature of regional disparity in devolution of per capita RIDF fund across the states. Results are discussed in Section 4. Finally, this paper concludes in Section 5.

II. What studies on infrastructure gap indicate?

Since the balanced regional growth is one of the principal objectives of the developing world, the major precondition for attaining such goal, however, is the availability and flow of required quantum of infrastructure in the economy. Since, the deficiency of infrastructure will definitely slow down the growth process. In most of the developing countries including India, the status of actual availability of infrastructure, particularly in rural sector, is quite low against its actual requirement by the respective countries (Mellor, 1976). The demand for infrastructure is growing at a much faster rate for the last three decades whereas the supply is more or less stagnant mostly due to structural reasons. The rapid pace of urbanisation and globalisation across the world further aggravates the demand supply gap of infrastructure day by day. Lewis (1955) pointed out that the development of infrastructure in rural sector is anticipated to stimulate economic growth, create jobs, diversify economy and improve the quality of life in the country.

In a nutshell, it has long been assumed that the balanced investment by the State paved the way for further investment from the private sectors. But, it is a fact that the nature of investment in the infrastructural sector never attained any significant attention from the private investors in a large scale. Even the classical economists, who identified the private sector as the 'main' engine of growth of an economy through efficient utilisation of resources of any country or region also admitted this particular fact and advocated for larger state intervention. They also believed that the state should take utmost care to provide the required infrastructural facility for proper functioning of the private sector. This particular aspect of market failure in infrastructural sector was raised by Hirschman (1958). Since, infrastructural base is necessary and may not be sufficient for the proper functioning of private sector organisations.

In a country like India, where the major proportions of the population

lives in rural areas, the rural infrastructure is crucial for overall economic development of the country as a whole and development of the rural areas, in particular. As mentioned earlier, the infrastructure projects, particularly in the rural sector, involve huge initial investments, long gestation periods, high incremental capital output ratio, high risk and a very low rate of returns on investment. This simply creates a barrier for inducement to invest into infrastructure by the private player (Mellor, 1976 and 1995). Investment in infrastructure in rural sector is necessary for increasing the productivity and efficiency of agriculture in the form of improving the credit absorbing capacity, enhancing the productivity of crops and livestock, generating employment and increasing farmers' income etc. which ultimately directly reduce the incidence of rural poverty (Rostow, 1960).

However, the micro aspect of need for rural infrastructure was first raised by Wharton (1967), who classified the agricultural infrastructure into three distinct categories. It may be of capital intensive type or of capital extensive type or transport related infrastructure. He further pointed out that these infrastructures will generate positive externalities at the micro level since infrastructural base in the rural sector will pave the way for inducement to investment potential in rural sector by the local producers. Following the same line, the World Development Report of 1994 (World Bank, 1994) broadly defined the term infrastructure as following:

i) Public utilities-power, telecommunications, piped water supply, sanitation and sewerage, solid waste collection and disposal and piped gas.

(ii) Public works-roads, major dam and canal works for irrigation and drainage.

(iii) Other transport sectors-urban and inter-urban railways, urban transport, ports and waterways, and airports.

Infrastructure for Rural Economy

The models of development which focuses on agriculture also bring about the role that infrastructure play in agricultural development in particular. The spread of technology in agriculture depends critically on both physical

and institutional infrastructure. Rural infrastructure leads to agricultural expansion by increasing yields, farmers' access to markets and availability of institutional finance (Warlters et al, 2005). World Bank (1994) identified that rural infrastructure plays a key role in reaching the large mass of rural poor. When rural infrastructure has deteriorated or is nonexistent, the cost of marketing farm produce will be prohibitive for poor farmers. Poor rural infrastructure also limits the ability of traders to travel to and communicate with remote farming areas, limiting market access from these areas and eliminating competition for their produce. Construction of rural roads almost inevitably leads to increase in agricultural production and productivity by bringing in new land into cultivation or by intensifying existing land use to take advantage of expanded market opportunities. Later, World Bank (1997) estimated that 15 percentages of crop produce is lost between the farm gate and the consumer due to inefficient and inappropriate storage facilities, thereby adversely influencing the income of farmers. Previously, Mellor (1976) pointed out that strengthening rural infrastructure can help to lower production costs which can further augment agricultural output and income for rural farmers. It is also indicated that infrastructure plays a strategic role in generating multiplier effects in the economy with agricultural growth. Since, the kind of infrastructure put in place also determines whether growth does all that it can to reduce poverty. Most of the poor are in rural areas, and the growth of farm productivity and non-farm rural employment is linked interdependently to infrastructural provision. In the same line, Ahmed (1996) observed that development of transport and communication infrastructure enhances the mobility of people and information through reduction in cost and time. The resulting increase in interaction contributes to changes in attitudes and human capital development.

Binswanger, Deininger et al (1993), in a study of 13 states in India, examined the impacts of investments in rural infrastructure in terms of lowered transportation costs, increased farmers' access to markets and concluded that the agricultural sector expanded substantially during the study period. Fan, Hazell and Haque (1998) extend these results to show that rural infrastructure is not only an important driver for total productivity growth, but also directly contributes to a substantial reduction in rural poverty. They find that the investment in rural infrastructure can be treated

as a cause and result of total factor productivity (TFP) changes, thereby reducing the extent of rural poverty through increase in the productivity in the agricultural sector. From their study, it is clear that these two goals are complementary in nature rather than substitute. According to their analysis, it leads to new (non) agricultural employment opportunities, higher wages, and increases in productivity. They further pointed out that among the different components of rural infrastructure; government expenditure on rural roads has the highest degree of linkage effect in reducing rural poverty. They also estimated the elasticity of incidence of rural poverty reduction and TFP with respect to government expenditure on rural roads. If the government were to increase its investment in roads by Rs 100 billion (at 1993 constant prices), the incidence of rural poverty would be reduced by 0.87 percentage and TFP would increase by 3.03 percentages and investment in agricultural research extension would contribute to 6.08 percentages growth in total factor productivity and 0.48 percentage reduction in rural poverty.

From this brief survey of literature, it is clear that the importance of infrastructure in agriculture and rural development is well documented. However, the existing literature is mainly concentrates on the effect of rural infrastructure in reducing poverty and change in TFP. But in a federal structural like India, how far the nature of devolution of rural infrastructure fund attributes towards balanced regional development has not yet been tested considering capita sanction of such funds across the states. In this sense, this paper shall attempt to fill that caveat in the existing literature.

III. Data & Methodology

In order to investigate the regional disparity of sanction of RIDF in India, secondary data regarding state wise disbursement figures are collected. For this, state wise disbursements of RIDF in different tranches (I to XV) are compiled for all the states except the Union Territories. For ambiguity in using interpolations and extrapolations methods to calculate year wise rural population in three newly constituted states (Jharkhand, Uttaranchal and Chhattisgarh), their data are combined with their mother states from where they were bifurcated (Bihar, Uttar Pradesh and Madhya Pradesh, respectively). The year wise rural populations figure are extrapolated from the Censuses of

1991, 2001 and 2011. The data regarding state wise disbursement of RIDF are prepared on the basis of various reports of NABARD whereas area share of the states are approximated from the various reports published by the Registrar General of India, Government of India. Due to non availability of data on rural area of any state for the study period, we use actual area figure off all the states accepting the downward bias in aggregation. The paper consider the period 1995-96 to 2009-10 as per the annual reports of the NABARD are concerned where as the actual rural population for that period is approximated by the year end figure for the respective states.

In this paper we have used the Adjusted Geographic Concentration index (AGC) proposed by Spiezia, (2002) to through light on the RIDF disbursement procedures of NABARD. The per capita disbursement of RIDF in different states in each period with their corresponding ranges at all India levels as well are also considered for study states in different years.

We start with the common measure of concentration is the Herfindahl index (H), may be defined as:

$$H = \sum_{i=1}^{N} y_i^2 \qquad \text{Equation (1)}$$

where y_i is the RIDF disbursement share for State i and N stands for the number of States. The index lies between 1/N (all states have the same disbursement of RIDF share, *i.e.* there is no concentration) and 1 (all sanction of RIDF is concentrated in one state, *i.e.* maximum concentration). In general, however, states have different areas so that a correct measure of geographic concentration has to compare the sanction of RIDF share of each state with its share in the national territory.

The Adjusted Geographic Concentration (AGC) index

In order to cope up with this type of regional differences, Ellison and Glaeser (1997) proposed:

$$EG = \sum_{i=1}^{N} (y_i - a_i)^2 \qquad \text{Equation (2)}$$

where a_i is the area of state i as a percentage of the country area. If the disbursement of RIDF share of each state equals its relative area, then there is no concentration (EG equals 0) and larger value of EG indicates higher geographic concentration. However, the major drawback of the EG index is that it is very sensitive to the level of aggregation of regional data. This feature is due to the fact that the differences between the disbursement of RIDF share and relative area of each state are squared.

To correct this bias related to aggregation, Spiezia (2002) reformulated the EG index further to correct this bias due to aggregation into the following index of Geographic Concentration (GC):

$$GC = \sum_{i=1}^{N} |y_i - a_i| \qquad \text{Equation (3)}$$

where % % indicates the absolute value. Obviously, the aggregation bias would be smaller for the GC index than for the EG index.

The maximum value of the GC index is the equal to:

$$GC^{MAX} = \sum_{i \neq \min} a_i + 1 - a_{\min} = 1 + 1 - 2a_{\min} = 2(1 - a_{\min}) \qquad \text{Equation (4)}$$

where $a_{\min}$ denotes the relative area of the smallest state under study.

The GC index, therefore, is not regionally comparable if the size of regions (states) differs systematically within the country. A natural correction for this second aggregation bias is provided by the adjusted geographic concentration index (AGC), which may be defined as

$$AGC = GC / GC^{MAX} \text{ ; AGC} \in [0,1] \qquad \text{Equation (5)}$$

Decomposition of the AGC index

The AGC index can further be decomposed into two components: geographic concentration of population and territorial disparity. In the case of per capita sanction of RIDF across the states can be considered as:

$$y_i - a_i \equiv (y_i - p_i) + (p_i - a_i) \qquad \text{Equation (6)}$$

where p_i is the population share of state i.

Therefore, the AGC index for per capita sanction of RIDF across the states can be rewritten as

$$AGC = \sum_{i=1}^{N} \frac{y_i - p_i}{y_i - a_i} |y_i - a_i| + \sum_{i=1}^{N} \frac{p_i - a_i}{y_i - a_i} |y_i - a_i| \qquad \text{Equation (7)}$$

The first term on the right-hand measures the effect of territorial disparity in sanction of RIDF per capita and the second term the effect of geographic concentration of population. The AGC index lies between 0, indicating no concentration and 1, implying maximum concentration for all states.

IV. Results and Discussions

The empirical results are summarised in Table 1. For analytical purpose, we divide the states in two broad categories viz. Major states and the states in the northeast region.

Table 1 shows that as on March 31, 2010 the states of north east India altogether received only 7462 projects (1.9 percent of the total projects sanctioned in India) under RIDF. Actual disbursement of money of the total sanctioned was however just 52 percent, against 67 percent in case of major states of India. Disbursement proportion was highest in Gujarat (77 percent) and lowest in Tripura (30 percent). Disbursement pattern of RIDF tranches in terms of percentages in different states revealed that during the first ten Tranches of RIDF, the share of the states of north east India was only 3.5 percent, but increased to 6.1 percent in the next five RIDF tranches. This implies that the level of regional convergence of disbursement of RIDF in different tranches did not fulfil the objective of balanced regional disbursement of such fund, at least at the state level.

Table 1: Projects, Sanctions, Disbursements, Outstanding as on March 31, 2010 (Rs. In Crores)

	States	No. of Projects	Cumulative RIDF Loan			RIDF Tranches (Share Percentage of states)		
		Sanctioned	Disbursed	%	I to XV	I to X	XI to XV	
1	Andhra	23,944	11,749.73	8,090.34	69	**7.58**	14.24	9.35
2	Bihar (Combined)	17,551	6315.27	3067.23	49	**9.24**	2.25	8.69
3	Goa	198	328.13	200.29	61	**0.95**	0.16	0.42
4	Gujarat	43,155	8,210.32	6,280.94	77	**6.22**	9.08	7.12
5	Haryana	2,337	2,621.09	1,815.75	69	**3.48**	2.63	2.46
6	Himachal Pradesh	6,153	2,691.20	1,714.95	64	**2.91**	2.42	2.71
7	J & K	4,171	3,156.40	2,082.07	66	**4.18**	2.43	3.46
8	Karnataka	26,741	5,555.21	3,491.45	63	**4.20**	5.56	5.22
9	Kerala	3,374	2,950.71	1,910.69	65	**2.26**	3.18	2.62
10	M. P. (Combined)	4836	9100.79	5929.58	65	**8.07**	9.94	7.98
11	Maharashtra	24,143	6,633.54	4,643.33	70	**5.85**	6.91	6.04
12	Orissa	87,875	4,870.75	2,617.13	54	**4.86**	4.43	4.88
13	Punjab	6,871	3,925.11	2,914.59	74	**3.54**	4.00	3.64
14	Rajasthan	23,604	6,331.96	4,197.40	66	**6.50**	4.91	6.92
15	Tamilnadu	23,767	7,194.40	5,585.10	78	**5.44**	7.34	6.66
16	U. P. (Combined)	44431	10450.01	7298.87	70	**11.46**	10.16	10.01
17	W. Bengal	52,207	6,259.58	3,825.98	61	**5.90**	6.87	5.47
	Total	**395,258**	**98,344.2**	**65,665.69**	**67**			
	N. E. States							
18	Arunachal Pradesh	87	734.66	457.89	62	**0.36**	0.57	0.80
19	Assam	1,102	1846.20	1163.75	63	**1.92**	1.57	1.92
20	Manipur	2,782	57.71	24.88	43	**0.02**	0.03	0.08
21	Meghalaya	566	445.31	261.53	59	**0.86**	0.31	0.51
22	Mizoram	229	215.78	160.79	75	**0.48**	0.21	0.20
23	Nagaland	787	627.18	255.73	41	**1.20**	0.30	0.81
24	Sikkim	1,140	396.78	154.60	39	**1.14**	0.13	0.55
25	Tripura	769	916.85	271.45	30	**0.91**	0.37	1.23
	Total	**7,462**	**5,240.47**	**2,750.62**	**52**			
	RIDF Total	**402,806**	**103,718.00**	**68,439.74**	**66**			
	NRRDA, Delhi		18,500.00	18,500.00	**100**			
	Grand Total		**122,218.00**	**86,939.74**	**71**			

Source: *Authors' Calculation based on Annual Reports of NABARD*

Notes: 1. 'Tranche': RIDF loans sanctioned during a financial year are covered under that tranche; 2. Disbursement': After the sanction, disbursements take place during the following 4-5 years, as per progress of the implementation of projects; 3. 'Ongoing Tranches': During any given year, disbursements take place concurrently from several ongoing tranches.

Moreover, the pattern of disbursement of such fund also reveal that among the major states, Bihar (Combined) is lagging from the other major states with a significantly low percentage of disbursement of RIDF. The reason for low disbursement of fund could be due to fixation of criteria of matching grant to be met by the respective states. This could be true for the states of north east India too. The criterion of matching grant compels the poor and backward deficit pronged states to apply for such schemes avoiding their actual needs in rural infrastructures. The criterion also provides opportunity to the relatively rich states to increase their share in RIDF schemes with larger provisioning in the budget. Overall, this widens the gap between the relatively richer states with the states suffering from infrastructural backlog, particularly in their rural sector.

Per capita sanction of RIDF for the different states over the study period shows that the minimum per capita RIDF actually sanctioned ranges from Rs. 2.0 in 1996 to Rs. 20.0 in 2010 for Bihar (Combined). The maximum per capita sanction of RIDF for the same period is Rs.100.0 to Rs. 1114.0 for Goa and Rs. 49.0 to Rs. 109.0 in Gujarat. Among the states in the north east India, per capita sanction of RIDF (Arunachal maximum Rs. 1061.0 in 2001; Assam maximum Rs. 135.0 in 2006; Manipur maximum Rs. 84.0 in 2007; Mizoram maximum Rs. 968.0 in 2000; Nagaland maximum Rs. 278.0 in 2009; Sikkim maximum Rs. 847.0 in 2009 and Tripura maximum Rs. 332.0 in 2009) was not always unsatisfactory, but we see wide variations in allocations as the states of north east India in many occasions could not draw any allocations (Manipur in 11 times, Arunachal 5 times, Tripura 4 times, Assam 2 times, Meghalaya 1 time and Nagaland and Sikkim 3 times each) in the past 15 years (Appendix table). Among the states on north east only Arunachal Pradesh is continuously getting relatively higher per capita sanction of RIDF.

Adjusted Geographic Concentration (AGC) Index

Table 2 reveals that out of fifteen trances, the degree of extent of effect of territorial disparity of per capita sanction of RIDF overcomes the effect of geographic concentration of population of per capita sanction of RIDF for one third of the tranches. It implies that the normative criterion of fund devolution under RIDF scheme by the NABARD emphasised more on the relative size of the rural population than that of the area figure of any state. For the remaining tranches, we observe just the opposite result. The effect of territorial disparity on per capita sanction of RIDF as a source of concentration reaches its maximum in sixth tranche (54 %) and reaches its

minimum in twelfth tranche (1 %). The relative contribution of the effect of geographic concentration of rural population on per capita sanction of RIDF as a source of concentration has the same minimum value of 1 % in eighth tranche where as it reaches its maximum of 47 % in eleventh tranche.

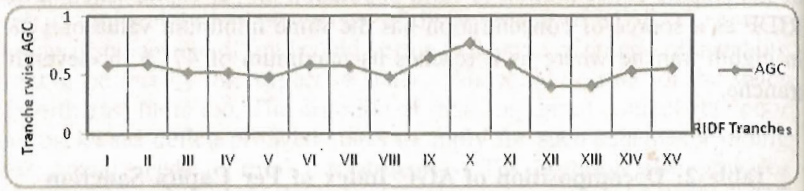
Table 2: Decomposition of AGC Index of Per Capita Sanction of RIDF during the Study Period 1996-2010

Sources of Concentration → / RIDF Tranches ↓	Effect of Territorial Disparity on % sanction of RIDF	Effect of Geographic Concentration of Rural Population on % sanction of RIDF	AGC Index
I	0.31	0.26	0.57
II	0.21	0.37	0.58
II	0.19	0.32	0.51
IV	0.20	0.31	0.51
V	0.15	0.33	0.48
VI	0.54	0.04	0.58
VII	0.43	0.14	0.57
VIII	0.47	0.01	0.48
IX	0.31	0.34	0.65
X	0.46	0.31	0.77
XI	0.11	0.47	0.58
XII	0.14	0.39	0.53
XII	0.01	0.39	0.40
XIV	0.07	0.45	0.52
XV	0.10	0.45	0.55

Source: *Authors' Calculation based on various Annual Reports of NABARD*

As noted earlier, the AGC index lies between 0 (no concentration) and 1 (maximum concentration) for all states. The AGC values are all positive for all the fifteen tranches thereby implying that there is concentration of sanction of RIDF among the states. The index reaches its' maximum of 77 % in tenth tranche where as the minimum appeared for twelfth tranche with 40 %. Even if, we assume 50 % as a benchmark, only three cases it falls below the assumed value, implying a tendency towards greater degree of concentration, whatever the sources may be. This trend is depicted in the following figure:

Figure 1: Trend of AGC over the different RIDF Tranches



Source: *Authors' Calculation based on various Annual Reports of NABARD*

The tendency of AGC index towards a larger value clearly indicates that the sanction and disbursement of per capita RIDF among the states raises some question about the objective of balanced regional development of rural infrastructure across the country so far as its normative devolution criteria is concerned. When the national planners at all levels are trying to emphasize a more balanced regional development, the present criteria of sanction of RIDF across the states is mainly boosting the relatively developed states to utilise the fund in desired direction at the cost of the relatively financially deficit pronged states or the special category states like the states in the north east region. The matching grant criterion for participating in this scheme further debars the resource poor states. Consequently, the excess fund that could have been utilised by these states ultimately goes to the major states on the basis of the 20 percentages reward formula as prescribed by NABARD.

V. Conclusions

This paper recommends that the criterion of fund devolution of RIDF Schemes as prescribed by NABARD should undergo a change towards reducing the wide spread disparity of sanction of RIDF which can promote inter and intra rural disparity among the states. Firstly, the matching grant scheme may be withdrawn, particularly for all those states which are predominantly backward. Secondly, the 20 percentages reward formula of RIDF disbursement should be extended only to the identified backward states and not to the others in order to maintain a progressive structure of the fund devaluation among the different states. Thirdly, the RIDF Schemes should be tagged with other central and state initiatives of integrated rural development programme; and last but not the least, the initiatives taken by

the central government and the respective state governments should be complementary in nature and not the substitutes for effective use of this fund towards reducing inter and intra state disparity in rural infrastructure.

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Appendix Table: Per Capita Sanction of RIDF in different Tranches: 1996- 2010 (Rupees)

States/ RIDF Tranche	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV
Andhra	41	58	47	50	65	93	101	136	117	217	181	101	122	90	42
Bihar (Combined)	2	0	4	11	11	0	4	16	10	16	44	39	60	53	20
Goa	100	0	0	129	0	134	151	160	0	0	0	0	150	1518	1114
Gujarat	49	38	44	29	57	146	7	91	284	399	234	101	145	225	109
Haryana	14	44	43	33	54	41	95	161	83	101	107	147	116	78	80
Himachal	28	101	93	146	198	233	326	284	203	138	314	293	202	278	236
J & K	9	0	34	141	145	204	280	209	191	55	98	504	419	175	153
Karnataka	48	54	48	49	47	79	62	59	75	105	111	112	121	31	2
Kerala	38	32	32	24	50	67	69	75	34	82	62	85	91	128	43
Madhya Pradesh (Combined)	46	51	57	48	55	51	53	120	91	78	59	91	86	55	53
Maharashtra	32	38	46	51	60	74	81	72	10	13	6	73	138	94	37
Orissa	55	47	57	38	32	28	45	68	50	89	86	110	56	62	8
Punjab	40	40	54	47	57	124	131	125	159	175	150	277	163	182	79
Rajasthan	30	32	34	12	28	57	82	65	28	52	105	109	118	126	50
Tamilnadu	0	62	53	41	62	66	96	104	143	161	140	203	218	150	91

U. Pradesh																		
(Combined)	23	33	31	31	23	16	21	27	36	51	48	54	55	44	28			
West Bengal	15	26	29	34	31	62	65	58	33	51	60	56	53	58	29			
Arunachal	0	0	0	0	264	1061	773	0	127	245	714	929	115	461	152			
Assam	0	28	7	23	51	19	0	26	58	5	135	70	16	16	21			
Manipur	6	0	0	0	0	43	0	0	0	2	0	84	0	0	0			
Meghalaya	20	0	39	49	158	155	89	77	68	0	102	82	204	107	113			
Mizoram	49	0	0	0	968	84	160	43	284	143	393	163	438	20	375			
Nagaland	11	0	0	0	103	295	6	41	105	180	221	138	97	278	192			
Sikkim	0	0	0	382	156	95	106	101	68	166	133	339	765	847	22			
Tripura	0	0	0	69	68	106	0	152	12	0	0	170	68	332	0			
Minimum per capita sanction	2	26	4	11	11	16	4	16	10	2	6	39	16	16	2			
Maximum per capita sanction	100	101	93	382	968	1061	773	284	284	399	714	929	765	1518	1114			

Source: Authors' Calculation based on Annual Reports of NABARD

Note: Range of Per Capita sanctions of RIDF is calculated only for the participating states in a given Tranche, thereby omitting unnecessary zero figures.

Economic Manifestations of Changed Landscapes: Flood, Sand and Livelihood in an Upper Brahmaputra Valley

Kalyan Das and Dadul Chutia*

I. Flood, sand and changed texture of land

The National Flood Commission of Ministry of Water Resources had estimated the area vulnerable to floods in Assam at 31.60 lakh hectares. This is against 335.16 lakh hectares for India as a whole[1]. Assam thus accounts for 9.4 per cent of total flood prone areas in the country. Flood affects about one third of Assam's population. Flood in 2012 had breached embankments in 53 places[2] brought in catastrophe in many areas. The recurrence of flood and erosion are considered to be the major obstacles towards development of Assam. These two factors for decades have been causing huge destruction and irreparable loss to the state's economy which is largely agrarian. Moreover in the post flood period the State face challenges to address issues relating to health of affected people and reconstruction activities to ensure livelihood[3].

Newspaper reportage on flood havocs in Assam often focuses the district of Dhemaji. Flood in the Dhemaji district in the year 2000 had affected

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1 Figures are drawn from the website of the Ministry of Water Resources, Government of India.

2 'Assam Demand 3460 crores for repairing embankments', was reported by IANS Private Limited on July 9, 2012; accessed on Google India on 6th November, 2012.

3 One of the concerns of this paper is that we do not have precise estimates on the damages caused in all the components of our life– household economy to our health and social infrastructures.

about 330,000 people in 810 villages, damaging 11,331 hectares of standing crop. The flood of 2011 had affected a population of 154,000 and an area of 28,300 hectares in 261 villages in the district (website of Dhemaji district administration and ASDMA, 2011). There are certain positive impacts of flood, if flood water deposits alluvial (silt) nourishing the agriculture fields. In floodplains across the world, farmers have been using floods as a traditional mechanism to upgrade soil quality because they enable silt deposition[4]. However floods are known to cause substantial damage through destruction of standing crops, property, human life and livestock. One of the damages caused by flood is the deposition of sandy layer. This is however not common (degraded land classification of National Remote Sensing Agency of India; Reddy, 2003) but once done this damage is irreversible, intensify poverty in a primarily agriculture dominated economy. This factor finds little space in the discourses on flood havoc and related policy prescriptions and mitigation plans in the flood ravaged state of Assam. This damage also brings in the issue of relevance of structural measures like embankment in flood disaster mitigation.

Flood is the most common form of natural disaster which causes widespread damages and human sufferings. Some of the damages (lose of human lives, land degradation etc.) caused by flood are irreversible and call for preparedness to minimise the impacts. Flood disasters account for a third of the natural disasters across the world and responsible for more than half of the fatalities (Berz, 2000); such proportions are likely to be higher in Assam.

Dhemaji district, the rice bowl[5] in the state of Assam now to a significant extent has transformed to a virtual desert of sand deposition caused by the flood of Himalayan tributaries of the Brahmaputra River. Estimate

[4] For more on this, see the section on Mud Values in D'Souza (2006). Mud values or siltation drives the desire of farmers to allow floods into their farmlands while this also reveals their dislike of embankments along the river course.

[5] Dhemaji district cultivates numerous indigenous varieties of paddy reflecting its rich bio-diversity and has had fairer productivity. Das (2012) study in 15 flood affected villages found 13 indigenous varieties of paddy. This is reflection of the richness of the region in paddy production to the measure of the pre-liberalised period.

derived from satellite imagery in 1999 reveals that an area of 11,331 hectares has been rendered unproductive by sand deposition in the district (NRMF, 2006). A complete enumeration of 1059 households in 15 sample villages in the *Jiadhal* river basin of the district reveal sand deposition to the extent of 83 percent in the total acreages of 1510 hectares of their paddy fields[6]. Soil test of 346 agriculture plots in 148 sample household establish that the soil texture now comprises 54 percent sand and 36 percent silt[7]. Secondary data reveals that during 1992 to 2004-05 net sown area of the district had reduced by 7,689 hectares and fallow and uncultivated land had increased by more than 8,013 hectares (Government of Assam, 1996 and 2008). These figures indicate that land degradation is significant in the district having a total cultivable area of about 65,000 hectares.

The sediments transported by Rivers are of two types – the bed sediment load of coarser particles and wash loads of finer particles (micro nutrients). Generally in high flow conditions, only the finer fractions of bed sediment load are carried by wash load with possibility of depositing in the agriculture field during the flood (Weibe, 2006). Flood in Dhemaji district now carries and deposit relatively heavy bed sediments load (sand)[8]. Local people and researchers point at the acceleration rates of sedimentation to shifting cultivation, rampant tree felling for commercial purpose and extraction of boulders in the upstream mountain valleys (some indication in Goswami and Das, 2003). Primary observations indicate that some other valley districts in the north bank of Assam though inundated by flood (in many cases by breaching of embankment) of numerous Himalayan tributaries; the damage caused by sand deposition is not common. A World Bank policy paper (Weibe, 2006) on river flooding and erosion in northeast India addresses the issues of

[6] This was done by the authors during 2009-10 for a study supported by South Asian Network for Development and Environmental Economics.

[7] This data is based on test of soil samples collected during 2009-10. The texture of soil in the study area is very unstable due to subsequent waves of flood. This could result in changes in texture to a considerable extent, more particularly in the top soils. See Das (2012) for a detailed note.

[8] Das (2012) study observed massive sand deposition in the villages, where the embankments have breached in recent times. This may open up the debate on effectiveness of embankments.

sedimentation and rise in river beds, channel shifting and erosion; but, the damage caused by sand deposition in the agriculture field attracts no attention. There are, however studies (Caldwell *et al.*, 2002 in the context of Thailand), indicating decline in paddy productivity due anthropogenic factor induced sand deposition. In the Dhemaji district since the 1990s people have started to face the repercussions of land degradation caused by sand deposition.

Economic manifestations in such circumstances can have three dimensions. One- there is cost involved with depleting housing stocks and standing crops; two- the cost of land damage which to an large extent is irreversible; and three- the cost in the mitigation plans, relief operations of the state as well as in coping and adaptive process of the affected people.

II. How deep is the environmental crisis to generate debate?

Satellite map of Indian Remote Sending Agency indicates several pockets of sand deposited areas in the Dhemaji district (Map 1). It is also clearly visible once we traverse the district. Overall flood induced sand deposition has changed the soil texture of the district to a significant extent.

Soil texture[9] influences transmission and storage of water, flow of air in the soil and soil's capacity to supply nutrients determining whether an area is suitable for maintaining a crop system. In general, fine textured soils are more fertile than coarse textured soil (sandy) primarily because of higher clay content and organic matter. Small pore size in fine textured soils makes water movement slower than the coarse textured soil preventing leaching or deep percolation of inputs (water and fertilisers) used. For rice cultivation (In Dhemaji predominately rice is cultivated), soils of fine and medium texture are commonly used (De Datta, 1981: 49). This is assumed that higher content of sand leads to infertility of the soil.

[9] Texture refers to size of the soil particles. Texture is the relative proportion of sand, silt and clay in soil. Texture classes are: i) coarse texture sands, loamy sand and sandy loams with less than 18% clay, and more than 65% sand; ii) medium texture sandy loams, loams, sandy clay loams, silt loams with less than 35 % clay and less than 65 % sand; the sand fractions may be as high as 82% if a minimum of 18 % clay is present. For detail one may refer to the soil texture triangle available in standard textbooks.

Apart from changing composition in the soil, the magnitude of the deposition of sand brings in the challenges to plough the land. Deposit of sand to a depth up to 6-7 feet creates daunting asks for farmers to remove the sand[10]. Moreover, the rivers in the district often shift their channels. This though leaves more and more acreages as fallow and unsuitable for cultivation, there are also emergence of areas for reclamation.

Return from the paddy plots

We did a detailed survey of 148 households in 15 villages in the Jiadhal river basin of the Dhemaji district. The survey captures return of paddy[11] from all 346 agriculture plots possessed by the 148 sampled households.

We found that the average size land holding in the study villages was 1.4 hectares per family. The average productivity in the sampled plots was very low (at 467 kg/ha). To obtain the value of annual agricultural income, annual farm production was multiplied by the average wholesale market price. The mean monthly return from agriculture was estimated to be only Rs. 305/. This return was distressingly low – production was not adequate to ensure even the 30 kg of rice required for a family of five per month[12].

It is noteworthy that the average yield of rice in the state of Assam is 1,433 kg per hectare (which is the average during the two decades of 1990–91 to 2009–10). The average yield in Dhemaji District is 1,165 kg rice. In the sand-deposited study villages of Dhemaji District, however,

[10] Reportedly government of Assam provides a support Rs. 6,000/ per bigha for removal of sand from the paddy field. To what extent this money suffices for sand removal depend on the magnitude of sand deposits. It was observed that removal of huge pile sand from paddy field is virtually impossible.

[11] The farmers generally do mono cropping of paddy. Some however, sow mustards during the winter. Vegetables for household consumption are cultivated in their homesteads.

[12] Rice is the staple food in the region and constitutes all three meals of the day. According to the Ministry of Agriculture, Government of India, the per capita consumption of rice stood at 208 grams per capita per day in 2001. The rice requirement for an average family of five therefore comes to approximately 31.2kg of rice per month.

the average yield is 315 kg of rice per hectare[13]. In contrast, the flood ravaged Dhubri District in lower Assam has an average yield of 1,304 kg of rice per hectare[14].

Reflection on the condition of the agricultural plots

The test of texture and nutritional contents of the soil of the 346 sampled paddy plots helped use to have a measure to what extent these have influenced production of paddy. Significant variations (mean 467 kg/ha and standard deviations 572) in the returns from the sampled plots lead to the assumption that the quality of soil is not the same in all the agriculture plots. Soil samples were collected from all paddy plots possessed (including the leased in plots) by the sampled households.

We measured the texture of the soils, pH factor and organic content of all 346 sampled soil plots in a laboratory. The range pH factor[15] 6.3 to 6.8 is considered ideal for soil and preferred by most soil bacteria. High organic content of the soil reflects availability of nitrogen in the soil. This is assumed that texture along with pH value and organic content would reflect status and suitability of the soil for paddy.

Soil health tests[16] of the agriculture plots reveal that soils of the study area are poorly textured with significant presence of sand and silt, acidic in

[13] Paddy production is converted to rice. Field data was collected on the basis of paddy production per hectare; processing of 1000 kg paddy yield about 675 kgs rice.

[14] In the flood-prone district of Dhubri, many farmers have adopted a risk-averse strategy by an appropriate combination of crops and seasons taking advantage of shallow tube well irrigation. Consequently, there has been an upward trend in paddy yield in the district in recent times (Mandal, 2010). The District however is not affected by sand deposition during floods.

[15] pH is a measure how acidic or basic a substance is. pH scale ranges from 0 to 14; a scale of 7 is neutral, whereas less than seven is acidic and greater than 7 is basic alkali.

[16] We followed scientific procedure to collect the soil samples. Soils were collected within 15 inch depth of soil, based on the criterion that paddy roots go into 15 inch depth. For each plot soil samples were collected from minimum 4 to maximum 16 grid points depending on size and uniformity of the plots, after making certain subjective assessments. The soils collected from different grid points of a plot are mixed up to make the sample representative.

nature with poor organic contents (Table 1), though there were variations from plot to plot. This is indicative that a pH level below 6 inhibits the process of nitrification and low organic carbon is also a good indication of low nitrogen content in soil.

The soil test reflects requirements of application of required doses of organic matters, fertilisers and adoption of land protection measures through vetivar planting to improve the soil conditions. In such situation the return from the land and the rent paid to land owner (in case of land leased in for paddy cultivation) would increase. The question arises, would the farmers as well as the lessees gain by making the additional investments. Even for the lessees, under the set condition of sharing output at certain proportion, the additional investments could lead to rise or decline in the net revenue after sharing the output. The issue is does the market provide enough incentives to invest and raise output in the degraded land and that too have uncertainty of recurrent waves of flood? The market factor (or a higher minimum support price offered by the state[17]) might influence the investments in the degraded land to ensure better productivity and sustaining the household economy. We however do not see support of the State in this context.

The test of texture of the sampled plots helps to classify the plots to the soil types (Table 2). The first three categories of soil- sandy, loamy sand and sandy loam, comprise more than 60 percent of the sampled plots in this study reflect coarse structure of soil and anticipated low nutrients content. These are indications on how the land quality has changed in the district. The test of availability of nitrogen, phosphorus and potassium was conducted in 81 sampled plots across the strata of the five dominant categories (sandy, loamy sand, sandy loam, loam and silt loam) of soil identified in the study area. The tests reveal that all categories of soil, irrespective of dominance of sand or silt show poor nutritional content (Table 2). The subsequent waves of flood and siltation have made the soil of the area unstable and instability could be the reason of poor soil conditions irrespective of the texture. We here observe a puzzle that even deposition of finer silt has failed to ensure nutritional contents in the soil.

[17] Dev and Rao (2010) have argued on this issue.

Farm productivity loss and food insecurity

It is not possible to plough on sand deposited degraded paddy plots (there was no tilling in 75 out of the 346 sampled plots during the year 2009). The farmers cited several reasons- flood (99 plots), flood and lack of irrigation (44 plots), flood and reeds (31 plots) and flood and sand (172 plots) for low and zero returns. Zero returns are recorded in altogether 148 plots in the sample. Flood is cited as the reason for zero return in 36 plots and sand in rest 112 plots. Citation such as need for irrigation (sandy soil cannot retain water) and reeds (grown on sandy soil) are largely reflection of presence of sand in the soil.

In order to put a value on the damage caused by the sand deposition, an assessment was made of paddy yields for 'normal' soils with a sand concentration of 15.7% .(this is the 'normal' proportion of sand in the wider region's soils). Normal yields were then compared with current yields in order to estimate the decline resulting from sand deposits. Statistical analysis (regression models) show the sand deposit induced decline in yield is in the range of 92 kg to 246 kg of paddy per hectare per year[18].

Considering that one kg of paddy costs Rs. 7.5 and approximately 11,331 hectares in the district have been affected by sand, the overall annual losses due to sand deposition in the Dhemaji District is estimated to lie between Rs 8 to 21 million. The average loss per hectare lies in between Rs. 690 to 1845. Considering average size of land holding 1.4 hectares in the sampled households the loss is between Rs. 966 to 2583 per household. These losses constitute 26 to 71% of the total farm income now derived by the affected households and 2 to 5% of the total annual incomes earned from all sources at present after adapting to the situation. Farm productivity loss has made the families food dependent on external sources. It is estimated that two third of total household requirement[19] of rice now is now met by procurement from market-open (average 49 kg), PDS (105kg) and relief provided by the state (80 kg).

[18] Yield of paddy is regressed with independent variables –sand proportion in the soil, the pH factor, distance of paddy plots from river, use of HYV seeds and size of paddy plots. For explanations on how these variables influence paddy yield see (Das, 2012).

[19] See note 13.

Until the late 1990s, as reported during the field visits farmers in the flood affected area, Dhemaji district produced on average 2,400 to 3,000 kg of paddy per hectare (about 8 to 10 *mounds* per bigha). Considering the present return of 467 kg of paddy per hectare in our sample households, this suggests that yield has declined by 1,933 to 2,533 kg of paddy per hectare in the current period relative to the late 1990s. In monetary terms, this falls between Rs. 14,498 to 18,998 per hectare. Thus, if we compare current average yields to yields based on recall data from our field survey in the 1990s, the loss to farmers in the district is significantly higher than if we use our statistical results[20].

III. Is the crisis perceived well in political and policy front?

We have not come across discussions and debates on political and policy front on the issue of sand deposition and irreversibility of the damages. This is not that the issue is not reported by newspapers and researchers. The Rural Volunteers Center, an NGO working on environment and livelihood sustainability in the Dhemaji district has reported the havoc of flood and desertification of the districts and initiated programmes on live better with the floods[21]. The Krishi Vigyan Kendra of Assam Agriculture University, Dhemaji indicated that massive deforestation in the hills of Arunachal Pradesh has caused large sediments inflow with flood water to the plain areas of Dhemaji district causing huge devastation by way of sand deposition (KVK, Dhemaji; AAU accessed web on November 8, 2012). This is also reported in the official website of the Dhemaji district. The state agriculture department reported that in 2011, the Gai and the Jiadhal Rivers had deposited silt and sand on 14,907 hectares of farmland; of which about 8,000 hectares are now no more suitable for cultivation (Assam Tribune, October 11, 2011). Overall we find indication of sand, but the irreversibility issue in land degradation context and the subsequent crisis of livelihood are not debated yet. Government of Assam in statements in recent times though have indicated

[20] The statistical estimations based on regression results show the effect of sand alone, other things being held constant, while recall estimations are based on average yields.

[21] Google has documented many materials on Rural Volunteers Centre.

flood and river erosions are major problems in the state; the issue of desertification of agriculture plots not finding attentions. "We have been successful in cultivating some alternative crop in Majuli Island, which is also a flood-prone area. We want the farmers of Dhemaji and Lakhimpur to come forward with ideas on alternative cropping so that we can move ahead with it" (statement of agriculture advisor of Chief Minister of Assam quoted, Government face farmers' fury, TNN, February 16, 2011). The farmers are not happy with the government's performance to usher any positive change in the affected areas. We find such statements lack perceptions on the situation, that alternative cropping is not remunerative in degraded soil.

IV. Coping and adaptation of the farmers in new environment

Present Livelihood

The derived return from agriculture in sand affected households is distressingly low, even though land possession is not meager (average 1.4 hectare per household). The return from agriculture however is, relatively better few village[22]. In rest of the sample villages low maxima and low deviations in paddy return reveal that none of the households are better off and the average income derived from agriculture, does not suffice to a lift a family beyond the poverty line figure of rural India. Agriculture income now constitutes less than 30 percent of the total household income in more than 90 percent of the households in the sampled villages.

We did not find adoption of any land improvement measures, even application of chemical fertilizers. One explanation for this is that most of the farmers are poor and do not have the resources, except the manpower and bullocks to invest. Other explanation is that farmers' motivation to invest in the poorly textured flood ravaged area is little.

[22] Four villages of the 15 sample villages under study have certain locational advantage. Tekjuli and Tingharia are at the upper course of the river and have lesser impact of sand. In recent time the course of river has shifted away from Panitola and Garubandha allowing the villagers to reclaim their land for cultivation.

It is found that poor agriculture income is pushing people of the villages to certain non-farm jobs. There are some households in the affected villages having relatively better sources income from salaried jobs. Most of the households in the villages, however, rely on income from petty casual works, work in road construction initiated by the state PWD and General Reserve Engineering Force (GREF), jobs in transport sector, livestock rearing (mostly piggery) and weaving (a source for some women workers). The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA) and remittances are also providing relief to some households. Most of the salaried jobs present in the households are in school teaching, defence and para-military sector jobs and petty jobs in emerging private services sectors. The income earn from some regular government services are asymmetrically high compared to the other petty non-farm jobs.

Adaptation issues in degraded environ of land

We are interested to understand how farm households cope with the situation of land degradation. In changing environmental conditions small-scale farmers with little capital will not able to pursue new strategies that will be required to adapt to the changes (Mendelsohn and Diner, 1999), but adaptation significantly reduce some of the damages caused (Rosenaweig and Parry, 1994). Farmers with resources, on the other hand, would adapt if the benefits exceed the costs of adaptations.

Adaptation involves a change in agriculture practices in response to the changes in environmental conditions. It includes changes in management practices such as timing of sowing, intensification of inputs and changes in crop mix[23]. Agronomic studies address adaptation by stimulating changes in the growth parameters of various crops according to the latest scientific advantages.

Soil Scientists reveal that paddy cultivation is possible on silted land, even with high proportion of sand, if the water supply is assured throughout the growing period, as coarse texture of soil prevent water

[23] See note 15 and Mandal (2010) for a detailed note.

and nutrients retaining capacity[24]. The return from the efforts would, however, be meager unless the nutritional deficiencies are met by application of appropriate doses of fertlisers. The study area (or Dhemaji district as a whole) has no facility for irrigation, but the farmers now have started utilising their land taking advantage of the relatively long monsoon period from June to October. The adaptation is also by planting certain HYV seeds, having shorter ripening period than the traditional varieties; means that the paddy gets mature before the withdrawal of monsoon. This way the farmers have able to got some return (average 467 kg of paddy per hectare in our sample), which is less than one fourth of the production than the state average (figure 1). The workforce in the villages having no alternatives finds this adaptation to some extent relieving. The poorly diversified economy of the district offers minimum opportunities in the non-farm sectors and out migration for jobs is becoming a big phenomenon in the villages of the study area.

Is it rational to use/invest labour in degraded paddy field?

Farmers in sand deposited plots may either put extra labour to clear the sand and do the ploughing or use less labour because they think it is not worth the effort. We found that farmers are not using or putting labour in their degraded paddy plots. Thus, labor effort is negatively correlated with sand deposits.[25] We note further that, except manpower, other inputs in agriculture are not used in the study area. The uncertainty introduced by floods may compel farmers to refrain from using inputs such as capital and fertilisers. Fertiliser consumption found to be very low in Dhemaji districts with application of just about 6 kg per hectare compared to the state average of 60 kg/ha

[24] This was revealed by our interactions with soil scientists. This situation very much fulfils the Ricardian condition on land rent that water availability is influenced by the changing conditions of land resembling water availability observed in the hot dry places today; unsuitable for paddy unless provision of irrigation is not made (Mendelsohn and Nordhaus, 1996). Ricardian approach on rent is now often used to value the damage caused by land degradation. It could be useful to assess the agriculture land market in a degraded environment.

[25] Our field data show significant negative correlation (-0.15 at 1% level of significance) between labour hours used in paddy plots and sand deposit level in the plots.

during 2010-11 (Government of Assam, 2011). The primary survey too found minimal use of fertiliser by the flood and sand affected households.

Statistical tests (regressions) in our study context show that with the addition of labour as an input in the production process there is marginal compensation in the decrease of paddy yield (Das, 2012). We can say that even the farmers put labour on sandy soil their effort is not rewarded. The right approach in this context is considered to migrate out in search of jobs.

Land leasing as an adaptation process

We observed some efforts in the crisis ridden peasant families to reclaim land for agriculture purpose. The return, as mentioned earlier is minimal, but the opportunity cost of not planting paddy for the households even in the degraded land is high in the poorly diversified economy of the district. The crisis also forces the families without any regular sources of non-agriculture income to look for best land available for leasing in[26], not necessarily in the same village. From the complete enumeration of households in the study areas we found that about one fifth of the households in the 15 villages are leasing in land for agriculture purpose.

Data reveals that yield of paddy in leased in plots, overall is more (501 kg/ha) than the own acreages planted (354 kg/ha). Statistical test (t test), shows that the difference in paddy productivity in own and leased in land is not significant. This reveals uniform destruction of paddy plots in the study area.

Alternative use of land resources

Damages of the paddy fields and poor agriculture outcome are forcing the people to look for other alternatives. The support of the State is found to be negligible and long run prospects for decent livelihood look grim in this degraded environment. Effort of the people to reclaim the damaged land is just to ensure household food security to the maximum possible extent by utilising the unpaid surplus family labour. There are, however, other possibilities to reclaim the damaged land by various measures. Some

[26] Land leasing in general reflects a crisis situation, the poor and resource less largely adhere to this.

efforts are visible at household level to convert the sandy land for mulberry plantations and pisciculture. There is scope to do a cost benefit analysis of conversion of degraded land to mulberry plantations and pisciculture. Pisciculture however may not be remunerative in the ponds dug on acidic soil (low pH value as revealed by our soil tests) and will require application of significant amount of liming to culture fish. There is possibility to converge the ongoing flagship programes of government of India to people's initiates, but these are not reflected in the initiatives of the district administration or of the panchayati raj institutions.

Some initiatives are seen in the flood and sand deposited villages to adopt horticulture. Potato, cabbages, pumpkin, tomato, brinjal, bean are promoted or cultivated to an extent, but significant success was not visible during the field visit (2009-10). In some village farmers were motivated by some institutions and organisations to go for lentil and mustard cultivations during the *Ravi* season. The North East Regional Institute of Water and Land Management, Krishi Vigyan Kendra, Dhemaji and Rural Volunteers Centre have recently (August 2009-June 2012) completed a joint project on sustainable livelihood security (live better with flood) with a budget of Rs. 290.6 lakh, covering 38 villages and 3052 households. The approach of the project found to be holistic-with suggested innovative livelihood strategy through farm mechanisation, restructuring of cropping pattern, sericulture, horticulture, livestock, pisciculture, development of irrigation and entrepreneurship development in the non-farm sector (Action for Food Production, 2012).

It can be inferred that the institutions have perceived the constraints the villages are now facing to ensure livelihood. It is also important to capture responsiveness of affected people in such initiatives and to what extent such supports suffice the need of the affected households. The resources generated by the three institutions cannot be considered adequate to anticipate a change in this economy. In this context it is important to know how the State converge its development initiatives in the crisis ridden rural economy.

State supports in coping

The affected villages have been able to secure some support of the State such as the Indira Awash Yojona (IAY, the housing program for the poor)

and NREGA to name a couple. The district administration too tries to link such programs to the flood relief support program. We however found the support received from the state in the form of food grain supplies in the flood-affected villages to be meager. The average estimated value of food grain received by each affected household averaged just Rs. 1,326 for the entire year; some villages however receive better supports, because of their locations close to the national highways. Considering that the market price of rice is Rs. 15 per kg and that of lentils is Rs. 60 per kg, the support received may suffice for rations for just two months for the average household of five.

The average number of workdays that people were granted under MGNREGA was just 14 days in the sampled villages, the maximum being 39 days per household in the Samarajan village as opposed to the stipulated provision of 100 days per year. The type of support available from the state is therefore evidently inadequate. Still 74 households out of the 148 in the sample have able to get some work under MGNREGA. It is found that supplementing income from MGNREGA, some households have able to push them above the poverty line. Leaving aside the income from MGNREGA it is found that 108 households (73 percent) had monthly income of less than the estimated poverty-line income of Rs 4298.[27]

Migration as a mode of coping

Migration from the flood and sand affected villages now has become a significant phenomenon. The migrated people now even find jobs at distant places- in plywood and rubber factories of Kerala and security services jobs in Tamil Nadu. Migration to these two remote states is unheard about, but has become a common phenomenon in this area[28]. The destinations of workers to other districts as well as to the distant states reveal constraints of Dhemaji district to absorb workers in its non-farm

[27] Planning Commission of India estimates poverty line of India based on INR. 28.65 per capita per day. Considering the average size of family at 5 the amount comes to Rs 4298 a month.

[28] We had interaction with some of the workers migrated to Kerala; their incentives to move to the farthest distance and adaptation in the new environment and earning. Abundance of jobs and regular flow of income has attracted many youth from Dhemaji district to Ernakulum district of Kerala.

sector. Most of the out migration in the sample is to outside the district (25.7 percent) as well as outside the state (55.4 percent). Out migrants were found in more than 20 percent of the total 1059 listed households and in 33 households (22.3 percent) of the 148 households we visited for detailed interactions. The proportion of out-migrants is significantly higher in this area compared to the rest of the country, where out-migration for employment on average is about 9 percent (GoI, 2010).

Our interaction with the workers in Kerala revealed that they enjoy their jobs; employment and labour market security in Kerala. Jobs back at home are intermittent, and state supported programme like MGNREGA only creates dependency syndrome. This is true that in the unregulated environment the minimum wages and other pecuniary and non-pecuniary benefits are not ensured. The workers however enjoy their acceptance in industry and societies as they are not looked down as migrant workers. They are happy to earn a decent amount through their hard work and support their families back at home. The workers are not willing to settle in Kerala permanently, put efforts to save some money and start a new endeavour in Assam. Electronic transfers of money to home and cellular phone services have made their life convenient and keep them in constant touch with their families.

The endeavour and struggles made by the youths in the distant land open ups few significant issues for the state of Assam. The state enjoys enough provisions in industrial subsidies and concessions but has failed to create enough sustainable industrial jobs (Das, 2012a). There is depletion of forest resources, which had compelled the Supreme Court to impose ban on timber felling. The consequences of closure of hundreds of saw mills and wood factories in the state are well known. There are numerous examples how the state has failed to address sustainable use of our own resources, from saving the paddy fields from negative externalities of flood to all resource based jobs sectors through effective working plans. The struggles made by our out migrants in the lower end job markets of Kerala are indicative enough of poor governance on environmental and economic fronts in the state of Assam (Das and Chutia, 2011).

V. Approaches for crisis mitigations in flood affected areas

In our context of flood and flood induced sand depositions policy debates could be over two issues. One is regulation of anthropogenic activities in the upstream valleys and two, to what extent embankment could protect the villages from inundation and subsequent sand depositions.

Regulation of anthropogenic activities in the upstream

The reasons for the crisis in Dhemaji district are often pointed out to upstream anthropogenic activities, but there are no established evidences to ascertain how anthropogenic activities in the upstream valleys have induced and aggravated the crisis. There are however possibilities to assess the situation with advancements of sciences and techniques in research, indicated by research across the world.

Scientific and Technical Advisory Panel of GEF (2006) says about the huge externalities of unsustainable production choices of people in certain ecological setting. Land use choices and other economic practices in an upstream valley could cause irreversible damages to land in a downhill valley. The affects however enhanced by natural factors of soil types, slopes, vegetation cover and rainfall.

Since sand damage is near irreversible[29], the only option in policy context is to stop further expansion of the damages. Monitoring and intervention for this requires specific information. The issue of monitoring in intra-administrative space as well as inter-administrative spaces[30] call for use of Universal Soil Loss Equation (SLE) model with the help of GIS database (Leeuwen and Sammons nd). Leeween and Sammons prepared monthly average soil loss index incorporating relief and soil data in combination with precipitation and remotely sensed vegetation cover

[29] We consider it is near impossible to remove the pile of sand of average depth of 6 feet. Reclamation of land however it possible to an extent if subsequent waves of flood deposit only finer silts. Farmers reported that tilling in such situations though is not remunerative in short run, help to improve soil texture and conditions in the long run.

[30] In this context we mean to indicate that for a state government it may be difficult to intervene the administrate space of other states.

data. The potential soil loss was computed more specifically in case of forest fire event by combining monthly soil erodibility, slope length and steepness, vegetation cover and rainfall erosivity factors. Many studies have used SLE model for monitoring and assessed the resultant benefits. Graaff's (2000) reservoir study in a downhill has used SLE model to assess soil conservation related benefits from reducing sedimentation. The study runs simulation with spreadsheet model to assess upstream conservation effects on the downstream reservoir. Pattanayak and Kramer (2001) in a sequential context explore whether a protected watershed can provide latent and unrecognised eco-system services to local people. Pattanayak and Kramer look at this from a producer surplus measure and find watershed preservation and base flow can make positive contribution to agriculture profit.

In our context there is possibility to use secondary as well as remote sensing database to acquire time series information on land use changes, loss of vegetation cover, soil loss and associated anthropogenic factors to establish the images of vegetation and soil loss in the upstream valleys. Land use changes and a soil loss index in the upstream region could help to correlate the sedimentation rate in the downstream. A primary survey as well as secondary data on income, consumer expenditure and other indicators of economic wellbeing would indicate how the people in upstream have gained from the changed land use pattern. On the other hand analysis of soil characteristics of the degraded agriculture plots and a production function analysis would indicate the changes in income level of the farmers in the downstream; as we have indicated in earlier sections. These are probable approaches only to identify the causes as well as affects of the externalities. Scientific studies in such context could generate enough discussions leading to adoption of right policies and regulation to check further degradation of land.

Re-thinking on the embankments

The issue of sand damage opens up the argument for the need for protective embankments along the rivers, a need well understood in colonial India, the legacy of which continues to date[31]. Embankments were not exclusively

[31] Evidences and interactions with flood affected people show that the State as well as common people shows preference and confidence on embankment as a protective structure from flood damage. This is also reflected from state's massive investments in embankment construction.

designed to insulate lands from seasonal river inundation but served a number of purposes such as the exclusion of saltwater during the spring tides, damming the mouths of hollows in order to retain fresh water for the purpose of diverting water for irrigation, etc. (D'Souza, 2006). While there have been fewer studies in contemporary times on the potential benefits of embankments (Myaux *et al,* 1997), there have been many studies (Bandopadhyaya and Gyawali, 1994; Chengrui and Dregne, 2001) on the potential for catastrophe in case of a breach of embankments.

In recent times, considering the catastrophic effect of embankments in case of breaching, questions have been raised on the efficacy of such structural measures in flood control and initiatives as strategies for those living with the ever-present threat of floods (Mishra, 2001; Dixit, 2009). Such approach however will require serious cost benefit analysis (Somanathan and Somanathan, 2009) in the context of India as indicated earlier could be suitable if there do not exists multiple negative externalities such as sand along with flood.

Assam at present has a total of 449 embankments covering about 4,459 km of river stretch. While the state water resource department had already identified 950 km of embankments as extremely vulnerable, about 2,390 km stretch of the total length of embankments have been identified as vulnerable. After the massive flood in June and July 2012, the state government now has placed a demand Rs.3460/ crores from government of India to raise and strengthen embankments across the state (Assam Tribune, September 14, 2012). This overall reveals the priority and likening of the state on structural measures to manage the havoc of the flood.

Exploration on information in the flood affected districts of the state would reveal that till date the district administrations have spent millions of rupees annually on relief operations and mitigation plans. Mitigation plans are mostly centered on construction of embankments; often breaches by the fury of flood. For examples in the severely flood affected district of Dhemaji till date 40 embankments and dykes have been constructed and another six are sanctioned. All involved a cost of Rs. 1016.38 million (information acquired from district administration in August 2009 by submitting application under the Right to Information Act, 2005). Overall the structural measures

to control flood damage is not inexpensive to the state. Minimisation of the damage of flood by building structures such as embankments, reservoirs, water diversions structures and directing the flood water for purposeful use require immense financial and economical consideration.

VI. Rational to have non-structural measures in flood damage mitigation

We have indicated that structural measures such as construction of embankment are expensive and not always effective. The money spent on flood control through building of dykes and embankment by many flood prone countries is huge. Still assessments show that the trend of major flood disasters and losses generated by flood have increased in recent years (UNEP, 2002). There are now talks about non-structural measures and approaches of living with flood. Flood Early Warning System is one form of the approaches to manage disaster induced by flood. This system is based on flood forecasting and dissemination of warning signal.

Coming to the issue on loss of lives caused by flood, study (Glickman et al, 1992) shows that average number of death caused by flood has tripled in the past three decades[32]. The trend is also confirmed by the Office of Foreign Disaster Assistance (OFDA, USAID). It is also indicated that the burden of flood is most heavily borne by the impoverished countries of Asia. Records show that 41 percent flood disasters occurred in Asia but this Continent accounts for more than 80 percent loss of lives and other related damages (Moges, 2007).

The climate prediction centers could point the trend of high flood to high rainfall in flood affected localities or in upstream valleys. Such natural phenomenon is inevitable, but there exists few approaches to manage or

[32] During 1953-94, flood caused deaths of altogether 1724 people (average 40 persons per year) in Assam. There were 277 flood related deaths during 1995-2000 (average 55 per year). Flood of 1998 and 2000 caused deaths of 102 persons each in Assam (website of Dhemaji district administration). We find indication that flood related deaths are increasing over the years, though there are wide variations in magnitude of flood and deaths. In the year 2012 till July 09, total deaths reported because of flood were 124 (Assam Death toll rises to 124, PTI, Guwahati, July 09, 2012).

reduce the adverse impacts. Focus could be on institutionalised flood detection, predictions and issuing early warning to potential flooding areas. This approach would invite application of software and calls for technical, technological and institutional aspects to develop a sustainable flood management system. Such non-structural measures are aimed to reduce the potential damage of flood without interfering to the characteristics of flood (magnitude, peak and duration etc.) and here focus is placed on flood warning and land use control. Such approach has the potential to reduce damage of human life and moveable properties. This approach however would not serve the purpose of minimising the risks of siltation and sand deposition.

Government of Assam now runs a pilot project on flood early warning with the support from the North East Space Application Centre (NESAC) of Department of Space, Government of India since 2009 in 14 districts of the state. As claimed by NESAC the percentage of successful flood alerts has improved from 25 percent in 2009 to 75 percent in 2011. The average lead time of forecast has also improved from 7 hours in 2009 to 14 hours in 2011. ASDMA newsletter (Vol. 4, 2011) indicates that contingency plans based on flood early warning data would help to cope with unexpected developments in a better way by reducing indecision, uncertainty and delays in case of emergencies. So far we do not have any review or documentation on effectiveness of this approach.

VII. Human resource management and strengthening of livelihood security system

The trauma of flood

Flood havocs, damages and deaths inflicts trauma on affected people and may result in a wide range of mental and physical health consequences; all having serious economic and social consequences. Flooding can pose substantial social and mental health problems that may continue over extended periods of time. Flooding can challenge the psychosocial resilience of the hardiest of people who are affected (Norris et al, 2002; Stanke et al, 2012). Stanke et al (2012) indicates that flooding affects people of all ages, can exacerbate or provoke mental health problems. There are also influences of secondary stressors in prolonging the psychosocial impacts of flooding. The distressing experiences that the majority of people

experience transiently or for longer periods after disasters can be difficult to distinguish from symptoms of common mental disorders. This calls for the need to reduce the impact of primary and secondary stressors on people affected by flood. Much of the literature focuses on post-traumatic stress disorder; diagnosable depressive and anxiety disorders in general are under-represented. Researchers (Galea et al 2005) draw that women are at higher risk of post traumatic stress disorder (PTSD) after disasters.

The World Health Organization recognises that the mental health consequences of floods have not been fully addressed by those in the field of disaster preparedness or service delivery (Ahern et al, 2005). Research in context of Assam probably has never reported the traumatic experiences faced by people during and after the flood and economic consequences including treatment costs and livelihood losses in the process. We are not aware to what extent this issue is perceived by the State. Field visit to Dhemaji found that this issue is perceived well by the activists of charity and donor organisation such as World Vision.

Issues of livelihood restoration

It is a common sight in flood and sand affected areas that villagers have become poor, marginalised, and more vulnerable to environmental as well as socioeconomic changes because of the recurrent impacts of floods and associated hazards. Every year, floods leave the villagers more susceptible to the next year flood, as they get little time and have meager resources for consolidation. This creates a vicious cycle of impacts and vulnerability (Das et al, 2009).

Restoration of livelihoods which are decent and sustainable, to a large extent would help in mitigation of the trauma of the affected people. As we have seen outmigration from flood affected villages of the state now has become a significant phenomenon. The destinations of workers to other states in the country reveal constraints of the state to absorb workers in its non-farm sector. It could be worthwhile to see how remittances help the affected households to cope with the situation. Livelihood restoration in some flood affected pockets in the state is visible with changes in land use and cropping pattern[33]. As indicated earlier in Dhemaji context too

[33] In the flood-prone district of Dhubri, many farmers have adopted a risk-averse strategy by an appropriate combination of crops and seasons taking advantage of shallow tube well irrigation. Consequently, there has been an upward trend in paddy yield in the district in recent times (Mandal, 2010).

there are some initiations for livelihood restoration.

Dhemaji district is not thickly populated, have population of about 688,000 to the 2011 census. Moreover, the entire district is not affected by flood and sand, and there are certain identified pockets which are vulnerable. The tasks should be uncomplicated to make the planning for livelihood restoration. There is scope to effectively converge the ongoing flagships programmes of government of India for flood relief support and for resource planning to ensure sustainability in the farm as well as in the non-farm sectors. The resources thus spend (a huge proportion often unspent) not planned towards assets generation and resource management, with possibility of leading to livelihood generation in future. The large scale outmigration from Dhemaji is an indication of the failure of the state for livelihood restoration and generation. We did not try but there is scope to have an analysis on the outcome of quantum of resource flow to the district for various development activities and disaster support programme.

VIII. Concluding remarks

Dhemaji district overall reflect the crisis in livelihood caused by sand induced land degradation in an agrarian economy. It is evident that the near irreversible damage to the paddy fields and poor agricultural outcomes from the partially degraded lands is forcing people to look for other income and livelihood alternatives outside the district.

Conditions in the Dhemaji area put into stark relief the need to strengthen the social security of the poor. More effective implementation of rural development and employment programs by the government might be one way to ameliorate the rural distress in this region. The state expenditure on the construction and reinforcement of embankments, which has been its main strategy to control floods, has not been as beneficial because of frequent breaches in embankments. Any attempts to improve water management would be helpful to farmers; as sandy soil cannot retain water and assurance of water would improve yields.

In addition, it would be extremely useful to understand how better management of upstream areas may result in lower sand deposits in paddy fields.

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Tables:

Table 1: Soil Characteristics of the Sampled Paddy Plot (N= 346 sampled plots)

	Mean	Max	Min
Ph scale	5.7	7.6	0.25
Organic Carbon %	0.54	2.5	0
Sand in %	54.2	98.5	0
Silt in %	35.7	84.9	0.5
Clay in %	10.1	52.1	0.25

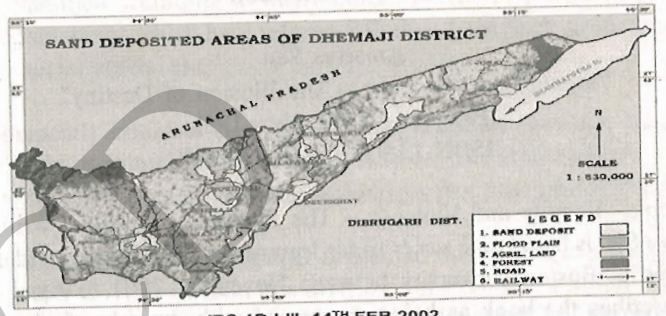
**Source: Primary survey, 2009-10*

Table 2: Nutrition Availability in Differently Textured Soil

Soil Type	Number of Plots	NPK Tested Plot	Average N kg/ha; N is low if <272	Average P kg/ha; P is low if <22.5	Average K kg/ha; K is low if <136
Sandy	44	11	138.8 (Max 389.3; Min 19.9)	19.9 (Max 42.5; Min 6.4)	120.8 (Max 228.5; Min 53.8)
Loamy Sand	91	22	129.0 (Max- 415.9, Min-6.5	30.9 (Max- 61.6, Min-6.4)	132.6 (Max- 288.9; Min-67.2)
Sandy Loam	74	20	140.6 (Max 419.2; Min 13.3)	21.4 (Max 35.9; Min 6.4)	140.9 (Max 288.9; Min 65.9)
Loam	19	9	155.3 (Max 519.9; Min 6.7	35.6 (Max 53.9; Min 24.3)	140.4 (Max 241.9; Min 67.2)
Silt Loam	73	19	216.6 (Max 469.2; Min 33.4)	30.7 (Max 61.6; Min 13.5)	169.9 (Max 295.7; Min 67.2)
Clay Loam	6	0	-	-	-
Silty Clay Loam	18	0	-	-	-
Silt	2	0	-	-	-
Silty Clay	19	0	-	-	-
Total	346	81	-	-	-

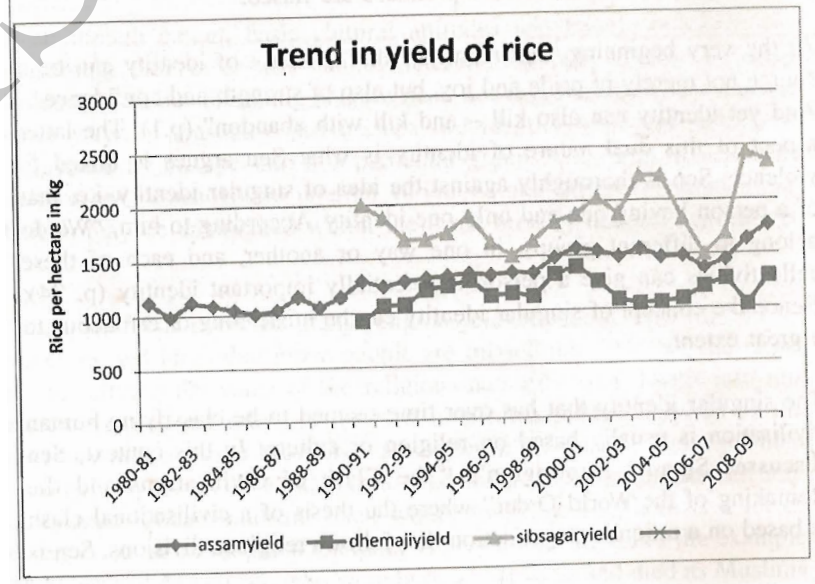
Source: Primary Survey: 2009-2010

Figure 1: Sand deposited area of Dhemaji district (courtesy, ASTEC, Guwahati)



IRS-1D-LIII, 14TH FEB,2002

Figure 2: Trend of yield of Rice in Dhemaji district, Sibsagar (high performing district) and the State of Assam (1990-91 to 2009-10)



Book Review- Identity and Violence

Nivedita Goswami*

Amartya Sen
"Identity and Violence – The Illusion of Destiny"
Penguin (2006), New Delhi
ISBN-13:978-0-713-99938-9

The book, "Identity and Violence – The Illusion of Destiny" written by Amartya Sen is based on a series of his lectures on 'The Future of Identity', delivered at Boston University between November 2001 to April 2002. Sen describes the book as being concerned with the role of identity in historical and contemporary situations. The book has a total of nine chapters where the issue of identity and violence, along with critical discussions surrounding Samuel Huntington's "The Clash of Civilisations and the Remaking of the World Order" premises are raised.

At the very beginning, Sen mentions that 'a sense of identity can be a source not merely of pride and joy, but also of strength and confidence... And yet identity can also kill – and kill with abandon" (p.1). The latter aspect of this dual nature of identity is what Sen argues is linked to violence. Sen is thoroughly against the idea of singular identity, i.e. that of a person having one and only one identity. According to him, "We do belong to different groups, in one way or another, and each of these collectivities can give a person a potentially important identity (p. 24). Hence the concept of singular identity can be misleading or erroneous to a great extent.

The singular identity that has over time seemed to be classifying human civilisation is usually based on religion or culture. In this context, Sen discusses Samuel Huntington's "The Clash of Civilisations and the Remaking of the World Order" where the thesis of a civilisational clash is based on a unique categorisation that follows religious divisions. Sen is

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very critical about Huntington's premises. In his words, "... the divisive power of classificatory priority is implicitly used to place people firmly inside a unique set of rigid boxes." He argues that the people of the world can be classified according to many other systems of partitioning which are based on things which have relevance in their lives, such as occupations, politics, social status, etc.

Sen vehemently criticises such unique categorisation of people based on their religion or culture for a number of reasons. The arguments are spread all over the book supplemented by evidences from the past and present.

He points out that when the world is divided on the basis of religion or culture, other divisions within this division, for example, between the rich and poor, between nationalities etc. are all submerged by this allegedly primal way of seeing difference. Such a classification overlooks the extent of internal diversities within civilisation categories as well as the influence of intellectual and material interactions between the civilisations.

Even though certain basic cultural attitudes and beliefs influence our reasoning, they invariably cannot determine it fully. There are other influences on our reasoning and we need not lose our ability to consider other ways of reasoning just because we identify with and have been influenced by membership in a particular group. According to Sen, each culture has "considerable internal variations and different attitudes and beliefs may be entertained within the same broadly defined culture" (p. 35).

When the focus is on the grand religious classification, other significant concerns and ideas that move people are missed out. This has the effect of magnifying the voice of the religious authority. Sen dwells into this matter deeply, and refers to the rich intellectual history as well as the diversity aspect of the Muslims – an aspect of the Islamic identity which is completely lost in the western conceived and probably propagated identity of Islamic fundamentalism. Even within the Muslims, there is a lot of diversity as far as religious tolerance is concerned. Sen cites the example of Akbar and Aurangzeb who were born as Muslims and died as Muslims but had very diverse views on religious tolerance.

Another drawback of the singular classification is the creation of stereotypes. In Sen's words "... simple cultural generalisations have great effectiveness in fixing our way of thinking." Sen gives innumerable examples to prove his point. These include views of England or Irish poverty as being caused by the laziness and indifference of the Irish people, Churchill's remarks on the Bengal famine of 1943 being caused due to the tendency of the Indian people to 'breed like rabbits' and "Cultural theories evidently have their uses" (p. 106).

Cultural factors are often offered as explanations of economic underdevelopment, which Sen points out, can be indeed deceptive if other interrelated factors are ignored. Though cultural interrelations are useful inputs in understanding of development and change, yet the illusion of cultural destiny can generate a sense of fatalism and resign among people who are unfavourably placed. Sen puts forward his stand that culture is important no doubt, but it is not the central part of any societal predicament. A major part of the book discusses Huntington's views as expressed in his "The Clash of Civilisations and the Remaking of the World Order" about which Sen is very critical. Though the theory of civilisation clash seeks to explain the conflict between cultures and identities, Sen points out that these conflicts are interpreted as ancient feuds which allegedly place today's players in preordained roles in an allegedly ancestral play. Sen says that such an approach serves as a major intellectual barrier to focusing fully on the prevailing politics and investigating the processes and dynamics of contemporary incitements to violence.

Another flaw of Huntington's theory, as pointed out by Sen is his description of India as a Hindu civilisation. This downplays the fact that India has many more Muslims than many Muslim countries, the cultural heritage of India, ranging from art, literature, music, films and also food is the result of the contributions of both Hindus and Muslims. Apart from this, there are a number of other religions which have a major presence in India.

Sen rejects Huntington's views that the concepts of democracy had developed in the West and cites instances of democratic discussions that took place during the days of Ashoka in India, in Japan, in Middle East history and even in small African villages. Likewise, to attribute scientific and technological progress exclusively to the West is wrong as it was the

contribution of Chinese, Arab, Iranian, Indian and other societies that influenced greatly the science, mathematics and philosophy that later led to the European Renaissance.

Based on all these arguments, substantiated by historical evidences spread all over the book, Sen therefore considers the concept of singular identity as highly erroneous. This however does not mean that there is a need to disregard identity. The concept of identity disregard is beautifully illustrated with the concept of the 'economic man' or the 'rational agent'. The assumption of a narrowly self-interested individual, who appears to be natural to modern economists, ignores the variety of motivations that move human beings living in a society.

Sen's rejection of a singular identity or singular affiliation makes him put forward the case for multiple identity or multiple affiliations that a person has. In his words, "In our normal lives, we see ourselves as members of a variety of groups – we belong to all of them. A person's citizenship, residence, geographic origin, gender, class, politics, profession, employment, food habits, sports interests, taste in music, social commitments, etc, make us members of a variety of groups. Each of these collectivities, to all of which the person simultaneously belongs, gives her a particular identity. None of them can be taken to be the person's only identity or singular membership category" (p 5).

Of the various identities to which a person is affiliated, there must be some identity which is dominant, or they must have varying importance, i.e. some may be more important than the other. According to Sen, it is the liberty of the person to decide which loyalty is more important for him or her. Even if we are clear about how we want to see ourselves, there is the additional part of trying to convince others to see us that way. This becomes quite difficult when the stereotypes have been created due to the singular identity vision. Here, the freedom in choosing our identity in the eyes of others can be quite difficult.

Belonging to different identity groups may at times cause conflict between the demands of different loyalties. When different loyalties compete for attention, it is for the person to decide what importance should be attached

to what loyalty and that would depend on the particular existing context. Sen also stresses on the importance of exercising choice and reasoning in determining which membership is more important than the other.

The link between identity and violence comes up at the end of Sen's book, though there have been references to it all throughout. Violence, as we have seen it in recent years have been mostly on the form of conflicts taking place between two opposing parties divided usually on the lines of religion or ethnic/cultural characteristics. Sen himself had witnessed violence at a tender age of eleven when he saw a Muslim day labourer being killed in the Hindu –Muslim clashes of 1944. Referring to the violence that has happened in all parts of the world, Sen attributes it mainly to the existence of singular identity and the neglect of plural affiliations.

An interesting point raised by Sen is the tendency on recent years to consider global poverty and inequality as a source of violence. Sen argues that destitution can produce provocation for defying established laws and rules, but not violence. However, prolonged deprivation, poverty, neglect and humiliation can indeed lead to confrontation. He points out that leaders of terrorist organisations do not suffer from poverty but use the issue of poverty and economic inequality as rich recruiting grounds for foot soldiers. Sen considers that an equitable sharing of the benefits of globalisation can act as a preventive measure to fight global terrorism.

Sen is able to grasp the attention of the readers all throughout his book, especially by making references to different incidents of the past and present, occurring all throughout the globe. While the issue of identity is discussed at length in the book, the analysis of violence appears inadequate. He fails to explain the dynamics of violence that exists in the present world when he simply attributes violence to the existence of singular identity. The wit and arguments by the Nobel Laureate on the diverse issues related to identity and also on the contemporary issues of globalisation and violence gives the reader a stimulating intellectual experience.

Journal

The journal Social Change and Development intends to provide an academic platform to scholars belonging to the northeastern region of India as well as outside to project issues focused particularly on the region, express their views and analyse the issues putting them in proper perspective, both historically and as guidelines for the future. However, issues cutting across the region's border are also welcome.

The unique diversity of the region in terms of ethnicity, culture, language and social institutions makes the region a challenging area of study for the researchers. Although, there has been a prolific growth of literature on the region, it is still lacking discussions with academic rigour. It is therefore, strongly felt that the social scientists would take up issues for academic debate and the journal acts as a platform for the exercise. This is expected to create a better understanding amongst the people of the region and the rest of the country. The geographical seclusion of the region from the rest of the country is sought to be broken through vibrant academic interactions.