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Relationship between Hazard Perception and Place Attachment: An Exploration into the Human Ecological Aspect of Matla River of the Indian Sundarbans

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Abstract:

River is the most important precious gift of human civilization. It nurtures men, direct their thoughts and so likely every bit of socioeconomic life is influenced by action of river. The Sundarbans is such land, designed with criss-cross network of rivers, rivulets and creeks. It offers variable interactions with society, some of which are devastating while many are blessings. Accepting all the positive and negative impacts of riverine actions man has settled along the river side.

The living condition near to the river of the Sundarbans is the most sensitive in terms of positive as well as negative stimuli of the environment. People residing close to it is directly dependent on water resources and at the same time they are affected by the vagaries of natural calamities. Though, people away from the river are quite safe and to some extent indifferent from extreme nature of the stimuli. Irrespective of such dichotomy, riverine people feel special urge for their native place and have strong association and attachment to the place. The present paper aims to unfold the relationship between hazard perception and level of place attachment in the natural setting of Matla river in the Sundarbans. The paper keeps in mind that the people living away from the river has feeble interaction with river and so likely their hazard perception as well as place attachment would be seemingly low in comparison to people residing close to the river.

1. Introduction

Sundarbans is a renowned biosphere reserve in India. It is situated between 21⁰32' to 22⁰40' north latitudes and between 88⁰05' to 89⁰00' east longitudes (Fig. 1). It has worldwide popularity due to its natural setting fabricated with numerous rivers, creeks and well-known mangrove forest. This picturesque environment casts a positive impression in the mind of local people who used to witness its scenic beauty since their childhood. Within this natural set up human being carves his socio-cultural niche based on fishing and agricultural occupations in the lap of the natural environment. This guidance forms associational life in terms of social interaction and personal relation at locality level and develops a deep sense of place attachment.

On the contrary the life of the people over here, experience constant threat from the natural environment. Being close to the sea front, the region is characterized with occasional cyclones, embankment breaching and subsequent salt water inundation. Agriculture in the region is often threatened by devastating cyclones and salt water inundation. On the other side, fishing in deep river is quite risky and threatening due to chance of a sudden attack of fierce animals and seasonal occurrence of cyclones at the Bay of Bengal. However, the intensity of natural calamities significantly varies with the position of locale. With the increasing distance from the river, severity of hazard decreases. The villages located close to river with plenty access to fishing resource experiences natural calamities frequently, though the villages away from the river with an agricultural livelihoods have rare experience of such natural calamities. Such differences form two separate geographical environments – riverine (NR – near to river) and non-riverine (FR – far away from river).

With this mindset, present paper dwells in exploring the relationship between hazard perception and place attachment in the milieu of the natural environment of the Sundarbans. According to several researchers natural environment casts a positive impression in human imagination (Kingston et al., 1999). Some researchers opine about the strong relationship human cognition and place attachment (Kelly, 1956; Replh, 1976; Burgess, 1978). Actually place attachment is such a notion that signifies an intimate spatial portrait of the relationship between an individual and his/her locale. It is resonated as a significant marker of human emotion with their immediate surroundings (Corcoran, 2002). Sociologists have given emphasis to the influence of symbolic meanings of places in the context of social interaction (Greider & Garkovich, 1994). Anthropologists aim to unfold the cultural importance of place in our habitual life (Gupta & Ferguson, 1997). However, Human Geographers have explored the concept of *topophilia* (Tuan, 1978) or in another way 'sense of place' (Relph, 1976; Buttimer & Seamon, 1980). All these

mentioned works have centred on the idea of place which is defined as a repository of shared memories and traditions (Corcoran, 2002).

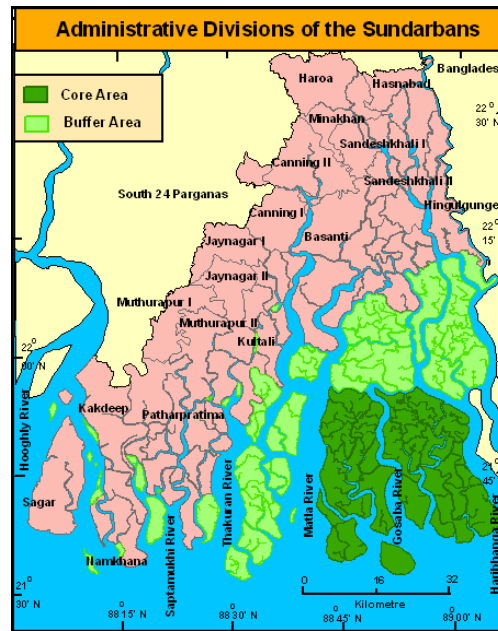


Figure 1

The forgoing inquiry has been conceptualized in the natural setting of the left bank of Matla river in the Sundarbans which offers blessing as well as curse to the riverine (NR) and non-riverine (FR) villages. According to Blache (1926) “Nature provides man with materials which have their inherent requirements, their aptitudes – also their limitations – which lead them to certain uses rather than to others. To this extent nature does make suggestions, and at times restrictions...Nature is never more than an advisor” (Adhikari, 2008). Brunhes (1920) argued “Everything on the surface of the globe is for men a matter of habit” (Hussain, 2011). Lucien Febvre endorsed the tradition of possibilism and to him “man is not a passive being but an active force” (Adhikari, 2008). Mileti shows in a hazard prone area man adjusts considering the other benefits of the environment (Mileti, 1980). Kates argues that man’s adaptability in a hazardous environment is significantly high that forms deep association with his/her niche (Kates, 1971). Considering all these arguments, the present inquiry aims to assess the scenario of hazard perception as well as place attachment in respect to NR and FR villages. It is expected that the NR villages have more experience of natural hazards in comparison to FR villages. Such kind of differences may form differential hazard perception in view of on positive and negative stimuli of the natural environment. Now the question is that how much these experiences lead to form sense of place attachment of man with his/her locality. With this mindset, present inquiry has been made an attempt to unfold the relationship between hazard perception and place attachment.

2. Area Under Study

The data for this study has been taken from the four villages. These are – Bhangankhali, Jhorkhali-4, Phulmalancha and Jhorkhali-2. Amongst four, the first two villages are considered along the riverside of Matla and rest two away from the same river (Fig. 2). Among the NR villages deterioration of riverine environment is least in the southern villages and at the same time aesthetic pleasure is relatively higher due to the vastness of its river, whereas riverine condition is the most deteriorating in the northern villages and logically aesthetic view of river is limited due to narrowing of the river caused by a rapid situation (Fig. 3a, 3b). On the other hand, FR villages have feeble aesthetic impression, though in the South one can enjoy more aesthetic obsession because of its relative functional proximity with the river (Fig. 3a, 3b). Considering these, NR villages have been chosen one from the northern and one from the southern locations. Selection of FR villages has been similarly considering one from the North and one from South. The sample villages have been presented with their characteristics in the following table (Table 1).

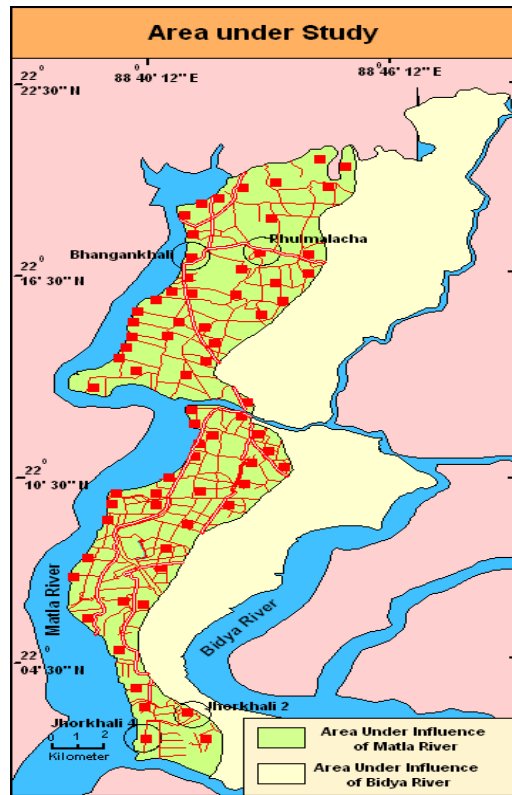


Figure 2

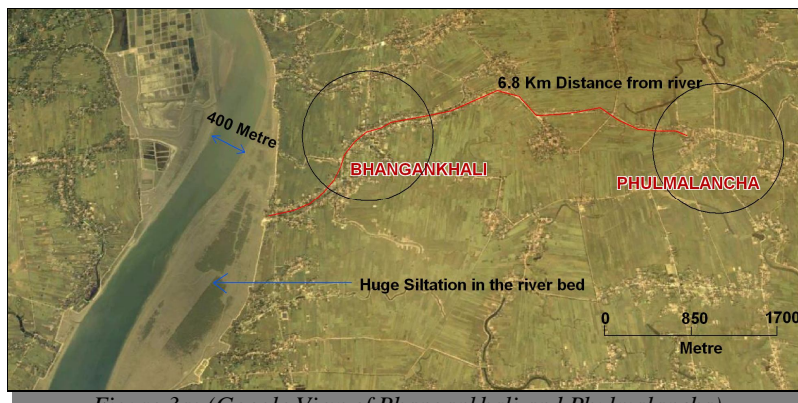


Figure 3a: (Google View of Bhangankhali and Phulmalancha)



Figure 3b: (Google View of Jhorkhali-2 and Jhorkhali-4)

Criterion	Village's Name	Sample Size	Resource Availability	Physical Deterioration	Aesthetic Satisfaction
Riverine Case	Bhangankhali	110	Scarce supply of fishing resource, mostly irregular, only small fishes are available.	River bed silted rapidly, depth becoming shallower. During ebb tide water level falls significantly.	Very minimum due to narrowing river course. Direct view of river is totally restricted due to situation of mangrove forest in front of river bank.
	Jhorkhali-4	115	Plenty of resources, towards south resource are more and lucrative.	No trace of siltation. River is deep and wide.	Aesthetic satisfaction is higher due to picturesque environment. Presence of vast and wide river.
Non-riverine Case	Phulmalancha	100	Agricultural productivity is good, very minimum scope of irrigation facilities due to absence of sweet water.	Creek environment is completely absent. No trace of estuarine ecosystem.	River is far away and forest is totally cleared. So no satisfaction within the village.
	Jhorkhali-2	100	Agricultural productivity is not so high due to little salinity of soil. Irrigation is almost zero. Due to little proximity fishing resource are available in small scale.	Creek environment exists, however partly modified.	River and forest are away but not too far. Aesthetic pleasure exists due to openness of river and mangrove forest.

Table 1: Characteristics of Selected Villages

3. Materials and Methods

Two different aspects have been critically examined for the present study to explore the relationship between hazard perception and place attachment. The first is dealt with hazard perception with special reference to psycho-somatic environment of the respondents. The second attempt aims to measure place attachment based on different items of place attachment.

3.1. Samples

Samples were taken from the four aforesaid villages based on different age groups like – 20 to 35, 36 to 50 and more than 50. Hundred or more samples were drawn from each villages and the amount is equally divided in all age groups. The judgement of sample respondent selection has been done on the basis of age, good responses and experience for long time (at least 15 years). Person-place bond takes place through repeated interactions with a particular place over time (Milligan, 1998). Tuan describes place as a centre of meaning constructed by experience (Tuan, 1978). Considering all those, only residents with long experience (at least 15 years living experience) were taken into consideration.

3.2. Assessment of Hazard Perception

Perception of extreme events, albeit subjective in nature, can easily be measured through the adoption of several techniques. Different scholars of varying disciplines have been adopted Likert scale to quantify such a subjective experience. The technique is designed with a set of responses arranged through an uneven scale. The uneven number of scale points allow for a mid-point or neutral point. There is precedence for using seven intervals in maximum cases (Osgood et al., 1957; Miller, 1956). However, some researchers (Warr & Knapper, 1968) challenged this and used nine or eleven intervals. For the present study eleven interval scales have been taken granted to evaluate the concept precisely. Each set of scale is graduated from '0' point to '10' of which '0' indicates a negative response about the concept and '10' point signifies vice-versa. The '5' point is the notion of neutral response. With this technique, the present paper has been taken two basic criteria – environmental stress (x) and human response (y). Environmental stress has been measured through two responses – mental tension (x_1) and fear psychosis (x_2). Similarly, human response is estimated by two items - adaptability (y_1) and adjustability (y_2). The four items have been measured in eleven point scale (0 – 10) to get the estimation precisely. Afterwards, average values of x and y parameter have been calculated and arranged according to ascending order, and finally employed in the line graphs (Fig. 4a and 4b).

3.3. Approaches to Measure Place Attachment

3.3.1. Selection of the Place Attachment Items

Several attempts have been made here to measure the affective bond between an individual and his/her native place. However it varies depending on the nature of environment where the research work has been undertaken. Some studies of place attachment were directed at built environment (Lynch, 1960; Herzog et al., 1976). Recent efforts have focused on recreational research [16, 31, 27] and place attachment among second home owners (Kyle et al., 2005; Williams & Vaske, 2003; Vaske & Kobrin, 2001). Though, in present inquiry attachment with the natural environment has given precedence. In this context of place attachment two identified dimensions have been taken into consideration – place identity and place dependence (Proshansky et al., 1983; Williams & Roggenbuck 1989).

On the basis of the review of place attachment literature, effective questionnaire was formed for measuring place attachment. Prospective items were reviewed, augmented and finally a pilot study was made to glean out the reality. Afterwards, with some minor corrections appropriate items of place attachment have been taken into consideration.

The first dimension of place attachment has been identified as place dependence. It refers to that kind of attachment which is associated with the potential of a particular place to satisfy the needs and goals of an individual (Stokols and Shumaker, 1981). Several arguments arise about the concept of place dependence. Backlund and Williams (2004) explained it as a functional attachment; however Vaske and Korbin (2001) argued it as an ongoing affiliation with a particular setting developed through several interactions. Tuan (1978) also states that it includes cultural dependence of the residents with their locality. Based on these different views six specific items in the form strings of sentences have been identified to measure the strength of place dependence. Those are as follows:

- **Economic Dependency (d₁):** ‘We are economically dependent on the local resource of the region’
- **Cultural Dependency (d₂):** ‘Our rituals are completely associated with the environment of the Sundarbans’.
- **Recreational Dependency (d₃):** ‘The locality gives us complete relaxation from our day-to-day monotony.’
- **Social Relation (d₄):** ‘The social relation we play is the manifestation of physical environment’.
- **Ecological relation (d₅):** ‘We have strong affective and ethical bonds with the natural resource of the region’.
- **Cognitive Relation (d₆):** ‘We have strong cognitive interaction with the particular setting of the place’.

A second dimension of place attachment has emerged around Proshansky’s idea of place identity. It refers to those dimensions of self that define the individual’s personal identity in relation to the physical environment (Proshansky et al., 1983). This dimension is based on personal emotional ties and is related with self identity and self esteem (Proshansky et al., 1983). Though, it is a positive affective feeling in the group, but it is also the effective component of place identity (Moore and Graefe, 1994). Considering these aforesaid aspects following items have been taken into consideration:

- **Regional Identity (i₁):** ‘We feel proud to think that we are people of the Sundarbans’.
- **Environmental Identity (i₂):** ‘We feel that river of the Sundarbans is as our mother’.
- **Identity of life (i₃):** ‘Our life is totally integrated with this region’.
- **Personal Identity (i₄):** ‘Sundarbans gives me self identity and self esteem’.
- **Feeling Unity (i₅):** ‘We feel united and close ties with each other’.
- **Feeling Happy (i₆):** ‘We enjoy every moment of our life which we didn’t in other place’.

3.3.2. Selection of Measuring Scale

Earlier researchers did not follow any standardized technique to measure the place attachment. In most cases Individualized methods have been adopted (Brown, 1987). Some contemporary researchers employed likert scale to measure the items of place attachment (Williams & Vaske, 2003; Williams et al., 1994). For such technique, items were presented in a five point scale like – “strongly disagree” (1) to “strongly agree” (5) format with a neutral point of 3. For the present study adoption of likert scale would not be justified. It appeared hard for the respondent to distinguish one point to another during the pilot study. Moreover, length of the scale is only five (from 1 to 5) which is not enough to separate minute differences of place attachment. Thus, respondents were asked to estimate their feeling out of 100 with an amplitude of five that means 5, 10, 15 (lowest values)...90, 95, 100 (highest values).

The collected data has been arranged place-wise and item-wise by adopting uni-variate, technique. Thus, item-wise arithmetical mean has been used to perceive the reality of place attachment in different selected places and has been represented in the table 2.

4. Result

4.1. Hazard Perception

It is clear from the figure (4a and 4b) that perceived environmental stress of the respondents is quite higher for the NR villages and accordingly people’s response to the environmental stimuli is considerably better. Embankment breaching, inundation problems, biotic hazards like – tiger attack, snake bites are common along the river side villages and thus more environmental stress produces strain in psychosomatic environment of human life. In opposite to this phenomenon respondents of non-riverine location perceive their environment less stressful and subsequently psychosomatic strain is quite low. It is necessary to be mentioned here that the deviation between stress and strain parameters is relatively less for the NR villages; though it is significantly deviated for FR case. It signifies apathetic response of the FR villages due to their low level perception on environmental stress.

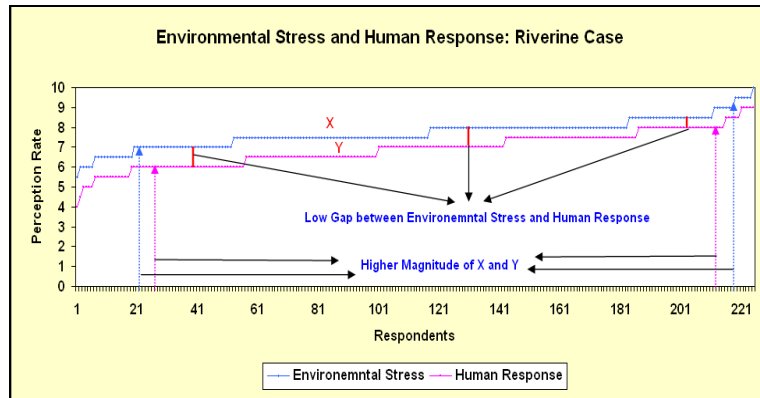


Figure 4a

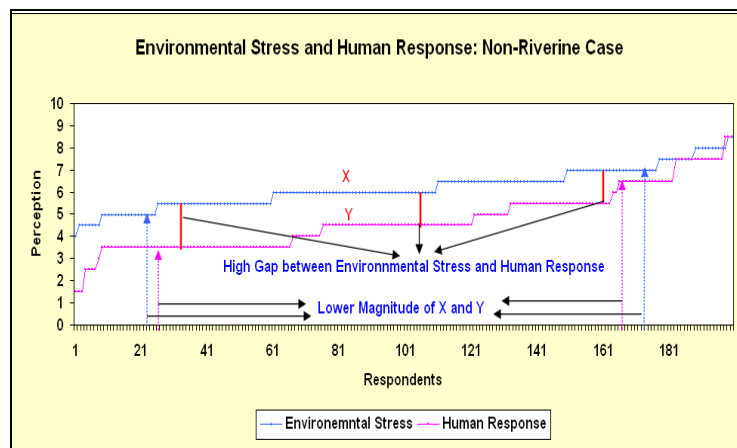


Figure 4b

- Note: The responses of NR or FR villages have been accounted altogether and thereafter arranged in ascending order and eventually plotted in the graphs – 4a and 4b.

4.2. Level of Place Attachment

The preceding section concerned about the hazard perception, while in the present part an endeavour has been made to unfold the strength of place attachment and at the same time it aims to seek the interrelationship between these two. The item-wise mean value presented in the table 2, exhibits item-wise strength of perceived place attachment score and its variation in different locations.

	Items	Riverine		Non-Riverine	
		Bhangankhali	Jhorkhali-4	Jhorkhali-2	Phulmalancha
Place Identity	i ₁	86.83	94.63	90.55	83.67
	i ₂	90.42	95.25	86.56	88.70
	i ₃	70.00	75.83	65.56	67.26
	i ₄	82.42	78.17	66.56	65.22
	i ₅	72.00	64.83	62.56	59.63
	i ₆	62.00	66.92	61.59	58.66
Place Dependence	d ₁	83.08	85.58	57.57	54.56
	d ₂	63.08	63.50	62.67	63.56
	d ₃	63.97	86.33	54.29	50.25
	d ₄	69.17	74.67	51.26	47.59
	d ₅	78.92	87.58	51.49	67.56
	d ₆	79.50	79.17	68.56	50.34

Table 2: Location and Item-wise Place Attachment Score

Note: Bold mark indicates heavy loading of place attachment items (i.e. > median value)

To understand the strength of place attachment a dividing line of 67.41 (median value of all the items) has been taken into consideration to distinguish between heavy and light loadings. The heavy loadings are marked by bold letter to get a clear identification. Statistics of table 2 clearly indicates that place identity items are stronger in respect to place dependence items. The first four place identity items - regional identity (i₁), ecological identity (i₂), identity of life (i₃) and personal identity (i₄) are showing relatively higher values (> 67.41 points) in comparison to the other two items. On the other hand economic dependency (d₁), ecological relation (d₅) and cognitive relation (d₆) are standing with higher loadings (> 67.41 points) among the place dependence dimension. Hence the table clearly prompts that two riverine villages Bhangankhali and Jhorkhali-4 occupy the best position (9 items > 67.41 points) in terms of place attachment. On the other hand, two non-riverine villages Phulmalancha and Jhorkhali-2 are showing moderate attachment (3 items > 67.41 points).

To get a clear picture, the average value of place identity and place dependence have been calculated (table 3) and employed in 2-D graph (Fig. 5). The graph helps to understand the position of the villages in respect to place attachment. Two separate clusters have easily been identified based on the level of attachment. These are –

- Heavy loading in place identity and place dependence (e.g. Bhangankhali and Jhorkhali- 4)
- Heavy loading in place identity and light loading in place dependence (e.g. Phulmalancha and Jhorkhali-2)

Location	Identity	Dependence
Bhangankhali	77.28	72.95
Jhorkhali-4	79.27	79.47
Jhorkhali-2	72.23	57.64
Phulmalancha	70.52	55.64

Table 3: Location-wise Average Score of Place Attachment

Note: Bold mark indicates heavy loading of place attachment dimension

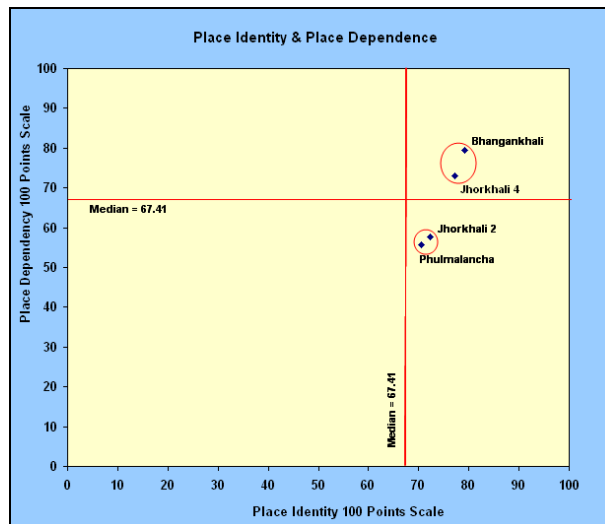


Figure 5

5. Discussion

Physical environment is undoubtedly most important milieu in which man survives. It can be perceived as a series of an ongoing process – physical, chemical, biological – which occurs in a sequential or interactive manner and brings either ill-fate or good fortune. In the Sundarbans both NR and FR villages have the experience to live in a natural disaster in the form of cyclones and saline water inundation, though the intensity of hazards clearly differs from riverine to non-riverine situation. Being close to the Matla river, NR villages are affected more in comparison to FR one. The settlement and agricultural land are frequently inundated, causing resource loss for the present and also in the near future. However, FR villages have very rare experience of saline water inundation except severe storm surges. All these differences make NR villages more adaptive and responsive to the natural environment that clearly embarks form the analysis of hazard perception. The hazardous riverine environment casts serious threats to the NR villages and subsequently, forms intensive social interaction for their survival not as an individual, rather as a community.

From the view of resource utilisation NR villages get more positive feed back. The economic outlook for NR villages is essentially related to the work of fishing and fish-oriented trades and other related activities. They avail fishes, crabs, tiger prawn seeds, etc. from the river and thus sustain their livelihoods. Riverine environment to them, is a lifeline. Contrarily, FR villages mainly depend on the agricultural economy for their livelihoods. Dependency to river for agricultural practices is a historical

phenomenon since the beginning of human settlement, though saline water of Matla river has no use for irrigation purposes. Thus, agriculture is restricted by mono-culture due to scarcity of non-saline irrigation facility. Irrigation by ground water is quite impossible as ground water is saline and fresh water available beneath 1400 feet (Kanjilal, 2000). Recently modified creeks act as a source of irrigation, though it is not sufficient as per requirement. Therefore, physical environment limits the growth of agriculture. These constrains of agriculture alienate FR villages to be involved emotionally in the riverine culture of the region. Such kind of differences is not only theoretical rather it is perceived reality that has been manifested from the analysis of place attachment. Thus, considering several positive feedbacks of the environment NR villages exhibit deep sense of place attachment in comparison to FR villages.

Apart from these, environmental cognition is stronger for the NR villages. The image in their mind provides a specific identity to them and obliges them in belonging to the Sundarbans. Their feelings, emotional attachment, expedition to fishing operation, industrious energy offer some basic inspiration for their livelihoods. On the other hand, FR villages feel special urge for belonging to the Sundarbans, however, their cognitive set up is indirectly impressed by the riverine environment.

The relationship between hazard perception and place attachment so far is not only psychological; rather it is the manifestation of nature and extent of the stimuli provided by the natural environment. The NR villages are expected to be displayed posed attachment in comparison to the FR one. The analysis grounds the same realization as in most of the place attachment items show higher loadings for the NR villages in comparison to the FR villages. The direct dependency on water resources, environmental cognition, experience of aesthetic pleasure all together, form deep sense of place. Thus, despite of extreme negative stimuli, the NR villages response positively and eventually adopt and adjust every odds of transient life. On the contrary, FR villages are relatively less adaptive and indifferent to the environmental hazards that results feeble place attachment with their native place.

6. Conclusion

It is a common sense of the notion that the physical environment can give rise to a subjective experience in mind and man responses or behaves accordingly. The nature of such responses depends on what kind of stimuli man receives from the environment. If it is extreme and threatening, man adopts accordingly over times and becomes responsive and adaptive for every negative aspect of the environment. However, man's adaptation is conditional. Along with negative stimulus man finds other positive returns and eventually adjusts to the environment. The phenomenon is quite different if the stimulus is neither extremely positive nor negative. Such an interaction with the environment leads to form low adoptive strength and causes indifferent responses to the environment.

This one is not theoretical realization rather it is perceived reality explored through present inquiry. There is no denying fact that the respondents of the NR villages exhibit more place attachment in spite of several odds experienced in their habitual life. The river serves as a lifeline and binds them in their traditional occupation. Such a dependency causes a deep sense of place attachment and makes ignorant to the other negative impact of riverine environment. They become conversant with such hazardous environment from one generation to another, but it is no more able to form alienation to their native place as psychological and functional dependency weakens the negative feelings. Thus, it makes people more adoptive and more compatible to adjust with varying situations. The scenario is quite different for the FR villages. Due to their distant location they are feebly connected with riverine environment and thereby showing low loading of hazard perception. Such alienation undermines their deep sense of place feeling and subsequently their adaptive ability appears with silence tune.

7. References

1. Adhikari, S. (2008). *Fundamental of geographical thought*. Allahabad: Chaitanya Publishing House
2. Backlund, E.A., & Williams, D. R. (2004). A quantitative synthesis of place attachment research: Investigating past experience and place attachment. In J.J. Murdy (Ed.), *Proceeding of the 2003 Northeastern Recreation Research Symposium: Vol. GTR-NE-317. Meanings and Places* (pp. 320-325). NY: Boltan Landing
3. Brown, B.B.(1987). Territoriality. In D. Stokols & I. Altman (Ed.) *Handbook of environmental psychology* (pp. 505-531). New York: John Wiley
4. Burgess, J.A. (1978). *Image and identity: A study of urban and regional perception with particular reference to Kingston upon hull*. Hull, UK: University of Hull Publication
5. Buttimer, A., & Seamon, D. (1980). *The human experience of space and place*. London: Croom Helm
6. Corcoran, M.P. (2002). Place attachment and community in marginalized neighborhoods: A European case study. *Canadian Journal of Urban Research*, 11(1), 203
7. Greider, M.V., & Garkovich, L. (1994). *Landscapes: The social construction of nature and the environment*. *Rural Sociology*, 59, 1-24
8. Gupta, A., & Ferguson, J. (1997). *Culture, power, place: Explorations in critical anthropology*. Duke University Press, 1-32
9. Herzog, R.T., Kaplan, S.,& Kaplan, R. (1976). The prediction of preference for familiar urban places. *Environment and Behaviour*, 8, 627-645
10. Hussain, M. (2011). *Evolution of geographical thought*. Delhi: Rawat Publication
11. Jorgensen, B. S., & Stedman, R.C. (2001). Sense of place as an attitude: Lakeshore owners attitudes towards their property. *Journal of Environmental Psychology*, 21, 233-248
12. Kates, R.W. (1971). Natural hazard in human ecological perspective: hypothesis and models. *Economic Geography*, 43, 438-451

13. Kaltenborn, B. P. (1997). Recreation homes in natural settings: Factors affecting place attachment. *Norwegian Journal of Geography*, 51(4), 187-198
14. Kelly, G. A. (1955). *Psychology of personal constructs*. USA: Routledge.
15. Kingston, S., Mitchell, R., Florin, P., & Stevenson, J. (1999). Sense of community in neighborhoods as a multi-level construct. *Journal of Community Psychology*, 27 (6), 635-769.
16. Kyle, G., Graefe, A., & Manning, R. (2005). Testing the dimensionality of place attachment in recreational settings. *Environment and Behaviour*, 37(2), 153-177
17. Lynch, K. (1960). *The image of the city*. Massachusetts, Cambridge: Harvard University Press.
18. Mileti, D.S. (1980). Human adjustment to risk environmental extremes. *Sociology and Social Research*, 64, 327-347
19. Miller, G. (1956). The magical number seven plus or minus two. *Psychological Review*, 63, 81 – 97
20. Milligan, M. (1998). Interactional past and potential: The social construction of place attachment. *Symbolic Interaction*, 21(1), 1-35
21. Moore, R.L., & Graefe, A.R. (1994). Attachment to recreation setting: The case of rail-trail users. *Leisure Science*, 16, 17-31.
22. Osgood, C.E., Suci, G.J., & Tannenbaum, P.H. (1957). *The measurement of meaning*. Urbana, Ill: University of Illinois Press
23. Proshansky, H. M.; Fabian, A.K., & Kaminof, R. (1983). Place identity: Physical world socialization of the self. *Journal of Environmental Psychology*, 3, 57-83
24. Replh, E.C. (1976). *Place and Placelessness*. Brondesbury Park, London: Pion Limited
25. Stokols, D., & Shumaker, S.A. (1981). People in places: A transactional view of settings. In D. Harvey (Ed.), *Cognition, social behavior and the environment* (pp. 441 – 488). Hillsdale, NJ: Erlbaum.
26. Tuan, Y. (1978). *Topophilia: A study of environmental perceptions, attitudes, and values*. Chichester, NY: Columbia University Press
27. Vaske, J. J., & Korbin, K. (2001). Place attachment and environmentally responsible behaviour. *Journal of Environmental Education*, 32(4), 16-21
28. Warr, P.B., & Knapper, C. (1968). *The perception of people and events*. London, UK: Willy
29. Williams, D.R., Patterson, M. E., & Roggenbuck, J.W. (1994). Beyond the community metaphor: Examining emotional and symbolic attachment to place. *Leisure Science*, 14, 29-46.
30. Williams, D. R., & Roggenbuck, J.W. (1989). Measuring place attachment: Some preliminary result. *NRPA Symposium on Leisure Research*. Texas: San Antonio
31. Williams, D. R., & Vaske, J. J.(2003). The measurement of place attachment: Validity and generalizability of a psychometric approach. *Forest Science*, 49(6), 830-840