

## **Analysis Of Higher Education GER – A Study For West Bengal**

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**Abstract :-** The Higher Education status is still derived by the value of GER (Gross Enrolment Ratio). The districts of West Bengal, India have been compared taking data from National Survey (AISHE). The districts are also compared and groups into clusters using cluster analysis.

**Keywords –** All India Survey on Higher Education, GER, Cluster Analysis, Ranking

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### **I. INTRODUCTION**

Gross Enrolment Ratio (GER) is the total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the same level of education in an year 1,2,3,6,7,9,11,12. The purpose is to show the general level of participation in a given level of education. It indicates the capacity of the education system to enroll students of a particular age group. It can also be a complementary indicator to net enrolment rate (NER) by indicating the extent of over-aged and under-aged enrolment. It is the number of pupils (or students) enrolled in a given level of education regardless of age by the population of the age group which officially corresponds to the given level of education, and multiply the result by 100.

$GER_{th} = E_{th} * 100 / P_{th,a}$  Where  $GER_{th}$  is Gross Enrolment Ratio at level of education h in the year t,  $E_{th}$  is the Enrolment at the level of education h in the year t and  $P_{th,a}$  is the Population in age group (18-23 lbd)(last birth day) which officially corresponds to the level of education h in the year t. We are to know the total enrolment for a given level of education, population of the age group (18-23 years) corresponding to the specified level (higher education). All India Survey on Higher Education (AISHE)<sup>2</sup> gives the enrolment data in higher education. Population censuses or estimates for higher education population obtained from the reports of MHRD in website for all the years based on last census data. A high GER generally indicates a high degree of participation, whether the pupils belong to the official age group or not. A GER value approaching or exceeding 100% indicates that a country is, in principle, able to accommodate all of its susceptible population, but it does not indicate the proportion already enrolled. The achievement of a GER of 100% is therefore a necessary but not sufficient condition for enrolling all eligible population in higher education institutes. The GER exceeds 90% for a particular level of education, the aggregate number of places for pupils is approaching the number required for universal access of the official age group. However, this is a meaningful interpretation only if one can expect the under-aged and over-aged enrolments to decline in the future to free places for pupils from the expected age group. GER at each level of education should be based on total enrolment in all types of educational institutions, including public, private and all other institutions that provide organized educational programmes. GER can exceed 100% due to the inclusion of over-aged and under-aged pupils/students because of early or late entrants, and grade repetition. In this case, a rigorous interpretation of GER needs additional information to assess the extent of repetition, late entrants, lateral entrants, etc.

The International Standard Classification of Education (ISCED) is designed to serve as a statistical framework for assembling, compiling and presenting comparable indicators and statistics of education both within individual countries and internationally. It presents standard concepts, definitions and classifications. ISCED covers all organized and sustained learning opportunities for children, youth and adults including those with special needs education, irrespective of the institution or entity providing them or the form in which they are delivered. Gross Enrolment Ratio (GER) in Higher education in India is calculated for 18-23 years of age group. Total enrolment in higher education, regardless of age, expressed as a percentage to the eligible official population (18-23 years) in the given period. Data includes details on gender wise gross enrolment ratio in higher education for all categories, SC and ST.

### **II. DATA**

Ministry of Human Resource Development has endeavoured to conduct an annual web-based effort called All India Survey on Higher Education (AISHE) since 2010-11. The survey covers all the institutions in the country engaged in imparting of higher education. Data is being collected on several parameters such as

teachers, student enrolment, programmes, examination results, finance, scholarship & stipend, infrastructure, etc.. Indicators of educational development such as Institution Density, Gross Enrolment Ratio, Pupil-teacher ratio, Gender Parity Index, Per Student Expenditure will also be calculated from the data collected through AISHE. These are useful in making informed policy decisions and research for development of education sector. The AISHE is now an annual event. Based on AISHE database, in this paper, attempt has been made to quantify the development in higher education by framing GER for the districts of West Bengal. The ranking based on GER has been made. It is further attempted to find the clustering among the districts of West Bengal.

### III. ANALYSIS

MHRD published in its report<sup>4</sup>, the estimates of population for the years 2011, 2012, 2013, 2014, 2015 & 2016 in the age group 18-23 years. Based on the estimated total population in the age group 18-23 years, the population of the districts are estimated as follows –

$$P_t^d = P_t \times r^d$$

Where  $P_t^d$  is the estimated total population for the district (d) in the age group 18-23 years for West Bengal corresponding to the year t,  $P_t$  is the estimated total population in the age group 18-23 years for West Bengal corresponding to the year t,  $r^d$  is the percentage of population contained in the district (d)<sup>13 to 24</sup> as per census 2011.

Again,  $P_{f,t}^d = P_t^d \times \text{GenR}^d$

where  $P_{f,t}^d$  is the estimated female population for the district (d) in the age group 18-23 years corresponding to the year t,  $\text{GenR}^d$  is the gender ratio for the district (d) as per census 2011.

$$\text{GenR}^d = \text{SR}^d / (\text{SR}^d + 1000)$$

where  $\text{SR}^d$  is the sex ratio for the district (d)<sup>13 to 24</sup> as per census 2011 i.e. number of females per 1000 males.

$$\text{GER}_t^d = \text{ER}_t^d \times 100 / P_t^d$$

where  $\text{GER}_t^d$  is the estimated Gross Enrolment Ratio for the district (d) in the age group 18-23 years (i.e. for education level – higher education) corresponding to the year t,  $\text{ER}_t^d$  is the total enrolment for the district (d) at the higher education level as per AISHE corresponding to the year t.

GER's have been calculated separately for total, female and male. The ranks of the districts have been obtained based on GER-values.

Figure 2.1 showing line graph of GER-2011 for Total(TGER), Male (MGER) & Female(FGER)

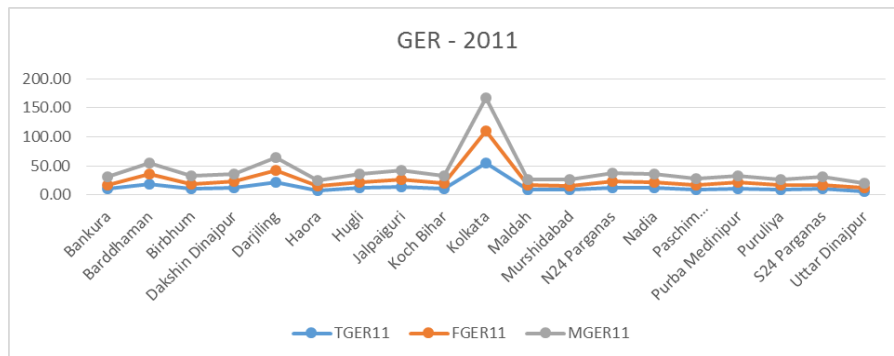


Figure 2.2 showing line graph of GER-2012 for Total(TGER), Male (MGER) & Female(FGER)

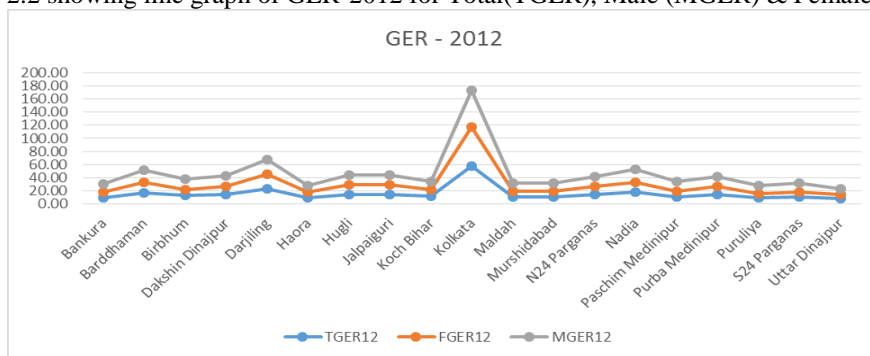


Figure 2.3 showing line graph of GER-2013 for Total(TGER), Male (MGER) & Female(FGER)

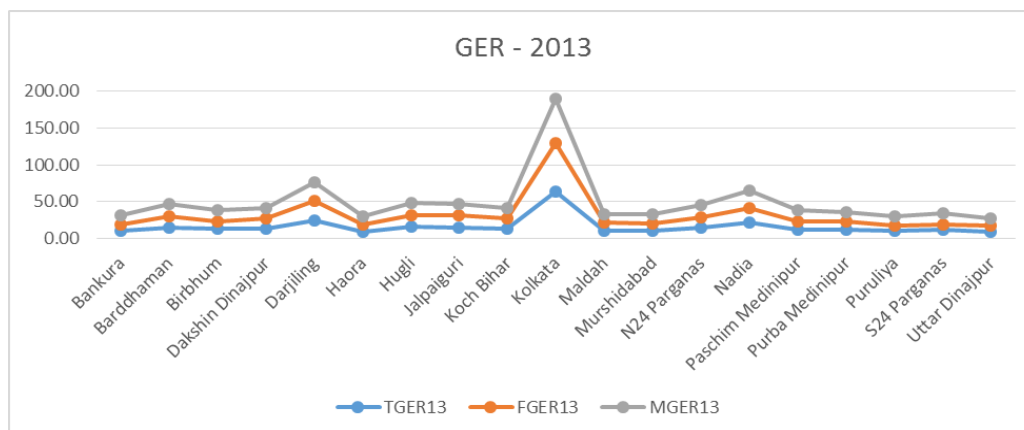


Figure 2.4 showing line graph of GER-2014 for Total(TGER), Male (MGER) & Female(FGER)

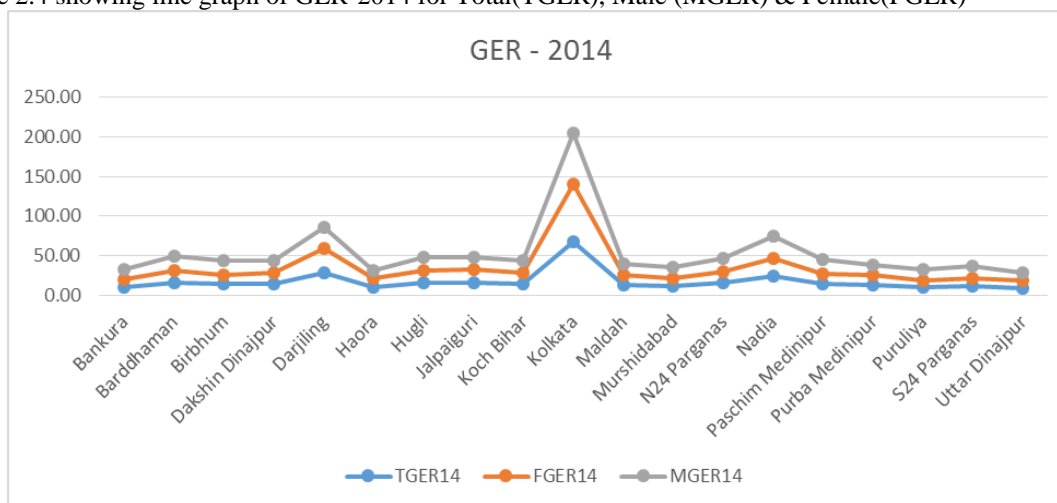
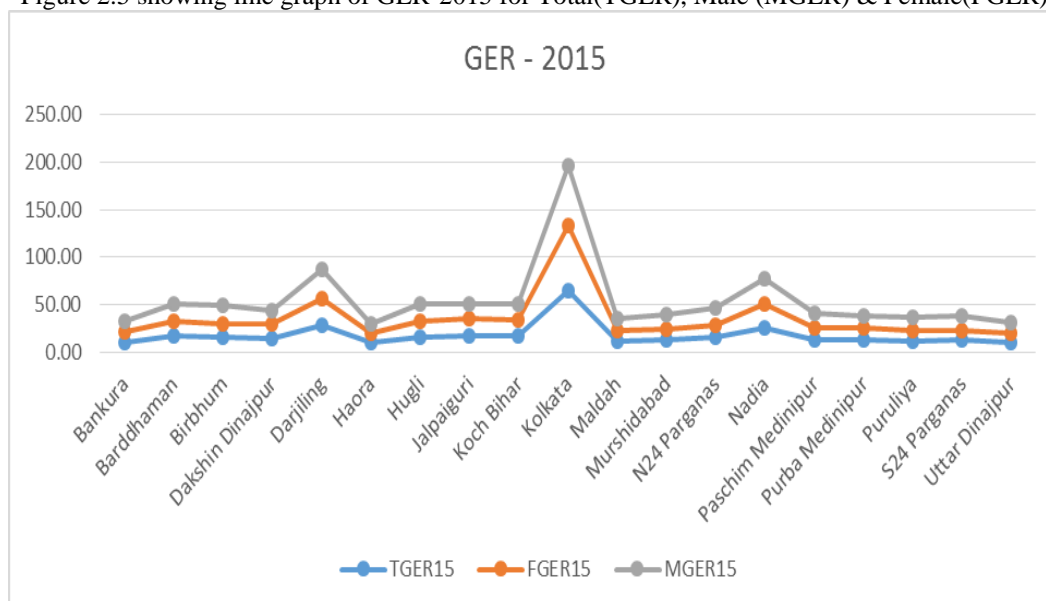


Figure 2.5 showing line graph of GER-2015 for Total(TGER), Male (MGER) & Female(FGER)



It is observed that in general GER-values are increasing over the year (t) for each of the districts (d). It is greater for male as compared to female for all the districts (d) and over the year (t).

Table 1.1 showing the ranks of the districts ( GER – total )

District	2011	2012	2013	2014	2015
Bankura	12	16	16	17	17
Barddhaman	3	4	6	4	5
Birbhum	10	10	10	11	8
Dakshin Dinajpur	8	7	8	10	10
Darjiling	2	2	2	2	2
Haora	18	18	18	18	19
Hugli	7	5	4	5	7
Jalpaiguri	4	6	5	6	6
Koch Bihar	11	11	9	9	4
Kolkata	1	1	1	1	1
Maldah	16	13	14	12	16
Murshidabad	17	15	15	15	12
N24 Parganas	5	8	7	7	9
Nadia	6	3	3	3	3
Paschim Medinipur	14	12	11	8	11
Purba Medinipur	9	9	12	13	13
Puruliya	15	17	17	16	15
S24 Parganas	13	14	13	14	14
Uttar Dinajpur	19	19	19	19	18

Table 1.2 showing the ranks of the districts ( GER – Male, GER-Female )

District	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
	Male					Female				
Bankura	10	16	16	17	17	17	16	16	17	16
Barddhaman	3	4	5	4	5	3	3	6	6	6
Birbhum	6	5	7	6	4	13	11	13	13	9
Dakshin Dinajpur	11	6	12	10	13	5	8	7	8	8
Darjiling	2	2	2	2	2	2	2	2	2	2
Haora	18	18	18	18	18	15	13	14	14	17
Hugli	8	7	4	7	6	9	6	5	5	7
Jalpaiguri	4	9	8	9	10	4	5	4	4	4
Koch Bihar	12	13	10	11	8	10	10	9	7	5
Kolkata	1	1	1	1	1	1	1	1	1	1
Maldah	17	17	17	13	16	12	12	12	11	13
Murshidabad	15	14	15	14	11	16	14	15	15	14
N24 Parganas	9	8	6	5	7	6	9	8	9	10
Nadia	7	3	3	3	3	7	4	3	3	3
Paschim Medinipur	14	11	11	8	12	14	15	11	10	12
Purba Medinipur	13	10	13	16	15	8	7	10	12	11
Puruliya	16	15	14	15	14	11	18	19	19	18
S24 Parganas	5	12	9	12	9	18	17	18	16	19
Uttar Dinajpur	19	19	19	19	19	19	19	17	18	15

Table 1.3 showing Rank Correlation Matrix (GER-Total) with p-value

2011	2012	2013	2014	2015
1.0000	.9911	.9805	.9748	.9692
	p=.000	p=.000	p=.000	p=.000
	1.0000	.9939	.9907	.9855
		p=.000	p=.000	p=.000
		1.0000	.9986	.9956
			p=0.00	p=.000
			1.0000	.9968
				p=0.00
				1.0000

Table 1.4 showing Rank Correlation Matrix (GER-Female) with p-value

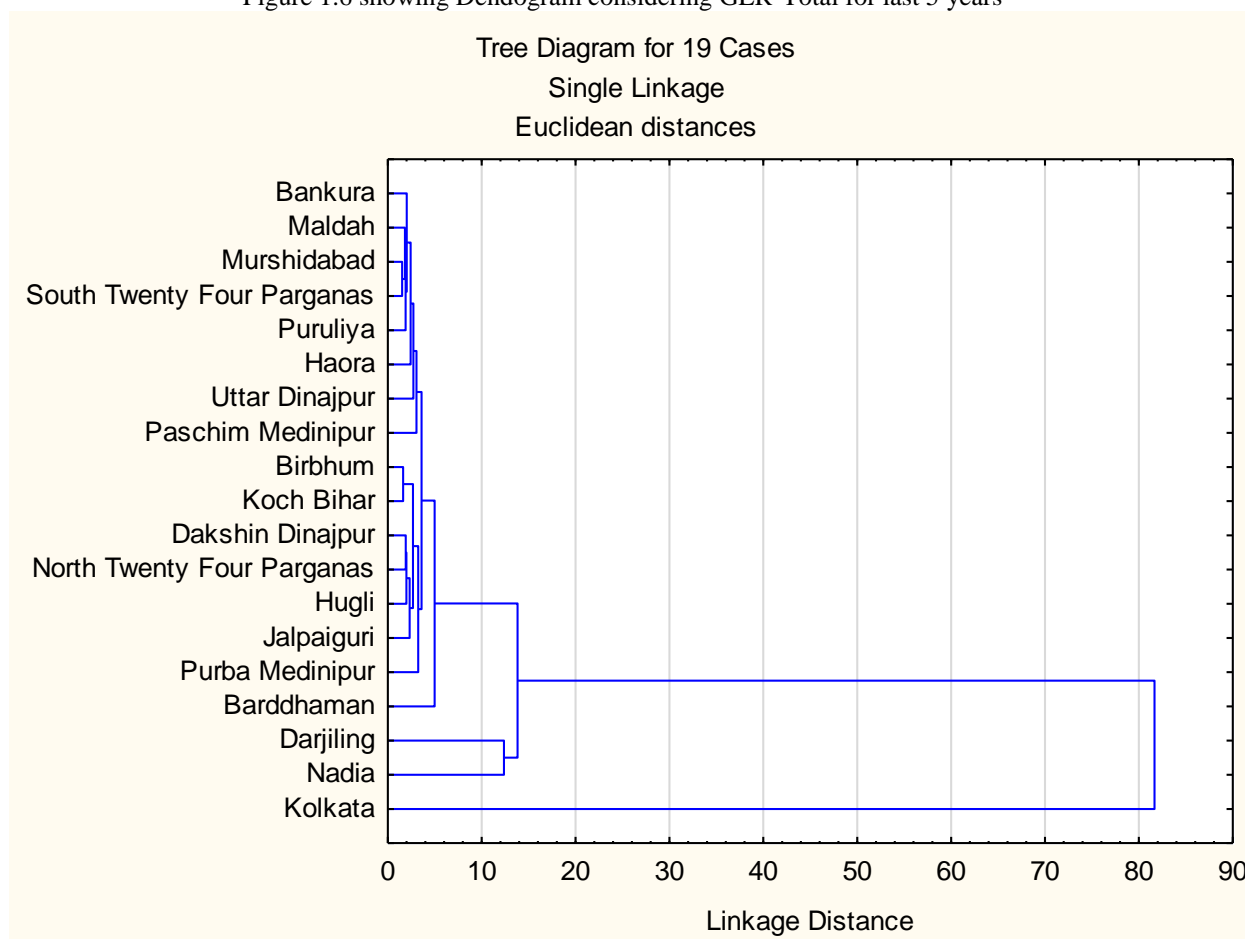
2011	2012	2013	2014	2015
1.0000	.9906	.9808	.9767	.9684
	p=.000	p=.000	p=.000	p=.000
	1.0000	.9947	.9912	.9857
		p=.000	p=.000	p=.000
		1.0000	.9985	.9951
			p=0.00	p=.000
			1.0000	.9951
				p=.000
				1.0000

Table 1.5 showing Rank Correlation Matrix (GER-Male) with p-value

2011	2012	2013	2014	2015
1.0000	.9853	.9748	.9646	.9610
	p=.000	p=.000	p=.000	p=.000
	1.0000	.9916	.9889	.9800
		p=.000	p=.000	p=.000
		1.0000	.9974	.9926
			p=0.00	p=.000
			1.0000	.9928
				p=.000
				1.0000

Therefore, the ranking are not changing significantly over the year (t). Therefore, the homogeneity is being done based on all GER-total for all the years taking district-wise data. It is being observed that ‘Kolkata’ in one group dominates all other 18 districts. It can also be stated that ‘Kolkata’, ‘Nadia’ & ‘Darjeeling’ shows more tendency to accessibility towards higher education enrolment in one cluster as compared all other 16 districts in other cluster. Statistica (trial version) has been used to determine clustering among districts.

Figure 1.6 showing Dendogram considering GER-Total for last 5 years



#### IV. CONCLUSION

AISHE database has been used to calculate GER for the districts of West Bengal using population estimates as published by MHRD. Ranking of the districts has also been made. Clustering has been derived to see the homogeneity among districts. 'Kolkata' is the districts with highest accessibility. This may be due to immigration to Kolkata from other districts. 'Bankura' is the least accessible district. West Bengal has increasing trend in GER from 13.64 in 2011 to 17.66 in 2015.

#### REFERENCES

- [1] 2015 Report Education Development Index : [http://en.unesco.org/gem-report/sites/.../2015Report\\_EDI2012.pdf](http://en.unesco.org/gem-report/sites/.../2015Report_EDI2012.pdf)
- [2] All India Survey on Higher Education, MHRD, Govt. on India: [www.aishe.gov.in](http://www.aishe.gov.in)
- [3] Bhandari, P(2012), Refining State Level Comparisons in India, Working Paper Series, Planning Commission, India
- [4] Educational Statistics at a glance(2014), MHRD, Government of India
- [5] Everitt, Brian (2011). Cluster analysis. Chichester, West Sussex, U.K: Wiley
- [6] Global Monitoring Report (2006), Planning Commission of India, Govt. of India
- [7] Global Education Monitoring Report(2015), The Education for All Development Index
- [8] OECD Report(2012), How is the global talent pool changing ?
- [9] Mehta A C,(2012), Indicators of Educational Development with focus on elementary education : Concept and Definitions
- [10] Rencher A C(2013), Methods of Multivariate Analysis, 2<sup>nd</sup> Edition, Wiley
- [11] Sarkar, D and Jhingran, D (2012), Educational Development Index, Working Paper Series, MHRD, Govt. of India
- [12] 2009 Education Indicators Technical Guidelines – UNESCO Report

- [13] Census of India 1981. Provisional Population Totals, Paper 2: Rural-Urban Distribution, Office of the Registrar General and Census Commission, India, New Delhi
- [14] Census of India 1991. Provisional Population Totals, Paper-2, Rural-Urban Distribution, Office of the Registrar General and Census Commission, India, New Delhi
- [15] Census of India 2001. Provisional Population Totals, Paper 1, West Bengal, Office of the Registrar General and Census Commission, India, New Delhi
- [16] Census of India 2011. Provisional Tables, Paper 2, Office of the Registrar General and Census Commission, India, New Delhi
- [17] Dasgupta, B. 1987. Urbanisation and Rural Change in West Bengal, *Economic and Political Weekly*, Vol. 22, No. 7, Mumbai, pp. 276-287
- [18] Giri, P. 1998. Urbanisation in West Bengal, 1951-1991, *Economic and Political Weekly*, Vol.33, No.47/48, Mumbai, pp. 3033-3038
- [19] ILGUS 2002. Urban West Bengal, Institute of Local Government and Urban Studies, Calcutta
- [20] Konar, D.N. 2009. Nature of Urbanisation in West Bengal in the Post-Independence Period, Retrieved on June 13, 2013, from [www.mimts.org](http://www.mimts.org)
- [21] Samanta, G. 2012. In Between Rural and Urban: Challenges for Governance of Non-recognized Urban Territories in West Bengal, in Jana, N.C. et al. (edited), *West Bengal, Geo-Spatial Issues*, Department of Geography, The University of Burdwan
- [22] Sita, K. and Phadke V.S. 1985. Urbanisation in Maharashtra, 1971-81, in Prasad, N. Banerjee, S and Dutt, G.K (edited), *Modern Geographical Concepts*, Department of Geography, The University of Burdwan, pp. 265
- [23] Sivaramakrishnan, K.C., Kundu, A and Singh, B.N. 2005. *Handbook of Urbanisation in India-An Analysis of Trends and Processes*, Oxford University Press, pp. 177
- [24] Vaidyanathan, K.E. 1981. Rural-Urban Distribution of Population in West Asia, *Population Geography*, 3 (1&2), pp. 96-113