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DEPENDENCY ON NATURAL RESOURCES AND SUSTAINABLE RESOURCE MANAGEMENT: A STUDY FOR DRYLAND AREAS OF WEST BENGAL

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Abstract

The paper attempts to provide a comprehensive study on the dependency on natural resources in the dryland areas of the state and also provides a guideline to achieve sustainability so far as dependency on natural resources is concerned. It focuses mainly on two natural resources: forestry and drinking water on which people in our study area are heavily dependent. The paper starts with a discussion on availability of irrigated land in our study area and after that it considers a profile of our study area to discuss the socio-economic features of the people residing in that area. The paper also considers some methodological issues in terms of dynamic optimization model and contingent valuation method the results of which have strong implications from the point of view of policy analysis in our study area.

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Introduction:

The world's drylands are fragile ecosystems due to harsh climatic conditions and growing human pressures. Yet, they constitute some of the world's largest land reserves and provide a wide range of goods and services which are fundamental to the livelihoods of millions of people. The semi arid and arid regions are situated in the tropical and sub-tropical parts of the world and they account for almost 30% of the world's total area and around 20% of the total population (Sivakumar, et al., 2005). According to the World Atlas of Desertification (UNEP, 1992), drylands have a ratio of average annual precipitation (P) to potential evapotranspiration (PET) of less than 0.65. In fact, according to the report of Food and Agricultural Organization (FAO) in 1993, drylands are categorized into hyper arid, arid, semi arid and dry sub humid zones not only on the basis of P/PET ratio but also on the basis of rainfall (in mm.). Thus, when P/

PET ratio is less than 0.05 and rainfall is less than 200 mm, the dryland is referred to as Hyper arid. Again when P/PET ratio lies between 0.05 to 0.20 with rainfall less than 200 mm. in winter and 400 mm. in summer, it is considered as arid zone. The next categorization is Semi arid zone for which P/PET ratio lies between 0.20 and 0.50 with rainfall less than 200-500 mm. in winter and less than 400-600 mm. in summer. Finally, when P/PET ratio lies between 0.50 and 0.65 with rainfall less than 500-700 mm. in winter and less than 600-800 mm. in summer, it is referred to as Dry sub humid zone. On the basis of FAO statistics, the percentage share of arid and semi arid categories combined together are the highest among the total dryland areas of the world.

In India, arid and semi arid zones are characterized by low to medium mean annual rainfall coupled with high coefficient of variability, large amplitude of fluctuations of temperature, strong wind regions and high potential evaporation. The average annual rainfall of these regions varies between 150 mm and 500 mm along with a coefficient of variation as high as 60% to 70%. The distribution of rainfall is also very erratic.[1] In India out of the total geographical area, almost one-sixth area with 12% of the population belongs to drought prone areas. At present 74 districts, covering 13 states of the country have been identified as drought prone.

The dryland areas of West Bengal comprise of districts like Purulia, Bankura, West Midnapore and a part of Birbhum as per the State Plan of West Bengal. On the basis of the document regarding "State Agriculture Plan for West Bengal"[2] . Entire district of Purulia and parts of three other districts can be combined together as "red laterite soil region" in West Bengal and here crop productivity is limited. FAO's classification for categories of dryland areas are on the basis of P/PET ratio and also on the basis of rainfall (in mm.). The State Plan of West Bengal has considered FAO's classification. Additionally, the plan has classified agro-climatic region on the basis of soil contents. These areas also constitute a part of 'Chhotonagpur plateau'. [3]These four districts are faced with more or less similar problems. Purulia, being in the arid zone, has severe water crisis but it has huge area under forestry. Other districts can be termed as semi arid for the nature of their soil and parts of them showing features of aridity.

The dryland area of our study is also known as the *'Jangal Mahal'* area with the feature that people residing in this region are poor and are heavily dependent on natural resources. The two major natural resources on which people of this area are highly dependent are forestry and drinking water. Though they extract these resources for their livelihood, they have the knowledge base to sustain these resources for future. Hence they maintain a balance between sustainable resource management and extraction of resources in the context of their dependency

on natural resources. So a study of the economic behaviour of the people residing in the dryland regions of the state becomes essential. However, such a study requires to have a quick of the literature that exists in this line.

Though there are quite a substantial number of works on dryland are as in India, here we mention here only a few works that are relevant for our present study. One can refer to the works of Gautam and Rao (2007), Ram and Davari (2010), Bhattacharya and Gupta (2010), Saha and Usha (1992), Bouma and Scott (2006) etc. Gautam and Rao (2007) have shown, in detail, about history of rainfed agriculture in India, starting from pre independence period. They have also discussed about the magnitude of problems of problems of rainfed agriculture, delineating of rainfed farming. Ram and Davari (2010) have considered rain water and soil as the two most important natural resources of dryland resources. They have emphasized on management practices that maximize the usefulness of limited rainwater by imposing relevant conservation measures and land uses matching with the water availability period in India. Bhattacharya and Gupta (2010) have shown the impact of integrated watershed projects in India. They have shown the impact of completed watershed projects on the livelihood of rural population who are associated with the projects. People of arid regions are forced to migrate to the urban areas to avoid the manifold problems of such areas, especially the problem of water. The authors, in their work, have addressed this reality and have recommended the amount of income that a watershed project should generate to avoid the migration. Saha and Usha (1992) have made a study about the role of rural women of drylands in decision-making processes of various socio-economic activities. In decision making, especially, in agriculture, livestock and socio-religious matters, women were consulted by the heads of households. By and large, little differences in decision- making processes between different groups established homogeneous character of the population. Bouma and Scott (2006) have made an assessment of the impact of large-scale investments in soil and water conservation on dryland crop yields in three semi-arid watersheds in India. Investments in soil and water conservation are supposed to contribute to dryland crop yield improvement by rehabilitating the productive capacity of the land. On the basis of farmers' interviews, group meetings and field visits, they have explored the main constraints for dryland crop yield improvement. There are only a few works related to the dependency on natural resources in dryland areas of West Bengal.

The motivation behind the present study generates from the fact that most of the people living in the dryland areas are poor and are heavily dependent on natural resources of the area so that a study on sustainable resource management and extraction of resources is very much relevant. For example, most of the people in the area are aware about harvest of timber and non-timber forest products (NTFP)

but they are also aware about the fact that forests are to be protected and conserved for their own sustainable livelihood. Our study area is also known as the '*Jangal Mahal'* area which is characterized by underdevelopment, poverty and starvation, dependence on natural resources for livelihood, lack of alternative job opportunities and last but not the list frequent political disturbance.[4] So a comprehensive study of the area will help us to understand the political economy of the region and also to suggest appropriate policy to uplift the conditions of the people residing in the region. There is lack of such comprehensive study in the literature and the present paper attempts to fill the lacuna. The present paper is not actually a brief survey or review of works on the economics of drylad areas. It deals with a comprehensive study that deals with a collection of issues on dependency on natural resources by the people in the dryland areas of West Bengal on one hand and it also raises some methodological issues that can help the researchers and policy makers to conduct further study on such dependence in the future on the other hand.

The paper is organized in the following manner. Section 2 deals with a brief outline of the agricultural scenario in the dryland areas of West Bengal. A brief profile of the surveyed regions is analyzed in section 3. Some methodological issues to capture dependency on natural resources are explained briefly in section 4. Finally the conclusions are derived in section 5.

Agricultural Scenario of Drylands of West Bengal:

In order to understand the agricultural scenario of the dryland areas of West Bengal we start with some facts and figures related to the irrigation situation in the four districts of our study, given the fact that there is scarcity of water in our study area. Condition of Bankura is reflected through table 1.

Table:1- Irrigation of land from different sources in Bankura (in thousand Hectares) from 1998-99 to 2012-13

Year	Govt. canal	Tank	HDTW	MDTW	LDTW	STW	RLI	ODW	OTHERS	TOTAL
1998-1999	187.00	44.70	1.79	1.22	14.10	94.06	5.32	4.60	16.81	369.60
1999-2000	205.20	44.60	1.51	1.41	16.20	93.65	5.40	6.10	17.93	392.00
2000-2001	151.00	39.50	1.51	1.56	17.40	93.06	5.83	4.30	18.62	332.78
2001-2002	183.60	36.20	1.52	1.68	20.30	87.69	5.94	5.20	9.97	352.10
2002-2003	152.73	40.46	1.53	1.84	18.96	98.10	3.81	5.86	8.84	332.13
2003-2004	109.02	26.74	1.02	1.36	7.49	44.25	4.18	2.66	5.96	202.68
2004-2005	109.89	32.35	0.50	1.45	0.68	47.98	7.28	2.17	6.32	208.62
2005-2006	176.29	33.11	0.47	1.46	0.70	47.43	5.38	2.52	6.20	273.55

Year	Govt. canal	Tank	HDTW	MDTW	LDTW	STW	RLI	ODW	OTHERS	TOTAL
2006-2007	180.35	33.47	0.53	1.49	1.35	45.91	5.08	2.49	6.28	276.94
2007-2008	195.93	32.76	0.76	2.50	1.14	48.71	9.67	3.36	6.21	301.04
2008-2009	180.60	35.18	0.95	2.50	1.14	55.32	11.57	3.58	6.68	297.52
2009-2010	152.04	35.02	0.95	2.50	1.14	56.45	10.30	3.43	5.20	267.03
2010-2011	26.36	19.29	1.03	2.54	1.16	50.80	6.24	2.01	5.77	115.20
2011-2012	183.21	27.80	0.80	2.94	1.42	54.49	8.88	2.42	6.33	288.29
2012-2013	153.32	29.19	0.80	2.94	1.42	53.18	19.04	2.37	6.59	268.85

Source: Bureau of Applied Economics and Statistics, West Bengal[5]

From table 1 we find that in the district of Bankura total irrigated land has not increased, rather it has decreased over years owing to drought. Same can be said about the other three districts. Table 2 reflects the condition of Purulia.

Table:2- Irrigation of land from different sources in Purulia (in thousand Hectares) from 1998-99 to 2012-13

Year	Govt. canal	Tank	HDTW	MDTW	LDTW	STW	RLI	ODW	OTHERS	TOTAL
1998-1999	28.38	32.09	—	—	—	—	1.98	11.17	11.21	84.83
1999-2000	29.45	28.95	—	—	—	—	5.09	5.16	13.38	82.03
2000-2001	27.33	27.81	—	—	—	—	1.39	1.02	12.71	70.26
2001-2002	23.76	22.44	—	—	—	—	1.04	1.09	3.01	51.34
2002-2003	23.76	22.80	—	—	—	—	1.43	1.02	2.96	51.97
2003-2004	29.06	27.14	—	—	—	—	1.12	3.99	4.59	65.90
2004-2005	29.82	27.76	—	—	—	—	0.93	4.05	3.19	65.75
2005-2006	30.29	28.31	—	—	—	—	1.32	3.42	8.79	72.13
2006-2007	28.83	28.85	—	—	—	—	0.97	3.44	9.04	71.13
2007-2008	28.87	37.60	—	—	—	—	0.91	3.44	9.22	80.04
2008-2009	30.36	46.86	—	—	—	—	0.70	3.45	10.02	91.39
2009-2010	27.66	53.16	—	—	—	—	0.73	3.45	10.84	95.84
2010-2011	8.90	60.21	—	—	—	—	1.14	3.45	12.13	85.83
2011-2012	30.79	70.75	—	—	—	—	8.12	3.45	13.48	126.59
2012-2013	31.85	82.22	—	—	—	—	0.92	3.45	15.31	133.75

Source: Bureau of Applied Economics and Statistics, West Bengal

Conditions of irrigated lands in the districts of West Midnapore and Birbhum are marginally better than the above-mentioned two districts but still they are not up to the desired level. This is reflected in terms of next two tables, i.e. tables 3 and 4.

Table:3- Irrigation of land from different sources in West Midnapore (in thousand Hectares) from 2000-01 to 2012-13[6]

Year	Govt. canal	Tank	HDTW	MDTW	LDTW	STW	RLI	ODW	OTHERS	TOTAL
2000-2001	133.31	33.46	9.78	@	@	116.01	14.13	#	50.15	356.84
2001-2002	142.15	26.38	8.26	20.71	$	114.60	14.00	8.35	47.02	381.47
2002-2003	108.28	22.09	8.11	18.52	0.52	132.39	16.52	9.64	29.24	345.31
2003-2004	90.71	24.70	8.59	22.97	0.59	112.93	15.69	9.91	37.70	323.79
2004-2005	66.11	24.70	8.59	22.97	0.59	112.93	15.69	9.91	37.70	299.19
2005-2006	153.87	24.70	8.59	22.97	0.59	113.07	15.69	9.85	42.45	391.78
2006-2007	160.70	25.31	8.18	31.76	0.54	133.37	15.94	10.57	41.75	428.12
2007-2008	163.73	25.31	7.88	31.70	0.54	123.37	16.24	10.57	41.75	421.09
2008-2009	137.10	40.11	8.18	31.70	0.54	108.57	15.94	10.57	41.75	394.46
2009-2010	121.22	26.38	9.10	48.20	1.72	105.16	17.81	8.94	18.68	357.21
2010-2011	19.02	26.51	9.63	66.19	2.28	103.69	14.81	6.47	19.32	267.92
2011-2012	118.45	25.92	9.87	75.41	4.90	104.33	13.06	6.26	19.93	378.13
2012-2013	105.55	25.04	9.47	81.26	5.09	104.39	13.98	5.33	19.61	369.72

Source: Bureau of Applied Economics and Statistics, West Bengal

Table:4- Irrigation of land from different sources in Birbhum (in thousand Hectares) from 1998-99 to 2012-13

Year	Govt. canal	Tank	HDTW	MDTW	LDTW	STW	RLI	ODW	OTHERS	TOTAL
1998-1999	183.63	41	—	0.90	0.86	39.35	2.13	0.35	9.13	277.35
1999-2000	182.98	41	—	0.70	0.69	39.00	2.00	3.80	1.40	271.57
2000-2001	185.66	41	—	0.75	0.82	40.15	2.05	3.00	0.35	273.78
2001-2002	155.88	40.75	—	0.90	0.88	40.75	2.15	2.10	3.20	276.39
2002-2003	169.23	40.50	—	0.90	0.88	40.75	2.15	2.00	3.20	259.61
2003-2004	192.64	25.40	—	3.89	—	45.68	2.15	0.60	54.95	325.31
2004-2005	184.02	25.40	—	3.74	—	45.68	2.15	0.60	54.95	316.54
2005-2006	159.89	25.28	—	3.72	—	45.68	2.08	0.64	54.53	291.82
2006-2007	184.66	25.28	—	3.71	—	45.68	2.07	0.62	54.53	316.55
2007-2008	196.65	24.47	—	8.23	—	44.25	2.07	0.51	52.36	328.54

Year	Govt. canal	Tank	HDTW	MDTW	LDTW	STW	RLI	ODW	OTHERS	TOTAL
2008-2009	179.78	25.90	1.40	15.30	7.90	25.10	4.70	0.50	2.30	262.88
2009-2010	158.38	26.30	1.40	16.40	11.40	19.90	4.40	0.90	2.30	241.38
2010-2011	93.17	31.30	1.21	18.08	24.63	15.02	5.53	0.51	3.02	192.47
2011-2012	152.17	31.42	1.21	22.10	23.65	16.59	5.63	0.62	2.61	256.00
2012-2013	163.73	27.02	0.87	28.47	21.97	14.90	4.51	0.38	7.05	268.90

Source: Bureau of Applied Economics and Statistics, West Bengal

All the above tables suggest a very gloomy situation of agriculture in the drylands of West Bengal. There is very little scope for improvement in this situation because of the lack of ground water storage as well as scarcity of rainfall. Naturally, people are more dependent on natural resource like forestry (which occupies more than 50% area of the drylands)[10].

Brief Profile of surveyed areas of Drylands:

We have surveyed 600 households from three districts[11] of drylands of West Bengal, covering both "hilly drylands" and "non-hilly drylands". Detailed information of households surveyed is given in table 5.

Table: 5- Division of Households of sample survey

District	Village	No. of Households Used for sample survey	Nature of Dryland
Bankura	Susunia	170	Hilly
	Sewlibona	30	Hilly
Purulia	Murguma	75	Hilly
	Baghmundi	25	Hilly
	Chharra	100	Non-hilly
West Medinipur	Salboni	125	Non-hilly
	Bishnupur	75	Non-hilly

Source: Primary Data

During our survey, we have observed most of the area is poverty- stricken. As per our survey report the share of BPL is very high than that of APL. It is quite expected for our surveyed backward areas. This is presented in table 6.

Table: 6- APL-BPL ratios in three districts

District	Total No. of Families Surveyed	No. of APL	No. of BPL
Bankura	200	75	125
Purulia	200	65	134
West Medinipur	200	93	107
TOTAL	600	233	367

Source: Primary Data

Regarding religion, we have found the presence of Hindus and Muslims only. Existence of any other religion has been rarely observed. But, as far as 'caste' is concerned, we have found the presence of people of all types of castes, as shown in table 7.

Table: 7- Division of respondents in three districts according to castes

District	Total No. of Families Surveyed	No. of General Category Respondents	No. of SC Category Respondents	No. of ST Category Respondents	No. of OBC Category Respondents
Bankura	200	66	101	33	14
Purulia	200	54	47	40	45
West Medinipur	200	80	35	38	47
TOTAL	600	200	183	111	106

Source: Primary Data

The condition of education is very pessimistic, as we have observed that more than 61% of the respondents (or, any family member of that respondent) have not completed the level of elementary education. This is shown in table 8.

Table: 8- Descriptive statistics of education of the respondents (in absolute years)

District	Total No. of families Surveyed	No. of illiterates	No. of people studied between class 1 to 7	No. of people completed elementary education passed class 8	No. of people studied after elementary education (class 9 to 12)	No. of Graduates and Master degree holders
Bankura	200	43	96	25	33	3
Purulia	200	45	80	32	40	3
West Medinipur	200	26	80	42	37	15
TOTAL	600	114	256	99	110	21

Source: Primary Data

Next, we have focused on the availability of drinking water facilities for the households of our surveyed area. From the following table (table 9) we can see that none of the households have the facility of drinking water in their houses.

Table: 9- Drinking Water availability in the houses of the respondents

District	Total No. of Families Surveyed	Families "With Inhouse Drinking Water" Facility	Families "Without Inhouse Drinking Water" Facility
Bankura	200	0	200
Purulia	200	0	200
West Medinipur	200	0	200
TOTAL	600	0	600

Source: Primary Data

Next we have considered division of sources of drinking water in our study area in terms of the following table. (Table-10).

Table: 10- Division of respondents according to getting sources of drinking water

District	Total No. of Families Surveyed	No. of respondents Taking water from tube wells	No. of respondents Taking water from waterfalls	No. of respondents Taking water from watersheds
Bankura	200	69	131	0
Purulia	200	178	0	22
West Medinipur	200	200	0	0
TOTAL	600	447	131	22

Source: Primary Data

It is apparent from tables 9 and 10 that the problem of drinking water is an important issue in the drylands of West Bengal.

Next, if we consider the term 'forest dependency', we find that almost all the people of our study area are forest dependent. Almost all the households use non-timber forest products for cooking purpose. Even if few of them use 'gas' as the main source of fuel, they also use firewood as an alternative source of fuel but in lesser quantities than those who cannot use gas. So, we have classified the households in three segments- those who use only fuelwood, those who use both fuelwood and gas and those who use only gas. The figures of table-11 tell us one fact very clearly. People are heavily forest dependent in the dryland areas of West Bengal. Even during field-survey we have seen that people residing 5-10 miles away from the exact forest, also come to the forest for collecting fuelwood. In our surveyed area, it is very difficult to distinguish who are forest-dependent and who are not. One important thing that needs to be mentioned is that people of these areas are dependent on forest throughout the year. They go to forest throughout the year; maximum households go for 10 to 20 days per month. Very few households, those who are not so much dependent on forest, go for 5 to 7 days

per month. They collect fuelwood and few other things like sal leaves, honey, kendu leaves, etc., both for consumption as well as for selling in the market during poor financial condition of the family. Forest products collected mainly for selling in the market - such phenomenon is highly observed in Purulia and partly in Bankura also. People of drylands mainly collect those forest products that are being permitted to collect by the Joint Forest Management Committees (JFMC) and Forest Protection Committees (FPC). To a large extent, they collect these products for consumption purpose. So, the collection of fuel wood out of all types of Non-timber forest products (NTFPs) is very high because the committees allow them to collect those products only.

The following table (table 11) has categorized the respondents in terms of types of fuels used. The extent and nature of forest dependency is evident from the following table. More than 95% of the respondents are dependent on forest products for getting their fuels.

Table: 11- Nature of fuels used by respondents

District	Total No. of Families Surveyed	No. of Families Using Fuelwood	No. of Families Using Fuelwood and Gas	No. of Families Using Gas
Bankura	200	187	10	3
Purulia	200	180	12	8
West Medinipur	200	176	19	5
TOTAL	600	543	41	16

Source: Primary Data

We have categorized the respondents in different income groups. This division is carried out for each district separately. We have classified the entire income range in different groups like Rs. 0-2500, Rs. 2501-5000, Rs. 5001-10000, Rs. 10001-20000 and more than 20000 then, frequency of people falling in each group with their percentages and cumulative percentage are shown in the table 12.

Table: 12- Different income groups of respondents with frequency and percentage

Districts	Bankura		Purulia		West Medinipur	
Income Groups (Rs.)	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0-2500	16	8%	51	25.5%	0	0%
2501-5000	142	71%	96	48%	124	62%
5001-10000	39	19.5%	49	24.5%	54	27%
10001-20000	3	1.5%	4	2%	16	8%
More than 20000	0	0%	0	0%	6	3%

Source: Primary Data

So, in all three districts, more than 60 % people earn less than Rs.5000 per month. This figure is more than 70% in Purulia and Bankura. This reflects the fact that the area is poverty-stricken. Very few earn above 10000 per month. In West Midnapore, this number is 11%, but in other two districts this figure is around 2% only.

Land is generally considered as an indicator for economic wealth of a family. In our survey areas we have seen only 205 families out of 600 possess their own land but the average amount of land holding is very poor. The lowest amount of land held by a family is 1 bigha or 0.1338 hectare or 0.3306 acre[12] and the highest is 8.265 acre. The average amount of land held per family is 1.20 acre.[13] If we consider possession of domestic animals as an indicator of economic wealth, then we shall see that out of 600 respondents only 215 families have domestic animals.

Some Methodological issues to capture Dependency on Natural Resources:

There are various ways on the basis of which one capture dependency on natural resources in the dryland areas. We shall briefly discuss two ways it can be captured. The first one is the dynamic optimization technique which can be used to analyze such dependency through sensitivity analysis and the second one is the use of contingent valuation method to value the natural resources on which the stakeholders are dependent. This valuation exercise has strong implications for sustainable livelihood and hence on sustainable resource management. We shall first explain the dynamic version in a descriptive manner and after that we shall provide some elements of applicability of contingent valuation method (CVM) for forestry and drinking water.

Application of Dynamic Optimization Technique to Analyze Dependency on Natural Resources:

The dynamic model that has been considered is an extension of the work of Gupta (2006).In this paper we just want to present the outline of the model without going to the equational specification. The actual model is shown in the paper by Chatterjee and Gupta (2017).[14] The present model is different from the model of Gupta (2006) in a wide extent. Gupta (2006) has considered the interlinkage between mangrove (forestry) and shrimp (fishery), whereas the present model focuses on the forestry sector only with harvest of timber and NTFP. The purpose is to examine whether (i) a change in the proportion of timber harvest obtained as NTFP or (ii) a change in the intrinsic rate of growth of forest stock or (iii) a change in the discount rate measuring the opportunity cost of forestry gives us some counter-intuitive results. The base values for sensitivity analysis are obtained through calibration (field survey and secondary sources). The structure of the model can be explained in terms of the following points.

- Objective : To maximize welfare from extraction of timber and non-timber forest product(NTFP)

- Constraint : Net growth of forest stock
- Enforcement: Harvest of timber is mainly under government's control and a part of non-timber as well.
- Property rights: Well defined property rights and are managed through the joint forest management (JFM) system.
- Operation: Given the fact that the foresters are price-takers, welfare maximization of the foresters (through the JFM system) is in the form of maximization of profit.
- Study Area : Purulia, Bankura, West Midnapore and Birbhum
- Analysis : Done through Sensitivity Analysis after calibrating for the base values.

The main result of the study, which is contrary to the conventional wisdom, is that for the 'Jangal Mahal' area (the dryland area of the state) an increase in the proportion of timber harvest obtained as NTFP reduces the level of welfare in the study area. Apart from this we find that a reduction in the intrinsic growth rate of forest stock reduces the level of timber cutting and also reduces the availability of NTFP. These two results show the awareness of the forest-fringe people regarding the sustainable use of forest. Finally we have shown that a change in the discount rate causes insignificant changes in the major study variables, emphasizing dependency as well as sustainability of forests.

Application of Contingent Valuation Method (CVM) for Valuation of Natural Resources:

Economic value of the environment is specified in the background of three important features of environmental goods which are namely, (i) irreversibility, (ii) uncertainty and (iii) uniqueness. We can classify total economic value into two categories: (i) user value (ii) non-user value.

Monetary valuation of environmental goods has, by now, become the subject of numerous economic books and articles. The key problem driving the accelerating widespread destruction and degradation of environment is that the importance of environmental conservation and sustainable development to socio-economic development is undervalued by our society, especially in developing economies like India.

Valuation can simply be defined "as an attempt to put monetary values or to environmental goods and services or natural resources". It is a key exercise in economic analysis and its results provide important information about values of environmental goods and services. This information can be used to influence decisions about wise use and conservation of forests and other ecosystems. The basic aim of valuation is to determine people's preferences by gauging how much they are willing to pay (WTP) for given benefits or certain environmental attributes e.g. keep a forest ecosystem intact. In other

words, valuation also tries to gauge how much worse off they would consider themselves to be as a result of changes in the state of the environment such as degradation of a forest.

In the dryland areas of developing countries the conservation of environment should get more priority because in the presence of very few alternative income opportunities, people of such areas rely very heavily on environmental goods, especially on forests, for their livelihoods. Valuation of water is also another important aspect that has been neglected as far as drylands are concerned. Lack of ground water availability and recurrence of droughts hinder agricultural activities. For the same reason, scarcity of drinking water makes living more difficult for the people of drylands.

For the valuation of forest-dependency as well as problem of drinking water, we have used Contingent Valuation Method (CVM). For this purpose we have conducted household surveys without which it is impossible to conduct CVM. In our work, single bounded dichotomous choice has been considered in closed ended referendum. Here one particular bid is shown to each respondent and the responses are in the form of either yes or no that is whether he is going to accept the bid or not. Accordingly few statistical tests have been done to derive average willingness to pay.[15]

Contingent valuation surveys were first proposed in theory by . Ciriacy- Wantrup (1947) as a method for eliciting market valuation of a non-market good. The first practical application of the technique was in 1963 when Davis used surveys to estimate the value hunters and tourists placed on a particular wilderness area. He compared the survey results to an estimation of value based on travel costs and found good correlation with his results. This type of Contingent Valuation (CV) exercise has several drawbacks. In response to criticisms of contingent valuation surveys, a panel of high profile economists (chaired by Nobel Prize laureates Kenneth Arrow and Robert Solow) was convened under the auspices of the National Oceanic and Atmospheric Administration (NOAA) in 1990. The NOAA panel was set up in the early 1990s in the U.S., to review the CVM. A concrete background for the panel was the controversy surrounding the so called Exxon Valdez incident, with a large oil spill off the Alaska coast, in 1989. In that case, WTP data obtained from CVM studies were brought to court. These studies were contested, and the entire CVM seriously questioned.

The NOAA panel tried to remedy this problem, by providing guidelines for use of the CVM, in particular as court evidence. It issued a report in 1993, which has been widely cited and followed. The guiding principle behind these recommendations was that the survey operator has a high burden of proof to satisfy before the results can be seen as meaningful. Surveys meeting these criteria are

very expensive to operate and to ameliorate the expense of conducting surveys the panel recommended a set of reference surveys which future surveys could be compared to and calibrated against. The NOAA panel also felt, in general, that conservative estimates of value were to be preferred and one important consequence of this decision is that they recommended contingent valuation surveys measure willingness to pay to protect the good rather than willingness to accept compensation for the loss of the resource.

As a result, current contingent valuation methodology corrects for these shortcomings, and current empirical testing indicates that such bias and inconsistency has been successfully addressed. In the application of CVM, obtaining of bids is the most important section of the study. At this stage field survey is conducted, generally. A face-to-face interview by well-trained interviewers is needed for effective data collection. Individuals are asked to state their maximum willingness to pay (WTP) or minimum willingness to accept (WTA) for a proposed change in the environmental quality. To quantity the precise amount fruitfully, a number of alternative strategies are applied which are:

a) Closed ended referendum
b) Open ended referendum

Average WTP calculation for a closed ended referendum is different from that of an open ended bid. In case of open ended bid, since exact information about max WTP is available, the average is calculated by using either arithmetic mean or median. Since the lower bids are more likely than higher bids for environmental goods (for free-riding problem), thus median WTP < mean WTP. But in case of dichotomous choice type closed ended bidding, it is recognized that though the consumer knows his preference completely, it is not totally observable to the researchers. Hence, a Random Utility Model (RUM) is chosen to represent the choice decision where the probability of a "yes" response to a bid can be derived by applying logit estimation technique.

The purpose of using CVM is very clear. Natural resources perform several economic functions on which price cannot be assigned. Even if there are announced property rights related to ownership of the resource, the rights cannot be properly assigned to the owners. Use of CVM helps to resolve these issues. In our study we want to value forest resources and drinking water in the dryland areas of West Bengal. In our study for selection of villages we have followed stratified sampling and for selection of households we have followed partly stratified and partly random sampling. The number of respondents interviewed in the six villages, taken together from three dryland districts, namely, Bankura, Purulia and West Midnapore, is 600 and it has seen that the response rate is 100% which is high.

For the above kind of analysis it is important to determine the bid first and then to determine how these bids are to be shown to the respondents. The bids that we have considered are Rs.2, Rs.5, Rs.8, Rs. 10, Rs. 15 and Rs.25 (in terms of per month) to have and to conserve forestry. Here the bids are determined after discussing with the local people through pilot surveys which gave us an idea of the maximum and minimum amounts that we should put forward to the respondents as bid amounts. The next step is to identify the "valid" responses out of 600 respondents. For this we have followed a strategy in the final survey. We have categorized the respondents in three bid groups, namely, low, medium and high. We have applied single-bound dichotomous choice CV method. The low bid group implies bids of Rs.2 and Rs.5 per month for having and also to conserve drinking water. For medium bid group the bid amounts are Rs.8 and Rs.10 per month. For high bid group the bid amounts are Rs.15 and Rs.25 per month.[16]

Our present survey reflects that 183 respondents out of 600 respondents are not willing to accept the bids and thus we will consider 417 respondents as "willing" respondents and 183 respondents as "non-willing" for our further analysis. Here 183 "non-willing" participants are considered as "protest bidders" for the conservation of forestry and for water the "willing" respondents are 368 and "non-willing" are 232.

We have considered a logit analysis to estimate Willingness to Pay (WTP) for both conservation of forests and drinking water under closed ended referendum. We have also estimated WTP for both conservation of forests and drinking water under open ended referendum.

In case of forestry under close-ended referendum we have found the mean WTP to be Rs. 11.95 per month whereas it is Rs.7.30 per month for the open-ended referendum. We can find an average of the two mean WTPs and name it as 'true WTP, in our model. The 'true WTP' turns out to be Rs.9.62 per month. One can say that for the sake of their own livelihood in the long run because of the presence of very few alternative income opportunities, people of drylands, despite being poverty-stricken, can bear to pay this minimal amount. This amount though appears to be low, is reasonable given the fact that most of the stakeholders in our study area lives below the poverty line.

In case of drinking water under closed-ended referendum we have found the mean WTP to be Rs. 10.42 per month whereas it is Rs.5.41 per month for the open-ended referendum. The 'true WTP' turns out to be Rs.7.91 per month. One can say that for the sake of their own development and to get rid of the problem of drinking water, people of drylands, despite being poverty-stricken, can bear to pay this minimal amount. This amount once again though appears to be low, is reasonable given the fact that most of the

stakeholders in our study area mostly lives below the poverty line. Their WTP for conserving drinking water has important policy implications from the point of development of the dryland areas of West Bengal. It shows the need of the people for drinking water residing in this area and the Government should give special emphasis on this issue.

The methodology that we have discussed here provides a guideline to the researchers and the policy makers to conduct serious study to understand dependency on natural resources in the dryland areas of the state and also to link it with sustainable resource management.

Conclusions:

Here, we have made an attempt to integrate the major issues related to dependency on natural resources and their implications on sustainability issues in the dryland areas of the state. This comprehensive study is not actually a survey of existing works rather it provides an analysis of facts and figures along with a guideline regarding the methodological issues that can be followed to study the nature of dependency on natural resources. Our study shows that people in the drylands of West Bengal depend heavily on forestry and suffer from the lack of drinking water, owing to the poor irrigational-agricultural conditions and dryness of the weather. Then we have described few aspects of socio-economic conditions of the three big districts of drylands, as we have observed from our field survey. In terms of a dynamic model we have shown that, contrary to the conventional wisdom, how in the 'Jangal Mahal' area (the dryland area of the state) an increase in the proportion of timber harvest obtained as NTFP reduces the level of welfare in the region. In terms of our dynamic model we have shown the importance of forestry and hence its conservation (can be interpreted as sustainability of forestry) from the point of view of the people residing in the area. Lastly, we have shown that how the people of drylands think about conservation of forestry and drinking water and also the use of these two resources through Contingent Valuation Technique. Thus, we have captured the overall natural resource scenario of drylands of West Bengal and also we have emphasized on people's perception in their (natural resources) protection and sustainable use. Our study suggests some values for the conservation of resources in terms of their WTP. These figures are really useful for policy analysis to achieve sustainable resource management of natural resources in our study area.

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End Note:

1. Status report on hydrology of arid zones of India, 1999-2000, Prepared by National Institute of Hydrology.
2. Prepared by NABARD Consultancy Services Pvt. Ltd. (NABCONS), West Bengal
3. Major part of ‘chhotonagpur plateau’ lies in Jharkhand.
4. Though political disturbance was there a few years back but at present it is under control.
5. HDTW- High Capacity Deep Tubewell, MDTW- Middle Capacity Deep Tubewell, LDTW- Low Capacity Deep Tubewell, STW- Shallow Tubewell, RLI-Riverlift Irrigation, ODW- Open Dug Well.
6. This district was created by dividing Midnapore in two parts, namely East Midnapore and West Midnapore in 2000-01, so, we have used the data from that year only.
7. @ stands for included with HDTW

[8] # stands for included with Other Sources

[9] $ stands for included with MDTW

[10] This is the reason why these areas known as *"Jangalmahal"*

[11] Bankura, Purulia and West Midnapore

[12] As per the law in West Bengal

[13] Considering only those families who possess land in finding the average.

[14] Interested readers are advised to go through the paper by Chatterjee and Gupta (2017).

[15] See Chatterjee (2017) for valuation of forestry and Chatterjee (2014) for valuation of drinking water.

[16] Interested readers are advised to see Chatterjee (2017) and Chatterjee (2014) for selection of bids for CVM.

BACKBONE OF RURAL RECONSTRUCTION UNDER CONSTRUCTION: STUDY OF EVOLUTION OF PANCHAYATI RAJ INSTITUTION IN INDIA WITH REFERENCE TO WEST BENGAL

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Abstract

Rural development is a comprehensive and multidimensional concept, and encompasses the development of agriculture and allied activities : village and cottage industries; crafts, socio-economic infrastructure, community services and facilities and above all, the human resources in rural areas. Rural development can be conceptualised as a process, a phenomenon, a strategy and a discipline (Katar Singh, 1986). In a way rural reconstruction is a comprehensive approach to rural development and to integrated planning for improving rural conditions. Rural reconstruction implies renovation of the villages for the total wellbeing of the rural people. It is oriented to their social, economic and political development. The principal objectives of rural reconstruction are: eradication of poverty, spread of education, progress of health and abolition of social malpractices like casteism and untouchability. The main source of idea of rural reconstruction in India is in the non-violent Swaraj movement of Mahatma Gandhi. Other sources of this idea are Martandum Rural Reconstruction Programme of Spencer Hatch, Rabindranath Tagore's Sriniketan Model, the Gurgaon Scheme, Rural Reconstruction Model of Baroda, Firka Development Scheme of Madras and the Nilokheri Experiment. Post-independence rural reconstruction programmes of India are Community Development Programme, Co-Operative movement, Decentralization under Panchayati Raj, Land Reform and Five year Plans.

Keywords: Rural Development**,** Untouchability, Panchayati Raj

Introduction :

There are three schools of thought for understanding rural reconstruction : i) The Philanthropic School ii) The Reformist School and iii) The Revolutionary School. The Philanthropists offer a pragmatic approach. The main concern of this school is to improve the condition of the rural population within the preview of the existing rural institutions and structure of the rural society. They have stressed on the importance of the development of humanitarian effort by establishment of school and hospital, creation of charity funds for the need of rural poor and by appeals to landlords for cutting their pressures on the rural poor. The reformist school assume that economic and socio-

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cultural backwardness of the rural people are due to the cause of malfunctioning of the existing social institution. So they stress on the need of reformation of the social institutions for the healthy functioning of the social system in order to bring about holistic development of the rural community. The thinkers of the revolutionary group believe that the harm of the rural society is not the outcome of the malfunctioning of the rural social institutions but in attending the social system. They believe that the harm of the rural society is an unavoidable action of the normal functioning of the contemporary social order. So they support the programme of revolutionary transformation of the rural matrix. According to their views only radical transformation of the rural social institutions will be able to bring a revolutionary change in the social system.

Rural reconstruction puts an end to exploitation, diseases, illiteracy, drinking and corruption through overall development of rural areas. Rural reconstruction will be able to pave the way for the establishment of a true democracy in India. Actually rural reconstruction is a way by which overall development of the rural areas are through renovation and reconstruction. Since ancient time till date, Panchayati Raj is playing very important role for the development of rural areas. Panchayati Raj Institution is now called the backbone of rural reconstruction. It is the backbone of rural administration in a sense that all developmental programmes of rural areas are run through this institution. But very interestingly this institution till date is lying under construction. The history of this institution has its route back to the ancient time. Since then, till date, this institution is running as the backbone of rural administration, but is still lying under construction. Evolution of this institution since Vedic period gives us a clear scenario of the development of this institution.

Evolution of Panchayati Raj Institution in India :

Panchayati Raj has a long history. The present form of this institution has passed through a long evolution process. So, for understanding the importance of this institution in rural reconstruction it is needed to analyse its structural evolution since its conception.

Panchayati Raj System of Ancient and Middle Age :

During ancient days, Indian villages were organised in a way that enabled them to maintain social order through Panchayat. In the Vedic period, the village government was usually run under supervision and direct control by the village headman called ‘Gramini’. He was the most important and powerful officer of the village administration. Defence of the villages and collection of the government revenue were the two most important responsibility of the ‘Gramini’. At that time all respectable family members of the village were entitled to become the members of the village assembly. There was an Executive Committee or Council which was called Village Panchayats. Panchayats were very powerful during the Mahabharata period. The King had to accept the decision of the members of the ‘Sabha’ of Panchayats.

In the Mauryan period, the village was the basic unit of administration and there was the existence of Village Panchayat. Chanakya established Panchayats in the villages and they had all the powers to deal with issues relating to social and religious behaviour. They could interfere and express their opinion in the day to day affairs of the 'Sabhas'. They could punish their members and were also empowered to manage their financial system. The Village Panchayat enjoyed a lot of autonomy. Most of the religious, cultural and economic activities were handled with care and efficiency by them. In Gupta period, village Council become the permanent feature of local administration. The Village councils appeared to have evolved into regular bodies in the Gupta period at least in some parts of India. They were known as Panchamandalis in Central India and Gramajanapadas in Bihar (A. S. Altekar, 1958). In the Chola period, there was also the existence of well-organised village Panchayat system like the modern Panchayat. There were two patterns of village assembly : 'Ur' in the case of ordinary village and 'Sabha' in the case of Brahmanas populated villages. 'Ur' consisted of all the village residents and 'Sabha' was formed consisting of cultural and educated Brahmana section of the community. In Sultanate period, Panchayat as a grassroots government looked after education, sanitation and acted as judicial body to settle disputes. In Mughal period the village administration by elders' council was made an indispensible part of the civil administration. It was autonomous in its own sphere and exercised powers in local taxation, administrative control etc. (Ratna Ghosh & Alok Pramanik, 2007).

Panchayat Raj System of British India :

British government felt that it was in need to establish some organization to maintain law and order in the village. The beginning of local self-government is said to have been made in 1687 in Madras. It was a local governing called Municipal corporation. Bengal Village ChowkidariAct was passed in 1870 for rural self-government in united Bengal. In 1882 the government of India Resolution on local self-government was passed. It was the initiative for the first time to set up a comprehensive geo-administrative countrywide principle for the local self-government institution. On the basis of government of India resolution on local self-government, local bodies act was passed in 1885. This act had provided provision for setting up of three tier structure of the local government in rural Bengal; Union Committee at village level, Local Board at subdivision level and district board at district level. Under this act the local self-governing institutions were setting up with majority of the nominated members down to the village level. The Royal Commission on Decentralization 1907 submitted its reports in 1909 with the recommendation of effective decentralization and inclusion of the local people in local tasks and village affairs through the Village Panchayats. The Bengal Village Self-Government Act was passed in 1919. Thus from 1919 onwards, undivided Bengal had two sets of local self-government institutions; District Board at upper level and Union Board at lowest level. The Union Boards were performing normal municipal functions, some development functions and had control over the rural police. District

Board had not performed well as union Boards. But Union Boards had enjoyed more power. Bengal Village Self-Government Act 1919 was amended in 1935 and it was amended in 1947 when nomination system to the Union Boards was abolished. In 1950, there was further extension of franchise and women were allowed to vote and to contest as candidates for the first time in the Union Board election (Biswanath Chakraborty, 2008). Bombay and United Provinces Village Panchayat Act was passed in 1920, Bihar and Orissa Village Administration Act and Assam Rural Self-Government Act were passed in 1926, Punjab Village Panchayat Act was passed in 1935 and Jaipur Village Panchayat Act was passed in 1948.

Post-Independence Panchayats in India :

During the days of the struggle for India's independence, the nationalist leader, promised to give the people of rural India after independence a vibrant system of self-government to be known as Panchayats. Gandhi felt that the power of Panchayats was better as it was for the people. According to him, decentralization was essential for realization of the ideal democracy and for enabling each individual to participate in decision making and implementation processes. But the draft of the Constitution made no mention of Panchayats. The matter had generated a lot of heat in the Constitute Assembly. K. Santanam moved an amendment motion in Constituent Assembly. As a result, Article 40 in the Directive Principles of State Policy of the Constitution runs thus: "the state shall take steps to organize village Panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government". Indian state had made no effort to develop Village Panchayats until the Balvantry Mehta Committee had underlined the need for building up grassroot democratic institutions in the village for the purpose of implementing the development programmes. Balvantry Mehta Committee was set up in January, 1957. This Committee suggested for the setting up of three-tier Panchayati Raj system: i) Village Panchayat at village level, ii) Block Panchayat at intermediate level, iii) Zilla Parishad at district level. As a result, by 1959, all the states had passed Panchayats acts and subsequently Panchayats were set up in all parts of the country. Panchayati Raj system was first introduced at Nagaur in Rajasthan on 2nd October, 1959 by Jawaharlal Nehru. More than 2,17,300 village Panchayats covered 96% inhabited villages, 4,526 Panchayat Samities covered 88% of blocks and 330 Zilla Parishads covered about 76% of districts in the country during that period. Second biggest initiative for the development of Panchayati raj system in India was setting up of Ashok Mehta Committee in 1977. Appointment of Ashok Mehta Committee marked a turning point in the growth of Panchayati Raj.The Committee, after a comprehensive review of the literature and the situation, provided a definite philosophical treatment to the Panchayati Raj system. On the performance of Panchayati Raj during 1959-77, the Committee observes: "the story of Panchayati Raj has been a story of ups and downs. It seems to have passed through three phases – the phase of ascendancy (1959-1964), the

phase of stagnation (1965-69) and the phase of decline (1969-1977)" (M.Aslam, 2007).The Committee observed that the future of India would depend on the development of villages through strong Panchayati Raj system. As a result the Committee recommended for setting up two tiers Panchayat Raj system : i) Mandal Panchayats and ii) Zilla Parishad. The Zilla Parishad at the district level was to be established as the first point of decentralization and Mandal Panchayat was established for covering a group of Villages. Unfortunately the Committee had ignored the importance of Gram Sabha. The Chief Ministers' conference in 1979 rejected the idea of two-tier system and favoured the constitution of three-tier system. G.V.K. Rao Committee was set up in March 1985 by the Planning Commission to review the existing rural development arrangement through Panchayati Raj. The Committee recommended for the activation of Panchayati Raj Institution with mass people participation and regular election for this institution. The committee also recommended Zilla Parishad to become the main body for the management of all development programmes of the villages. The L.M. Singhvi Committee was set up in 1986 to prepare a concept paper on the revitalization of the Panchayati Raj. This Committee recommended for 'Gram Sabha' and 'Nyaya Panchayats'. V.N. Gadgil Committee, 1989 recommended a three tier system of Panchayati Raj, a fixed term of 5 years and reservation for SCs/STs and women. These recommendations became the basis for drafting the Constitutional Amendment Bill.

The 64th Constitutional Amendment Bill 1989 was tabled in Parliament for constituting Panchayats in every state at the village, intermediate and district levels. Unfortunately, though the bill got a two third majority in the Lok Sabha, but it was struck down in Rajya Sabha on October 15, 1989 by just two votes. The then P.V. Narasimha Rao government initiated the 73rd Amendment to the Constitution in 1991. The amendment was passed in Lok Sabha on 22nd December, 1992 and in Rajya Sabha on 23rd December, 1992. The bill got the President's assent on April 20, 1993. Some special features of this amendment are: to set up Gram Sabha, introduction of three tier system, devolution of functions, reservation of seats, composition, election and duration of PRIs. Since then PRIs has been getting Constitutional status and has been making itself an institution of local self-government. After the implementation of the Act initially there was a positive response from the states. All the states passed their legislations as per provisions of 73rd Constitutional Amendment Act and held Panchayat election. As a result, after the implementation of this act 2, 27,698 Panchayats at village level, 5,906 Panchayats at intermediate level and 474 Panchayats at district level were constituted in the country (M. Aslam, 2007). The first advantages of the implementation of this act was that, it turned uniformity at the first time on Panchayats all over the country in terms of structure, tenure, composition, reservation of seats, powers and functions. It is right to say that 73rd Constitutional Amendment Act 1992 gave ample scope to ensure participation in local

government for strengthening the backbone of rural reconstruction. But practically there is a mixed scenario in post amendment era. Panchayati Raj Institution till date have not emerged as self-institution as mentioned by the amendment. Workload of this institution is day to day increasing but autonomy of the institution is just a day-dream. In this process 110th Constitutional Amendment Bill 2009 provides another step for the strengthening of the rural local government through ensuring 50% seats of each level reservation for women. After the implementation of 110th amendment all states passed their legislation and increased reservation facilities of women from 33% to 50% in local governments.

Evolution of Panchayati Raj Institution of West Bengal after Independence :

West Bengal has a long tradition of rural local self-government institution. West Bengal was the only state, which did not have any legislation on Panchayat till 1952. The West Bengal Panchayat Bill was introduced in State Assembly in 1956 and was passed in 1957. Under this act two tier Panchayat system was set up; Gram Panchayat at village level and Anchal Panchayat at Union level. After the implementation of the Act, by 1963 only 50% of the villages and 60% of the rural population were covered by the Panchayat system (Prabhat Datta, 2003). The west Bengal Zilla Parishad Act 1963 introduced another two tiers of Panchayat system. So Panchayat of West Bengal was remodelled in four tier structure: Anchal Panchayat, Gram Panchayat, Anchalik Parishad and Zilla Parishad. The Zilla Parishads and Anchalik Parishads died prematurely. Other two bodies did not play an effective role as institutions of local government. They had some involvement in the disbursement of relief, collection of tax, fees and rates of very limited amount and payments of Chowkidars and Dafadars. The annual report of 1967-68 observed that there was doubt about the effective functioning of even 10 out of 19,662 Gram Panchayats (Prabhat Datta, 2003). The West Bengal Panchayat Amendment Act 1973 was again remodelled to form Panchayat system in three tiers structure as per all India pattern. Under this act, Gram Panchayats were set up at the village level, Panchayat Samities at the block level and Zilla Parishads at the district level. This act had earmarked long lists of functions for Gram Panchayats which were divided into three categories: obligatory, discretionary and assigned. On the view of decentralization of power, Government of West Bengal, took initiative towards devolution of power and resource to the Panchayat bodies was taken in 1985-86 when the Block Planning Committee and District Planning Committee were constituted. Block Planning Committee established by the Panchayat Samity, which had the responsibility to prepare a plan of work under the different development programmes to meet both present budget limits and the basic needs identified by the Gram Panchayats. These consolidated plans were then passed to the District Planning Committee where they were discussed and eventually consolidated into the Annual District Plan, which was placed before a District Planning and Co-ordinating Committee for final approval. This system of decentralised planning has taken the operation and role of the Panchayats into the

mainstream of politics and planning in the state (Neil Webster, 1992).

Panchayats of Post 73rd Constitutional Amendment Act :

73rd Constitutional Amendment Act was passed in 1992 and came into force in 1993. This amendment defines Panchayat to mean, "Institution of self- government to which the legislature of a state may, by law, endow powers and authority as may be necessary to enable them to function as institutions of self-government". West Bengal went ahead of the 73rd Constitutional amendment act by reserving one third of the seats for the women and proportional seats for SCs/STs in 1992 in the State act. Panchayat election of 1993 was held on the basis of the provisions provided by the West Bengal Panchayat Amendment Act of 1992. West Bengal became the first state in India to enable women to contest for one-third of the total seats reserved for them (Biswanath Chakraborty, 2008). The 73rd Constitutional Amendment has attempted to institutionalize people's participations through a body called 'Gram Sabha'. Gram Sabha is an institution in the hands of the people to air their grievances and to watch the functioning of the Panchayats. It also offers the Panchayats an opportunity to share their difficulties with the people who have elected them. Gram Sabha can also be an effective forum for mobilization of the masses for community activities by enabling the people to come under one umbrella and to interact on issues of mutual interest. The Gram Sabha meets twice in a year. But the Gram Sabha in West Bengal meets once in a year ordinarily in December in every year. West Bengal Panchayat Amendment Act 1994 incorporated Gram Sansad at lower level for true democracy. Gram Sansad consists of all registered voters of a constituency within the area of a Gram Panchayat. Under the law, the Gram Panchayat is required to convene at least two meetings of every Sansad in a year, annual meeting in the month of May and half-yearly meeting in the month of November. The main function of the Gram Sansad is to guide and advise the Gram Panchayat in regard to the schemes for economic development and social justice, identification of beneficiaries, constitutions of beneficiary committees and maintenance and equitable distribution of benefits of one or more schemes in its areas. A Gram Sansad may raise objection to any action of Pradhan or any other member of Gram Panchayat for failure to implement any development work properly. It is mandatory for a Gram Panchayat to place in the meeting in the Gram Sansad the budget and audit report of the accounts of Gram Panchayat for deliberation, recommendation and suggestion of Gram Sansad. The West Bengal Panchayat (Amendment) Act, 2003 has made it obligatory for a Gram Panchayat to act upon any recommendations of a Gram Sansad relating to prioritization of any list of beneficiaries or scheme or programme so far as it relates to the area of Gram Sansad. This act also provides provisions for Block Sansad, Zilla Sansad and Gram Unnoyan Samity. As the provision of Block Sansad, every Panchayat Samity will have a Block Sansad consisting of all members of Gram Panchayats pertaining to the Block and all members of that Panchayat Samity and will hold a half-

yearly and an annual meeting in every year. Zilla Parishad has a provision to make a Zilla Sansad consisting of Pradhans of all Gram Panchayats, Sabhapaties, Sahakari Sabhapaties and Karmadhyakshas of all Panchayat Samities and all members of Zilla Parishad. This act has made the provision for constituting a Gram Unnoyan Samity in every Sansad area consisting of : the elected member of respective Gram Sansad, person who securing the second highest vote in the preceding Panchayat election, one member from the NGO, One member from Self-Help group, one serving or retired government employee, one serving or retired teacher, ten other members or 1% of the total members of the Gram Sansad whichever is higher to be elected from the remaining members of the Gram Sansad. The West Bengal Panchayat Amendment Act 2012, provide provisions for increasing reservations of women from 33% to 50% in local government.

Concluding Observations :

From the above discussion it is clear, that present PRIs has a long history. But till date it is not standing on its feet structurally and also functionally. Structurally it is under construction since its birth. The structure of this institution is changing frequently and such frequent changes made it unstable as real vehicle of rural development. Structure and nature of its functions creates confusion among the rural people regarding its importance. Amongst a large chunk of the rural poor, a sense of alienation grew over the years, as the office of the Panchayat had created a new 'babudom' emitting upper-caste, 'Bhadralokian' ethos. Women were not given their legitimate share in the decision making process even when they had the mandate to lead a Gram Panchayat or a Panchayat Samity. With the tempo of land reforms slowing down from the late 1980s, poor and marginal farmers and agricultural labours lost their erstwhile doles and sought return from clients in the ballot box at the time of the next election (Apurba Mukhopadhyay, 2016). But for rural reconstruction, is just impossible to bypass this institution. Panchayati Raj institution is called the backbone of rural India. So it is very necessary to strengthen this institution by giving all aspects of autonomy which will be able to make it real strong backbone of reconstruction of rural areas. Presently it is working as an agent of State and Central Government. It needs all sorts of autonomy for the success of rural reconstruction. It is not enjoying financial autonomy. But without financial autonomy it will not be able to be a strong backbone of rural India. it needs de-politicization and de-bureaucratization, which will be able to establish it by its own self-identity. Due to over politicization of this institution common people are not able to get their due opportunities from this institution. Bureaucratic control over this institution has made it a disbursing agency of the Central and State Government instead of local self-government institution. Without strengthening this institution it is impossible to make rural India a viable society, because it is the backbone of rural society since its very beginning. So it is right to say that the backbone of rural reconstruction is still under construction. But it is an urgent need to strengthen the backbone of rural reconstruction for the fulfilment of its aims.

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RURAL RECONSTRUCTION THROUGH MICROFINANCE- A CASE STUDY ON SOUTH 24-PARGANA DISTRICT, WESTBENGAL

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Abstract

Microfinance programmes are now the most common sources of providing credit for households, one of the largest channels for development aid and so is an important instrument of rural reconstruction. This paper tries to focus on the microfinance and microcredit process and its consequences in the two villages of a district, South 24-parganas of West Bengal. The study reveals that there is a considerable improvement in women empowerment in the two villages in terms of mobility, economic security and ability to purchase.The logit model, regression of 'empowerment in terms of economic security' on the three important factors influencing it we get very significant result both at 1% and 5% levels of significance. But regression of empowerment in terms of mobility, political awareness on their factors influencing them give very insignificant results.

Keywords: *Microfinance, Women Empowerment, Economic Security*

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Introduction :

Microfinance is the provision of financial services to low-income clients or solidarity lending group including consumers and the self-employed, which traditionally lack access to banking and related services. It is defined as the provision of thrift, credit, and other financial services such as money transfer and micro-insurance products for the poor, or enables them to raise their income levels and improve living standards. In practice, the term is often used more narrowly to refer to loans and other services from providers that identify themselves as "microfinance institutions" (MFIs). These institutions commonly tend to use new methods developed over the last 30 years to deliver very small loans to unsalaried borrowers, taking little or no collateral. These methods include group lending and liability, savings requirements, gradually increasing loan sizes, and an implicit guarantee of ready access to future loans if present loans are repaid fully and promptly. Those who promote microfinance generally believe that such access will help poor people out of poverty. There are many advantages of microfinance programmes to the potential target group members, government policy makers, and development practitioners. For the target group members, the most obvious benefit is that micro- finance programmes may actually succeed in enabling them to increase their

income levels. Furthermore, the poor are able to access financial services which previously were exclusively available to the upper and middle income population. Also, the access to credit and the opportunity to begin or to expand a micro-enterprise may be empowering to the poor, especially in comparison to other development initiatives which often these specific target group members as recipients.

Over the past decade, providers of microfinance have developed an array of models for delivering financial services to the poor that meet the dual criteria of sustainability and outreach. As programs mature, debates within and outside the industry have moved beyond question of scale and outreach to the question of whether microfinance can reduce poverty. In the past, the question of the link between microfinance and poverty has aroused much passion among providers, promoters, and other involved in the microfinance field. At one extreme, the 'sustainability first 'camp believes that these services reach the poor through open access. At the other extreme, the 'poverty first' camp defends the importance of targeting the poorer strata of the population to ensure that they have access to microfinance services. Outside the industry, microfinance has the reputation of being a panacea that can pull people out of poverty. Supported by convincing vignettes of poor people who have 'made it', micro - finance has garnered wide appeal as a development success. Many MFIs subscribe to a mix of goals, including sustainability, outreach to poor households, and poverty reduction. A continuing challenge they face is how to deepen and maintain outreach to poor households on a sustainable basis. Given the limitations of income and consumption measures of poverty, growing attention within the development community in recent years has turned to the impact of micro-finance services on household assets and women's empowerment.

Microfinance is an effective and powerful tool for poverty alleviation and women-empowerment by providing financial services to the micro entrepreneurs all over the world. Microfinance programmers are now the most common sources of credit for household enterprises and one of the largest channels for development aid. Performances of Self-help Groups (SHGs) in different states in India have been analyzed by different academicians, institutions, government organisations and agencies.

The poor cannot fully participate in the mainstream economy nor readily access important markets for goods and services. The first official interest in informal group lending in India took shape during 1986-87 with the initiative of the National Bank for Agricultural and the Rural Development (NABARD). In 1988-89 NABARD undertook a survey of SHGs spread over 11 states of the country to study the functioning of the microfinance SHGs and their collaboration possibilities with the formal banking system. The rural finance scenario in the country thus included a dedicated promoter-NABARD, near 32000 rural branches of scheduled commercial banks, a vast network of RRBs, post offices

which offered basic banking services and NABARD initiated a pilot project called the SHG-bank linkage project in 1991 with the extensive consultation with the Reserve bank of India (RBI). The objective was to evolve credit strategies for meeting the credit needs of the poor, to build up trust between the bankers and the rural people, to encourage banking activity and to improve credit flow to rural people with reduced transaction costs both for the financing bank and the borrower.

There were many government supported microfinance programs initiated in India – e.g. Integrated Rural Development Program (IRDP), Swarnjayanti Gram SwarojagarYojana (SGSY), and National Credit Fund for Women or the Rashtriya Mahila Kosh (RMK) etc. However the SHG-bank linkage program has acquired a tribute for its resilience which has maintained its growth parameter quantitatively and qualitatively in its decade since the introduction of SGSY program. In India for many years a large number of private, non-bank, independent microfinance institution (MFIs) have been operating in addition to the microcredit system supported by the mainstream financial institutions. Most of them function as NGOs though of late Non Bank Financial Companies (NBFCs) have come to dominate in terms of microfinance business and because of slow down of govt. supported programs like SGSY, RMK, and the operations of private MFIs have received impetus in recent years.

Micro finance services in India are provided mainly by two different models:

SHG – Bank linkage model: This model involves the SHGs financed directly by the banks viz., CBs (Public Sector and Private Sector), RBIs and Cooperative Banks.

MFI – Bank Model: This model covers financing of Microfinance Institutions (MFIs) by banking agencies for on-lending to SHGs and other small borrowers.

Objective :

This paper tries to focus on the microfinance and microcredit process and its consequences in the two villages of a district, South 24-parganas of West Bengal. The objective is to evaluate whether and how far the women are benefitted socially and economically in these areas through the SHG-Bank linkage model. The aim is to consider the rural reconstruction through women empowerment enabling the poor to accumulate assets, boost up their incomes and reduced economic vulnerability.

The study consists of four sections: Section II discusses the data and the methodology adopted and brief review of the literature. Section III analyses the data and interpret and also does the regression analysis. Section IV concludes.

II

We have collected primary data for the members belonging to SHGs who are directly linked with the State Bank of India. In DakshinBarasat of south 24 Parganas there are 13 villages of which we have chosen two villages at random. The villages are Hogla and Padmerhat. These villages are under the NGO

'Suchetana' which is under the Microfinance Institution Organized by All India Clench Foundation (a Public Charitable Trust) 1997, Registration number – 6007.

On the basis of well structured questionnaire we have collected primary data of 45 individual women from two randomly chosen villages, Hogla and Padmerhat regarding their socio-economic conditions before and after joining Self Help Groups. We try to provide the demographic and economic interpretations from the data collected. To understand the women empowerment we construct the rating scale in terms of women empowerment indicators existing in the literature. We use the Logit regression model when we take empowerment in terms of economic security (E) as the dependent variable and take three important factors influencing economic security as independent variables.

Indicators of women empowerment have been taken in a modified form from existing literature of NABARD, They are:

1. Mobility : access to medical facility, Access to market, Access to entertainment.
2. Economic Security: Own house / land, productive asset, cash savings.
3. Ability to small purchase: Daily food, kerosene, spices, etc
4. Ability to big purchase: Pots and pans, clothes for children, sarees and television.
5. Political empowerment: Knowing the name of the Prime Minister, Chief Minister, and local Panchayet head.

Indicators of women empowerment include: Women access to financial services, share of women in total household savings, economic activity pursued, women's share in the family employment, ownership of asset, women involvement in decision making and management, etc.

Literature Review :

Naila Kabeer (2005) examined the impact of micro finance and concluded that a variety of basic needs are being met and it also promotes improvements in standards of living. As far as women's empowerment is concerned, the evidence reported is positive and there are exceptions and variations in the nature and strength of impact by context and by organization.

Dr Jyotish Prakash Basu (2006) explained the basic question of women empowerment. The empowerment depends on the choice of investment project. The choice of safe project leads to more empowerment of women than the choice of uncertain projects.

"Women Empowerment- Effects of participation in Self-Help Groups" by Deepti Umanshankar (2006) seeks to explore the impact of participation in SGHs on the women empowerment. The study is based on the district Mewat in the northern state of Haryana.

SHGs in India –"A catalyst for women Economic Empowerment and Poverty Eradication" by Prof. Anupple R. Reedy (2008) explains that economic security

through self-empowerment must be paid attention, because poor women lack assets and economic freedom.

Prof. Sudin Kumar Bera on 'a study of SHG micro finance initiative in Purba Midnapore District of West Bengal' (2011) tired to explain the empowerment of women in terms of demographic and economic factors. He assessed that women should have consciousness and minimum education to get empowered economically, socially and politically.

The paper on " Impact of self- help groups on the empowerment of rural poor by Jayeeta Saha (2011) seeks to explore the impact of SHGs on the empowerment and aims together and analyses information on the pre and post status of members of SHGs.

A study on " Women Empowerment through SHGs – An evaluation study" by Dr. S. Suja (2012) emphasis that empowerment of women is one of the vital issues in the progression and improvement of countries all over the world on the basis of the study on a district of Tamil Nadu.

"Impact of SHGs on empowerment of women: A study in Dharmapuri district, Tamil Nadu" (2012) by Lakshmi R and Vaidivalagan G analyses that women challenge the existing norms and culture, to effectively promote their wellbeing.

In this paper 'Income generation performance analysis of Social Groups financed by PACs: A case study of Vidyasagar Central Co-operative Bank (VCCB) (2012) Prof.A.K.Das viewed that after joining SHGs member are eligible to avail the credit opportunity. Loans have been utilized for different income generating activities like poultry, goat rearing, tailoring etc. He has also showed that participation in the groups leads to higher income among the households as the women in the family, find therein paid job.

However, this paper differs from the existing literature in the sense no one has done any work on women empowerment through microfinance in our way. Here we try to measure the economic empowerment on the basis of a Rating Scale of the members of Self Help Groups in terms of different indicators of empowerment.

III

Case Study :

South 24 Parganas (Dakshin Barasat) of West Bengal

We have collected primary data for the members belonging of SHGs who are directly linked with the State Bank of India.

In Dakshin Barasat of South 24 Parganas there are 13 villages of which we have chosen two villages at random. The villages are Hogla and Padmerhat.

These villages are under the NGO 'Suchetana' which is under the Microfinance Institution Organized by All India Clench Foundation (a Public Charitable Trust) 1997, Registration number – 6007.

Field studies reveal many areas of strength of SHGs:

a) Coverage of backward classes.
b) Strong savings motivation.
c) Small increase in Income.
d) Higher rates of recovery than that of individual loans.
e) Improvement in empowerment aspects.
f) Increase in self-confidence.
g) Increase in participation in development.

Field studies reveal many areas of weakness too. These are :

a) Formation of SHGs is target driven.
b) Inadequate capacity of facilitators and inadequate social mobilization before formation of SHGs.
c) Inadequate skill in grading SHGs.
d) Poor documentation of records and accounts.
e) No baseline available for developing indicators to monitor stages of Development.
f) Women lack space in forum deciding management of natural resources.
g) Inadequate capacities and low level of skills.
h) No buyer-seller linkage, regularity of order, price and other forward linkages.
i) Little change in asset structure.
j) Low level of awareness about government programmers and services.
k) Diversity in approach towards SHG formation and lack of a common vision.

Field studies reveal that Members of women SHGs got loan ranging from Rs.2000 – Rs.6000 they were liable to pay Rs.200 back every week. However it is seen many women did not have proper access to loan and once she paid back the entire loan it was hard to receive a second loan.

Interestingly, it has been observed during field studies that success has come in some areas where the following favourable factors are existing :

a) Because of hard struggle for living, the poor families are keen to access opportunities to cope up with livelihood options available to them.

b) The area is rich in natural resources which have provided life support to the poor.

c) Sensitive support mechanism has been provided by some credible NGOs who have professional competence to facilitate social mobilization and organization of the community.

d) A supportive development administration and a responsive panchayat can create a suitable environment for the people to develop themselves.

Analysis of physical quality of life of responding households indicates that with access to safe drinking water, preventive health care, and primary education and with reasonable wages, they are moving upwards in the human development index.

Demographic Interpretation :

Table – 1

Education Level

Name of the Village	Hogla	% Share	Padmerhat	% Share
Illerate	9	34.62	8	42.11
Primary	9	34.62	8	42.11
Middle or Secondary	8	30.76	3	15.79
Higher Secondary	0	0	0	0
Graduate & Above	0	0	0	0
Total	26	100	19	100

Source- Author's calculation from data

Table – 2

Caste-wise SHG Members

Name of the Village	Hogla	% Share	Padmerhat	% Share
General	23	88.46	16	84.21
SC	3	11.54	3	15.79
ST	0	0	0	0
OBC	0	0	0	0
Total	26	100	19	100

Source- Author's calculation from data

From the Table (1) we can see that, in village Hogla, among the SHG women, most of them are illiterate or primary education holder (almost 70%), whereas another 30% have secondary education. None of them have education higher than secondary.

Whereas in Padmerhat village, only about 16% are secondary educated, rest of the women are either illiterate or has primary education only. No woman in the village has higher education. So among SHG women in survey, almost 38% are illiterate, whereas another 62% has secondary or less equivalent education.

From the next chart (Table-2), we find 86% of the women are among general category, whereas rest of the women is Schedule Caste. No woman belongs to ST or OBC category.

Economic Interpretation

Table – 3

Distribution of Occupation of Households

Name of the Village	Hogla	% Share	Padmerhat	% Share
Agriculture	8	30.77	5	26.32
Self-Employed	16	61.54	8	42.11
Others	2	7.69	6	31.58
Total	26	100	19	100

Source- Author's calculation from data

Table – 4

Monthly Household Income

Village	Before Joining SHG			After Joining SHG		
	0–500	500–5000	5000–10000	0–500	500–5000	5000–10000
Hogla Village	8	16	2	4	12	10
Padmerhat Village	8	8	3	3	10	6
Total	16	24	5	7	22	16

Source- Author's calculation from data

Table – 5

Monthly Savings

Village	Before Joining SHG			After Joining SHG		
	0–500	500–5000	5000–10000	0–500	500–5000	5000–10000
Hogla Village	22	4	0	11	15	0
Padmerhat Village	15	4	0	9	10	0

Source- Author's calculation from data

The women of these villages before joining SHGs, were mostly involved in household activities, and were homemakers. Some of them also worked as maid servants. After joining SHGs most of them are involved in agriculture or allied activities or self-employed. We can see on average about 28% are involved in agricultural activities, around 51% are self-employed, whereas rest of the women are involved in other occupations after joining SHG (Table-3) in both the villages together. When we look upon, monthly income section, the women earning from Rs.500 to Rs.5000, is most predominating, both before and after joining SHGs, with a downfall of around 7% from 53% to 48%. But, the most significant point is, the percentage of women earning above Rs.5000 has increased drastically from 11% to 35%, on the other hand, women earning below 500, has reduced from 35% to 15% (Table-4).

Similarly, women saving from Rs.500 to Rs.5000 have increased from 17% to 55%, after joining SHGs. Savings obviously increases because of increase in income after joining SHGs (Table-5). Thus women are economically empowered under SHG microfinance strategy.

Rating Scale - Here in terms of socio-economic and political empowerment, we have constructed a rating scale, considering the indicators of women empowerment like mobility, economic security, ability to small purchases, ability to big purchases and political awareness for both the villages in South 24 Parganas of West Bengal. If a woman can access most of the factors of an indicator, she is logically assumed as 'empowered' in terms of that indicator.

Suppose the Case for Mobility

We have considered four factors in this indicator namely medical facility, access to market, access to watch movies and to go outside village.

If a woman can access two factors then she would be included in the scale measuring two. If a woman can access the entire four factors she would be included in the rating scale corresponding to four. This procedure is valid for all the other indicators.

Then we assume an 'indicator value' for each indicator, it is nearly 50%. This means, for example, in case of mobility out of four factors if a woman can access two or more factors in terms of mobility she can be considered as empowered in terms of social empowerment.

Again in terms of economic security we have five factors like own house, own land, productive assets, cash savings and use of cash savings. In this case we have five ratings. Women without any holding like house, land etc. gets zero rating. Women having four types of holdings are included into rating scale corresponding to four. In this case, if we assume that a woman can access three or more factors under this indicator, she will be considered as empowered. In this way all the indicators have been used to find women empowerment in terms of them in table-6

Table – 6

Women Empowerment in Terms of Rating Scale

Rating	Mobility					Economic Security						Ability to Purchase							Ability to Big Purchase					Political Awareness			
	0	1	2	3	4	0	1	2	3	4	5	0	1	2	3	4	5	6	0	1	2	3	4	0	1	2	3
Hogla	0	6	10	8	2	0	1	6	8	8	3	0	0	0	0	1	8	18	0	0	0	18	8	13	7	2	4
Padmerhat	0	7	4	3	5	0	0	4	5	4	6	0	0	1	3	0	5	10	0	2	3	7	7	14	1	3	1

Source- Author's calculation from data

Inference from the Scale :

From the scale we can say that after joining SHG there is a considerable improvement in women empowerment in the above 2 villages. In terms of mobility 71% women are empowered. Though only 15% is empowered with the rating of 4 and 24% is empowered with rating of 3. The majority 31% lies in the rating 2. 29% women are not empowered.

In terms of economic security 22% women are not empowered. The rest are empowered although the highest empowerment of 28% lies in the 3rd rating.

In terms of ability to make small purchases only 2% are not empowered showing that majority of women are now able to fulfil their small needs like buying soap, shampoo etc.

In column 4 ability to make big purchases, most of the women are empowered showing

that their income have risen considerably after joining SHGs.

In terms of political awareness we do not get a very good result. 78% women are not empowered showing a lag in education level as well as training and development of these women. They need to be more aware regarding the day-to-day happenings and need to actively take part in the political affairs of the village.

Regression Result :

We get very significant results following Logit regression model when we take empowerment in terms of economic security (E) as the dependent variable and take three important factors influencing economic security as independent variables.

Here

'E' = 1 woman is empowered

= 0 Woman not empowered

(Empowerment occurs when a woman can access more than 50% of factors under any indicator)

E = -6.69+4.86OH+4.22OL+4.12PA

Z = -3.39 2.81 3.25 3.16

P = 0.00 0.00 0.00 0.00 $R^2 = 0.54$

E = empowerment in terms of economic security

OH = own house

OL = Own land

PA = personal asset (here all variables are binary numbers)

The result shows that own house, own land and personal asset significantly influences the probability of being empowered of a woman in terms of economic security. Even if a woman has no asset, i.e. if OH = 0, OL = 0, PA = 0 the estimated logit is log (Pi1-Pi) = -6.79 which gives Pi = 0.62. This means the probability of being empowered of a woman in terms of economic security (Pi) is 62% in those two villages even if she possesses no asset of her own. This happens of course due to join in SHG. If a woman possesses all assets, i.e. if OH = 1, OL = 1, PA = 1, the probability is calculated as 99%.

But it is to note that taking 'empowerment in terms of mobility' as dependent binary variable and the factors influencing as independent binary variables and also taking 'empowerment in terms of political awareness' as dependent binary variable and the factors influencing as independent variables we get statistically insignificant results.

IV

Concluding Observations :

The major conclusions that emerge from our study can be succinctly outlined as follows :

From the primary data of district South 24 Parganas (S.B.) the demographic impact on the members of women SHG is as follows:On the basis of the study of two villages, we see

in village Hogla, among the SHG women, most of them are illiterate or primary education holder (almost 70%), whereas another 30% have secondary education. None of them have education higher than secondary. Whereas in Padmerhat village, only about 15% are secondary educated, rest of the women are either illiterate or has primary education only. No women in the village have higher education. So among SHG women in survey, around 30% are illiterate, whereas another 60% has primary or equivalent education.

We also find 85% of the women are among general category, where as rest of the women are of schedule caste. No woman belongs to ST or OBC Category.

From the point of view of economic impact we see the women of these villages before joining SHGs, were mostly involved in household activities, and were homemakers. Some of them also worked as servants to others. After joining SHGs most of them are involved in agriculture or allied activities or self employed. When we look upon, monthly income section, the women earning from Rs.500 to Rs.5000, is most predominating, both before and after joining SHGs, with a downfall of around 7% from 53% to 48%. But the most significant point is, the percentage of women earning above Rs.5000 has increased drastically from 11% to 35%. Obviously women savings have been increased after joining SHGs. These ensure the economic empowerment of women in the SHGs through micro finance process.

From the rating scale we can say that after joining SHG there is a considerable improvement in women empowerment in the above two villages in terms of mobility, economic security and ability to purchase.

In terms of political awareness we do not get a very good result. 78% women are not empowered showing a lack in education level as well as training and development of these women. They need to be more aware regarding the day to day happenings and needs to actively take part in the political affairs of the village.

Using the logit model, regression of 'empowerment in terms of economic security' on the three important factors influencing it we get very significant result both at 1% and 5% levels of significance. But regression of empowerment in terms of mobility, political awareness on their factors influencing them give very insignificant results.

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INFORMATION TECHNOLOGY AND INDIAN AGRICULTURE : AN EXPOSITION

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Abstract

The excessive rate of population growth is a major concern for Indian economic development. The population of India has already crossed 133 billion in 2017 (www.indiaonlinepages.com) and it is almost 18% of the total world population. This tremendous growth rate of population naturally put immense pressure on the food grain production of India. Although India has recorded an outstanding production of food grains in the last sixty five years (51 million tons in 1950-51 to 265 million tons in 2015-16) still most of the times it is found to be insufficient and inadequate. This introduces a major challenge not only in front of the policy makers but also to the agricultural scientists, and experts in agricultural management and extension programmes.

Keywords : ICT, E-Governance, *e-choupal*

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Introduction :

It is a well known fact that, even in the early years of the twenty first century agriculture and allied activities are continuing to be the basic and key sector for the survival and the sustainability of huge number of families in India. The new challenges emerging in the agricultural sector calls for a reform process which will ensure changes in the process, systems, management and policies. An innovative framework has to be constructed which should be comprised of local, need-based, user-centric outlook. A general framework should be replaced by the sector/ situation specific strategies. Local language based timely and understandable information flow and technological innovations are essential to improve the productivity in the sector. An optimal combination of social and economic capital resources with effective knowledge for the farmers make them competitive. In this context the introduction of information and communication technology (ICT) leads to increased access for the farmers which in turn can ensure increased productivity in the agricultural sector of India. It can play a momentous role in the agricultural development of India.

In this analysis our objective is to discuss the possibilities and evidences of integration

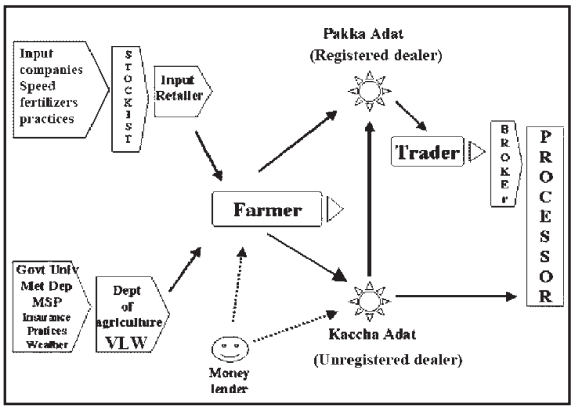
of ICT in the agricultural and rural development of India. We will also focus on the scope and objective of ICT in the agricultural sector. In a separate section we will assess the impact of intervention of ICT in Indian agriculture through the analysis of e-choupal, agricultural commodity trading and direct benefit transfers and e-governance. Afterwards we also discuss some of the notable e-governance projects of India in which we can easily observe the impact of ICT.

Scenario of Indian agricultural sector :

Agriculture in India has evolved over the years from traditional farming practices to more commercialised form of production. We have moved from an era of food crisis to a time where we find surplus in cereals production. Yet we cannot term our agricultural system as well developed. Productivity in agriculture is quite low compared to developed nations and other emerging nations. Around 51.7% of the labour force in India is engaged in agriculture and allied activities while it contributes only 14% to the GDP. That means productivity both in terms of land and labour is quite low in India. That land/man ratio is also quite low which indicates that a larger size of population depends on smaller size of land. The majority of the population engaged in agriculture remains impoverished. The low productivity is not only the result of poor land development or population pressure on land, it is also the effect of inefficient marketing of agricultural produce in India.

Due to a long supply chain and the existence of a number of intermediaries there is a wide disparity between the price received by the farmers and the price paid by the final consumers. Poor supply chain is responsible for around 60% rise in agricultural prices in India (Matani, 2007). Lack of proper storage facility and logistics results in the loss of and decay of the products in transit. Existence of a number of intermediaries results in price escalation as the middlemen at each level keep their profit margin while transferring the produce to the next level. The farmer, being at the bottom of the value chain receives the minimum price and margin for his produce. In addition to this the intermediaries tend to prevent information flowing down to the farmer as it may act contrary to their rent seeking intentions (Bowonder, Gupta, & Singh, 2003). The schematic diagram of a conventional value chain as depicted in figure 1 shows the existence of a number of intermediaries and how the farmer is entrapped between high input costs and low market prices with no bargaining power either in the input or the output markets.

Figure 1



Information and Communication Technology (ICT)

Information and communication technology (ICT) or information technology (IT) refers to the digital processing, storage and communication of information of all kinds. ICT can be used potentially in every sectors of the economy. IT plays the prime role in information processing, storage and access with a view to provide improved services to consumers. In India IT has grown quite significantly in the form of software exports.

IT often acts as the vehicle of globalization. Accordingly it helps in the reduction of transaction cost and cost of communication. Apart from this, as a vehicle of globalization IT also reduces the cost of information. ICT plays a major role in the service sector especially in the developing nations like India.In these days, the financial services have been the prime users of ICT. Its applicability in the image processing, advertising and media application reduces the cost of information and communication. The existence of automatic teller machine or ATM, virtual bank branches, mobile banking etc can never be possible without the intervention of ICT in the financial sector. Thus introduction of ICT in the integral parts of the service sector helped in the extra ordinary growth of this sector.

However the intervention of ICT not only facilitates the service sector but also assists in the process of agricultural development. The application of ICT in rural sector aims at agricultural growth, rural employment generation, enhanced productivity and happy livelihood (Sinha, 2013). The other objectives of introducing ICT in Indian agriculture are to develop entrepreneurship in farmers. The application of ICT also spread technological knowledge, crop cycle, and suitable use of the fertilizers etc. the ICT-enabled agriculture ensures the agricultural growth and increased contribution of agriculture in the GDP of the country. The authority with the help of ICT-enabled agriculture focuses on implementing a framework for agricultural development strategies, investments and programmes.

It is evidently observed that the ICT-enabled agriculture initiated improvements in agricultural competitiveness and also the management of technical information. The technical information is appropriately utilized in the various spheres of agriculture which led to upgraded management and enhanced productivity. The transparency in the implement mechanism generated from the application of ICT in the agricultural sector ensures a comprehensive agricultural development.

ICT and Agricultural Transformation

With the advent of information and communication technology (ICT) we have found solution to a number of problems that infects rural India especially rural livelihood attached to agriculture. The long value chain in Indian agriculture and its associated maladies can be addressed efficiently through the e-choupal portal that was launched at the

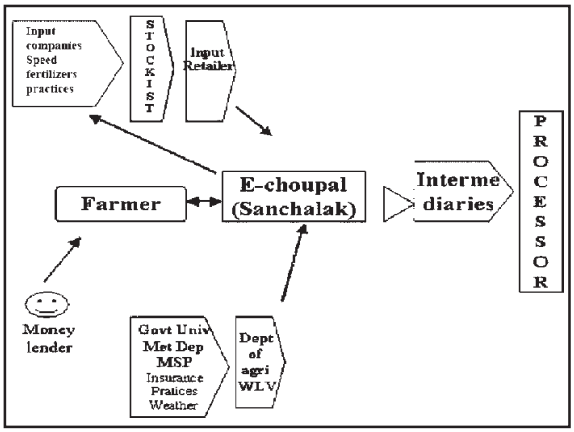
beginning of the present century in some rural areas of the nation.

A choupal is a village market place where the farmers can sell their produce to the traders. An e-choupal, as the name suggests, can provide a virtual market place to the farmers. The farmers can directly sell to the probable buyers by making online contracts. The farmer doesn't fall into the clutches of the monopsonistic local trader. The intermediaries are also not done away with. With the farmers striking online contracts with buyers, the intermediaries provide their logistic support with their experience and transport and storage infrastructure. The farmers get a fair price for their produce and the buyers can purchase at a price which is not too far from the production cost.

With the retail chains like ITC and Spencers' entering into e-choupal hub the value chain becomes more efficient with the retailer providing the support in terms of input and investment. The farmer can now take loans and purchase farm inputs through formal channels that are not exploitative. Another important advantage of an e-choupal is that it allows faster and comprehensive and qualitative information inflow to the farmers. The farmers can know about the various government policies and benefits provided to them along with information about improved farm inputs and most importantly they can now have information of the prices of both inputs and outputs. In this way they can avoid being misled by local traders or middlemen.

Let us look at the value chain in a e-choupal system as shown in figure 2. We will find that the e-choupal acts as a common platform that allows the farmer to negotiate with the input sellers as well as the buyers of his produce.

Figure 2



The productivity of agriculture can also be improved through the e-choupal kiosks. The ICT installations can help in providing latest information on weather forecasts, improved farm techniques as well as efficient inputs.

In this respect we would like to emphasize on the importance of the retail chain in improving both the value chain and productivity of Indian agriculture leading to higher income for the farmers as well as lower price for the ultimate consumers. The retail sector contributes 10% to the GDP in India providing employment to around 7% of Indian labour force. Of the total retail output food retailing comprises more than 60% (Singh, Badal, Kushwaha, Singh, Singh, & Sen, 2008). So, the interface between agriculture and retail chain becomes all the more important in the context of the overall development of the economy.

Another factor that can complement the e-choupal in improving agricultural marketing is commodity trading that has now included a large number of agricultural products like cereals and oilseeds. The trading portal is also ICT enabled that helps in determining spot process as well as futures trading. One important advantage of this trading portal is that it ensures the farmer a fixed price of the produce. In case of a bumper crop the farmer runs the risk of huge losses due to fall in prices. But a futures contract provides assurance in terms of the contracted price. This process also reduces the requirement of government intervention in terms of minimum support prices, subsidies and such others. Both the e-choupal and commodity trading establishes a direct interaction between buyers and sellers that can improve market efficiency so that prices can reflect both demand and availability of the product. In the long term supplies can be more demand oriented and reduce both surpluses and as well as scarcities that can lead to sky rocketing of prices. The recent rise in the pulses prices is an evidence of the demand and supply mismatch in our country. Cereals are produced more than the country's requirement lading to buffer stock accumulation and fall in prices. The fall in cereals price increases the burden on the government exchequer to provide MSP to the farmers. A market oriented price mechanism reduces this kind of distortion and makes government policies more targeted to the weaker sections of the rural economy.

The greatest challenge that the ICT enabled marketing and agricultural research and development is facing is the lack of orientation of the rural masses towards computer applications. The high rate of functional illiteracy among the rural masses is a huge hurdle in making IT enabled systems a success in rural India. In this context another important government scheme that needs to be mentioned is the direct benefit transfer (DBT) which has already proved its success in case of LPG (PAHAL). A number of government subsidies and other payments like fertiliser subsidies and NREGA payments are now finding the DBT route because of its transparency. The DBT form of fund transfer can avoid leakage and reduce the scope of corruption as the fund is directly transferred to the account of the beneficiary without the aid of any agent or middlemen. The DBT system requires the beneficiary to have a bank account. Under the Pradhan Mantri Jan DhanYojana the government has aimed at fostering financial inclusion in the country. The scheme could not fulfil the objective of financial inclusion as it is not economically viable to have physical existence of bank branches in every corner of the country. Areas with low population density or low economic activity render setting up bank branches unviable. To make the DBT scheme successful along with financial inclusion the government has taken the JAM (JanDhan, Aadhar and Mobile phone) scheme through which the benefit can be transferred to the targeted population through payment banks.

This can be possible only through the support of the country's ever expanding telecom network. In such an event a bank account can be opened by the incumbent without physically going to the bank branch or even when there is no physical existence of a bank branch in the vicinity. This improves the banking habit and saving habit of the rural population. The payment banks can open account for the beneficiary with the help of mobile telephony. The banks can receive deposits but are not allowed to lend. These banks can issue ATM and debit cards to facilitate transactions. ICT enabled banking services through the mobile telecom services seems to be the answer to financial inclusion in rural India at present. Financial inclusion through this channel is going to boost agriculture related activities as more marginal farmers will be inducted into the government subsidy scheme and avail the benefits.

ICT-Agricultural Production Tradeoff : Empirical Findings

We have tried to estimate the impact of ICT on Indian agricultural sector. The review period is 1991 to 2010. The details about data and methodology have been discussed below.

Data : Sources and Calculations

We have obtained the gross domestic products for Agricultureat current prices, from the Planning Commission Website (http://planningcommission.nic.in/data/datatable/). The original source of the DATA is the CSO. The data on Communication have been taken from the July, 2011 issue of the National Income Statistics of the Centre for Monitoring Indian Economy (CMIE). The data on total output for IT has been taken from the various issues of the CMIE Industry: Financial Aggregates and Ratios.The data is given at current prices. Since our objective is to establish the link between ICT and the agricultural sector of the economy, we have added the total product of the IT with that of communication to obtain the values of the total production of ICT in the economy for each year.

To investigate the effect of ICT on the agricultural sector we have calculated the per capita figures for each sector. The calculation of the labour productivity for these sectors required the sector specific employment figures for each year of the review period. This is hard to come by. To overcome the data availability problem in this respect we have obtained the per capita value added for all the sectors.

Methodology : The Models

To study the impact of the ICT on Indian agricultural sector we have formed an equation. It should be noted that to study the impact of the information and communication technology, we have added the value of output figures for IT and communication as obtained from the several data sources discussed earlier. The relevant model is given below.

$$pc\_agr = \hat{a}_0 + \hat{a}_1 pc\_ict + e$$

$$pc\_agr = \hat{a}_0 + \hat{a}_1 pc\_tot\_trans + e$$

Where :

pc_agr : per capita value added in agriculture

pc_tot_trans: (GVA in Rail transport + GVA in other transport)/population

pc_ict : (total value of output of IT + GVA in communication)/population

We have run regression for the equation on STATA.

Since total transport and ICT has a close relationship so to avoid the problem of multicollinearity we have regressed the dependent variable separately on the explanatory variables.

	pc_ict	pc_tot_trans
pc_agr	1.103645	1.867138
	(22.14)	(22.18)

It is clear that ICT has a positive and significant effect on agricultural production. The value of the coefficient is found to be 1.10. This implies the impressive level of penetration of ICT in the agricultural sector in recent times. Total transport also has a significant impact on agricultural production.

E-Governance Projects and Transformation of Indian Agriculture :

In India much of the rural population is isolated in terms of access to information inspite of commendable rise in the growth of the information technology in India. The rural household are often failed to participate in the formal market structure and sometimes their access is denied. The rural mass, population are thus disconnected from the mainstream. In this juncture information technology has a vital role to play in the market.

One of the main criticisms against information technology is the possibility of digital divide in the economy. Still the policymakers aim at extracting the benefits from information technology in an optimal manner especially in the rural areas. The main advantage of information and communication technology is its capability of removing the information asymmetry in the system. Though infrastructural bottlenecks are present in the system many e-government initiatives are undertaken in the rural areas which provide online services.

We have just provided the outline of some notable projects adopted in India.

Gyandoot :

It was undertaken in Madhya Pradesh. The objective was to establish technologically innovative, community-owned kiosks in poverty-stricken rural areas (Gorla, 2007). 31 kiosks covered 311 panchayats, 600 villages and half a million population. In this project, online education in Hindi languages

Akashganga :

This project includes dairy information services kiosk (DISK) which helps the milk producers of Gujarat by integrating all operations from procurement to accounting. Around 50000 dairy farmers are benefited in

600 locations. The project provides the facilities of details of transactions by the farmers and displays it to the public for their convenience.

Tamil Nadu Corporation for Development of Women (TNCDW) :

The objective of this project is to ensure social and economic empowerment of rural women in Tamilnadu. It maintains a database containing details of citizens, birth and deaths, land revenue records for the benefit of the rural masses. Another novelty of this project is, it encourages NGOs and women to conduct research work on gender policy issues among the rural population especially related to the women

Drishtee :

This project is extremely popular in northern and eastern states of India. It provides online buying and selling facilities to citizens through e-commerce where active intervention of ICT is present. It maintains the database and undertakes grievance redressal measures with the proper application of ICT. The project provides the information on education, employment etc initiated by the government. Drishtee involves 500 kiosks and each of them are managed by a village entrepreneur.

N-logue :

This project was undertaken mainly by three states MP, TN and Punjab. The project applies wire-less local loop (WLL) technology for village level communications where we observe extensive use of ICT. This leads to provision of financial facilities to poor. The 2500 kiosks operated under this scheme enable the rural poor to get information on markets, climates etc.

Lokvani :

This project is undertaken in Sitapur district of UP. This is an example of successful private-public partnership. The locality has 88% rural population and 39% literacy rate. It provides

online Information on land records, pension, tenders etc with the objective of connecting rural households to the strategy makers. .The project involves complaint redressal at a lower cost and lesser hazard

Lokmitra :

This project is initiated by National Informatics Centre (NIC) in Himachal Pradesh. The project is associated with the maintenance of a database comprising name, address, age, contact number of the individuals. The grievance redressal mechanism of the project is efficient to address the problems faced by the public. The one of the advantages of the project is local language-based communication technique.

Apart from these projects RASI, TKK, Bellandur, Janmitraetc are other ICT-enabled e-government projects which are working in the different parts of India.

Several other studies pointed out the necessity of application related to e-commerce, health and other social issues. A comprehensive approach should be adopted

for the rural masses in which ICT-enabled projects can take care of the overall development of the locality. The projects should focus on the increased participation of the citizen in decision making. The PPP projects should be more encouraged in order to optimally utilise ICT-enabled projects in India. thi kiosks should be developed and information and suggestion should be given in local languages. The issue of sustainability is the major area of concern in which the e-government projects should focus in the coming year

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NUTRITIONAL INEQUALITY IN INDIA

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Abstract

India is a country with a significant percentage (around twenty percent of the global value) of child death due to malnutrition. Malnutrition does not cause only death but also causes ill health, lack of productivity in future, making a loss of the economy in the short run as well as in the long run. Indian government is also concerned about that and make a lot of programme to provide supplementary nutrition. However these programmes are not need based, rather they are implemented at a gross level. It causes failure of almost all those programmes. To have successful result, Government should know the level of inequality with respect to nutrition. The analysis shows that there is significant level of inequality with respect to different socioeconomic factors and with respect to region as well. More specifically rural areas are always backward with respect to nutrition. Thus more emphasis of nutritional development programme is required there.

Keywords : Nutrition, Inequality, malnutrition

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Introduction :

It is said that lack of nutrition in first two years of life is irreversible and cannot be recovered. Child nutrition has long been considered as a social issue, related to rights of children. However, it has been identified later that it is more of an economic issue. Child malnutrition in early years of life results in substantial losses later during adolescence and adulthood. From a human development perspective, good health and nutrition are inherently valuable, contributing to physical and cognitive development. Child Malnutrition is one of the crucial issues of any developing country of the world. Although the share of malnourished children is falling over last 30 years in the world, the absolute number of malnourished children is still increasing (Smith and Hadded, 2000).

In 2013-14, India has 29.4% underweight children, 38.7% stunted children, 15.1% wasted children and 4.6% severely wasted children (UNICEF, 2015). More than one fifth of the global child death due to malnutrition occurs in India (Pratham, 2011). India, as the largest country in the region—in terms of both geography and population—shares the bulk of the problem, with over half of its children undernourished according to various

measures. One puzzling picture is that Indian child malnutrition level is far worse than the corresponding levels in countries with lower per capita income than India.

Indian Government is also concern about it. Through different policies like Mead Day Meal, Integrated Child Development Scheme (ICDS), Public Distribution System (PDS), Government is trying to give supplementary nutrition at the gross level. However, literature identifies that it is absolutely critical to know the distribution of malnutrition among individuals, especially for children. Just allocating supplementary food to all children, without recognising their nutritional and health needs, might not effectively reduce the burden. In addition, the policy maker should know to what extent a child is malnourished. Then their policies will be more target-oriented and effective. Thus nutritional inequality measure is very critical for India to have effective Government intervention.

Incidence of any vulnerability might not be uniform across regions, economic group and social classes. Thus it is important not only to focus on the average incidence, but its distribution within different groups. Beteille (1983) has demarcated two aspects of inequality: the relational and the distributional. Relational inequalities considers social structure in the form of relations of 'super ordination' or 'subordination', distributional inequality implies interpersonal differences in wealth or outcome indicators like health or educational status.According to Kunst*et al.* (2004) in the statistical analysis, it is important that the measurement of socioeconomic inequalities would be based on both measures of "relative inequalities" (such as Rate Ratios) and measures of "absolute differences" (such as Rate Differences). However, relative measures are used in most analyses as they are generally considered to be of most analytical interest. Regidor (2004) opines that when the objective is to measure health inequality, it is necessary to use univariate measures of inequality in the distribution of health like, GINI index or index of dissimilarity. But if the objective is to estimate socioeconomic inequality in health, there are two options. The first is to incorporate the socioeconomic dimension in the well known measures of inequality like GINI index. The problem with these measures is that they may give similar results even when the relation between health and socioeconomic status is different. The second option is to use the other three types of measures mentioned: association, potential impact, or based on the ranking of the socioeconomic variable. In this case, there is no unanimously accepted criterion about which measure is the most appropriate. According to him, limitation of most of these measures is that they can only be used to reflect socioeconomic inequalities in health when the socioeconomic variable is ranked hierarchically.

Using Concentration Index, one study on Ecuador shows that income is a crucial factor of health inequality (Larrean *et al.*, 2005). Kakwani *et al.* (1997) have discussed how heath inequality can be studied using grouped data, when groups are formed on the basis of socio economic status. They have used mainly two widely used indices of health inequality, namely, Gini coefficient and Concentration Index. It also develops asymptotic estimators for their variances and clarifies the role that demographic standardization plays in the analysis of socioeconomic inequalities in health.

Data base and methodology :

For the inequality analysis of child malnutrition in India I have taken the nationally representative data of National Family Health Survey Third Round [NFHS III] (2005-06). It covers 29 states of which I have taken 19 major states and clubbed 8 north eastern states into one heading called Northeast region.

At first I will do inter region analysis of inequality of child nutrition on the basis of Group analogue GINI Coefficient and Group Utilization Lorentz Profile. The same analysis is repeated with respect to religion, education-employment of mothers and place of residence. Then I will find out the Concentration Index of the country as a whole with respect to wealth index (as calculated by NFHS III), so that one can understand that to what extent the child nutrition inequality is dependent on the wealth available to the households.

Group Utilization Lorenz Profile (GULP) and Group Analogue of the GINI Coefficient

GULP is a graphical method to measure the extent of inequalities present between the groups where the groups are well defined by certain characteristics as mentioned earlier. Say, there are k sub groups (K>=2) and the subgroups are mutually exclusive and exhaustive. Unlike rate ratios and rate differentials, GULP can make inequality if number of groups exceeds two. Here groups should be ranked in a non-decreasing order i.e. child nutrition level will increase with increase in rank.

Figure 1.1 shows a typical GULP which is the pictorial representation of the inter group inequality. In the figure x-axis plots cumulative subgroup population share and y-axis plots cumulative sub-group share in total utilisation. The GULP in Diagram 1.1 is a special case where k=4 within the unit square. The interpretation of GULP is similar to Lorenz curve i.e. further the GULP from the diagonal higher is the degree of inter-group inequality. So if there are disparities in the distribution of the utilisation it will be captured by the curve in the contrary if the utilisation is equally distributed the curve will coincide with the diagonal.

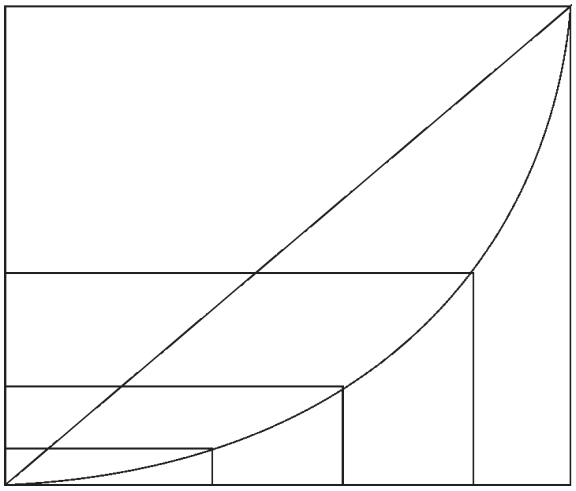
Diagram 1.1: Group Utilization Lorentz Profile (GULP)

Cumulative subgroup share in child nutrition level

$(1/U)[t_2U_2 + t_3U_3 + t_4U_4]$

$(1/U)[t_3U_3 + t_4U_4]$

$(1/U)[t_4U_4]$



t_4 t_3+t_4 $t_2+t_3+t_4$

Cumulative subgroup population share

This graphical device was used by Subramanian (2009) to obtain group analogue of GINI coefficient for the group poverty profile. The group analogue GINI coefficient G (h) is arrived at geometrically by measuring the area between the line of equality and GULP. It captures the group perspective of the inequality in the maternal healthcare utilization. Say the number of sub-groups be k, ke"2, then the formula of G (h) to capture the magnitude of inter group inequality is as follows:

$$G(h) = 1 + \frac{\left[\sum_{j=1}^{k} t_j^2 U_j - 2\sum_{j=1}^{k} t_j T_j U_j\right]}{U}$$

Here U_j is the health variable for the jth group, t_j is population share of jth group, T_j is the cumulative population share and U is the weighted average of the health variable. Here,= $\sum_{j=1}^{k} t_j U_j$, where the group specific health variable (U_j) is multiplied by population share and then summed to arrive at U. The range of G(h) is from 0 to 1. 0 means there is no group inequality and any positive value shows inequality. Higher the value of G(h), higher is the inequality between the groups.

Concentration Index :

It is the most commonly used measure to access the extent of socio economic inequality in health outcomes such as child malnutrition. The concentration index is derived from the more fundamental idea of Concentration Curve, similar to Lorenz Curve that measures income inequality. The concentration curve is accessed the distribution of a health variable with respect to a variable measuring living standard like income or wealth. It plots the cumulative percentage of the health variable on the vertical axis and cumulative percentage of the sample on the horizontal axis. These

two groups are matched on the line of equality where all individuals are getting same health share. If poor groups are worse off than the richer groups in terms of health indicator, it is a '*pro-rich inequality'*. If there is pro-rich inequality in terms of 'ill-health' (like malnutrition, mortality etc.), the concentration curve lies above the diagonal. In my analysis, the variable is z score, which is a positive indicator. The more the value of z, the better is the status of health. Thus it is not an "ill-health" variable. The further the curve lies above the line of equality, more the concentration of 'ill-variable' among the poorer section of the society. The Concentration Index is defined as twice the area between Concentration Curve and line of equality. If the concentration curve lies above the diagonal, the value of concentration index is negative. If there is perfect equality, the concentration curve lies on the line of equality; the value of concentration index is zero. The most convenient formula to measure the concentration index is

$$CI = 2cov(y_i, R_i)/\mu$$

Where y is the health variable whose inequality is measured, μ is the mean and R_i=rank of i^{th} individual in terms of the socio economic variable.

Results :

Section A :

At first I want to disaggregate India in terms of different versions of child malnutrition. Here the country is divided in four regions namely- lowest, lower, higher and highest. In my analysis, I have considered 19 major states and one single state called North Eastern which is actually the club of 7 north-eastern states. The following table (Table 1.1) is showing, according to WHO norm, the picture of child malnutrition in different states in terms of different indicators of malnutrition.

Table 1.1: Distribution of states in terms of different types of child malnutrition

	Stunted	**Wasted**	**Underweight**
Lowest	Punjab, Kerela, Tamil Nadu, Jammu & Kashmir	Punjab, Andhra Pradesh, Utter Pradesh, Jammu & Kashmir, Maharashtra	Jammu & Kashmir, Punjab, Kerela, Andhra Pradesh, Karnataka
Lower	Northeast, Karnataka, Andhra Pradesh, Himachal Pradesh, Utteranchal,	Northeast, Karnataka, West Bengal, Kerala, Haryana	Tamil Nadu, Maharashtra, Himachal Pradesh, Utter Pradesh, Northeast
Higher	Rajasthan, Orissa, West Bengal, Maharashtra, Haryana	Orissa, Chattishgarh, Gujarat,Uttaranchal, Himachal Pradesh	West Bengal, Uttaranchal, Jharkhand, Orissa, Haryana,
Highest	Jharkhand, Utter Pradesh, Madhya Pradesh, Gujarat, Chattisgarh, Bihar	Rajasthan, Tamil Nadu, Bihar, Madhya Pradesh, Jharkhand	Rajasthan, Gujarat, Chattisgarh, Madhya Pradesh, Bihar

Source : NFHS III unit level data

From different types of measurement of malnourishment, some interesting observations emerge from Table 1.1. On the one hand, Punjab and J&K belong to the group with lowest incidence of child malnourishment for *all* three types of measurement. On the other hand, Orissa belongs to the higher group according to all three types. One can find that Madhya Pradesh and Bihar belong to the cluster of states with highest incidence of stunting, wasted and underweight children. Gujarat, one of the richest states in India is a surprise addition in the group with the highest incidence of stunting and underweight children, in the same bracket with the most vulnerable states like Madhya Pradesh and Bihar. One interesting situation is in Tamil Nadu, which belongs to the lowest shares of stunted children and emerges within the group with highest share of wasted children.

Section B :

Inter group inequality :

The Group Analogue Gini coefficient G(h) is arrived geometrically by measuring the area between the line of equality and Group Utilization Lorentz Profile (GULP). Group Analogue Gini coefficient captures the magnitude of group inequality. In my study, the Group Analogue Gini coefficient across regions is 0.015 (Table 1.2) which is very low. It implies that regional disparity in terms of child nutrition is very small, when we consider the individual child separately.

Table 1.2 provides decomposed Group Analogue Gini coefficients across some socio economic characteristics. The objective here is to find out inter group inequality in child nutritional status, the HAZ score. For religion-related inequality, the total population is divided in four categories of religion-caste- Hindu General, Hindu others, Non-Hindu general and Non-Hindu others. Hindu general is ranked as 4, Hindu others as 3 etc. In terms of employment-education status of the mothers, total sample is divided in four categories- illiterate unemployed, illiterate employed, literate unemployed and literate employed. I have given rank to each of them also in this order. That means illiterate unemployed mothers are considered as maximum deprived and assume rank 1. In case of place of residence, rural is ranked one and urban area is ranked 2.

Table 1.2 : Group Analogue Gini for some socio economic variables and for regions :

Categories	Group Analogue Gini Coefficient
Region	0.015
Religion & Caste	0.011
Mothers' Status of Education & Employment	0.023
Place of Residence	0.455

Source : NFHS III unit level data

After making the groups either on the basis of malnutrition level or on the basis of some socio economic variables, I have calculated group analogue Gini for all those groups at

all India level to check whether there is any intergroup inequality or not. In case of religion caste, the value is very small (0.011) i.e. there is no significant inequality of child nutrition across different groups in terms of region-caste. This is also true in case of education-employment (0.023). But, in case of place of residence the value (0.455) shows that there is significant inequality of child nutrition across the regions in terms of place of residence. Children belonging to rural areas suffer from stunting in far higher proportions.

Next, I want to check intra-group inequality across regions with respect to some socio economic variables.

Section C : Inter personal inequality with respect to wealth index :

Table 1.3: Intra-group Concentration Index in terms of some socio economic variables

		Highest	Higher	Lower	Lowest
Religion	Hindu	0.031	–0.034	0.024	–0.056
	Muslim	0.039	–0.233	–0.042	–0.084
Caste	General	–0.007	–0.115	0.009	–0.171
	SC	0.097	–0.068	0.026	0.168
	ST	–0.007	0.041	0.103	–0.066
Place of Residence	Urban	–0.001	–0.021	0.014	–0.085
	Rural	0.085	0.086	0.059	–0.016

Source: NFHS III unit level data

There may not be significant inequality across regions with respect to child nutrition level, but in each of these groups, there may be inter-personal inequality in terms of the same child nutrition level. In this sub-section, I am going to check this. Concentration Index (CI) depicts the wealth related inequality. For the total sample, the value of CI is -0.152 i.e. it is a pro-poor situation. It implies poor households have higher burden of child stunting.

Table 1.3 depicts inter-personal inequality in terms of child nutrition level with respect to some socio economic factors across quartile groups of child nutrition. As it is explained earlier in section 1.5 that in case of health variables, negative Concentration Index (CI) means it is a pro-rich situation and for ill-health negative CI means a pro-poor situation. Here my variable, that is, the HAZ z score, is a normal health variable, not representing ill-health or negative situation. As z score increases, the child is expected to be less stunted. Among the Hindu population, in highest and lower stunted regions, the CI are positive i.e. it is a pro-poor situation. Poorer households have higher child malnutrition than their counterpart. Opposite is true in case

of higher and lowest stunted regions. However, among the Muslim only highest stunted region has pro-poor situation. In all other regions, there is a small pro-rich bias among the children belonging to Muslim households. Among the general caste, only lower stunted region represents a pro-poor bias. Among SC population, more children are malnourished among poor in highest, higher and lowest stunted regions. Among ST population, more malnourished children are in poor households in case of higher and lower stunted regions. In case of urban population, poor households have more malnourished children in lower stunted region. However, in rural household this is true in highest, higher and lower stunted regions. The figures, however, are small in value in all groups and regions. Largest inequality is observed among the Muslim children in higher region (-0.233), followed by general caste population in the lowest (-0.171) and SC children in lowest region (0.168).

This result actually strengthens our general conceptual framework in figure 1, where it is clear that the specific location of the state and household/parental characteristics determine the extent of child malnutrition differently, which gives scope for differential policy interventions.

Conclusion :

India is a large heterogeneous country and hence it is important to identify the local regional factors behind any exploration on health status. In order to arrive at a kind of typology, I divide the country in terms of quartile distribution of child stunting. It is found that Punjab and J&K belong to the group with lowest incidence of child malnourishment for all types of measurement. On the other hand, Orissa belongs to the higher group(3rd highest quartile) according to all types of measurement. Madhya Pradesh and Bihar belong to the group of highest incidence of stunting, wasted and underweight children. Gujarat is in the group with the highest incidence of stunting and underweight children, in the same bracket with the most vulnerable states like Madhya Pradesh and Bihar. However, Gujarat is considered as one of the richest states of India.

With respect to wealth, India as a whole does not show any significant level of inequality. For child nutrition there is no significant inequality across regions, across religion-caste, across education-employment of mothers. However there is significant level of inequality of child nutrition across place of residence. Thus whether the child is living in rural area or not, really matters.

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MAKE IN INDIA : REVERSING THE DE-INDUSTRIALISATION IN INDIA

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Abstract

Manufacturing sector is the backbone of any economy as it contributes to growth, productivity, employment, and global competitiveness. However, the situation of decline in manufacturing sector in India is a cause of deep concern among policymakers as it does not seem representative of its potential which should have been 25% value added to GDP against current 16% ,indicating its inability to fully leverage the opportunities provided by the dynamics of globalization. The launch of 'Make in India' an international marketing strategy, is expected to address this manufacturing challenges by facilitating the inflow of capital and technological investment in India, while creating millions of jobs and transforming India into manufacturing powerhouse in the global map. The 'Make in India' program has come up with new initiatives intended to facilitate investment, foster innovation ,prevent brain drain and build best-in-class manufacturing infrastructure in sectors as automobiles, chemicals, IT, pharma, textiles, aviation, railway, defense, engineering & manufacturing, electronic and others. In short, the campaign is conceived and designed to achieve multiple objectives and far reaching impact on the economy. Fostering innovation, protecting intellectual property rights, enhancing skill development and building best-in-class manufacturing infrastructure are some of the major concerns of the programme. Secondary research and data obtained from various authenticated sources have been used for the purpose of the study and this paper discusses about 'Make in India' scheme, its opportunities, key challenges, changes needed to realize the dream of transforming India into a global hub of manufacturing excellence.

Keywords : backbone, leverage, innovation, digitization, globalization, global hub.

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Introduction :

During global meltdown, the economic

scenario across globe, including that of India, changed drastically, adversely impacting the rate of growth of most of the countries. The 'Make in India' which refers to the, production in India with global quality standards, is an initiative to transform India into global design and manufacturing hub, was unveiled around this critical time marking the second phase of India's development. As part of this initiative, around 25 sectors were identified based on their potential to transform India into a global player by 2030.It was aimed primarily to take the manufacturing growth to 25% on a sustainable basis while eliminating the unnecessary laws and regulations, making bureaucratic processes easier and making government more transparent, responsive and accountable. It further aims at increasing the GDP and tax revenues in the country, by producing products that meet high quality standards, and minimising the impact on the environment. Fostering innovation, protecting intellectual property rights, enhancing skill development and building best-in-class manufacturing infrastructure are some other concerns of the programme. India emerged, after initiation of the programme in 2015, as the top destination globally for foreign direct investment, surpassing the United States of America as well as the People's Republic of China. In 2015, India received US$63 billion in FDI.

Objectives of Make in India :

1. To make investing in manufacturing more attractive to domestic and foreign investors.
2. To give the Indian economy global recognition.
3. To create competitive industrial environment.
4. To develop infrastructure of major roads and highways in the country.
5. To invite capital and technological investment in India.
6. To generate employment and massive skill development.

Objectives of study :

1. To study the role of Make in India scheme as a driver for growth in different sectors.
2. To identify the steps crucial for India to achieve its desired ambitions.

Methodology of Study and Limitations :

The study focuses on extensive study of secondary data collected from various books, national & international journals, and publications from various websites which focused on various aspects of Make in India. As it is based on secondary research conducted on the subject, it may be lacking in accuracy, or may not be completely current or dependable, providing a limited view on the topic.

Need for Make in India :

1. Three sectors which contribute to GDP of any country are agriculture, industry and services. Current contributions of these sectors in Indian economy are as follows:

a) Agriculture -28%

b) Industry/Manufacturing-16% Lowest

c) Services-56% Highest.

It is clearly visible that our economy is over dependent on service sector. The share of Indian manufacturing in the worldwide markets is also pitiable at 1.4%, while China has already zoomed to 13% plus from a level of 2.9% 20 years back.

2. FDI is needed to achieve higher growth of an economy. India's track record in attracting FDI in an international context is not very inspiring compared to FDI into countries like Mexico and China.In the last 10 years. Mexico has attracted $247 billion of FDI net inflows and China $2 trillion, compared to India's $229 billion.

3. India's economic development model has been quite peculiar, offering privileges to skilled labourers, often employed by foreign companies. Conversely, other economies have achieved success by first providing incentives for job-creating manufacturing industries. That is why today manufacturing in China makes up 34% of gross domestic product. The Chinese have positioned themselves as the 'workshop' of the world, accounting for 22.4% of global manufacturing, while India accounts for only 2%. India's manufacturing sector is less productive compared to its competitors and accounts for only 16% of its GDP. The government has set a target of 25% of GDP by 2022.

4. India needs more jobs for its young people. Recently, on average, 5 million new jobs have been created each year, but around 12 million people join the workforce each year. This is the other side of the demographic dividend: India's labour force is expected to grow up to 600 million by 2022. Job creation will fight poverty and help divert people from agriculture, which has a low capacity to sustain their livelihood.

5. As foreign investors can by themselves set-up their plants in India, some level of partnership would be needed with the domestic players to settle in the industry. With partnership comes the opportunity for technology absorption, a chance for the domestic players.

6. Amongst the industries, manufacturing sector is estimated to have grown at the rate of 9.5% in the year 2015-2016 as compared to 5.5% in 2014-2015.With domestic manufacturing growth, employment will increase manifold. This will augment the purchasing power of the common Indian, mitigate poverty and expand the consumer base for companies. Besides, it will help to reduce brain drain.

7. Export-oriented growth model will improve India's Balance of Payments and help in foreign exchange reserves, which is very important given the volatility in the global economy with multiple rounds of

quantitative easing by major economies. Rupees will get stronger and competitive against other currencies.

Important features of Make in India :

1. It aims to attract foreign companies to set up factories in India and invest in the country's infrastructure.
2. It aims to transform the economy from the services-driven growth model to labor-intensive manufacturing-driven growth. This is expected to create over 10 million new jobs annually.
3. 25 key sectors have been identified in which India has the potential of becoming a world leader. These include automobiles, chemicals, IT, pharmaceuticals, textiles, ports, aviation, leather, tourism and hospitality, wellness, railways and others.
4. A dedicated new portal has been especially created to answer queries from business entities.
5. The Department of Industrial Policy and Promotion (DIPP) constituted an eight-member expert panel to redress grievances and handle queries of global and domestic investors within 24 hours.

Balance-Sheet of Make in India :

1. The initiative has paid off as foreign companies are collaborating and setting up assets in India and funding several projects as they have discovered that manufacturing can be more cost-effective in India as compared to other countries.According to the Department of Industrial Policy and Promotion, FDI inflows under the approval route (which requires prior government permission) increased by 87% during 2014-15 with an inflow of $2.22 billion. More than 90% of FDI was through the automatic route. Also in 2014-15, foreign institutional investment rose by an unprecedented 717% to $40.92 billion.
2. Make in India has given an unprecedented boost to FDI flows, bringing India back to the global investment radar. India had replaced China as a top destination for foreign direct investment by attracting $63 billion worth FDI projects along with 8% increase in project numbers to 697 according to FDI Intelligence. In 2015, India was for the first time the leading country in the world for FDI overtaking the US (which had $59.6 billion of Greenfield FDI) and China ($56.6 billion).
3. India imports technological expertise from countries around the globe thus deteriorating the forex reserves of the countries. Make in India would enable India to not only save forex reserves but also would enable India to gain some substantive gains in the foreign exchange reserves. The electronic manufacturing sector has attracted investment proposals worth Rs 120,000crore with the launch of 'Make in India'. This would cut net imports of electronic to zero and generate employment for nearly 28 million

individuals by 2020.Samsung, Bosch, Philips, LG and Flextronics are among the businesses that have shown interest to create manufacturing bases in India.

4. In the automobile sector, Make in India has already things moving up. For example, Fiat Chrysler has come up with a plan to manufacture a range of C-segment jeep brand premium sports utility vehicles and export these vehicles to countries such as Australia, South Africa and United Kingdom. This plan will likely bring about an investment of Rs 1500 to Rs 2,500 crore. Even companies like Mercedes Benz has increased the production to 20,000 units annually in India from April 2015, making 60% increase in localization. Celebrating the beginning of this new initiative even BMW Group increased its cumulative investment to Rs 490 crore from Rs 390 crore in BMW India thus level of localization going up to 50%.

5. In the defence sector, this programme was able to attract more than 330 foreign companies at Aero-India 2015.Countries like Germany, Japan, France, Spain and Russia are willing to participate and supply defence equipments to India. German defence major TKMS is ready to offer HDW class 214 boats.

6. Japan will be participating in P-751 submarine-building programme. Russia has been nominated by the Defence Ministry to manufacture 200 light choppers in India to meet long-standing requirement of Indian Army .The Russian company, will now make the Ka 226 chopper in India.Kamov has set up company in Bangalore that will manufacture choppers locally.

Major Sectors driving MII initiative:

1. Defence: In the next five years, India is expected to spend $40 billion on defence purchases. Private sector participation will enable foreign original equipment manufacturers to enter into strategic partnerships with Indian companies, influence domestic markets, and aim at global business.

2. Automative: India is likely to become a top automobile manufacturing hub and the third largest market for automobiles by 2020,according to a report published by Deloitte.Currently,it is the seventh largest automobile producer in the world.

3. Engineering: The sector attracts immense interests from foreign players as it enjoys a comparative advantage in terms of manufacturing costs, technology and innovation. Growth is driven by various sub-sectors such as infrastructure, power, steel, automotives, oil& gas, consumer durables etc.

4. Textiles: According to a study, the Indian textile industry has the potential to grow five-fold over the next decade to touch $500 billion mark, riding the growing

demand for polyester fabric.

5. Chemicals: The Indian chemicals industry in terms of volume stands as the third largest producer in Asia and twelfth in World. This industry could grow at 14 % per annum to reach a size of $350 million by 2021.

6. Food Processing: This industry is expected to grow at a rate of 11% to touch $64.31 billion by 2018.

7. Leather: India's leather industry has transformed itself from a meagre raw material supplier to a value-added product exporter. Today, almost 50% of India's leather business comes from international trade.

8. Pharmaceuticals: As per India Ratings. A Fitch Group Company, the Indian pharmaceutics industry is estimated to grow at 20% compound annual growth rate (CAGR) over the next five years.

9. Electronics: The electronics market is one of the largest in the world. The market is expected to grow at a compound annual growth rate (CAGR) of 24.4% by 2020.

Table - 1

Automobiles	IT and BPM	Roads and Highways
Automobiles Components	Leather	Electrical Machinery
Aviation	Media and Entertainment	Textiles and Garments
Biotechnology	Mining	Space
Chemicals	Oil and gas	Thermal power
Construction	Pharmaceuticals	Tourism and Hospitality
Defence Manufacturing	Ports	Wellness
Electronics System	Railways	
Food Processing	Renewable Energy	

Source : Business Economics March 31, 2016.

Economy Sectors in Focus :

As per the new Govt. Policy 100% FDI is permitted in all the above sectors, except for space (74%), defence (49%) and news media (26%).

Table - 2

Foreign countries and companies investing in India

Sl. No.	Countries	Companies
1	Germany	Thyssen Krupp Aerospace, Trilux Group, BMW Group, POSCO
2	France	Airbus, Dassault Aviation, AXA group.
3	USA	Pepsico, Kellog India, McDonalds, Amazon, Microsoft, Bright Sky.

Sl. No.	Countries	Companies
4	Canada	Bombardier, Sunlife Financial Inc.
5	UAE	Lulu group, ABV group, Gems Education, RAK Ceramics.
6	UK	King's Collection London, GE Healthcare, Aviva.
7	Japan	NTT Communications,SBEnergy,Toshiba,Sony
8	Australia	Swarovski
9	Netherlands	Philips, Royal Dutch Shell PLC
10	China	JA Solar, Sany, Chint group Co, Siemens Gionee, Lenovo
11	South Korea	LG Electronics, Samsung
12	Italy	Piaggio Group, Magnetic Marelli, Fiat India Automobiles.
13	Sweden	Volvo India.

Source : Business Economics March 31, 2016.

Table - 3

Responses to Make in India Campaign

Name of companies	Proposed Business Activity	Place	Proposed Investment	Collaboration
1. Spice Group	Mobile phone manufacturing units.	Uttar Pradesh	5 billion (US$74 million)	Govt of Uttar Pradesh.
2. Samsung South Asia	10 MSME- Samsung Technical Schools.	Across the Country		Union Ministry for MSME.
3. Huawei Technologies Co Ltd	Research and Development centre to develop software components	Bengaluru	US$170 million	Govt.of India
4. Xiaomi	Manufacturing smart phones	Sri City-Andhra Pradesh.		Govt. of Andhra Pradesh
5. Alstom and GE Transport	Setting up locomotive manufacturing factories.	Madhepura and Marhaura in Bihar	400 billion (US$5.9 billion)	Ministry of Railway
6. Tata JLR(Jaguar Land Rover)	Production of Land Rover Defender	Pune-India		Govt.of India
7. Qualcomm	Setting up an innovation lab	Bengaluru		Govt.of India
8. MicroMax	Electronic manufacturing	Rajasthan,Telangana and Andhra Pradesh	3 billion (US$45 million)	Govt.of India

Source : Make in India Series The Economic Times Nov25, 2016.

Table - 4

Make in India Awards

Sl. No.	Award Categories	Winners
1	Largest investment for Make in India.	GE India
2	Largest Exporter through Make in India	Sun Pharmaceutical Industries
3	Indigenization through Make in India	Bharat Forge
4	New Hi-technology for Make in India	Indian Space Research Organisation
5	Smart Manufacturing for Make in India	Bosch India
6	Game Changer for Make in India	PatanjaliAyurved
7	Sustainable manufacturing for Make in India	Tata Steel

Source : Make in India Series The Economic Times Nov25, 2016.

Major Challenges to Make in India :

1. India's investment in health and education leaves a lot to be desired. A skilled and healthy population is both a good employee and a potentially good employer. India spends less than 3% of GDP for both health and education. China, on the other hand, spends more than 3% of a much larger GDP in favour of both.According to government data, India only has 3.5 million workers undergoing skills courses every year, compared with 90 million in China.

2. High level of corruption in India is present at all levels in the bureaucracy. Between 2009 and 2012, the CBI registered 2,246 cases under different sections of Prevention of Corruption Act. The CBI registered 101 graft related FIRs in 2015 after receiving complaints about officials demanding bribe to grant favours. The corresponding figure was 52 in 2014.

3. The Ease of Doing Business Index, which tracks the relative easiness of setting up operations in the country, reveals the fact about red tape and lax governance in the country. India scores poorly on several indicators measuring an economy's capacity of doing business. India ranks 130th out of 189 countries in the World Bank's 2016 ease of doing business index, covering the period from June 2014 and June 2015. Access to credit and paying taxes are the major areas of concerns. In the World Bank's 'Doing Business 2015' report, India ranks 142nd out of 189 economies, lagging not only behind China(90^{th}) and Vietnam (78^{th}) but also behind Nepal (108^{th}),Bhutan (125^{th}),and Pakistan(128^{th}). Dealing with construction permits (ranked184^{th}) and enforcing contracts (186^{th}) are the most critical points, and starting a business (158^{th}), paying taxes (156^{th}), getting electricity

(137th) and resolving insolvency (137th) are other challenging aspects. Global investors have been unsparing in their criticism about complex rules and bureaucratic red tape that delay investment decisions.

Effective suggestion to Make in India :

1. India needs to become a stable nation in terms of its policy consistency and clarity.
2. Judicial reforms are imperative in areas such as dealing with constructions permits, starting a business, paying taxes, and enforcing contracts.
3. Our manufacturing setups have to meet global standards in terms of efficiency, product quality and scalability.
4. India needs to develop the capacity to build world class institutions and organisations.
5. Indian tax system is very complex; implementation of GST will simplify tax structure and will be crucial in attracting investments.
6. RBI is willing to cut interest rates as inflation goes down. This will help in reducing the cost of raising capital for Corporates.

Conclusion :

The future of India's manufacturing industry looks promising. The government of India is committed to the 'ease of doing businesses' and to that end the government has been working to update the obsolete and obstructive regulatory framework set in place by the earlier regimes. The aim is to make the regulatory process more transparent and easier to navigate, facilitating significant and sustainable growth in manufacturing and making India a global manufacturing Hub, leading to employment, development progress, economic and social welfare.

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SRINIKETAN AND RURAL RECONSTRUCTION

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Abstract

This paper explores the possibilities of realizing Tagore's dream of a self-reliant village in the post-global context of the modern times. Tagore, the poet and the prophet, could perceive the social and political importance of the development of the village unit. Along with the re-structuring of the educational practises in his Santiniketan, he also endeavoured towards a village reform, creating independent hubs for artists, co-opeartive systems, and also an agro-industrial base that would lead to a holistic and sustainable pattern of development. Tagore's model has been variously interpreted and it success has given impetus to the different economic and business ventures of the present times. The paper argus that the model can also be useful in framing different national policies to promote and inclusive financial environment.

Keywords : Santiketan, Reconstruction, Rural Development

Introduction:

The emergence of Sriniketan as a Rural Reconstruction Centre–

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Over a century ago, Rabindranath Tagore, as a reaction to the colonial system of education, felt the need for a non-conventional and an integral system of education. To give shape to his ideas, he founded Visva-Bharati and its two centres – Santiniketan and Sriniketan, each having different programmes and objectives.

The Institute of Rural Reconstruction was founded in 1922 at Surul at a distance of about three kilometres from Santiniketan. It was formally inaugurated on February 6, 1922 with Leonard Elmhirst as its first Director. Thus the second but contiguous campus of Visva-Bharati came to be located at a site which assumed the name of Sriniketan. The chief object was to help villagers and people to solve their own problems instead of a solution being imposed on them from outside. Sriniketan focused on agriculture and rural development with the co-operative efforts of the villagers themselves and its aim was to develop a better life for the people of rural India by educating them to be self-reliant and encouraging the revival of village arts and crafts.

In consonance with the ideas about reconstruction of village life, a new type of school meant mainly for the children of neighbouring villages who would eventually

bring the offering of their acquired knowledge for the welfare of the village community was also conceived. This school, Siksha-Satra, was started in Santiniketan in 1924 but was shifted to Sriniketan in 1927. The Lok-Siksha Samsad, an organization for the propagation of non-formal education amongst those who had no access to usual educational opportunities, was started in 1936. Siksha-Charcha for training village school teachers followed next year.

Rabindranath Tagore's work in "village reconstruction" at Sriniketan is not as widely known as his work at Santiniketan. The Institute of Rural Reconstruction (IRR) was Tagore's attempt to put to work his idea about village reform. Tagore has recalled how he, a "town-bred" individual, came to recognize the "sorrow and poverty of villagers" while being a manager of his family's agricultural estates in East Bengal in the 1890s.

In 1906, Tagore released his 15 point Village Reconstruction Charter in Pabna (now in Bangladesh). This document makes clear that making villages autonomous was chief among his concerns. It was necessary to use "indigenously made goods." Further, all the village disputes had to be settled within through a process of village arbitration. A community grain bank was necessary to guard against famines. In a gesture towards the necessity of women's autonomy, the Charter asks that "housewives" be trained in a trade that could enhance the family's income.

While Tagore sought autonomy for villages, he did not wish that they remain isolated. In his view, it was necessary that "brotherhood" was cultivated between "hamlets, village and districts."

A few of Tagore's concerns were generally shared by reform minded intellectuals and government officials: science and history had to be taught in village schools; and, demographic data had to be compiled meticulously for every village. Many of his concerns were however unique. His Charter, for instance, stressed the need for building communal harmony and asked that the essence of all religions be taught in schools. The IRR was founded on the seven acres of land that Tagore bought near Santiniketan in 1912. He encouraged his son, Rathindranath Tagore, his brother in law and a friend's son to study agriculture and dairy farming at the University of Illinois, Urbana, USA. The three of them came down with malaria at Sriniketan upon their return and could not continue to work there. Tagore later invited Leonard Elmhirst, an Englishman who had studied agricultural economics at Cornell University, USA, to help build the IRR. Elmhirst did much of the founding work on the IRR between 1921 and 1923. He helped get an American philanthropist to extend financial support for Sriniketan. At his request, his Quaker friends in the US sent a doctor who worked for three years to control malaria in the villages nearby. Idealists from far and near were involved in the work at Sriniketan. The

work at IRR unfolded through various departments. The Education Department included a school for boys above eight years from all castes and a school for training teachers in music, agriculture and hygiene. Both the students and teachers had to learn a village craft. The Agriculture Department did experiments to check if new crops could be grown locally and held demonstrations of their work for local farmers. It also tried to promote modern animal husbandry. In order to help supplement local incomes, the Industries Department introduced new cottage industries. The Village Welfare Department, whose work covered fifteen villages, focused on issues of road, tank and school maintenance and ran a circulating library. A weaver's co-operative was founded in the mid-1930s. Picnics, games, theatre and socio-religious activities were organized to combine work with joy. Old festivals were revived and new ones such as Vriksh Ropan (Tree Planting Festival) and Navanna (New Rice festival) were inaugurated. These festivals are still celebrated. The details above offer a glimpse of the vision animating an early experiment in village reform in India. The local zamindars are said to have been indifferent to Sriniketan. The responses of the small farmers and artisans to it are not clearly known. In 1924, Tagore noted in reference to Sriniketan: "Our object is to try to flood the choked bed of village life with happiness. For this, the scholars, poets, the musicians, the artists have to collaborate." For Tagore, the cities and villages ought to support each other. Prasanna, the theatre director, has nourished this moral inheritance through Charaka, the handloom co-operative he has founded in Bhimanakone, Shimoga District. He has often observed: "Most of the minds that have built Charaka are modern, urban minds. The designers do not even know Kannada; but they stay with us and work with us. While villages can gain from creative collaboration with people from the city, cities have to learn the value of physical labour from villages."

Tagore's ideas of rural development reverberated from his saying: "If we could free even one village from the shackles of helplessness and ignorance, an ideal for the whole of India would be established… Let a few villages be rebuilt in this way and I shall say they are my India. That is the way to discover the true India." Tagore had proclaimed: "We have to reconstruct our national life with the village as the centre. To bring completeness of life to the villages has been a dream of mine of longstanding."

The great social reformer wanted to develop India without taking any help from outside as far as possible. As India lives in her villages, he felt that the only way to develop the country was to reconstruct the villages with the help of the villagers by themselves, through a suitable village level organization.

To be a complete man was the concept of Tagore's education. He advocated an open

education system which would be environment friendly devoid of all sorts of stringent rules and regulations. The Brahmacharya Vidyalaya in Santiniketan was the manifestation of his ideas. Tagore felt the need for a separate school for village boys. He could not forget that after all he belonged to a people, the great majority of whom lived in villages, in poverty and ignorance, neglected by a small minority in towns whom they fed with the toil of their hands. This led the poet to set up Siksha Satra in 1924 in Sriniketan as a residential school for the village boys from the neighbourhood. Its aim was to give an all-round training to the boys so that after completion of training, they could go back to their respective villages and carry on the work of rural reconstruction together with the trade they had learnt. Mahatma Gandhi's visit to Santiniketan in 1924 was very instrumental in the light of evolution of Siksha Satra.

Tagore's chief aim was to formulate a kind of education in which the villagers themselves would play the key role. He wrote: "I am, therefore all the more keen that Siksha Satra would justify the ideal I have entrusted in it and should represent the most important function of Sriniketan in helping the students for the attainment of manhood complete in all its varying aspects. Our people should need more than anything else a real scientific training that could inspire in them the courage of experiment and initiative of mind that we lack as a nation."

Revival of the Spirit of Sriniketan: Contemporary Issues

Tagore realized the importance of modern science in agricultural practices. He wanted that agricultural farming centres be modernized and the farmers be given proper scientific training. Dr M S Swaminathan, the noted Agricultural Scientist, has recognized the importance of Tagore's concepts even in recent times. He has suggested certain ways and means by which modern scientific applications of biotechnology could be combined with traditional knowledge so that agriculture and farming operations could be made intellectually satisfying and economically rewarding. Tagore visualised the role of Sriniketan as a centre where every scholar would become an entrepreneur.

In a report published in "The Times of India", September 5, 2016, the migration of unemployed village youths to cities is unlikely to stop now. The younger generation is shunning farming because it feels it is a menial job and the remuneration is not commensurate with the effort put in. Studies have shown that 50% of India's population will live in urban areas by 2030. This migration from villages to cities will lead to a lot of proxy farmers taking care of multiple plots of land. When you have large landmasses, you have to mechanise. Experts say that the shortage of farm labour and its rising cost are among the main reasons for increasing mechanisation of Indian farming.

In an another report published in "The Telegraph", October 30, 2016 on Singur, it appears that persuading the younger generation to take up farming is a huge challenge. There is an attempt to amalgamate land-parcels which indicates that farmers are desparate for better livelihood. Noted economist, Subhanil Chowdhury, Institute of Development Studies, Kolkata, believes that several reasons, from the rising cost of inputs to lower price realisation, are threatening to make agriculture a viable livelihood.

Fraser Thomson, Director, Alfa Bita, has recently authored a report on adopting sustainable business model in agriculture and has mentioned that such models could generate 22 million youth jobs in India. There is great scope of innovation in agricultural practices. When it comes to yield, large farms above 2 hectares should be distinguished from small farms below 2 hectares. Mobile internet considerably helps small holders telling farmers by text messages when to plant seeds and informing them of crop prices in the market. This will lead to an enormous productivity gains amongst small farmers. Application of technology can do miracles. Great improvements can be brought about through renovation such as applying precision farming techniques on the use of fertilizers, soil health, etc. Fraser Thomson speaks about large opportunities in India in improving productivity in the value-chain among the top three opportunities, low-income food market is number one, food-waste and value-chain is number two and technology in small farms is number three. All these three sources plus improving productivity could be a significant generator of jobs.

As Mr. Rakesh Kapur, Chairman, The Fertiliser Association Of India, New Delhi, has commented in an article entitled "Enhancing Income of Farmers" published in The Mint, 30th November, 2016 that small and marginal holdings constitute 85% of land holdings of the size below 1 hectare. Fragmented holdings have resulted in economically unviable units of irrigated land due to higher cost of inputs. Fragmentation has an adverse effect on the ability to use certain mechanical equipments that lead to serious problems of dependence on scarce manual labour for performing agriculture operations. With increasing population, land fragmentation is unavoidable. However, a new approach to cultivation and management may sustain productivity. At present, tenant farmers are cultivating under informal arrangements and refrain from making any capital investment. Certainty of price, time period and other attendant conditions under formal leasing agreement can give assurance to both land owner and lessee. State government should devise a mechanism for consolidation of land units and setting up of farmers' co-operatives. Government may also consider enabling other land aggregating measures such as long-term leases for select crops and help promote long-term investments in technology. Increased

awareness at level of Tenant farmers with available technologies would enable higher yields. Opening of Public Private Partnership (PPP) model can be another initiative to enable multiple farmers, multiple aggregators and marketers to work together to enhance farmers income.

In recent years, economic growth and improved urban infrastructure is making rural dwellers to shift to better pay jobs outside agriculture, in turn leading to increase in agricultural wages. National calamities and pest attacks aggravate the problem pushing farmers to indebtedness. Therefore, there is need for pragmatic reforms and policy initiatives to sustain Indian agriculture and improve economic condition of farmers. Income of farmers needs to be supplemented substantially by allied activities of dairying, fisheries, horticulture, medicinal and aromatic crop cultivation etc.

Innovative farm-technologies, their dissemination and adoption holds the keep to increasing food grain production from current level of 252 Million MT to 325 Million MT by 2025. The internet of Things (IOT) is transforming the agriculture industry, enabling farmers to contend with the enormous challenges they face. There is pragmatic need for encouragement of such Big Data methods, analysis and approaches which can deliver information at faster and in affordable way. Branding of the commodities can also provide value addition in enhancing farm incomes.

The Cottage Industries of Sriniketan

The Small Scale Cottage Industry and handicraft items of Sriniketan are identified as special ethnic and traditional products, recognised nationally and even internationally with high esteem. Students of Tagore's art and craft centre at Sriniketan and the artists of Kalabhavan are known for their extra-ordinary skill and craftsmanship.

The surrounding part of the rural economy at this region is basically thriving on plural economy, sometimes contributing to seasonal sustenance of village families. There are several means by which these skill and artistry pass through generations and people learn to earn from their own family units from very childhood.

A number of survey reports in the Surul village adjoining Sriniketan reveal that the dwelling units of this village are mostly living on traditional Kantha Stitch designing on silk and cotton sarees and other accessories, upholstries continuing throughout the year. These items involve most of the women of the villages from mainly minority and backward classes who have developed unique skills through repetitive and voluminous productivity. The men of these families search for market outlets and help these products fetching a fair price. It is very interesting to note that now-a-days this particular occupation has taken a systematic mass engagement pattern where a number of self-help groups with cluster of at least 9 to 11 or

more women together, earning their daily wages and even forming a co-operative for financial support through micro-finance. NIFT, the nation-level textile organisation has been working on this model and a good number of NGOs are also coming forward for utilising these rich resource of skilled artisans. These products fortunately earned reputation not only in the local and national markets, emporiums, shops and exhibitions but they are also exported outside to attract a special focus on ladies and gents' fashion statements. Some of the latest of such organised marketing find expressions through Bangamela and Banga Sammelan held each year in the United States, the Poush Mela and Maghmela at Santiniketan and Sriniketan and also Banga Sanskriti Mela at Kolkata pavilions. Besides, Delhi Hut, Kolkata Bazars and all such textile outlets of cities like Calcutta boast of these traditional clothings enriched with Kantha designs. Freelance sellers are also in the market with special stock and price offering door-step services for these very much ethnic hand-made products. While Kantha Stitch occupies the centre stage of Sriniketan's sustainable economy, there are many more which endowed value to develop Tagore's dreams of turning Sriniketan as a hub of multi-dimensional artistry. Leather goods and handicrafts are equally adorable and the tourists visiting Sriniketan never miss out on the venue of Amar Kutir where leather products, Dokra items, Cane items, Jute products, Batik accessories and clothings, not to speak of Kantha again are on massive display that became an eye-catching sight. Terracota is another speciality masterpiece of the region. The modern architectural interiors, wall designing, roof and floor tiles and decoration pieces are mostly crafted with this material capturing the craze of the modern designers. The cottage shaped buildings, resorts, corporate houses and establishments prevalently use this material for beautification. This product has picked up great commercial demand all-over West Bengal as well as India which has its in the rust coloured burnt soil of Santiniketan adding to the aesthetic importance of the place.

It is a marvel how the rural artisans can excel to the standard of art and perfection so that the price of the articles may seem to be invaluable. The thermocal Durga, Ganesha, Replica of temples of repute exhibit amazing signs of excellence and signature expertise. Proper education, training and workmanship of these artists are the pride of the nation which contribute to sustain their economy in their own original way - Tagore had this vision as a pioneering contribution.

The Tribals and Adibasis, the santhals of the village, tend to depend mainly on agriculture, or even agri-horticulture. The flower nurseries have seen booming business now-a-days at that place, Plants and plantation export-based programmes are expanding due to the fertile soil and a number of people are working on it which may convert the important destination Sriniketan into a

piece of Green Earth where florists and agriculturists tirelessly dedicate them into creating beautiful Nurseries of plants and flowers of special types including orchids and medicinal plants and thus toiling on lush greenery of crops and harvests.

Last but not the least is to speak of the traditional village huts that are held on the weekend to attract tourists and shoppers and travelers as well. The ethnic traditional ornaments made out of fruits and floral seeds are really worth, the modern tokens of ethnic costume items. These items attracts the women folks who style themselves on rustic look of tribal ethnic fashion. The Hut is also warm with single string musical instrument called Ektara and the rendition of village folk singers, the Bauls, enchant people with a typical folklore of Baul Song symphonically attuned with the bohemian beats of Ektara.

All these clubbed together make Sriniketan a special place to visit. A most endearing spot for the leisure hunters, an attractive place of education, excursion for college students and this part of Visva-Bharati has amazing stock of art and sculpture, architecture that grew and developed with the march of time not to mention that tourism remains an additional source of income into the hub of Sriniketan plural economy.

Time has come to analyse and discuss whether Sriniketan model has really dream-cum-true of Tagore's thought of rural upliftment through sustainable development. Big cities, big industries and large scale employment generation may capture the manifesto of the government's economic policies and guidelines, but these think-tank policies may not always be feasibly implemented in the villages and in the remote corners of countryside population. But backward parts of major areas of the cities, paralyse the city-life. This at macro level affects the whole national development with increasing rates of mass illiteracy, superstitions, lack of health and hygiene, malnutrition, unemployment and starvation.

To overcome this vital symptoms of interior sickness, prevention is urgent and necessary. Tagore's thought on this line times ahead have envisaged the mission of self-sustainable villages which can feed their aborigines on their own ways and accorded by their self-inherited ability. This model, visualised by the poet, helps the heritage village perennial poverty and ameliorate its economy thereby strengthening the national solidarity.

Conclusion:

In recent times, our returns from agriculture are reducing. While the pressure on land is increasing, the average size of a farm holding is going down to below one hectare. Prime farm lands are being used for non-farm purposes. The National Commission on Farmers has elaborated on the need to persuade educated youth, including farm graduates, to take part in agriculture as

a profession. It has been suggested by national policy makers that a strategy be adopted to improve the productivity and profitability of small holdings through proper land use policies, technologies and market linkages. The scope of agro-industries and agri-business should be enlarged; and opportunities should be created in the services sector that will promote technological and economic upgradation of farm operations.

Dr. Swaminathan has pointed out the need to revive the spirit of Sriniketan. The new Sriniketan should pioneer the concepts of eco-technology where science and technology will be combined with the best in traditional knowledge and ecological prudence. The new Sriniketan could also show the way to a new India where Tagore's belief that the villages would be the centre of our national life will become a reality.

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INTERLINKAGE BETWEEN PHYSICAL AND SOCIAL INFRASTRUCTURE: A CASE STUDY IN THE RURAL PART OF 24 PARGANAS (N)

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Abstract

The paper highlights the inter-linkage between physical and social infrastructure. Physical infrastructure like transportation benefits people and helps in improving their productivity. Again social infrastructure like education requires roads to access them. The data indicates that in the district of North 24 Parganas, the rural area located on highway or major road leads to the development of a larger number of primary schools. But the area located away from the highway or major road leads to less number of primary schools.

Keywords: Physical, Social, Infrastructure, Rural, Roads.

Introduction:

Physical Infrastructure is a tool for transformation in rural India. Economic Development is related at improving the welfare of the economy through social, political and economic conditions. The expected outcomes are quantitative and qualitative improvement in human capital which is termed as social infrastructure and physical capital such as infrastructure which includes transport, sanitation etc. (Dr. Rodrigue, J. P, and Dr. Notteboom,T. 2013). Several studies confirm the positive link between rural infrastructure and improved livelihoods, education, health and productivity. (India Rural Development Report 2012-13).

Rural road connectivity is a key component for rural development since it promotes access to economic and social services, like construction of schools, health care facilities etc. This in turn expands rural growth opportunities and real income through which poverty can be reduced (India Infrastructure Report 2007).With the construction of roads in rural areas, it provides an improvement in accessibility to education facilities. This has lead to reduced travel time, increased school enrolment & school attendance, especially among girls. When transport system is deficient it leads to economic cost and have a negative impact on employment. This lowers the quality of life. So, efficient and sustainable transport system is necessary for regional development. Thus, we want to see whether the area located on major roads or highways would lead to the development of a larger number of primary schools or the area located away from the highway or major road would

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lead to the construction of less number of primary schools.

Literature Review:

Economic Infrastructure like transportation, water, sanitation, benefit households by improving their productivity and leads to welfare improvement. Social infrastructure like health and education relies on physical infrastructure like water and sanitation to prevent health diseases, electricity for schools and hospitals and roads to access them (Snieska, V and Simkunaite, I. 2009). Infrastructure contributes to economic development by increasing output at a lower cost and provides services which improve the quality of life (Kumari, A and Sharma, A.K, 2015). Road transportation is enhanced by creation of facility in health, education etc. The utility of the road construction is integrated with the accessibility with social infrastructure (Mohapatra, J.K. and Chandrasekhar, B.P, 2007)

Objective:

The objective of this paper is to see whether the rural area located on major roads would help in linking education, health and other facilities, in a large number. On the other the reverse goes as

whether the area located away from highway or major road would lead to a greater or less number of primary schools in the rural 24 Parganas (N).

Research Methodology:

In order to show the interlink age between physical and social infrastructure in the rural areas or in other words we are interested to see whether the area located on highway or away from highway would lead to a construction of greater or less number of primary schools. So we intend to take a sample data from the district of north 24 Parganas in the state of West Bengal. Construction of roads lead to socio-economic benefits of the habitations connected. This has increased the access to schools because transportation cost has reduced the travel time to schools. School attendance of both students and teachers has increased.

Source: North 24 Parganas District Map

Here, we have taken a sample data regarding the circle where number of primary schools are located and along with it the roads that

connect the location to reach the school. Along with this we have taken the area, population and population density of the circle. The aim is to show whether the area located on highway or far from highway would lead to the development of a greater or less number of primary schools. This will show the interlink age between physical and social infrastructure.

Circle	Area (sq Km)	Population (census 2011)	Population Density	No. of Primary Schools	Major Roads Nearby
Amdanga	139.27	191673	1376	81	On NH34
Gaighata	243.3	330287	1358	161	On NH35
Minakhan	158.82	199084	1254	84	Near Major Road
Harua	152.73	214401	1404	88	Near Major Road
Baduria	179.72	285319	1588	222	On Major Road
Swarupnagar	215.13	256075	1190	141	On Major Road

Source: Report on Industrial Potentiality Survey N 24 Parganas 2015-16

We see that the places which are located on highway or on major roads have larger number of primary schools. But places which are located far from major road have less number of schools.

Result:

Amdanga with an area of 139.27 sq km and population density of 1376 has 81 number of primary schools. But, Minakhan and Harua with area more than Amdanga and population higher than Amdanga have comparatively less number of schools. Minakhan and Harua are located near major road so number of primary schools located is comparatively less. Thus, we see that far the place is located from major road less number of primary schools are located. But the place which is located on major road or national highway has more number of schools. We find the inter-linkage is established between roads or physical infrastructure and primary schools or social infrastructure.

Conclusion:

The places on major road or national highway have more number of primary schools. This shows that roads provide an easy access to schools so more number of schools has been developed. So, physical infrastructure leads to development of social infrastructure. The far the place is located from the roads, less are the number of schools. The Interlink age is established.

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