

Assessing Levels of Development in Gandak Diara Villages: A Case Study of West Champaran District of Bihar

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ABSTRACT

Diara region is found between river embankments in the states of Bihar, West Bengal and Uttar Pradesh. These are the most inaccessible and excluded villages in the plain region. This paper makes an attempt to examine the levels of development in Diara villages of West Champaran districts of Bihar and analyze its spatial pattern across villages. Field visits were carried out to understand the ground reality of Diara region. Levels of development in Diara villages were analyzed through constructing village level development index. All of the data are taken from Census of India 2011. Census PCA and Household amenities and assets data were used for the study. Total twenty four indicators are selected under six major variables. Vast spatial variability is found in Diara villages in terms of the levels of Development. All villages which are located away from the embankments inside the river bed are least developed and highly developed Diara villages are mainly located at the adjoining areas of embankment and farthest distance of river channels.

Key Words : Diara village, Gandak Diara, Development, Development index

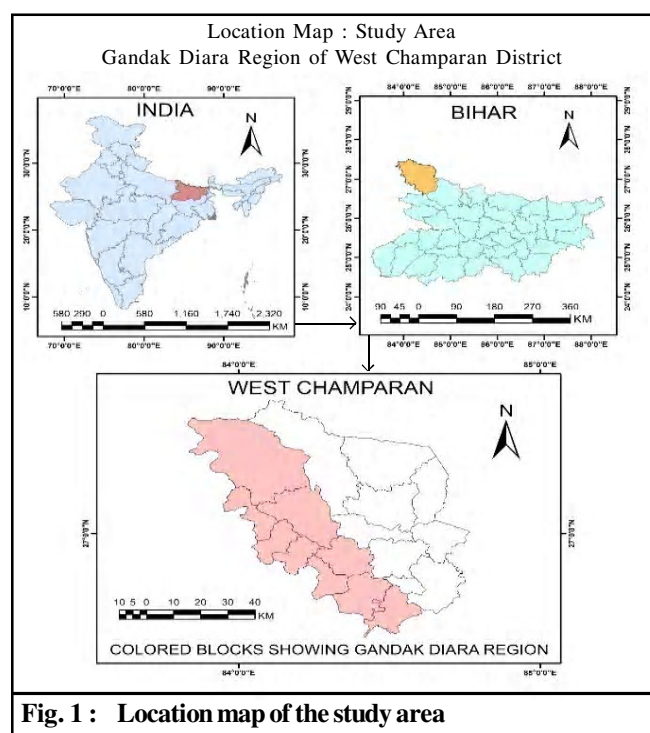
INTRODUCTION

Diara region forms an exclusive socio-economic region. This Diara region is socially and economically different from non-Diara Region. Diara Land is actually a fluctuating river track, which inundates every year, movement of the river course erodes and forms Diara land, this all happen within the embankments (Hill, 1987). There are 125 Diara Villages situated in Gandak Diara region of West Champaran district of Bihar (Kumar, 2019). We find a certain pattern in social composition of Diara region. People of Diara are fully dependent on farming and livestock rearing. 81 per cent population is employed in agriculture production system in Bihar (Singh, 2015). 42 per cent of State's GDP is contributed by agriculture sector including forestry and fishing. 42 per cent population of Bihar is living below poverty line which is very high if it is compared with national average that is 26 per cent (Singh, 2015). The figure for poverty of Diara could not be produced separately, but condition is definitely

worse here. Despite having fertile soil, adequate rainfall and sufficient ground water, agriculture productivity is very low due to its high vulnerability caused by recurrent natural disasters and climate extremes. Bihar lies at the bottom on socio-economic parameters among the states of India. Diara is also an example of socially excluded region as mostly weaker section of society resides in Diara. Diara region is a most inaccessible region. Thousands of villages reside in Diara region of Bihar. Region faces recurrent flood and drought every year which result the loss or destruction of agriculture land (Udas *et al.*, 2018). This region is most backward in terms of different development indicators. Lack of transport connectivity, health and education facilities are other added source of the deprivation in the Diara region. Lack of infrastructure and amenities keep this Diara region in poor condition in terms of development. Region is facing challenge to improve the status of Human Development and Well Being.

The study area:

The Diara villages of River Gandak of the district West Champaran of Bihar are the focused area of this study. West Champaran district is located in the North-West corner of the state Bihar. West Champaran district is also one of the 15 most flood-affected districts in the state. Gandak is the main river of the district West Champaran. It originates from a place called Sapt-Gandaki in the central mountain basin in Nepal. The length of the river is 640 km in which 260 km flows in India and 380 kms flows in Nepal and Tibbet. The total catchment area of river Gandak is recorded as 46300 sq. km in which 7620 sq. km lies in India and remaining lies in Nepal and Tibbet (Ministry of Water Resource, Government of India, 2004).



Objective of the study:

This paper makes an attempt to examine the levels of development across Diara villages of West Champaran district of Bihar. Paper tries to study spatial pattern of development in the region.

METHODOLOGY

Levels of development in Diara villages were analyzed through constructing village level development index. All of the data taken from Census of India 2001

and 2011. Census PCA and Household Amenities and Assets data were used for the study. Extensive literature survey was done to conceptualize development dynamics, which helped in selecting adequate development indicators. Field observation made during field visit was utilized for better understanding of the ground reality of the study area. Development index has been constructed for each Diara village using selected indicators. Total twenty four development indicators were identified. Data was transformed by assigning appropriate weightage. All data was converted into unidirectional mode. Normalization of all indicators were done by applying HDI method:

$$\text{Normalization of Data (HDI)} = \frac{(\text{Actual Value} - \text{Minimum Value})}{(\text{Maximum Value} - \text{Minimum Value})}$$

After Normalization of indicators, all resultant values were summed up. This sum value is the index of development. Further these index values were categorized in class interval of high, moderate and low levels of development. For the purpose of visual representation of the levels of development in Diara villages, a choropleth map was constructed using ArcGIS software.

The study area was visited on multiple occasions to acquire comprehensive insights for the understanding of region.

Selection of variables and indicators:

The process of selecting appropriate variables and indicators are very critical for the study particularly when formation of index is being carried out. Total twenty four indicators are selected under six major variables. These six variables are *Education, Health, Household Amenities, Household Assets, Sanitation and Transport and Communication*. These all variables are very crucial and determining factors of Development.

Data Source:

Data for twenty four development indicators are collected from the Census of India, 2011. Primary Census Abstract (PCA) series A and Houselisting and Housing Census (Table 1) of the district West Champaran were used. Village Directory for West Champaran district is also used as important data source. This data source gives information at the household level. Village and ward level information is also available. Observation during field survey and study area visit (March 2018, December 2018,

Table 1: List of variables and indicators

Variables	Indicators
Education	<ul style="list-style-type: none"> • Literacy Rate • Availability of Primary school and its distance from the village • Availability of Middle school and its distance from the village
Health	<ul style="list-style-type: none"> • Availability of Primary health care service and its distance from the village • Availability of Primary Health sub center and its distance from the village • Availability of maternity and child welfare center and its distance from the village
Household Amenities	<ul style="list-style-type: none"> • Percentage of census household with good condition • Percentage of census houses with concrete roof • Percentage of houses with concrete wall • Percentage of household with electricity
Household Assets	<ul style="list-style-type: none"> • Percentage of household having Television • Percentage of household having Scooter/motorcycle/Moped • Percentage of household having Car/Jeep/Van • Percentage of household availing Banking
Sanitation	<ul style="list-style-type: none"> • Percentage of household having Tap water from treated source • Percentage of Household having separate kitchen room • Percentage of household having latrine facility within the premises
Transport and Communication	<ul style="list-style-type: none"> • Availability of post office by distance from the village • Availability of telephone by distance from the village • Availability of mobile Phone by distance from the village • Availability of all-weather road by distance from the village • Availability of Navigable waterways by distance from the village • Availability of daily News Paper by distance from the village • Nearest Town Distance from Village

and May 2019) was helpful in understanding the ground reality of the region. Photographs taken during field visit were used to support the arguments.

RESULTS AND DISCUSSION

Development at micro level:

Development is about improving the life condition and reducing existing levels of poverty and inequality (Potter *et al.*, 2012). There are two kinds of world, one is rich and one is poor. The main idea of development is to help this poor world to achieve a better condition of living. Development means making sure that people have enough to eat healthy food, adequate shelter and clothing, access of quality education and means of living. These all are the essential attributes of development (Crush, 1995).

Earlier, the debate on development was more centric towards arguing people should fulfil their material needs in life. Today, the discourse has progressed by including non-materialistic needs of people. This non-materialistic

state is equated with well-being, happiness, satisfaction, peace, justice, freedom, opportunities and human rights (UNDP, 2019; Dasgupta, 1993; Potter *et al.*, 2012; Sen, 1999; Tiwari, 2008; Smith, 1973). “Development is the process of qualitative change and quantitative growth of the social and economic reality” (Drewnowski, 1966). These social and economic factors are interlinked. Sometimes one is cause and another is its effect and vice-versa. Development means improving standard of living of a community or group (UNDP, 2019).

Village is a smallest geographical unit, which lies at the bottom in the ladder. “Trickled Down” approach was proved ineffective of reaching the village, therefore, several initiatives were taken for development at ground level (Mishra, 1985). Gandhi’s idea of self-sufficient and self-rule was incorporated in the Panchayati Raj System. According to 2007 Human Development Report, Bihar acquired 21st position among all states in India. Bihar has always been at margins on socio-economic indicators. World Bank finds that after 2005, all low income states (Bihar, Chhattisgarh, Jharkhand, Orissa,

Madhya Pradesh, Rajasthan and Uttar Pradesh), with the exception of Bihar and Rajasthan, grew at a slower pace than other states. After having moderate growth, Bihar remain at the bottom.

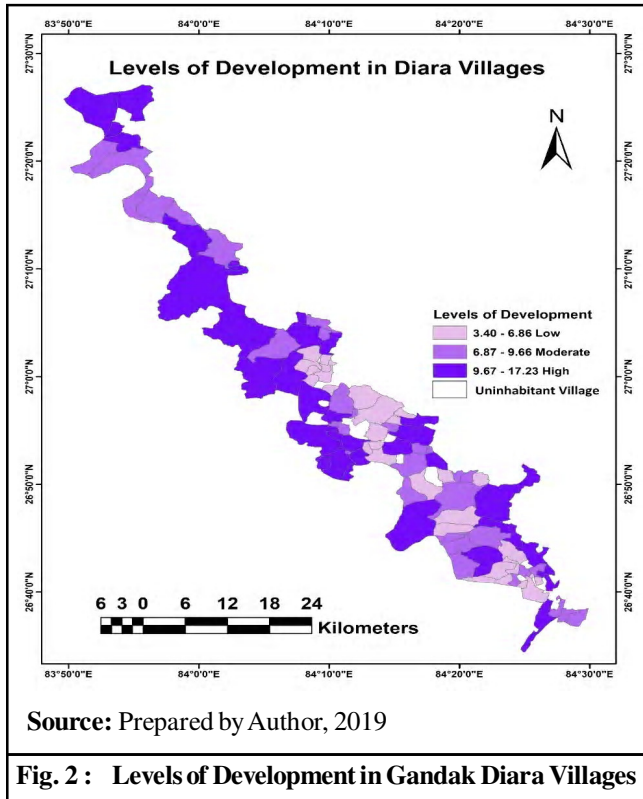


Fig. 2 : Levels of Development in Gandak Diara Villages

Development scenario in Diara villages:

Vast spatial variability is found in Diara villages in terms of the levels of development. The highly developed village is Bhisalotan whose index value is 17.26 and the least developed village is Rewahia whose index value is 3.40. Bhisalotan is located at the India-Nepal border. It is well connected through bridge with Nepal and it is also famous tourist destination. Bhisalotan village is well connected with road and networks. Five most developed villages are Bhisalotan, Thakranha, Dumaria, Chakhni and Madhubani. Five moderately developed villages are Sirinagar, NautanKhas, Rampurwa, Barhara and Semabari. Five least developed villages are Rewahia, Ramnagar, BandarwaMajhar, DihBharaua and

Table 2: Levels of Development at Village Level	
Levels of Development	Number of Villages
High	39
Moderate	35
Low	30

Charmaraha.

Based on development index, it is found that total 39 Diara villages fall under the category of relatively high developed villages, 35 Diara villages fall under the category of moderately developed and 30 Diara villages are characterized as the villages with low levels of development. The locational advantage of Diara villages make them relatively less vulnerable. All villages, which are located nearer to the river channel are least developed and highly developed Diara villages are mainly located at the greater distance of the river channel. The least developed villages are mainly concentrated in central and southern part of the study area. Villages located in the northern part are in better condition compared to the villages located in southern and central part. This pattern can be explained by the river cycle theory. Gandak river originates from the Himalayas and flows over plains of north-western Bihar. River starts widening its bed as it approaches southward. River forms multiple meanders and braided channels in central and southern part of region. River bed filled with heavy sand deposition causes overflowing of river water (Strahler and Strahler, 2006).

Northern part of the region is densely forested zone which might prevent flood to occur. River experiences the mix stage of young and mature in northern part. River velocity is high and river load is lesser in young stage whereas in old stage, river velocity slows down and river load increases which is a favorable condition for flood to occur. These vast flood plains are very fertile, which attract population to settle down. Vast grass land also attracts population, which provides fodder to their livestock. This Diara land provides ample livelihood opportunities in terms of agriculture activities and animals husbandry. Another dark side of this region is its vulnerability due to flood and drought. Flood causes mass destruction in this region. River channel shift causes evacuation of large number of Diara villagers.

Literacy and Educational Infrastructure in Diara:

Education is a most important variable of development. In Diara, the average literacy rate is 34 per cent while the average literacy rate in the district is 53 per cent. Literacy rate varies from 1 per cent (Ramnagar) to 69 per cent (Misir Bherihari) in Diara villages. Children living in Diara have no opportunity to go to school. Inadequate school infrastructure and irregular functioning prevent them to get education. Their childhood is being spoilt. Right to Education Act 2009

says that it will monitor all neighborhoods, identify children requiring education and set up facilities for providing quality education. Children of Diara are at far distance of getting this right, *i.e.* RTE.



Source: Photograph taken during field survey

Fig. 3 : Photograph showing School Building in Jagdispur village (Primary School at Jagdispur Village (May 2019))

It is observed during the field survey that schools in Diara are not fully functional. School infrastructure is poor. Lack of monitoring of schools give them freedom to keep the school closed as long as they want. School infrastructure is very much prone to disaster. School is not children friendly. There is no any sitting arrangement for students. They have to sit on bare ground in the classes. According to the Census, 2011 data, out of 104 Diara villages, only 78 villages have primary schools available within the village itself. Out of 104 Diara villages, 28 villages have no primary school available within Village. When the availability of middle schools in Diara Villages is analyzed, out of 104 village, only 38 villages have middle school available within the village. The availability and non-availability of primary and middle schools does not matter much unless these schools are fully functional and they are having better school infrastructures and facilities.

Housing condition:

Condition of the house indicates the wealth of a household. It also indicates the living standard of population residing in a house (Basu, 1961). Only 18 percent of houses in Gandak Diara are in good conditions whereas 33 percent of houses in West Champaran district are in good condition. Percentage of houses in good condition in Diara village varies from 100 percent to zero percent. There are total 27 diara villages where the percentage of houses with good condition is zero.



Source: Photograph taken during field survey

Fig. 4 : Photograph showing house condition in Diara (Dih Bhrauwa Village)

Condition of Travel and Transportation in Diara:

Diara villages are most deprived of in terms of their poor road infrastructure. Physical accessibility is very difficult in Gandak Diara. Loose soil spread all across Diara region making movement of people very difficult. Out of 104 Diara villages, there are only 48 Diara villages where all weather road is available. Weak travel and transport infrastructures in Diara region is a great challenge for the Development of the region.



Source: Photograph taken during field survey

Fig. 5 : Photograph showing Road Condition in Diara (Bathna Ghat)

Mode of Travel and Transportation:

River is the major factor in Diara, which determines the life and livelihood of the people. Diara people have to cross river for economic activities. They take their

agricultural products to the market, in that sense service of river boat is extremely critical. These river boats are privately owned. Farmers with heavy agricultural products, have to pay rupees 200 to rupees 300 to the boatman as transportation charge. Daily commuters pay on yearly basis. People who are not permanent residents of Diara are required to pay on daily basis. They charge rupees 10 to 15 per person as transportation charge. These boats are the lifeline of Diara people, without which, their life is immobile. Out of 104 diara villages, only five villages have availability of navigable water ways. Rest of the villages are connected with navigable water ways at the greater distance. There are 86 such diara villages where the navigable waterways is available at more than 10 kilometers distance.



Source: Photograph taken during field survey

Fig. 6 : People crossing the river through boat at Bathna Ghat

Source of Lighting in Diara:

Electricity is also an important indicator of development. Only four per cent of household in Gandak Diara is electrified or having electric connection. There are total 55 village where the percentage of household with electric connection is zero. Installation of solar plants in some of Diara villages has been done. These solar plants are the major source of lighting in Diara. However, electric current is provided by solar plants only during night time for the duration of four to six hours.

Conclusion:

Census data clearly shows that the levels of development in Diara villages are not good as compared to non-Diara region or even district's average condition. Socio-economic condition does vary across different Diara villages. Education, living standard, travel and

transport infrastructures, in all aspects of development, Diara villages are far behind the rest of the world. Physical barrier is a primary characteristics of Diara region. Region face all kinds of shortcomings due to its remoteness and therefore, Diara region needs special attention in terms of fulfilling its basic needs of education, health and nutrition. Provision of better infrastructure of travel and transport in Diara region can play a decisive role for the development of the region.

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