

The Ecological Interdependence between Zunheboto Town and its Selected Villages

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Abstract

Zunheboto, the hometown of Sumi tribe of Nagaland is the urban headquarter of the district. The interdependence of this urban center and its villages are studied where the whole district is divided into 3 zones based on the volume of population and the distance with the help of gravity model. To study the interdependence between the urban and rural areas, an ecological aspect was considered. The result of the study shows that the degree of interaction depends on the distance that exist between them which is further influenced by traditional, politico-economic, Socio-cultural and ecological factors

In the study of the interdependence between Zunheboto and its villages, 3 zones of interdependence viz., highly Interactive, moderately Interactive and less Interactive zones have been identified. These categories have been derived using a gravity model based on the volume of population and the distance taking into account the available social amenities. Specific villages were selected for the detail study i.e. Natha Old, Aotsakali, Sumi Shitsu and Tsutoho representing highly Interactive Zone, moderately Interactive Zone and less Interactive Zone respectively. Taking into consideration the ecological aspects, analysis on spatial type of

interaction and interdependence are discussed. A calculation on bivariate coefficient of correlation has tested the number of amenities and population where a positive correlation was confirmed. So it is obvious that the division of zones based on either social amenities or population is applicable for the present study. The interdependence is controlled by certain drivers like traditional, politico-economic, socio-cultural and ecological factors. The analyses of the above quoted aspects are based on both primary and secondary data sources. On obtaining a positive result, zones based on volume of population are considered.

Table 1: Volume or potential interaction of population for the selected villages in Zunheboto District.

Village	Total population	Distance in Km	Volume/potential of interaction in '000 popn.	Category
Natha Old	296	4	17,00	High
Aotsakali	222	22	200	Medium
Sumi Shitsu	218	58	86	Low
Tsutoho	265	85	76	Low

Source – Field survey 2008.

The households being surveyed under the highly Interactive zone of Zunheboto district are in Natha Old village, where 53 out of 112 households with 296 populations were being interviewed. In the moderate zone, Aotsakali village, 55 out of 115 households with 222 populations were selected. Further, the two villages, under the North and South of less Interactive zones namely Sumi Shitsu and Tsutoho village located 58 Km and 85 Km from

Zunheboto town were selected respectively. In Sumi Shitsu, out of 106 households, 40 were surveyed which consist of 218 population and in Tsutoho, out of 113, 45 households with a population of 265 were taken into account. The volume or potential of interaction or interdependence tabulated was mainly done based on the distance between Zunheboto town and the respective sample villages (Fig. 1)

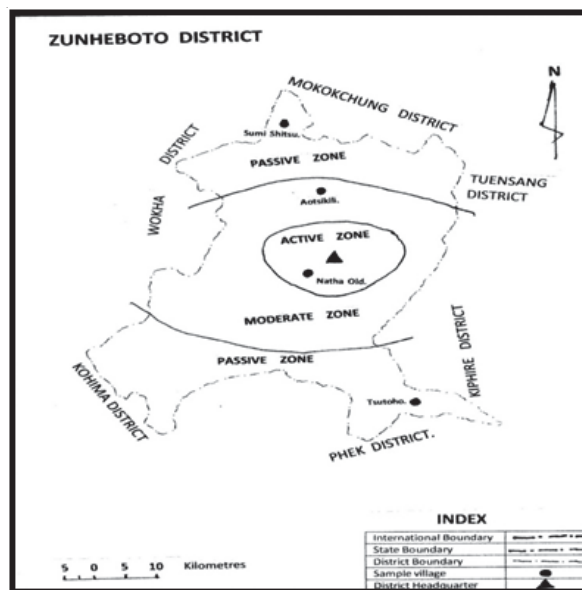


Fig. 1. Map showing Location of Sample villages within Demographic volume and interdependence in Zunheboto district.

Conceptual Framework of the Present Study

To understand the degree of linkages between different aspects of interdependence between urban Zunheboto and its rural places, a conceptual framework is needed. Rural and urban areas are independent localities and have different characteristics of activities that meet similar human needs through a symbiotic relationship. The interactions of these rural and urban areas are reflected under spatial interdependence. Spatial linkages are so called because it emphasizes on the widening of space within the particular study area. Here the exchanges of elements between

the so called independent urban and rural areas are considered. In these linkages the flow of people - both migration and commuting, flow of ideas, flow of goods and services and flow of funds are included. In the present study, the flow assumes an ecological perspective where the elements of spatial interdependence are considered.

The interaction is governed by set of four interlinked factors such as traditional, politico-economic, socio-cultural and ecological. For instance the preservation of forest to enhance future sustainable livelihood and gradual decline in the practice of shifting cultivation in Nagaland is an

outcome of politico-economic rationale of the Government that has impacted the rural populace who are compelled to engage in the other activities which in turn may pose a challenge to the traditional socio-cultural institution and set up consequent to emerging new politico-economic policies which would govern the linkages between rural and urban localities. The linkages between villages and Zunheboto town are governed by the said factors which prove the analysis that depending on the volume of people living in a particular settlement

or region, interaction also takes place. This is because the object is the population and the said factors acts as the subject which might depicts the potentiality of interdependence among rural and urban centre (Zunheboto town). The potentiality is the first concern and then types are to be identified. So this conceptual framework is important and main driver for monitoring, identifying and even filling up the gaps in the course of the whole research work. (Fig .2)

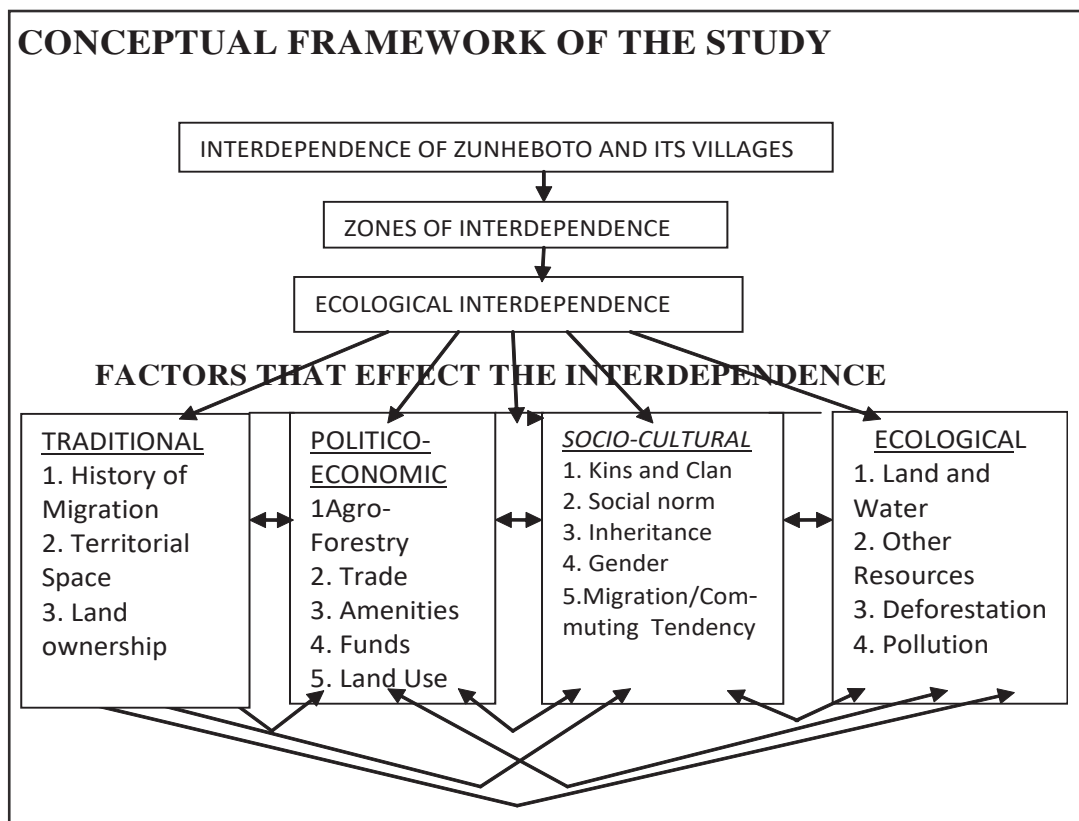


Fig.2 Diagram showing conceptual framework

Ecological Interdependence

In the spatial aspect of interdependence between rural and urban settlement, the flow between urban and rural is the main focus (Potts 1995). The concept of a city ecological footprint was developed to quantify the land area in which the city dweller depends for food, water and other

resources like fuel wood (Rees 1992). Urban residents and enterprises depends on area significantly larger than built up area for basic resource and ecological functions and draw on such resources and ecological function from beyond its surrounding region (Mc Granaham et al ,1996)

The interaction and interdependence of Zunheboto town and its rural areas on the ecological phenomenon has some interesting features. In these aspects the generation of dependency through flow of ideas and information for the preservation of forests and related resources and the interdependency on agro-forest products are being considered. Through the inflow of different Government Policies and Regulations, certain livelihood options are generated where people have already started to interact and consequently depend on each other especially between rural areas and urban Zunheboto. For instance, since the Government Agencies and NGOs propagate the diversion of Jhum land to Protected Forests and Plantation farm lands, the villagers have to seek other options to be

dependent for their livelihood. It has been observed that the government initially bears the burden of how the urban dwellers; land owners start planting trees and horticultural crops, where poor rural dwellers are engaged as labor force on daily wage basis. In due course of time, natural ecological phenomenon has been set up where the villagers obtain forest based product for sale at Zunheboto town to supplement their income. So the interaction on the flow of ideas and information was also found to be an important one.

Therefore, inflow of ideas and information and its service from where it has its basis are considered. To analyse the rate of these inflow, the sample villages were studied and the following justification were obtained that are shown in Table 2.

Table 2: Sources of the inflow of ideas and information to the households of selected villages in Zunheboto district (in %)

Village	Environment problems Like Global Warming, Pollution, Soil erosion etc.			Adverse effects of Jhumming and Deforestation			Natural and man-made Disasters like Earthquakes, Storms, fires etc.		
	Zunheboto	Others	Don't Know	Zunheboto	Others	Don't Know	Zunheboto	Others	Don't Know
Natha Old	57	23	20	49	22	29	27	17	56
Aotsakali	47	24	29	37	34	29	27	19	54
Sumi Shitsu	43	44	13	33	32	35	23	17	60
Tsutoho	41	9	50	32	9	59	31	05	64

Source:- Field survey 2008.

Flow of ideas and information on ecological aspect, in the selected villages show that in Natha Old, out of 53 households being interviewed, 57% opined that they have received information on Global Warming, Pollution, Soil Erosion and ideas for further rejuvenation of it from Zunheboto town, whereas only 23% of households acquired information from places other than its town and 20% of the household is ignorant. Regarding the adverse effects of Jhumming, 49% of households received ideas and information while 27% of the

households received disaster- related information from Zunheboto Therefore, based on this analysis, Natha depends more on Zunheboto town than other places which indicate that the interaction is high. As for Aotsakali, about 47% of the households and 24% of the households receive information on environment from Zunheboto and places other than its town respectively. Regarding the adverse effects of Jhumming, 37% of the households receive information from Zunheboto and 34% from places other than Zunheboto. This reveals that flow

of information is uniformly accessed both from Zunheboto and other areas thereby justifying the location of Aotsakali under the moderate zone. In Sumi Shitsu, 43% of households received inflow of ideas from Zunheboto whereas 44% learned about environment from other places which shows that this village is more dependent on places other than Zunheboto. As for Tsutoho, ignorance about the matter is more, as 50%, 59%, and 64% of the households out of 45 households are completely ignorant about environment, adversity of Jhumming and dangers of disasters respectively. Thus Sumi Shitsu and Tsutoho, both fall under the less Interactive zone in Zunheboto district since the former has an alternate urban centre i.e. Mokokchung whereas the latter has a rural market i.e. Satoi. This justifies the low level of interdependency of the two villages with Zunheboto town.

The phenomenon of interaction has had a positive impact on trade in agro-forest products between rural and urban areas. The flow of these products clearly shows the zone of interaction in Zunheboto district as within the proximity of 10 - 15 Km. An active flow is indicated as Zunheboto

town is dependent on the villages like Sukhalo, Shiepu, Baimho, Asukhomi, Yiemshe ,Natha Old and Natha New which are all located within highly Interactive zone of Zunheboto district. They are the feeder of fuel wood, agro forest based vegetables, local building materials, charcoal and drinking water during the dry winter season. The villages also supply agro-products like yam, potatoes, maize, and even fresh river fishes, crabs, frogs and prawns to Zunheboto the town dwellers. All the villages under Atoizu , Satakha and Aghanato blocks fall under the moderate zone of interaction . Besides, villages under VK, Akuluto and Suruhuto blocks in the northern part of the district and the villages under Satoi, Pughoboto and Ghatashi blocks in the southern part of district fall under the less interactive zone. One striking feature is that all the villages in the northern less interactive zone of Zunheboto district have alternate place to interact as they are located in the region bordering developed-Mokokchung district, whereas the southern villages do not have a favorable urban center to interact with the exception of villages under Pughoboto block that interact with Kohima and that of Aghanato with Kiphire.

Table 3- Places of sale of agro-forest products by the households of selected villages (in %)

Villages	Place where Dispose/sell	Agro-Forest Products	Fuel Wood	Local Building materials	Charcoals etc.
Natha Old	Zunheboto	61	42	43	19
	Other place	-	-	-	-
	Don't sell	39	58	57	81
Aotsakali	Zunheboto	31	27	29	28
	Other place	12	22	08	-
	Don't sell	57	51	63	72
Sumi Shitsu	Zunheboto	-	-	08	-
	Other place	44	47	21	19
	Don't sell	56	53	71	81
Tsutoho	Zunheboto	-	-	29	30
	Other place	33	30	08	-
	Don't sell	67	70	63	70

Source:- Field survey 2008

The villages of Zunheboto district sell their products in the different outlets. For instance, 61% households, of Natha Old under the highly interactive zone sell their agro-forest vegetables to Zunheboto while 42%, of the households sell firewood, 43% building materials and 19% charcoal. The data does not show any sale in places other than Zunheboto. Aotsakali sell and dispose the agro-forest products in Zunheboto as well as in the places other than Zunheboto. 31% of household sell vegetables at Zunheboto and 12% at other places whereas 57% do not engage this activity. The sale of firewood is 27% at Zunheboto and 22% in other places while 51% of the households are not engaged in this trade. Aotsakali accounts for 29% of the sale of building materials like bally post, timber, log etc., in Zunheboto and 8% at other places while 63% do not engage in this activity. Sumi Shitsu and Tsutoho do not sell vegetables, fuel wood and charcoal at Zunheboto, infact their markets are located at places other than Zunheboto. While Sumi Shitsu has other alternative markets while Tsutoho is determined by the distance factor. Tsutoho, being located in the interior zone, disposes only building materials (timber) to Zunheboto. Therefore, from the above we may assert that Zunheboto is more dependent on villages in regard to agro-forest products on the basis of the different zones that are mostly governed by the distance they cover. Besides, villages in the moderate and less interactive zone sell their agro-forest products at the roadside market shed at a low price.

Controlling Factors that affect the Interdependence of Zunheboto and its villages

The factors which control the interdependence between Zunheboto and its rural areas are linked to location, history, economy and culture of the Sumis. However traditional aspects, politico-economy, socio-cultural and ecology which are the elements of the dynamics of rural-urban interaction also determine to a certain extent. Zunheboto is the land of Sumis who are rich in their own traditional culture and social

norms. To analyze the controlling factors, the following things needs to be focused.

1. Traditional factors:

The inhabitation of the whole district is due to migration of the people. A unique cultural practice among Sumis while setting up of a new village is that the village is named after its founder. In other words, the place itself is his own village where he is the chief, now a days called Chief Gaon Bora or Gaon Bora. The inflow of culture, tradition, norms and diplomatic relations are fabricated based on the history of their migration because all the villages have a parent village on whom they are dependant. Villagers who migrate to Zunheboto continue to maintain ties with the parent village seeking assistance in times of need. Further, during the process of migration the people transfer their social and cultural ethos to the new place, while exercising these norms consultation with the parent village from where they have migrated is inevitable (migration both in rural-rural and rural - urban). In times of conflict and trouble the community seeks protection and advice from the parent village. Besides, the jurisdiction and territorial space covered by a particular village is also an element of controlling factor. Bigger the territorial space, more is the population which leads to a large number of developmental amenities, and as a consequence, higher is the interaction and interdependence. In other words, the size of the village matters, because bigger the village is, more is the volume of population that participate in the process of interaction and interdependence with Zunheboto though the distance to be covered is longer. Land ownership also plays an important role in controlling over the dependency of a particular settlement. For instance the territory of Zunheboto town is mainly carved out from the Land of Natha village, as a result, even the district administration and town council is compelled to be dependent on the land owners of the Natha village. The levying of taxes or adhering to the customary laws of the said village by the resident of the town is another common practice despite their traditional land falling

under Zunheboto urban jurisdiction. Thus traditional history and norms control either directly or indirectly on the aspect of ecological interdependence between Zunheboto and its villages.

2. Politico-economic factors:

Politically legislated economic management in the state in general and Zunheboto district in particular do control the process of interdependency. Various agencies and NGOs propagate to do away the practice of shifting cultivation and encourage towards forestry, plantation farming and horticulture etc. As such, government bears the burden initially in the process of stepping into new system in which the rural poor avail themselves and become dependent on the urban dwellers who help in setting up their farm in the villages. Thus, the funds flow in from the government as well as the urban dwellers in Zunheboto. In due course of time, the rural poor do engage in agro-forest activities which greatly benefit the town dwellers. As a consequence, trade flourishes between the urban headquarter and its villages ensuring interaction. Availability of amenities led to interdependency of different settlements as; more the amenities available in a particular village, it tends to stay away for dependency from the urban headquarter which has been experienced in Zunheboto district. Economic avenues are created for the villagers owing to financial transaction between them and urban dwellers in addition to Government financial assistance. Land use in Zunheboto district is mostly covered by forests with Zunheboto becoming an important market for forest produce from rural areas. As such, timber is brought to Zunheboto town even from the faraway areas of the district. Aghunato, Satoi and Ghatashi ranges are the chief suppliers of timber of all classes to Zunheboto town. Above all, the policy and method of governance controls the entire process of the rural-urban relationship in the district.

3. Socio-cultural factors:

Kin and clan do matter here, as the urban dwellers of Achumi clan get assistance from the same clan of a particular village in the blurred delivery of its norms in the urban area as Sumi society is also based on customary norms and procedures. In this case the urban dwellers become more dependable on the rural counterpart. The above said situation is gradually experienced during the delivery of customary know-how within the district administration. Besides for the implementation of various government schemes, consultancy and permission of village G.B is necessary and as such, the governmental organization becomes more dependent on the village chiefs for the execution of the same. Being a Patrilineal society, inheritance is passed on to the male offspring and consequently, urban settlers are the recipients of assistance in this matter from strong hold rural culture. Even the district administration seeks the assistance from G.Bs and DBs. In other words, the contended, cultured habitants are the source of knowledge on social norms and customary ethos for the residents of urban headquarters in the district. Besides, the tendency to migrate or commute between rural place and urban headquarter do effect the volume of flow of people between the centers. As a result, socio-cultural laws and norms govern the ecological interdependence of Zunheboto and its villages because the ecological aspects are also based on the ownership of land and its resources.

4. Ecological factors:

This is one of the most important factors of the interaction between rural and urban set up. Ecologically Zunheboto and its village's interaction are affected. The flow of agro-forest products is determined by the availability of land and water resources, other natural resources, the status of forests, the nature of deforestation and the state of pollution. Zunheboto is a forested district where Alder trees are very common within the highly

Interactive zone. This is used as fire wood on which the town is dependent upon. The advantage of alder trees is its ability to rejuvenator coppice preserving standing trees. Another important forest based vegetable locally referred to as "Chie" is abundantly available in the forests which dominate the Zunheboto local market. Besides, small conserved streams are available all around the district that are habitats of crabs and fishes. The forest based products are available due to Conservation Regulations carried out by the villagers which is the outcome of politico-economic factors arising from State Government Policy and the Endorsement of Village Authority. Inflow of ideas and information from Zunheboto lead to this phenomenon. One important example

of this is the' Langki's stream within the highly interactive zone where its village council have imposed ban on use of chemicals in the water for fishing, however one can catch fishes, crabs, frogs and prawns using the traditional method. These products are disposed at Zunheboto market by local villagers. Other forest products are timber, log etc., which are brought to Zunheboto even from the far flung remote rural areas bordering Kiphire and Phek districts. Deforestation activity within the district had reduced due to low pressure of population on land and different conservation policies from the government. However, one thing to be noted is that these factors are still subjected to the distance between Zunheboto town and its villages.

References

1. Potts D., *Shall we go home? Increasing urban poverty in African cities and migration processes*. The Geographic Journal, **1995**, *161*, 245-264.
2. Rees W., *Ecological Footprint and Appropriate carrying Capacity; What Urban Economics Leaves Out*. Environment and Urbanization: **1992**, *4(2)*, 121-130.
3. Mc Granaham G., Singsores J. and Kijilen M., *Sustainability, Poverty and Urban Environmental Transition*, In C. Pugh (Edition): *Sustainability, Environment and Urbanization*, **1996**.
4. *Census of India*, Nagaland, Directorate of Census Operation: Nagaland, **2001**.
5. Guenthere, Grohall, *et. al.*, *The Spatial Distribution of Shopping Area, A Gravity Model Approach*. Institute for Advance Studies: Veina, **2003**.
6. Garrothere, G A P, *An Historical Review of the Gravity and Potential concept of Human Interaction*, **1969**. *Journal of the American Institute of Planner*, **1969**, *22* (Spring **1956**), 94-102, reprinted in Embrose P.J (ed) *Analytical Human Geography*. Longman;
7. *Village Development Indicators* , Directorate of Economics and statistics: Nagaland : Kohima, **2000**.