RURAL HEALTH, WOMEN EMPOWERMENT AND AGRICULTURE

Issues and Challenges

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Contents

1

Health Insurance for the poor: The working of Rashtriya Swasthya Bima Yojana (RSBY) in select districts of South Bengal

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Abstract

Unplanned and lumpy expenses on hospitalizations often cause havoc in the life of poorer people. The scheme Rashtriya Swasthya Bima Yojana (RSBY) in India has attempted to provide hospitalisation care through cashless services. This paper focuses on the working of the scheme in four districts of south West Bengal through a random sample of private designated hospitals and nursing homes and treated beneficiaries. The paper attempts to provide a picture about the targeting of the scheme and also whether it has been able to successfully reduce the out-of-pocket expenditure of the poor prospective patients or not. The descriptive analysis of data proves the fact that there have been moderate achievements at reaching out to the people and targeting the beneficiaries. The inclusion of private health service providers has given the opportunity to the poor people to avail of treatment at places which they could not without the RSBY health smart card. It has also been seen that the poorer rural districts have done significantly well than the comparatively richer urban districts. However, there are areas of concern as indebtedness due to medical expenses still remains and so does unavailability of medicines. This paper can thus provide useful insights into the working of this flagship programme which is just a beginning to the global initiatives at universal health protection for all.

Keywords: *RSBY, health insurance, RSBY in Bengal*

The RSBY is a flagship program of the Indian government. It provides hospitalization coverage to the poor people in India. It is impressive not only in its scale of operation but also in its innovative approach in providing services like use of smart card technology in cashless treatment and initiation of the public-private partnership in delivery of health services. The prospective beneficiaries are provided with ₹ 30,000 limit coverage for hospitalization expenses. The pre-existing ailments are covered and there is no age limit. There is a need to pay a nominal sum of ₹ 30 annually as premium. The rest of the premium is paid by the central and state governments in the ratio of 75:25. There is a list of empanelled hospitals including government hospitals and private nursing homes/hospitals that meet the necessary IT requirements. There is a regular data flow

among the government and the service providers regarding utilization of services and settlement of claims.

The following analysis of the scheme is based on a proportionate random sample of 508 beneficiaries from hospitals in four districts of south West Bengal where there is a mix of population types.

Table 1: District wise Background Information (General)*

District	Total population	Percentage of rural population	Density of population (per sq km)	Area (sq. Km)	GDP (₹ crore) 2009-10*
Birbhum	3502387 (4)	87.20 (1)	771 (3)	4545 (3)	11431.44 (4)
Burdwan	7723663 (3)	60.13 (3)	1100 (2)	7024 (2)	40349.66 (2)
N24Pgns	10082852 (1)	42.41 (4)	2463 (1)	4094 (4)	48371.24 (1)
S24Pgns	8153176 (2)	74.39 (2)	693 (4)	9960 (1)	32394.51 (3)

Source: Census 2011*Bureau of Applied Economics & Statistics, Govt. of WB, 2011.

*The figures in the brackets depict the rankings in terms of the column variables.

Among the four selected districts Birbhum is the least populated. It is the district with the most rural population. Though area-wise Birbhum is one of the smallest it is also one among the least densely populated district. In terms of GDP generated, Birbhum is the poorest. On the other extreme North 24 Parganas is the richest district with a GDP more than four times that of Birbhum. It is also the largest district and has the least rural population much less than Birbhum. Area-wise North 24 Parganas is close to Birbhum but the density of population is the greatest in the former district, more than three times the latter. South 24 Parganas ranks second in terms of absolute population but it is the largest district in terms of area and is also very sparsely populated. The district ranks third among the four selected districts and is not very well-off. It also houses a population with three quarters in the rural areas. Burdwan also has a predominantly high rural population (60:40) and is quite densely populated, though area-wise it is quite large. As far GDP earnings are concerned Burdwan is just comfortably behind the richest among the four districts, that is North 24 Parganas.

Distribution of smart cards

Table 2: Distribution of smart cards

	India	West Bengal	% of India
Act4e Smart Cards	3,69,85,740	57,55,618	15.56

Source: RSBY website as visited on 20.04.2014 and the researcher's calculation.

Table 3: Distribution of smart cards among selected districts

	West Bengal	Selected districts		% of West Bengal
Active Smart Cards	57,55,618	Birbhum	3,35,541	5.83%
		Burdwan	6,19,250	10.76%
		N24 Parganas	3,95,600	6.87%
		S24Parganas	3,43,831	5.97%

Source: RSBY website as visited on 20.04.2014.

The Rashtriya Swasthya Bima Yojana (RSBY) was started in India on 1st October in 2007 and in West Bengal in 2008. In terms of generation of active smart cards, which might be an indicator of coverage West Bengal has a share of about 16% of the total active cards distributed in India (see Table 4.1). This data is impressive as West Bengal houses 13.2% of India's population (according to Census 2011). In West Bengal the selected districts have a varied picture to depict. The district that has the largest percentage of active card distribution among the four districts is Burdwan, with about 11% of the cards being given in the district (see Table 4.2). North 24 Parganas follow a distant behind at a far less percentage of about 7%. Birbhum and South 24 Parganas has a share of about 50% less as compared to Burdwan and both of them have a share of 6% of the total active cards distributed in West Bengal. Thus in terms of active cards Burdwan is far ahead of the remaining three districts.

Hospitalisations with RSBY active cards

Table 4: No. of Hospitalisations with RSBY active cards in India and West Bengal

	India	West Bengal	% of India
Total Hospitalisation Cases	70,97,711	7,03,415	09.91

Source: RSBY website as visited on 20.04.2014 and the researcher's calculation.

Table 5: No. of Hospitalisations with RSBY active cards in selected districts

	West Bengal	Selected districts	Absolute No.	% of West Bengal
Total Hospitalisation Cases	7,03,415	Birbhum	56,839	8.08%
		Burdwan	1,20,996	17.20%
		N24 Parganas	35,633	5.07%
		S24Parganas	16,876	2.40%

Source: RSY website and researcher's calculation.

In terms of hospitalisation of cases, West Bengal shares approximately 10% of the total cases of hospitalisation in India. Considering West Bengal to be one among 29 states in India a 10% hospitalisation is impressive and it also shows that people are able to use their active smart cards and receive treatment. Among the selected districts there are the most number of hospitalisations in Burdwan which is 17% of the total number of hospitalisations in West Bengal. Birbhum lies second with 8% of reported

hospitalisations. North 24 Parganas have 5% of the cases to its credit whereas South 24 Parganas have a dismal 2.4% of the number of hospitalisations. If the above data can be compared then it can be said that the use of cards more in Birbhum and Burdwan as compared to distribution of cards. However in North and South 24 Parganas the use of cards is less as compared to distribution of cards.

Table 6: District wise Background Information (RSBY)

District	Year of policy	Target families	Families enrolled	Hospitals (Private + Public)	Families enrolled vis-à-vis targeted	Hospital: Family Enrollment Ratio* (rounded)
Birbhum	4	5,57,486 (4)	4,29,091 (3)	26(24+2) (4)	77%	1:16,500
Burdwan	5	9,72,156 (1)	6,78,053 (1)	75(70+5) (1)	70%	1:9,000
N24Pgns	5	8,73,041 (2)	1,72,838 (4)	53(43+10) (2)	20%	1:3,200
S24Pgns	2	7,06,669 (3)	4,51,343 (2)	50(45+5) (3)	64%	1:9,000

Source: www.rsby.gov.in as on 31.05.2013, * Researcher's own calculation.

Years of RSBY experience

Both Burdwan and North 24 Parganas have the RSBY scheme going on for the fifth consecutive year. Birbhum is running into the fourth year whereas only South 24 Parganas is into the second year of the implementation. Birbhum and Burdwan both have finished the fifth year on 31st March 2014. North 24 Parganas has completed its fifth year on 14th April, 2014. South 24 Parganas has completed its current year on 31st December, 2014.

Families enrolled vis-à-vis targeted

In terms of targeting of families, N 24 Parganas has managed to enroll only 20% of the total targeted families, being the worst off in targeting among the four selected districts. South 24 Parganas has managed to enroll only 64% of the total targeted families whereas Burdwan and Birbhum have managed to cover around 70% and 77% of the targeted families respectively. This low targeting is also reflected in the hospitalisation burden in the district as described in the following section.

Hospitalisation burden

The burden on the hospitals is the least in North 24 Parganas having one empanelled hospital serving 3,200 families. For Burdwan and South 24 Parganas the situation is the same with both having 1 hospital per 9000 persons. The high enrollment in Birbhum is reflected in the low hospital to client ratio which stands at one hospital per 16,500 people enrolled.

Public-Private Divide in Hospitalisation

The RSBY scheme is a pioneer effort in health service delivery of India as it has stressed on the inclusion of the private sector into the ambit of the health sector right from its inception. In fact private nursing homes and clinics were the only health providers who were authorized to be empanelled hospitals. Later some public sector hospitals joined in the list. All the districts have a predominance of private health outlets as health service providers with North 24 Parganas having the maximum percentage of public sector hospitals. The distribution of hospitals is also uneven for example South 24 Parganas though being the largest in area has fewer hospitals. Birbhum which has a large target fulfilled in terms of enrollment also has fewer hospitals serving the population

Gender Differentiation

In the four selected districts, only Burdwan has more women as patients. All the other three had predominantly more male patients. There was no third gender found in the sample. Although less in the Birbhum, North 24 Parganas and South 24 Parganas, the percentage of women did not fall below 30% in any of the districts. This shows that women have had a fair share of representation in RSBY. The bar-diagram in Fig. 1 shows the distribution among the gender categories in absolute numbers.

Table 7: District wise Gender Differentiation

	Gender		Birbhum	Burdwan	N.24 Parganas	S 24 Parganas	Total
	Female	Count	68	151	18	16	253
		% within Name of District	44.4%	59.7%	35.3%	31.4%	49.7%
	Male	Count	85	102	33	35	255
		% within Name of District	55.6%	40.3%	64.7%	68.6%	50.1%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

Table: 8: Age details

N	Valid	508
Mean		47.67
Median		46.00
Mode		23
Std. Deviation		25.036
Minimum		1
Maximum		92

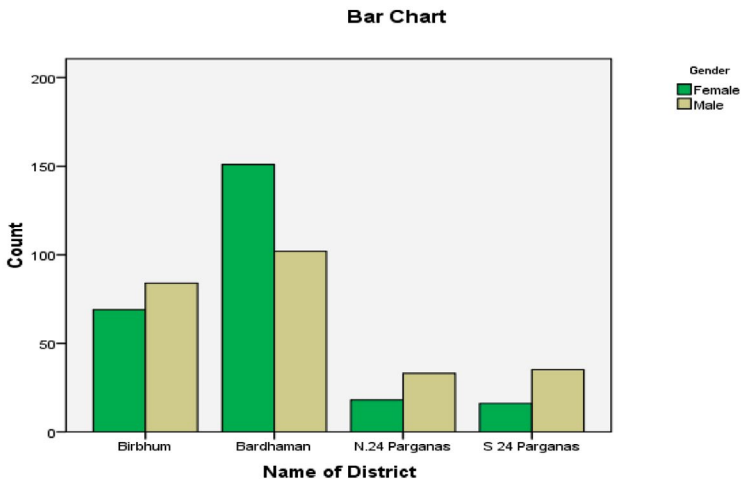

Fig. 1: Gender differentiation among selected districts (absolute numbers)

Differentiation in Age

Table.5 shows the age distribution among the patients in the sample among the four districts. The ages have been divided in to four categories as described below the table. The total sample is weighed heavily with the aged and the middle aged having a total of 83% of the sample having ages above 30 years. The mean age of the sample is 48 years and the median age in 46 years.

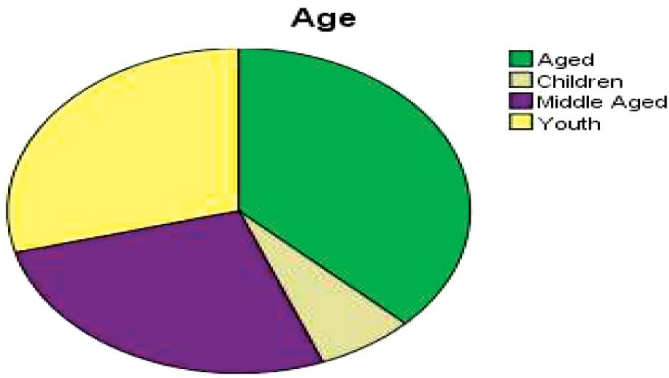

Fig. 2: Age differentiation among selected districts (percentages)

The minimum age is 1 year whereas the maximum age is 92 years. The pie-chart below shows the age distribution in percentages. The children and the youth constitute only 7% and 8% of the total sample respectively.

Among the districts, North 24 Parganas which is the most urbane of the districts has more than 60% of its sample as aged population. The other districts have an aged client population in the sample in the range of 32% to 47%. The maximum percentage of children and youth is in Birbhum though, standing at a meagre 13% and 12% respectively. The youth is in fact very less in North and South 24 Parganas. The middle-aged is the maximum in Burdwan with 53% closely followed by South 24 Parganas which has a middle-aged population of 47%. In fact the middle aged population has a more or less even distribution among the districts with a range of percentages between 33% and 53%.

Table 9: District wise Differentiation in Age (Children – up to 14 years, Youth- up to 30 years, Middle aged- up to 60 years, Aged – more than 60 years)

	Age	Birbhum	Burdwan	N.24 Parganas	S 24 Parganas	Total
Aged	Count	57	83	32	24	196
	% within Name of District	37.3%	32.8%	62.7%	47.1%	38.5%
Children	Count	20	12	2	2	36
	% within Name of District	13.1%	4.7%	3.9%	3.9%	7.1%
Middle Aged	Count	58	134	17	24	233
	% within Name of District	37.9%	53.0%	33.3%	47.1%	45.8%
Youth	Count	18	24	0	1	43
	% within Name of District	11.8%	9.5%	.0%	2.0%	8.4%
Total Count % within Name of District		153 100.0%	253 100.0%	51 100.0%	51 100.0%	508 100.0%

Marital Status

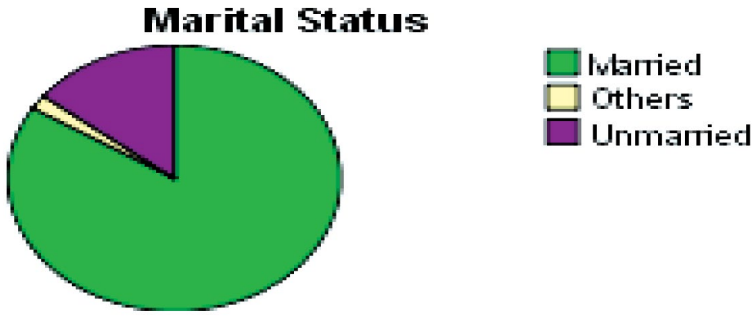

Fig. 3: Marital Status among selected districts (absolute values)

Almost 84% of the respondents were married. This was obvious considering the fact that the sample consisted of mainly aged and middle-aged respondents. 14% was unmarried which comprised the youth and the children. Around 2% of the respondents included the separated, widowed and d4orced people. The maximum percentage of this category was in South 24 Parganas. Among the districts Birbhum had the maximum number of unmarried people and the most married people was in North 24 Parganas and South 24 Parganas (see Table 10)

Table 10: District wise differentiation in Marital Status

	Marital Status		**Birbhum**	**Burdwan**	**N.24 Parganas**	**S 24 Parganas**	**Total**
	Married	Count	121	213	47	45	426
		% within Name of District	79.1%	84.2%	92.2%	88.2%	83.7%
	Others	Count	1	4	1	3	9
		% within Name of District	.7%	1.6%	2.0%	5.9%	1.8%
	Unmarried	Count	31	36	3	3	73
		% within Name of District	20.3%	14.2%	5.9%	5.9%	14.3%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

Differentiation in Religion

Most of the respondents were Hindus with more than 66% of the respondents being followers of the religion. Twenty-five percent of the sample was followers of Islamism. The remaining respondents were from the religious faith of Christianity.

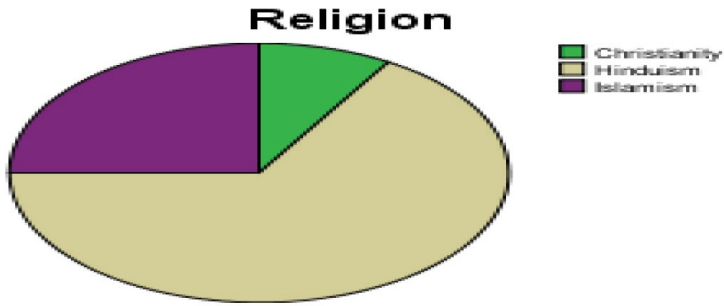

Fig. 4: Differentiation in Religion

Among the districts, the distribution of the respondents from the Hindu religion was divided in an even manner across the districts. All the districts had a range of people

from 60% to 70% who were followers of Hinduism. Birbhum had a lot of Christian respondents as compared to the other districts. Among the followers of Islamism, Burdwan had the maximum number of respondents from Islamism.

Table 11: District wise Differentiation in Religion

			Name of District				
			Birbhum	*Burdwan*	*N.24 Parganas*	*S 24 Parganas*	*Total*
Religion	Christianity	Count	38	5	1	0	44
		% within Religion	86.4%	11.4%	2.3%	.0%	100.0%
		% within Name of District	24.8%	2.0%	2.0%	.0%	8.6%
	Hinduism	Count	93	174	36	34	337
		% within Religion	27.6%	51.6%	10.7%	10.1%	100.0%
		% within Name of District	60.8%	68.8%	70.6%	66.7%	66.2%
	Islamism	Count	22	74	14	17	127
		% within Religion	17.3%	58.3%	11.0%	13.4%	100.0%
		% within Name of District	14.4%	29.2%	27.5%	33.3%	25.0%
Total		Count	153	253	51	51	508
		% within Religion	30.1%	49.7%	10.0%	10.0%	100.0%
		% within Name of District	100.0%	10f0.0%	100.0%	100.0%	100.0%

Differentiation in Caste

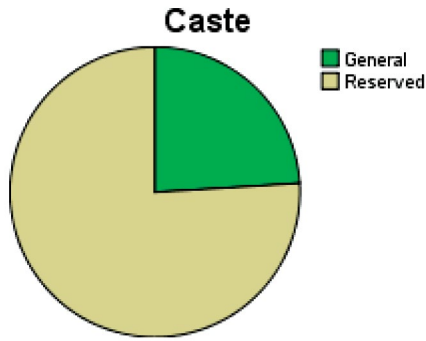

Fig 5: Differentiation in caste (in percentages)

The above figure shows that almost three quarters of the respondents were from the reserved caste which included SCs, STs and OBCs. The district-wise differentiation is described in the following table. In all the districts the predominance of representation

was from the reserved caste with the range of followers being from 71% to 88%. The maximum percentage of reserved caste was in South 24 Parganas in the selected sample. North 24 Parganas was next followed by Burdwan and Birbhum respectively.

Table 12: District wise Differentiation in Caste

			Name of District				
			Birbhum	**Burdwan**	**N.24 Parganas**	**S 24 Parganas**	**Total**
Caste	General	Count	45	61	10	6	122
		% within Caste	36.9%	50.0%	8.2%	4.9%	100.0%
		% within Name of District	29.4%	24.1%	19.6%	11.8%	24.0%
	Reserved	Count	108	192	41	45	386
		% within Caste	28.0%	49.7%	10.6%	11.7%	100.0%
		% within Name of District	70.6%	75.9%	80.4%	88.2%	75.8%
Total		Count	153	253	51	51	508
		% within Caste	30.1%	49.7%	10.0%	10.0%	100.0%
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

Differentiation in Education

Only eight percent of the respondents were illiterates. However, twenty-two percent of the respondents were literates but without any formal schooling. Thirty percent had read up-to Class V whereas twenty-percent had read up-to Class IX. Around thirteen percent had studied till High School. Only four percent however, managed to be in college.

Table 13: Differentiation in Education

		Frequency	**Percent**	**Cumulative Percent**
Valid	Illiterate	42	8.4	8.4
	Literate but no schooling	114	22.4	30.8
	Upto Class V	154	30.3	61.1
	Upto Class IX	112	22.0	83.1
	High School	65	12.8	95.9
	College	21	4.1	100.0
	Total	508	100.0	

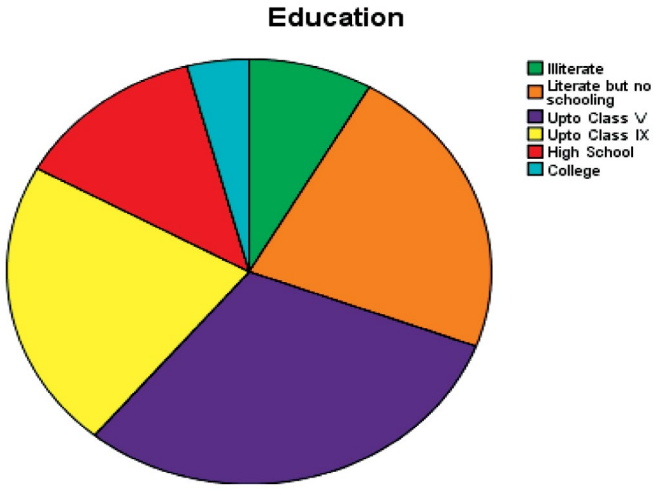

Fig 6: Differentiation in education (in percentages)

Table 14: District wise Differentiation in Education

			Name of District				
			Birbhum	**Bardhaman**	**N.24 Parganas**	**S 24 Parganas**	**Total**
Education	Illiterate	Count	21	15	2	4	42
		% within Name of District	13.7%	5.9%	3.9%	7.8%	8.3%
	Literate but no schooling	Count	45	47	13	9	114
		% within Name of District	29.4%	18.6%	25.5%	17.6%	22.4%
	Up-to Class V	Count	35	89	17	13	154
		% within Name of District	22.9%	35.2%	33.3%	25.5%	30.3%
	Upto Class IX	Count	25	60	11	16	112
		% within Name of District	16.3%	23.7%	21.6%	31.4%	22.0%
	High School	Count	20	31	7	7	65
		% within Name of District	13.1%	12.3%	13.7%	13.7%	12.8%
	College	Count	7	11	1	2	21
		% within Name of District	4.6%	4.3%	2.0%	3.9%	4.1%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

Most of the respondents who were illiterate were from Birbhum followed by South 24 Parganas. North 24 Parganas had very less illiterates. However it had a quarter of its respondents who were literates but had no formal schooling. This group was also very high in Birbhum. More than thirty percent of the respondents of South 24 Parganas had studied upto Class IX. The respondents were equally divided in terms of being in the high-school educated group across districts. North 24 Parganas had the least number of respondents who had studied up to college. On the whole the respondents knew the letters but were predominantly educated up till the middle school.

Differentiation in Occupation Types

The respondents were divided in occupational categories among agricultural labour, ~~cult4ator,~~ small business and elementary workers. House-wives were the predominant category and students followed a close third with 10% of the population being in that group. Skilled workers formed the smallest group with 7% of respondents in it.

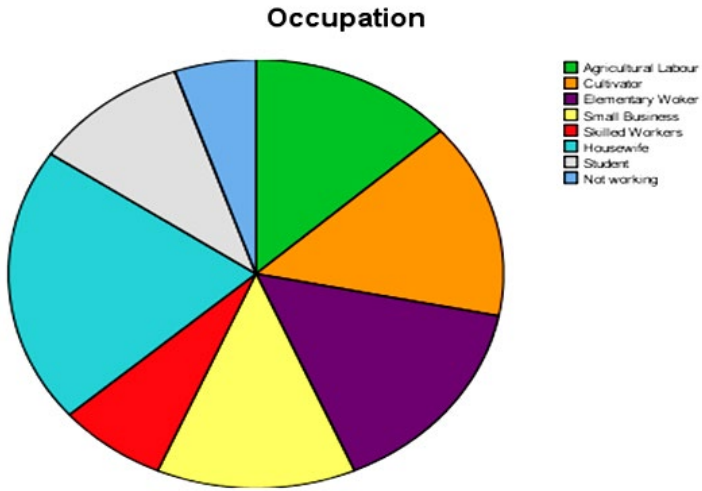

Fig 7: Differentiation in occupation types (in percentages)

Table 15: Occupation Types

		Frequency	Percent	Cumulative Percent
Valid	Agricultural-Labour	68	13.4	13.6
	Cultivator	75	14.7	28.3
	Elementary -Worker	78	15.3	43.6
	Small Business	66	13.0	56.6

	Skilled Workers	36	7.1	63.7
	Housewife	106	20.8	84.5
	Student	52	10.2	94.7
	Not working	27	5.3	100.0
	Total	508	100.0	

Table 16: District wise Differentiation in Occupation Types

			Name of District				Total
			Birbhum	**Burdwan**	**N.24 Parganas**	**S 24 Parganas**	
Occupation	Agricultural Labour	Count	22	34	8	4	68
		% within Name of District	14.4%	13.4%	15.7%	7.8%	13.4%
	Cultivator	Count	19	38	8	10	75
		% within Name of District	12.4%	15.0%	15.7%	19.6%	14.7%
	Elementary Worker	Count	27	32	10	9	78
		% within Name of District	17.6%	12.6%	19.6%	17.6%	15.3%
	Small Business	Count	13	33	7	13	66
		% within Name of District	8.5%	13.0%	13.7%	25.5%	13.0%
	Skilled Workers	Count	13	16	4	3	36
		% within Name of District	8.5%	6.3%	7.8%	5.9%	7.1%
	Housewife	Count	21	69	9	7	106
		% within Name of District	13.7%	27.3%	17.6%	13.7%	20.8%
	Student	Count	28	19	2	3	52
		% within Name of District	18.3%	7.5%	3.9%	5.9%	10.2%

	Not working	Count	10	12	3	2	27
		% within Name of District	6.5%	4.7%	5.9%	3.9%	5.3%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

The district-wise differentiation of occupation types is described in the Table 16. Birbhum and Burdwan had the maximum number of agricultural labour. Cultivators were mostly from Burdwan in terms of absolute numbers followed by Birbhum. Elementary workers were twenty percent of the sample in North 24 Parganas. In terms of percentages they were lesser in numbers in the other three districts. Twenty-five percent of the sample of South 24 Parganas was small businessmen. In Birbhum this group was small but in Burdwan and North 24 Parganas this group constituted around thirteen percent of the sample. Skilled workers formed less than ten percent of the respondents from each district but were more or less.

Differentiation in Home Ownership

The data on home ownership was collected on a family basis, that is, the response was taken to be positive if the respondent stayed in a house owned by a either the self, spouse or parents. In this way the responses for home ownership in the entire sample was shared between positive and negative responses. Almost 52% of the respondents had no ownership homes and almost 48% of the respondents had an owned shelter.

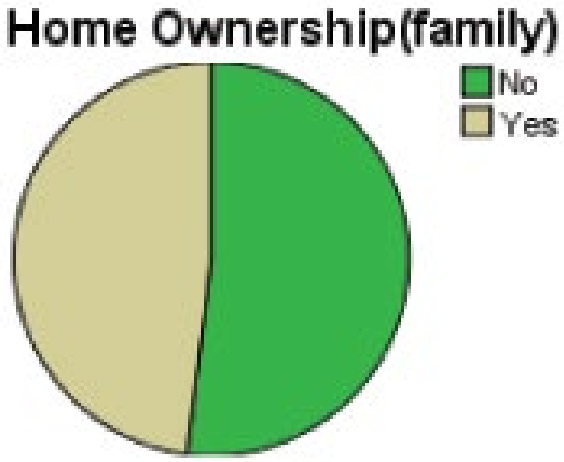

Fig. 8: Differentiation in home ownership (in percentages)

Table 17: District wise Differentiation in Home Ownership*

			Name of District				
			Birbhum	**Burdwan**	**N.24 Parganas**	**S 24 Parganas**	**Total**
Home Ownership (family)	No	Count	104	108	25	27	264
		% within Name of District	68.0%	42.7%	49.0%	52.9%	51.9%
	Yes	Count	49	145	26	24	244
		% within Name of District	32.0%	57.3%	51.0%	47.1%	47.9%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

*(on a family basis)

Among the districts, Birbhum has the most unequal share of home ownership with a bias towards non-ownership. The other districts have a more or less equal share of ownership and non-ownership with Burdwan and North 24 Parganas being slightly tilted towards more ownership than non-ownership.

Indebtedness due to Healthcare

The pie chart shows the indebtedness due to the present health problem among the respondents. Since RSBY involves a cashless smart card transaction thirty-two percent of the respondents have said that they did not have to take any money for the treatment from formal or informal sources.

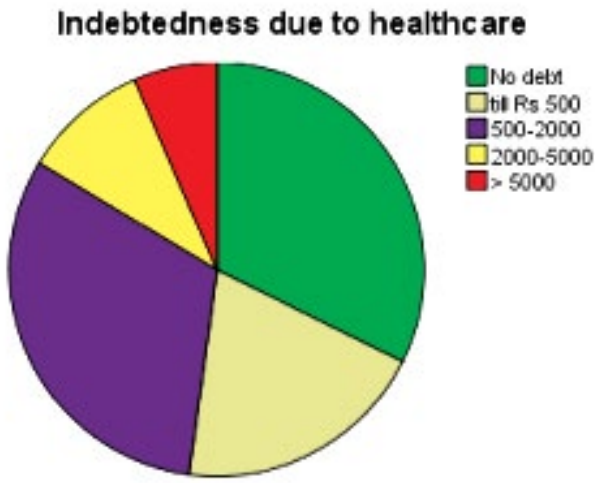

Fig. 9: Differentiation in indebtedness (in percentages)

However there were still quite a number of people who had to take debt from others for the treatment. Around twenty percent of the people had to take a loan of less than five hundred rupees. Thirty-two percent of the people had a debt taken from a range of five hundred to two thousand rupees. Ten percent of the respondents had a debt of more than two thousand rupees to less than five thousand rupees. And a low but significant 6.5% of the people had debt of more than five thousand rupees.

Among the districts, Burdwan has the maximum people without a debt, in absolute numbers and almost 42% of the total in percentages. The other three districts have almost one-third of the population without debt. Approximately thirty percent of the respondents in all the three districts have incurred a debt of five hundred to two thousand rupees each. Although the debt value decreases in the higher brackets, there are still some people who have to take money from various sources to meet the healthcare demands.

Table 18: District wise Differentiation in Indebtedness due to healthcare

Indebtedness due to healthcare			**Birbhum**	**Burdwan**	**N.24 Parganas**	**S 24 Parganas**	**Total**
	No debt	Count	34	105	12	13	164
		% within Name of District	22.2%	41.5%	23.5%	25.5%	32.2%
	till ₹ 500	Count	35	45	12	9	101
		% within Name of District	22.9%	17.8%	23.5%	17.6%	19.8%
	500-2000	Count	51	75	17	17	160
		% within Name of District	33.3%	29.6%	33.3%	33.3%	31.4%
	2000-5000	Count	21	15	6	8	50
		% within Name of District	13.7%	5.9%	11.8%	15.7%	9.8%
	> 5000	Count	12	13	4	4	33
		% within Name of District	7.8%	5.1%	7.8%	7.8%	6.5%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

A district-wise analysis is described in the table below. In Birbhum, a significant thirty-four percent of the respondents said that they went to a private doctor, the number being much higher than the other three districts. Burdwan and North 24 Parganas had an equal percentage of respondents voting for private doctors or government doctors for treatment before the initiation of the RSBY. It can be clearly seen that access to a private doctor is more when the respondents cannot choose a government hospital. North 24 Parganas which is a comparatively advanced district has only one respondent who preferred the "other" alternative.

Table 19: District wise Differentiation in Treatment before RSBY

			Name of District				
			Birbhum	**Burdwan**	**N.24 Parganas**	**S 24 Parganas**	**Total**
Treatment before RSBY	Private hospital	Count	8	11	2	2	23
		% within Name of District	5.2%	4.3%	3.9%	3.9%	4.5%
	Private doctor	Count	53	36	9	6	104
		% within Name of District	34.6%	14.2%	17.6%	11.8%	20.4%
	Govmnt Hospital	Count	70	157	30	32	289
		% within Name of District	45.8%	62.1%	58.8%	62.7%	56.8%
	Govnmnt doctor	Count	16	38	9	9	72
		% within Name of District	10.5%	15.0%	17.6%	17.6%	14.1%
	Others	Count	6	11	1	2	20
		% within Name of District	3.9%	4.3%	2.0%	3.9%	3.9%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

Differentiation in Source of Indebtedness

The table and the following pie chart below show the differences in the way the respondents collected money for the treatment. Thus it shows the sources from which indebtedness occurred. The respondents who have not taken a loan or has borrowed money, that is, has not fallen into debt comprises the 'Not Applicable' category. Other than that relatives and friends remained a handy source from where the respondents could obtain money for the treatment. Loans from formal financial institutions formed a very negligible part as a source of indebtedness. In that only in Birbhum six percent of the respondents took recourse to bank loans. In North and South 24 Parganas there was no one who had gone to a formal institution for financial help. However informal lending institutions like the moneylenders played a significant role in lending money to people in times of healthcare needs. In the latter group Birbhum occupied the leading position. Except South 24 Parganas all the other three districts had three to four percent of the respondents also resorting to selling of property as a means of obtaining money for treatment.

Table 20: District wise Differentiation in sources of Indebtedness

		Source of indebtedness	Birbhum	Burdwan	N.24 Parganas	S 24 Parganas	Total
	Relatives/ Friends	Count	56	88	30	34	208
		% within Name of District	36.6%	34.8%	58.8%	66.7%	40.9%
	Sold property	Count	6	7	1	0	14
		% within Name of District	3.9%	2.8%	2.0%	.0%	2.8%
	Moneylenders	Count	47	48	8	4	107
		% within Name of District	30.7%	19.0%	15.7%	7.8%	21.0%
	Bank loan	Count	9	6	0	0	15
		% within Name of District	5.9%	2.4%	.0%	.0%	2.9%
	Not Applicable	Count	35	104	12	13	164
		% within Name of District	22.9%	41.1%	23.5%	25.5%	32.2%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

Differentiation in Treatment before RSBY

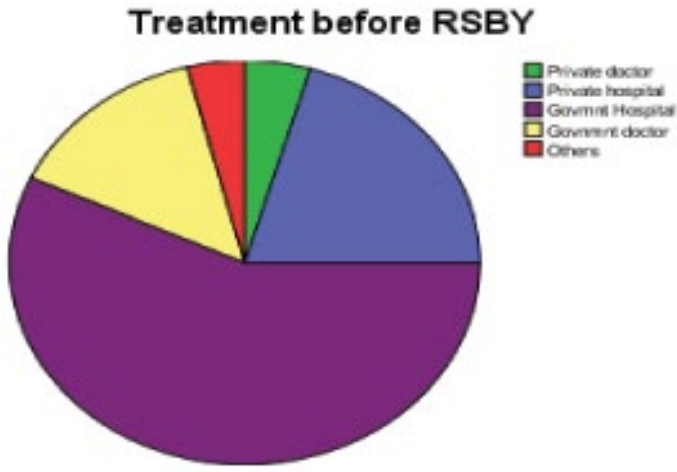

Fig. 11: Differentiation in ttreatment before RSBY (in percentages)

The pie-chart depicts the alternates which the respondents availed of for treatment of health problems before the commencement of RSBY. When the respondents were asked about the alternates which they chose for treatment majority referred to government hospitals as the most preferred alternate. However one in every five on an average said that they went to a private doctor for treatment. There were also fourteen percent of the people who went to a government doctor (i.e. a doctor attached to a government hospital but who practiced outside it) for treatment. A very low percentage of the sample also approached the private hospitals for treatment. Some of the respondents however did not prefer spending money on healthcare and preferred quacks or went to medicine shops to take medicines. They formed the group of 'others'.

Differentiation in Source of Information on RSBY

The most popular source of information for the respondents was word of mouth from the grassroots workers.

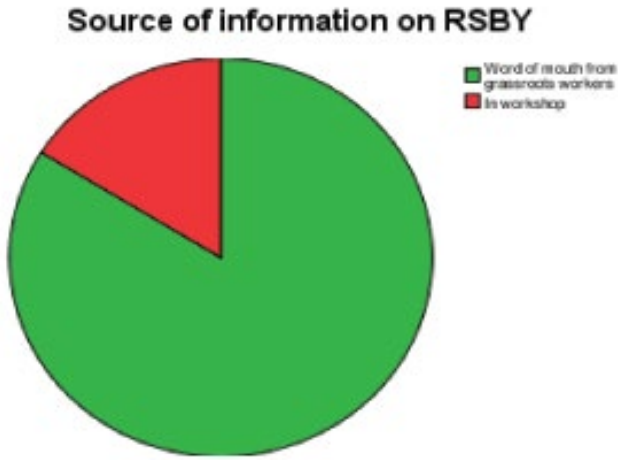

Fig. 12: Differentiation in source of information on RSBY (in percentages)

Table 21: District wise Differentiation in Source of Information on RSBY

		Source of Information on RSBY	Birbhum	Burdwan	N.24 Parganas	S 24 Parganas	Total
	Word of mouth from grassroots workers	Count	128	206	48	44	426
		% within Name of District	83.7%	81.4%	94.1%	86.3%	83.7%
	In workshop	Count	25	47	3	7	82
		% within Name of District	16.3%	18.6%	5.9%	13.7%	16.1%

Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

Eighty-four percent of the respondents recollected that they had heard about the scheme from local party workers, ASHA workers, Panchayat members etc. Only sixteen percent of the respondents said that they heard it from workshops organised by the government.

Among the districts North 24 Parganas had only six percent of its respondents acknowledging the importance of workshops as sources of information of RSBY. The other districts had at least more than fourteen percent of respondents who participated in a workshop and then had come to know of the scheme.

Differentiation in treatment types

RSBY has a lot of options and choices in the treatment packages. However there are certain broad categories under which specialized treatment types are listed. The following pie-diagram depicts the distribution of patients across treatment types.

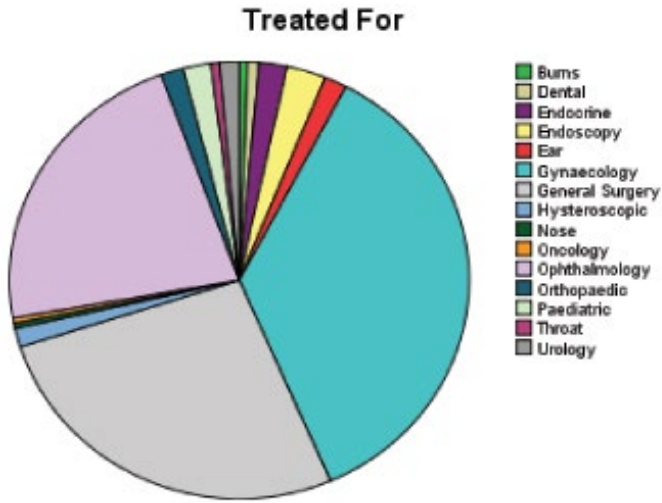

Fig. 13: Differentiation in treatment types (in percentages)

The most common package that was used for treatment under the RSBY scheme was in Gynaecology. In this again there was a majority of delivery cases and a few other complications. Next there were a lot of cases treated under general surgery. The third major treatment area was in ophthalmology primarily cataract operations of the aged. The other areas of treatment were shared between various categories like dental, endocrine, endoscopy, ear, nose etc. An age-wise differentiation of treatment types reveals that mostly the youth were treated for burns followed by children and middle-

aged. The dental and nasal problems were all treated for the children. The middle-aged were treated for gynecological, endoscopic and hysteroscopic ailments. Ears, the eyes and orthopaedic treatments were mostly problems for the aged. Problems in general surgery were mostly for the aged, followed by the middle-aged and the youth. Table 23 depicts a district-wise differentiation of treatment types. Majority of the Endocrine patients came from the Birbhum district whereas the dental patients were distributed over the districts. Patients with ear, endoscopic and gynecological problems came from Burdwan district. Compared to Burdwan, Birbhum had a predominance of Pediatric, Orthopaedic, ophthalmological and throat related problems treated under RSBY.

Table 22: Age-wise Differentiation in Treatment Types

Treatment Type Vs. Age	Aged	Children	Middle Aged	Youth	Total
Burns	0	3	3	6	12
Dental	0	4	0	0	4
Endocrine	6	1	3	0	10
Endoscopy	6	0	7	1	14
Ear	4	2	2	0	8
Gynaecology	13	3	154	12	182
General Surgery	61	3	44	16	124
Hysteroscopic	1	0	6	0	7
Nose	0	2	0	0	2
Neo Natal	0	2	0	0	2
Oncology	2	0	0	0	2
Ophthalmology	92	5	11	5	113
Orthopaedic	5	1	1	1	8
Paediatric	0	10	0	0	10
Throat	1	0	0	2	3
Urology	5	0	2	0	7
Total	196	36	233	43	508

Table 23: District wise Differentiation in Treatment Types

		Name of District				Total
		Birbhum	Burdwan	N.24 Parganas	S 24 Parganas	
Dental	Count	1	1	1	1	4
	% within Treated For	25.0%	25.0%	25.0%	25.0%	100.0%
Endocrine	Count	5	4	0	1	10
	% within Treated For	50.0%	40.0%	.0%	10.0%	100.0%

Endoscopy	Count	5	9	0	0	14
	% within Treated For	35.7%	64.3%	.0%	.0%	100.0%
Ear	Count	2	5	0	1	8
	% within Treated For	25.0%	62.5%	.0%	12.5%	100.0%
Gynaecol-ogy	Count	27	121	15	19	182
	% within Treated For	14.8%	66.5%	8.2%	10.4%	100.0%
General Surgery	Count	40	70	11	14	135
	% within Treated For	29.6%	51.9%	8.1%	10.4%	100.0%
Hystero-scopic	Count	4	1	0	2	7
	% within Treated For	57.1%	14.3%	.0%	28.6%	100.0%
Nose	Count	2	0	0	0	2
	% within Treated For	100.0%	.0%	.0%	.0%	100.0%
Oncology	Count	1	1	0	0	2
	% within Treated For	50.0%	50.0%	.0%	.0%	100.0%
Ophthal-mology	Count	51	30	22	10	113
	% within Treated For	45.1%	26.5%	19.5%	8.8%	100.0%
Orthopaedic	Count	5	1	1	1	8
	% within Treated For	62.5%	12.5%	12.5%	12.5%	100.0%
Paediatric	Count	5	4	0	1	10
	% within Treated For	50.0%	40.0%	.0%	10.0%	100.0%
Throat	Count	2	1	0	0	3
	% within Treated For	66.7%	33.3%	.0%	.0%	100.0%
Urology	Count	3	3	0	1	7
	% within Treated For	42.9%	42.9%	.0%	14.3%	100.0%
	Count	153	253	51	51	508
	% within Treated For	30.1%	49.7%	10.0%	10.0%	100.0%

Medicines bought from outside

The following table depicts the information on whether medicines were bought from outside by the patients getting treated under RSBY. It shows that more than three quarters of the respondents had to buy medicines from outside by paying a price.

Table 24: District wise Differentiation in Medicines bought from outside

		Medicines bought from outside	Birbhum	Burdwan	N.24 Parganas	S 24 Parganas	Total
	Yes	Count	116	200	41	38	395
		% within Name of District	75.8%	79.1%	80.4%	74.5%	77.6%
	No	Count	37	53	10	13	113
		% within Name of District	24.2%	20.9%	19.6%	25.5%	22.2%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

A district-wise analysis shows the same trend equally across all districts. The percentage was the maximum in North 24 Parganas where over 80% of the people had to buy medicines from outside the hospital.

Availability of Bed

Fig 14: Availability of bed (in percentages)

The above pie-chart depicts that a bed was not available to majority of the patients whom the doctor finished checking and advised hospitalisation. The time span taken was half-an-hour. However a significant forty-two percent said that they received a bed within thirty minutes of the doctor's final diagnosis.

Table 25: District wise Differentiation in Availability of Bed

		Bed Was Available	Birbhum	Burdwan	N.24 Parganas	S 24 Parganas	Total
	Yes	Count	78	103	24	11	216
		% within Name of District	51.0%	40.7%	47.1%	21.6%	42.4%
	No	Count	75	150	27	40	292
		% within Name of District	49.0%	59.3%	52.9%	78.4%	57.4%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

Among the districts, Birbhum scored the best with more than fifty percent of the respondents getting a bed within half-an-hour of their final diagnosis. North 24 Parganas came a close second. Burdwan, too, had more than forty percent respondents who rece4ed the fair treatment. However, it was South 24 Parganas which had a dismal performance in this aspect. Only twenty-two percent of the patients interviewed got a bed available within thirty minutes.

Time Lag before the visit of a doctor

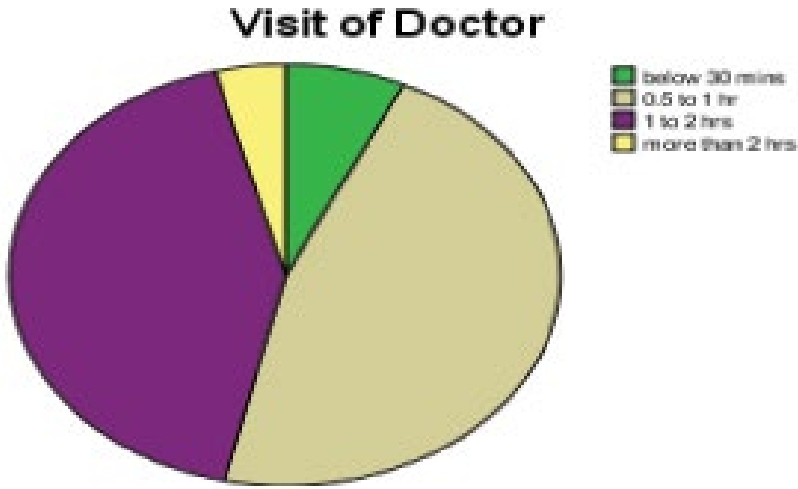

Fig. 15: Time Lag before the Visit of a Doctor (in percentages)

Table 26: District wise Differentiation in Time Lag before the Visit of a Doctor

		Visit of Doctor	Birbhum	Burdwan	N.24 Parganas	S 24 Parganas	Total
	below 30 mins	Count	21	9	4	2	36
		% within Name of District	13.7%	3.6%	7.8%	3.9%	7.1%
	0.5 to 1 hr	Count	64	124	24	24	236
		% within Name of District	41.8%	49.0%	47.1%	47.1%	46.4%
	1 to 2 hrs	Count	59	112	22	22	215
		% within Name of District	38.6%	44.3%	43.1%	43.1%	42.2%
	more than 2 hrs	Count	9	8	1	3	21
		% within Name of District	5.9%	3.2%	2.0%	5.9%	4.1%
Total		Count	153	253	51	51	508
		% within Name of District	100.0%	100.0%	100.0%	100.0%	100.0%

According to the above pie diagram a very low percentage of the respondents had to wait below thirty minutes before getting checked by the doctor. The maximum number of respondents had to wait from thirty minutes to an hour before the doctor visited them.

Also about forty-two percent of the patients had to wait for an hour to two hours before the doctor came and checked the patients. Though of a less percentage, but still it is worth mentioning that four percent of the patients had to wait for more than two hours before they got a call from the doctor's chamber. For Birbhum, eighty percent of the respondents had to wait for the doctor for more than half-an-hour to two hours. And this percentage is almost similar across districts. Patients who to wait for more than two hours for the doctor belonged mostly to Birbhum and South 24 Parganas. This percentage was lowest for North 24 Parganas.

Differentiation in Visitors Allowed

The above pie-diagram describes the fact that majority of the hospitals maintained the routine of visiting hours for the patients. This was expected as all the health service institutions were from the pr4ate sector. Some of the bigger hospitals also imposed restrictions during the visiting hours too and six percent of the accompanying persons reported that they could visit the patients only with great difficulty. Some of the informal and small pr4ate clinics allowed the patients to be visited all the time. In this last group the district that stood out was South 24 Parganas.

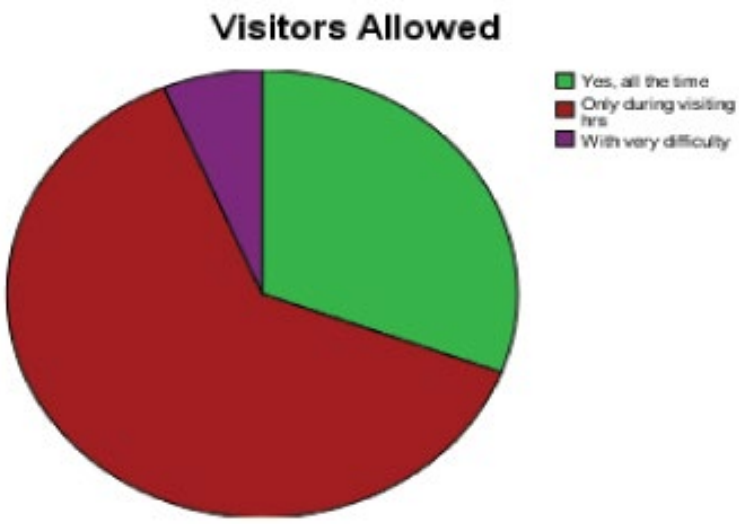

Fig. 16: Allowing Visitors (in percentages)

There in more than eighty percent of the hospitals the visitors were allowed to meet the patients all the time (see Table 4.21). In North 24 Parganas none of the institutions permitted that. There again the visitors were allowed to visit only during visiting hours and the accompanying people reported that there was not much of a restriction during the visiting hours. Restrictions were imposed in thirteen percent of the hospitals in Birbhum which is interesting as it is a predominantly rural district where some new private hospitals have been set up.

Findings

The functioning of the scheme RSBY was studied in details from various dimensions across the four selected districts. There were both similarities and dissimilarities in the experiences of these four districts.

North 24 Parganas was the smallest district with the largest population and therefore had the largest density of population. It has the second highest number of designated hospitals. It was also the most urbane district with maximum generation of income. However, it fell behind Burdwan in the distribution of smart cards and had the least families enrolled against those which were targeted though the scheme was running for five years in the district. Birbhum was quite in contrast to North 24 Parganas. It was the district with the least total population but had the most rural population. It was not very big in area but had a low density of population. It was poorest earning member among the four districts. Though it had the least distribution of smart cards and the least number of hospitals, it had been most impressive in hospitalisation cases and in enrolling families' vis-à-vis targeting them. The burden on each of the hospitals was

the most in Birbhum, followed by Burdwan and South 24 Parganas. It was however the least in North 24 Parganas.

The share of women was a minimum of 30% in all the districts. There was an enthusiastic coverage of women beneficiaries that showed the positive outreach of RSBY to the women in the target group. The sample consisted of mostly middle-aged and elderly people. Thus there was no evidence of cream-skimming, that the older beneficiaries were excluded, was not found in the present sample. The mean age was 48 years. Most of the beneficiaries were married. Most of the respondents were Hindus. Birbhum had more Christians than other districts whereas Burdwan had more Muslims than others districts. More than 70% of the beneficiaries were from the reserved category in each of the district. Considering ownership of one's shelter to be an indicator of economic well-being, the sample represented a slight majority of the beneficiaries who had no owned shelter of their own. The three most common treatment packages that were used by the beneficiaries were in Gynaecology, General Surgery and Ophthalmology. The sample had 30% of the respondents who were either illiterate or did not have any formal schooling. Among the women, majority were housewives and among the men, majority were cultivators, agricultural labourers, elementary workers and small businessmen.

Almost 70% of the beneficiaries had incurred a debt for the treatment. The number of people in debt was comparatively less in Burdwan. Informal sources of lending like friends, relatives and money-lenders, still provided an easy source of credit. Some of the beneficiaries had also resorted to selling of property for the treatment. Borrowing money from moneylenders was particularly prevalent in Birbhum. Selling of property was resorted to in Birbhum and Burdwan as compared to the other two districts. However the out-of-pocket expenditure that was incurred by the beneficiaries in the sample was mainly due to initial panic, transportation and medicines. The operation and the hospitalisation charges that were saved due to RSBY would have otherwise resulted in a much higher out-of-pocket expenditure.

Government hospitals, doctors attached to government hospitals and doctors practising in private chambers were common sources of treatment before the scheme RSBY was introduced. Some of the beneficiaries confessed that they had also gone to unregistered medical practitioners for surgery before they were given a chance to be treated in RSBY. Private hospitals were not a very common source for treatment much due to the escalated expenses. The workers at the grassroots levels in the villages and municipalities were the most important source of information about RSBY to the prospective beneficiaries. The group consisted of mainly ASHA workers, local level party workers and Panchayat members. Workshops conducted by the hospitals formed a second source of information but was quite insignificant in importance. It was found in the sample that though Birbhum and Burdwan had the lowest levels of literacy at 70.90% and 77.15% respectively (Census, 2011), they had more enrollment rates vis-à-vis targeted than the comparatively more literate districts of North 24 Parganas (literacy rate 84.95%) and South 24 Parganas (literacy rate 78.57%). More than 75% of the respondents had to buy medicines from

outside and it was almost uniform across the districts with North 24 Parganas having the most cases.

Thus it is seen that RSBY has made a modest beginning in the districts which may well reflect the picture elsewhere in the state. The people are coming for treatment and the inclusion of the private hospitals and nursing homes in the service delivery had boosted up the treatment of surgical patients. The poorer districts have done relatively well though there remains an area of concern. The fact that there is still indebtedness and expenses on medicines bothering the poor patients leaves scope for positive intervention from planners and policy makers to make this elaborate welfare programme a grand success in the future.

2

Gendered Allocation of Household Labour: The Gender Ideology Perspective

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Abstract

Notwithstanding significant rise in awareness and activism in the field of empowerment of women, and in spite of women's increased commitment to the labour force market and their associated political and social achievements, their advances have not been paralleled in the familial sphere. The vast majority of household work is still performed by women. In the patriarchy-dominated Indian society household labour is largely believed to be the responsibility of women—daughters, wives and mothers— mostly irrespective of their marital status, even their social, economic, and educational background. An egalitarian distribution of household labour must be the stepping stone in attaining gender equality not only in the private/domestic sphere, but also in the public/social sphere. Since charity should begin at home, understanding the conditions in which such a distribution can be achieved is imperative to facilitate gender equality in the home-space, which is in itself a major empowerment of women. No empowerment is possible in conditions of inequality, and unless a daughter or a wife or a mother is given an equality of status in respect of household work with a brother or a husband or a father at the micro levels, all efforts to ensure the empowerment of women at the macro levels are bound to fall short of the desired aim. After conceptualizing household labour, this paper purports to examine and explain the 'gendered allocation of household labour' in the Indian context from the gender ideology perspective. The gender ideology perspective posits an inverse relationship between traditional gender attitudes and an egalitarian division of household labour. According to socialization theories, individuals are socialized into male or female gender roles, and the gender ideology perspective is based on the idea that people's gender ideology views are situated on a continuum that ranges from traditional gender ideologies—where a strict male breadwinner/female homemaker structure is favoured—to egalitarian gender ideologies—where both partners are considered equal and share the two roles more equally. Indian familial and social situation being still governed by patriarchal values and attitudes, traditional gender ideology prevails to thwart equality in division of household labour. A girl child is not preferred by parents and female foeticide is rampant; male siblings are privileged over their female counterparts in the families; family life is believed to suffer when the woman has a full-time job. All such views owe their origins to patriarchal ideological grooming and sexual politics. Household labour is unpaid,

unassessed, and in India, it is often unhonored and heavily gendered. Only egalitarian gender ideologies may lead to gender equality in household labour, facilitating the empowerment of women in the home space, as well as correcting their relatively unfavourable position compared to men to pursue demanding career opportunities and professional advancement.

Keywords: *patriarchy, empowerment, household labour, gender equality, gender ideology*

From the point of view of gender equality, an egalitarian society should offer equal rights and opportunities to men and women, should offer fair space, fair scope, a fair amount of freedom and equality for men and women, a society which must possess an unbiased attitude to both the sexes. Such an ideal society where there is no discrimination between men and women sounds rather utopic. However, no gender balance or empowerment is possible in conditions of inequality, be it in the domestic familial space or in the bigger social space. Since the old proverb goes that charity should begin at home, this paper proceeds from the view that an egalitarian distribution of household labour must be the stepping stone in attaining gender equality not only in the private/domestic sphere, but also in the public/social sphere. Unless the question of equality is sufficiently addressed in the domestic space, the agenda of women empowerment must continue to remain at best a half-realized dream. The vast majority of household work is still performed by women and in the patriarchy-dominated society household labour is largely believed to be the responsibility of women—daughters, wives and mothers—generally irrespective of their marital status, even their social, economic, and educational background. Hence is the expression "gendered allocation of labour" (Sayer *et al.* 2004) as mentioned in the title of the paper. Exceptional cases might certainly be there but the entire system of the society is politically and culturally conditioned to see a woman as the major performer of household duties while a man is supposed to earn for the family. Not only the housewives but also the working women are expected to bear the larger share of the household work. Patriarchy in collusion with hierarchy has groomed us in such a way that neither men nor women even think of men doing household chores. It is, as if, domestic chores are the responsibilities of women and, whether housewives or working ladies, women are believed to be entrusted with cooking, sewing, scrubbing, cleaning, drying, decorating and maintaining household, care-giving etc. Moreover, it is shocking that even women mend themselves up into this gendered allocation of housework.

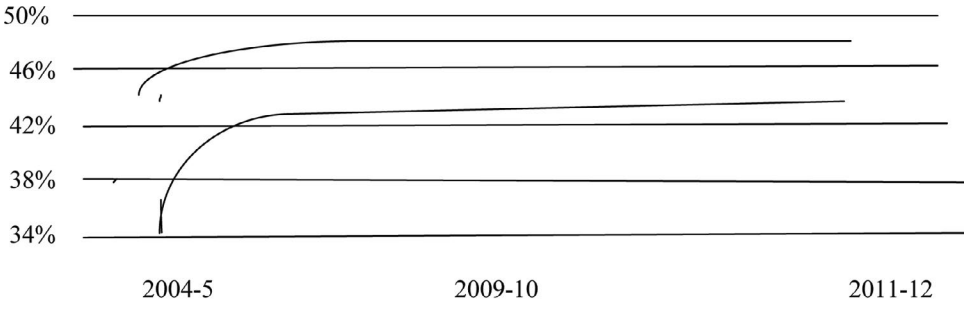
Actually, patriarchy moulds our mindset and social-economic thinking. The prevailing notion about a woman is that she must be a 'good girl', a 'good housewife', a 'good mother'. Society hardly bothers about a woman's 'individual identity'. Right from their girlhood, women are taught how to be a 'good housewife'. They are taught that sewing, cooking, being very caring and obedient are the essential criteria for ideal womanhood. Proper education, personality development, independent thinking etc are generally discouraged. Women should obey their fathers, their in-laws and particularly their husbands. To a married woman, whether she is a housewife or a working lady, the husband is a god-like figure. Interestingly enough, all these patriarchal guidelines are taught by the mothers and grandmothers of the families.

Notwithstanding significant rise in awareness and activism in the field of empowerment of women, and in spite of women's increased commitment to the labour force market and their associated political and social achievements, their advances in the public world have not been paralleled in the familial sphere. Although statistically speaking, women today are better educated and there are larger numbers of working women around us, the patriarchal stereotypes still hold on. Men still think that they are superior to women. They consider women as the weaker force of the society and from their childhood they have a scope to assume the idea of gender superiority: 'a boy', a 'would-be man', and 'the future head of the family'. A sense of superiority grows in a male sibling within the family framework because of his constant privileging by parental figures over his female counterparts. This goes on and the male members in a family think little to care for those women who work throughout the day as sisters, wives, mothers or grandmothers. Both men and women are taught to think that these are their 'legitimate' and 'only' status. All the housework which a woman—housewife or a working lady—does is undoubtedly laborious; but she is 'unpaid' and her works are generally 'unacknowledged'. Nor is this housework ever assessed. This is so because the male members of the family think that household duties are supposed to be performed by women. They feel pleased to enjoy the services of women free of cost and women also think that they are bound to render free service. A recent survey report (National Sample Survey-NSS) shows that approximately 70% of married Indian women lament for their husbands never helping them in household works. More than 2/3rds of married Indian women feel that sometimes this excessive burden makes them so tired that it tells upon their conjugal relationship. (TNN, January 9, 2015).

In the wake of industrialisation and urbanization, family structure of the present day society, even in a country like India, has undergone changes. Now women get more engaged in various occupations relating to livelihood beyond their domestic boundaries. Even then, they have no relief from discharging house-hold duties. They feel that they are loaded with 'dual burden' – one is the burden in the working place and the other is in their home. The survey (Nielson-India supported by Ariel) shows that 70% of married Indian women feel they spend more time on household work than with their husbands. What displays a clear case of women undergoing greater stress as compared to men is the statistics that 85% of working Indian women feel they have to shoulder two job responsibilities, one at their workplace and the other at home. 87% of working Indian women opined that while they are equal bread winners, they contribute more towards household chores than their husbands. (TNN, Jan 9, 2015, Mumbai).

The NSSO (National Sample Survey Office) has recently released 68th round survey report, taking a sample base of one lakh households from every state and union territory, looking for women's employment status. The report reveals that 60% of adult women are primarily engaged in housework. The data show that women of both rural and urban areas are being engaged more and more in domestic work as their primary occupation, and the enrolment in this domain shows an upward curve. According to the survey, the percentage of adult women engaged in housework only all over India is 60.90%.

Bihar is on top having 81.50% women engaged in domestic work and the state having the lowest percentage in this regard is Himachal Pradesh—22.60%. West Bengal is in the sixth position according to the report and 69.50% of women are here engaged in housework. The report also says that a majority of women engage in productive activity like collecting firewood or rearing household poultry. But they are NOT classified as 'workers' as the value added by and the number of hours spent on these activities are not sufficient to constitute 'economically productive activity'. Almost 60% of women say that they do so because there is no other family member to help them out in these chores.



(WOMEN DOING HOUSEWORK ONLY, OVER TIME)

(The upper curve shows the proportion of women engaged in housework in rural areas and the lower curve shows the proportion of women engaged in housework in urban areas): the graph is drawn for the percentage of women in respect of the years. The survey did not ask the women engaged in domestic work if they would like to take up work outside the house. (*Most Indian Women Engaged in Unpaid Housework:* Oct 14, 2014: The Hindu: New Delhi)

For Marx, politics and relationship between the state and the citizen can only be understood in terms of the ways in which nature is exploited; that is, how economic production in society as a whole is structured. Different classes, as well as men and women, can be described only by the role they play (or do not play) in production. Families, in turn, also serve a specific function in each society in relationship to the nature of material production. Marx takes for granted women's work in the home, based on what he sees as the natural role of men and women. In Das Capital, Marx asks the question of housewives working outside the home: "How will (the) internal economy be cared for: who will look after the young children, who will get ready the meals, do the washing and mending?" Marx, elsewhere, divides the world into two types of labour: the labour of production and reproduction, associated with men and women respectively. (Politics and Feminism: Ch-2: Demarcation and Boundaries: Culture versus Nature: Barbara Arneil)

The advent of industrialisation, urbanisation and the nuclear family is argued to have upset the essential complementarities of gender relations. The removal of production

from the household leads to a spatial divide between 'remunerated labour' and 'domestic work'. Women continue to perform key functions such as housework and child-care in the home, yet men perform their wage-earning activities away from the household. Since capitalism tends to define work only as that which is 'remunerated', women's 'unpaid' labour becomes progressively 'under-valued'. The home-based nature of domestic work and child-care also means that women become less visible to other household members. Male control of the wages leads to a situation where women lose power in family decision-making, their economic dependence is increased and female subordination becomes ever more entrenched. A critical feature of working women's oppression in contemporary urban families is that they have to take on a 'dual burden' of labour, receiving no reduction in child-care and domestic activities to compensate for increased participation in the workforce. This of course is more likely to be the case in nuclear families than in extended households where female kin may share essential domestic tasks. (Women in the Third World: Gender Issues in Rural and Urban Areas: Gender-roles, Household Structure and Urbanisation Nuclear Families and the Sexual Division of Labour- Lynne Brydon, Sylvia Chant)

There is an irony that unmarried daughters have to face the same fate. When daughters shoulder the economic responsibility of their household and remain unmarried, they are not exempted from household works to any degree in spite of being bread-winners. Hilary Standing (1985, p.254) writing in Kolkata, feels that there is little doubt that in India as well, "the entry of women into labour market appears to be affecting the dynamics of household formation." In Standing's case this relates to the increasing livelihood of Bengali daughters postponing marriage in order to support their parents, a role traditionally played by their brothers. Nevertheless, her basic premise of a fundamental link between women's work and household structure applies also, as we have seen here, to women as wives, women as mothers and women as household heads. (Women in the Third World: Gender Issues in Rural and Urban Areas: Household Composition and Women's Work Roles-Lynne Brydon, Sylvia Chant)

It should be noted in the passage quoted below that Engels was perhaps the first political theorist to acknowledge and comment on the differing status of women within the household:

> "To her husband she is after all nothing but the mother of his legitimate children and heirs, his chief house-keeper and the supervisor of his female slaves, whom he can and does take as concubines if he so fancies. It is the existence of slavery side by side with monogamy.....that stamps monogamy from the beginning with its specific character of monogamy for the woman only, but not for the man. And that is the character it still has today." Plato, Marx, Engels *et al.* argue that the equality of women will be an important by-product of eliminating the private sphere. Marx and Engels were, over and above, explicitly interested in the 'emancipation of women' as well. Thus Engels argues that women must move into the public realm:

> "To emancipate woman and make her equal of the man is and remains an impossibility so long as the woman is shut out from social productive labour and restricted to private domestic labour. The emancipation of woman will only be possible when woman can take part in production on a large, social scale, and domestic work no longer claims anything but an insignificant amount of her time." (Politics and Feminism: Ch-2: Demarcation and Boundaries: Private versus Public: Barbara Arneil)

Coming back to examine and explain the 'gendered allocation of household labour' from the gender ideology perspective, it is to be noted that the gender ideology perspective posits an inverse relationship between traditional gender attitudes and an egalitarian division of household labour. According to socialization theories, individuals are socialized into male or female gender roles, and the gender ideology perspective is based on the idea that people's gender ideology views are situated on a continuum that ranges from traditional gender ideologies—where a strict male breadwinner/female homemaker structure is favoured—to egalitarian gender ideologies—where both partners are considered equal and share the two roles more equally. Indian familial and social situation being still governed by patriarchal values and attitudes, traditional gender ideology prevails to thwart equality in division of household labour. A girl child is not preferred by parents and female foeticide is rampant; male siblings are privileged over their female counterparts in the families; family life is believed to suffer when the woman has a full-time job. All such views owe their origins to patriarchal ideological grooming and sexual politics. Household labour is unpaid, unassessed, and in India, it is often unhonored and heavily gendered. Only egalitarian gender ideologies may lead to gender equality in household labour, facilitating the empowerment of women in the home space, as well as correcting their relatively unfavourable position compared to men to pursue demanding career opportunities and professional advancement.

Patriarchal society traditionally s to see women remain confined to home, doing every bit of domestic work. From the ancient times women's duties are broadly divided into two heads: 'Farm' and 'Non-Farm'. 'Crop-Production', 'Animal Husbandry' and 'Ancillary Jobs' are under the 'Farm' category, while 'Household' and 'Non-Household' works fall under the 'Non-Farm' category. 'Household Work' includes cooking, cleaning, childcare, firewood collection, drinking-water collection, preparing cow-dung fuel, care of old and disabled, maintenance of dwelling etc. It is true that in many Farm activities like seed nursing, transplanting, weeding, harvesting, threshing, cleaning and drying, milling and storage etc. men and women work together, but male members hardly accept household jobs to be their work as well. In the changing scenario of 21st century, women enter into labour force market to earn for their family because the incomes of their husbands are not sufficient to run their homes. But on returning home, they still have to cook, do some cleaning, shopping or the like. When both a man and a woman return from their work, it is almost certain that the woman shall have to enter the kitchen. Alternatively, her mother-in-law, or sister-in-law, or any other woman residing in the house, must do

the work for her. If it the case of childcare, women also have to bear the responsibility along with other female members of the family.

Women's volition to do the domestic chores has a deep-rooted origin. Lack of proper education is mainly responsible for this volitionality. Domestic work is no doubt very important good work. Egalitarian distribution of this good work shall ensure freedom and empowerment of women in the home space. Occasionally we see that women are not much willing to involve male members of the family in doing household works. They feel a deep, solid satisfaction in doing everything themselves. This is how they have been taught since their childhood. First generation women spent their time in doing only household works. They had sole intention to draw attention of their husbands and in-laws. They did all the various household activities to project themselves as good housewives. The mothers still engage their daughters in household activities like scrubbing floors, cleaning utensils and even cooking in times of need. Daughters help their mothers even at the expense of their studies. But brothers are hardly asked or expected to do such kind of work. Mothers are mostly unwilling to receive any such service from her sons. The reason behind this is that daughters will have to go to their in-laws' houses and there they will have to do such domestic chores. Even it is thought that education is of no use for girls for, after all, they will have to maintain the household, bearing and rearing their children.

Research studies have shown that women more egalitarian in their attitudes are less likely than women with traditional attitudes to report performing all of the housework, whereas men having more egalitarian attitudes tend to behave in a more egalitarian manner to spend more time on house-work than men with traditional attitudes (Arrighi and Maume 2000; Fuwa 2004; Davis et al. 2007). Gender ideology is known to evolve usually in the direction of egalitarianism, as each new generation tends to hold more egalitarian values than the preceding generation (Brooks and Bolzendahl 2004) and individuals tend to become more supportive of egalitarianism over their lifespan (Fan and Marini 2000). According to the gender ideology perspective, this trend toward egalitarian ideologies should translate into a more equal division of household labor between men and women. In fact, there is evidence that women who become less traditional in their gender role views over time have a diminished responsibility for housework, even after controlling for other changes that occurred during the same time in the family structure or time availability (Artis and Pavalko 2003). Similarly, the fact that younger generations of men tend to perform a greater share of the burden of household labor (Arrighi and Maume 2000; Davis and Greenstein 2004) may reflect generational differences in socialization experiences and, *ipso facto*, in gender ideology. It has been indicated (Fan and Marini 2000) that employed mothers hold more egalitarian gender attitudes and, correspondingly, they socialize children with more egalitarian attitudes. Such a pattern of effects, in combination with the rise in women's education employment, suggests that the trend toward egalitarian gender ideology should continue (Fan and Marini 2000).

Overall, it is believed that the gender ideology perspective is useful in explaining why

the division of labor within the home remains bound to tradition despite the increases in women's educational and career opportunities. Although studies have generally provided support for the hypothesis that holding an egalitarian ideology favors a more equal sharing of the family work, a study by Bianchi and her co-authors (2000) suggests that the gender ideology perspective is somewhat more useful in explaining women's participation in household labor than men's. More precisely, the findings suggest that men's egalitarian ideology is associated with a decrease in their partners' housework hours, but not with an increase in their own housework hours. Similarly, whereas wives with a more egalitarian gender ideology perform less housework, their egalitarian attitudes do not affect their partner's housework hours.

References

Arneil Barbara, Politics and Feminism, Wiley, 1999.

Arrighi, B.A. and Maume, D.J. 2000. Workplace subordination and men's avoidance of housework. *Journal of Family Issues*, **21**: 464–487.

Bianchi, S.M., Milkie, M.A., Sayer, L.C. and Robinson, J.P. 2000. Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces*, **79**: 191–228.

Brooks, C. and Bolzendahl, C. 2004. The transformation of US gender role attitudes: Cohort replacement, social-structural change, and ideological learning. *Social Science Research*, **33**: 106–133.

Brydon Lynne, Chant Sylvia, 1989. Women in the Third World: Gender Issues in Rural and Urban Areas, Rutgers University Press.

Davis, S., Greenstein, T.N. and Gerteisen Marks, J.P. 2007. Effects of union type on division of household labor: Do cohabiting men really perform more housework? *Journal of Family Issues*, **28**: 1246–1272.

Economic and Political Weekly: Vol-L, No.-22, May 30, 2015, www.epw.in

Fan, P.L. and Marini, M.M. 2000. Influences on gender-role attitudes during the transition to adulthood. *Social Science Research*, **29**: 258–283, 2000.

Forbes Geraldine, Women in Modern India, Cambridge University Press, 1999.

Fuwa, M. 2004. Macro-level gender inequality and the division of household labor in 22 countries. *American Sociological Review*, **69**: 751–767.

Most Indian Women Engaged in Unpaid Housework: The Hindu: New Delhi, Oct 14, 2014.

Mukherjee Mukul, 1999. Women and Work in India : A Collage from Five Decades of Independence in Ray Bharati, Basu Aparna (ed.) Independence Towards Freedom: Indian Women since 1947, Delhi, Oxford University Press.

Nagel Stuart S. (ed.) 2000. India's Development and Public Policy, Ashgate Pub. Ltd.

Ray Bharati, Basu Aparna (ed.) 1999. Independence Towards Freedom: Indian Women since 1947, Delhi, Oxford University Press.

Sayer, L.C., Cohen P.N. and Casper, L.M. 2004. 'Women, men and work'. In R. Farley & J. Haaga (Eds.), *The American People*, New York: Sage.

Singh Namrata, 2015. Two-thirds of Women say Men don't Help With Household Chores: Study: TNN, Mumbai, January 9.

Sayer, L.C., Cohen P.N. and Casper, L.M. 'Women, men and work'. In R. Farley & J. Haaga (Eds.), *The American People*, New York: Sage.

Ray Bharati, Basu Aparna (ed.) 1999. Independence towards Freedom: Indian Women since 1947, Delhi, Oxford University Press.

Singh Namrata, 2015. Two-thirds of Women say Men don't Help With Household Chores: Study: TNN, January 9, Mumbai.

3

Declining Child Sex Ratio in India— Issues and Challenges

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Abstract

Child Sex Ratio (CSR) in India is declining gradually and as a result of that the female population is missing day by day. According to 2011 census female population constitute only 48.27 percent to total population. Though sex ratio in India has improved marginally in 2011 (from 933 female per thousand female in 2001 to 940 female per thousand in 2011 census) but it is observed that there is a sharp decline of Child Sex Ratio (CSR) from 0-6 years of age group. It is declined to 914 in 2011 as against 974 in 2001. One can assume that a sharp decline in CSR is not only the cause of infant and child mortality but it is also the grace of new technology to determine the sex/gender components which is largely creating this imbalance in a highly discriminatory society. The objective of this paper is to carry out review of relevant documents, information on Child Sex Ratio and its associated factors in the process of declining CSR in India. It looks at some important laws and government programme to tackle the existing problem.

Keywords: *feticide, foeticide, neonaticide, infanticide, amniocentesis, child sex ratio, etc.*

Conceptual Framework

Female population in India constitutes less than half of total population. According to 2011 census they constitute only 48.27 percent to total population. Sex Ratio is considered a direct indicator of social position of women in society. It is observed that the sex ratio in India has improved marginally in 2011 (from 933 female per thousand female in 2001 to 940 female per thousand in 2011 census) but there is a sharp decline of Child Sex Ratio (CSR) from 0-6 years of age group. The figure of CSR in some states is quite low, like Haryana, Punjab, U.P, Maharashtra, etc The major determinants for such ratio of imbalances one may provide reasoning like fertility rate, mortality, migration and so on and so forth, but it will not be wrong to mentioned here that these reasons would be artificial than real. It is also a fact that life expectancy of female is higher than males. According to WHO data in April 2011 life expectancy in India for male is 63.8 and female is 67.3 as compare to worldwide average life expectancy 68.5 for male and 73.2 years for females.[1] It is assumed that a sharp decline in CSR is not

only the cause of infant and child mortality but it is also the grace of new technology to determine the sex/gender components which is largely creating this imbalance scenario in a discriminatory society. The new norm of small family, the availability of new technologies for sex determination provided has made easy access to people to achieve their goal. It's a reality in India that still daughter is associated with '*paraya dhan*', in Bengali we say girls are '*parer dhon*' (property of others). The other natural phenomenon observed in our society is that girls' leaves her natal family upon her marriage and the benefit from upbringing goes to new family, thereby in the process get discriminated in receiving benefits, while it is compounded by the burden of expenses of marriage, what is known as dowry. On the other hand son is considered an asset. The birth of a boy is celebrated with joy. This has truly made the whole scenario very complex for discriminated of girl child in India. The objective of this paper is to review of relevant documents, information on Child Sex Ratio and its associated factors in the process of declining CSR in India.

Methodology: The study is confined to empirical research dealing with Child Sex Ratio. The data on Life Expectancy, Sex Ratio from census figure and also neonatal, infant mortality, child mortality relevant statistics from NHFS data, legislation etc, were consulted. Some papers, journals, other relevant documents accessible through library and internet search used for this paper. As the issue is too complicated, a few cases are also taken into consideration from newspapers and reports to look at the issue and present the document scientifically.

Defining Key Terms

1. **Femicide-** The term femicide refers as the killing of females by males. It includes: foeticide, neonaticide, infanticide, bride burning, dowry death, honour killing, sati etc.[2]
2. ***Foeticide***—a prenatal form of infanticide by induces abortion of a foetus
3. ***Neonaticide-*** refers to killing of a new born within 24 hours after birth by any means
4. **Infanticide**—killing or murder of a child under one year of age.
5. **Amniocentesis ---**is a medical procedure used in prenatal diagnosis of chromosomal abnormalities and fetal infection, and also used for sex determination.
6. **Child Sex Ratio-**is defined as the number of females per thousand males in the age group 0-6 years in a human population.

Child Sex Ratio in India: The trend of Child Sex Ratio was looked very closely when results of 1991 census were released, and it was confirmed to be a worsen problem when results of 2011 census were published. The reduction in the female population of certain Indian states continues to be declining stage in 2011 national census. The overall sex ratio has improved to 940 as compared to 933 in 2001, but the child (0-6

years) sex ratio, i.e. the number of girl children per 1,000 male children as already said has decline in a number of states.

Table 1

Year	Sex Ratio	Child Sex Ratio
1991	927	945
2001	933	927
2011	940	914

Source: Census of India 2011.

The states having the lowest child sex ratios in the country are Haryana, Punjab, Gujrat, J. & K, Maharashtra, Uttarakhan, Rajasthan, national capital territory Delhi, etc. It is noteworthy that the so-called rich states of Maharashtra, Punjab and UT Delhi, Chandigarh have some of the lowest child sex ratios in the country. The southern states of Kerala (959), Andhra Pradesh (943), Karnataka (943), and Tamil Nadu (946), have healthy sex ratios.

Table 2: Child Sex Ratio in some state and Union Territories

	2001	2011	Difference
	CSR (Child Sex Ratio)	CSR (Child Sex Ratio)	
All India	927	914	-13
Haryana	819	830	+11
Punjab	798	846	+48
Gujrat	883	886	+3
J & K	941	859	-82
Maharashtra	913	883	-30
Odisha	953	934	-19
Uttarakhand	908	881	-27
Rajasthan	909	886	-23
W.B	950	929	-21
A.P	961	943	-18
M. P	932	912	-20
U.P	916	899	-17
Bihar	942	933	-9
Assam	965	957	-8
Chattisgarh	975	964	-9
NCT Delhi	868	866	-2
Tamil Nadu	942	946	+4
Kerala	963	959	-4
Meghalaya	973	970	-3
West Bengal	960	950	-10

Sources: Census of India, 2001, Series-1, India: Primary Census Abstract, Total Population: Table A-5 & Census 2011.

Postnatal mortality, Infant and Child mortality: Declining Trend

According to the estimate of NHFS-3[3] infant mortality in India has declined from 77 deaths per 1000 live birth in 1991-95 to 57 deaths per 1000 live birth. By comparing neonatal mortality rate by 12 deaths per 1000 live birth (from 51 to 39), post natal mortality rate ha decrease by 7 deaths per 1000 live births (from 25 to 18), and the child mortality rate (at the age of 1-4) has decreased14 deaths per thousand(from 32 to 18). Despite of this figure of decreasing neonatal, post natal, infant and child mortality, Child Sex Ratio is declining in a large number of districts and areas in different states. It signify that there are femicide, i.e. foeticide---killing of baby at the stage of foetus level.

Table 3: Districts having very low CSR[4]

State	Districts	CSR 2001	CSR 2011	Difference
Haryana	Mahendranagar	818	778	-40
	Jhajjar	801	782	-19
	Rewari	811	787	-24
Rajasthan	Sikar	885	848	-37
Telengana	Hyderabad	943	914	-29
Uttarakhand	Pithorgarh	902	814	-88
Gujrat-	Surat district	859	835	-29
Dadra & Nagar Haveli	Dadra & Nagar Haveli	979	926	-53
HP	Lahul & Spiti	961	1013	+52
Arunachal Pradesh	Tawang	948	1005	+57
Chattisgarh	Dakshin Baster Dantewada	1025	1005	-18
West-Bengal	Darjeeling,	962	943	-19
	Malda,	954	945	-19
	Uttar Dinajpur	965	946	-19
	Jalpaiguri	969	949	-20
	Purulia	964	947	-17
	Birbhum	969	952	-17

Child sex ratio in a number of districts is declining gradually. For example, in Harayana the district like Mahendranager Jajjhar, Rewari, Hyderabad in Telegana state, Pithorgarh in Uttarakhan, Surat district in Gujrat, Dadra and Nagar Haveli all such districts the CSR is declining at a faster rate. This symptoms is very negative in nature and it tells us the fact that there are other forms of doing away the female child population i.e what is called foeticide.

Cases on female foeticide (at pre natal stage): Female foeticide is most brutal form and indicator of the anti-female bias in "patriarchal" societies. It is closely linked with sex-selective abortion, which targets female foetus almost exclusively, and neglect of

girl children by abortion. Sex selection abortion has led to a sharp drop in the ratio of girls born in contrast to boy infants in some states in India. Ultrasound technology has made it possible for pregnant women and their families to learn the gender of a foetus early in a pregnancy. Discrimination against girl infants, for several reasons, has combined with the technology to result in a rise in abortions of foetuses identified as female during ultrasound testing. The factor associated with such trend due to the fact of amniocentesis.

Amniocentesis—was introduced in 1974 to ascertain birth defects in a sample population, but was quickly appropriated by medical entrepreneurs, which ultimately given a process of a spate of sex-selective abortions.[5]

Dahlburg (1994) notes that in Jaipur, capital of the western state of Rajasthan, prenatal sex determination tests result in an estimated 3,500 abortions of female fetuses annually, according to a medical-college study.[6] Most strikingly, according to UNICEF, a report from Bombay in 1984 on abortions after prenatal sex determination stated that 7,999 out of 8,000 of the aborted fetuses were females. Sex determination has become a lucrative business.[7] A few cases could be narrated here on the factors as to why such infanticide or neonacide is taking place. The fact that nearly 300 poor hamlets of the Usilampatti area of Tamil Nadu, as many as 196 girls died under suspicious circumstances in 1993, one such case as Dahlburg reported from Tamil Nadu:

> "Lakshmi already had one daughter. When she gave birth to a second girl, she killed her. Lakshmi admits, she refused to nurse her. To silence the infant's famished cries, the impoverished village woman squeezed the milky sap from an *oleander shrub*, mixed it with castor oil, and forced the poisonous portion down the newborn's throat. The baby bled from the nose, then died soon. Female neighbors buried her in a small hole near Lakshmi's square thatched hut of mud. They sympathized with Lakshmi, and in the same circumstances, some would probably have done what she did. For despite the risk of execution by hanging and about 16 months of a much-ballyhooed government scheme to assist families with daughters, in some hamlets of Tamil Nadu, murdering girls is still sometimes believed to be a wiser course than raising them. A daughter is always liabilities. How can I bring up a second?" Lakshmi, 28, answered firmly when asked by a visitor how she could have taken her own child's life eight years ago. Instead of her suffering the way I do, I thought it was better to get rid of her (Quoted from Dahlburg, "Where killing baby girls 'is no big sin").[8] Another study of Tamil Nadu by the Community Service Guild of Madras similarly found that female infanticide is rampant in the state, though only among Hindu (rather than Muslim or Christian) families. Of the 1,250 families covered by the study, 740 had only one girl child and 249 agreed directly that they had done away with the unwanted girl child. More than 213 of the families had more than one male child whereas half the respondents had only one daughter (Malabika Karlekar 1995).[9] The bias against females

in India is related to the fact that Sons are called upon to provide the income; they are the ones who do most of the work in the fields. Sons are looked to as a type of insurance.

Son Preference

Those women who undergo sex determination tests and abort knowingly that the foetus is female and are actively taking a decision against equality and the right to life for girls. In many cases, of course, the women are not independent agents but merely victims of a dominant family ideology based on preference for male children. CEHAT (Centre for Enquiry into Health and Allied Themes),

> "it is unfortunate that one reason or the other, the practice of female infanticide still prevails ……one of the reasons may be marriage problems faced by the parents coupled with dowry demand by the so called educated and or rich person who are well placed in our society".[10]

The problem is also intimately tied to the institution of dowry, in which the family of a prospective bride must pay enormous sums of money to the family in which the woman will live after marriage. Given these figures combined with the low status of women, it seems not so illogical that the poorer Indian families would want only male children.[11] The "burden" of taking a woman into the family accounts for the high incidents rates of female infanticide or dowry death. Typical also in Indian culture dictates that when a girl marries she leaves her family and becomes part of her husband's family. Son will be the carrier of generation. The other reason is the dowry payment indirectly forcing to have a negative attitude to female and female feticide. Rich or poor, bride' parents must pay the groom and his family in money, property or goods. When dowry falls short, it is not unusual for the groom's family to harass the bride, each year dowry payment problems leads to death of more than 13, 000 young brides. So why directly and indirectly forcing people for rampant misuse of technology in various states, as reported above, has contributed for Sex-selective abortions and female foeticides directly for sharp decline of Child Sex Ratio in India.

Constitution and Legislative initiative

Our Constitution came into force on January 26, 1950 provided social rights to women with men. A few specific Articles which are related to women, included in Indian constitution, such as Article 14, equality before law, ensures that the state shall not deny to any person equality before the law or the equal protection of the laws with the territory of India, Article 15: Prohibits discrimination on grounds of religion, race, caste, sex or place of birth, Article 16 : provides equality of opportunity in matters of public employment, Article 21: Protection of life and personal liberty, Article 23: Prohibition of traffic in human beings and forced labour. Article 45: ensures provision for free and compulsory education for children. Legal measures have been taken in India from time to time aiming at to protect and promote the welfare of women leading to an improvement

in their status. Government has also enacted the women specific laws enforce different aspects and dealing problems of women, such as Hindu Marriage Act 1956, Hindu Guardianship Act 1956, Hindu Inheritance Act 1956 providing equal share to women in property, establishment of principle of monogamy are some major impact in Indian social structure affecting women's status and role., *Immoral Traffic Prevention Act 1986,* and *the Equal Remuneration Act 1976, The Termination of Pregnancy Act 1971*, The Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act 1994 are some measures of relief for women.

Explanation of PNDT: It has twin purpose, to regulate prenatal diagnostic technique for legal and medical ends and to prevent its misuse for sex determination. Prenatal diagnostic techniques means all prenatal tests, such as ultrasonography, foetoscopy, taking and removing sample amniotic fluid or tissue of pregnant women for conducting test. Foetoscopy provide direct visualization of the foetus. The legislation has made the registration of labs, clinics, hospitals, nursing homes with trained practioners as mandatory and its violation attracts penal action. It allows prenatal diagnostic techniques for the purpose of detection of abnormalities in the foetus. The legislation has put certain condition for conducting tests, that (a) age of women should be above 35, (b) women has undergone two or more abortion, (c) the pregnant women has family history of mental retardation, physical deformities or any other disease. Moreover, the written consent is must and she must be explain side and after affects. The Act has banned conduct of any test for the purpose of determination of sex of a foetus.

To exercise powers and perform functions, the law has created (a) Central Supervisory Board at centre—to review, advise and enforce or investigate complaints, and (b) State level Supervisory Board-to maintained the implementation of the Act. It shall comprise Minister-In-Charge of Family Welfare & 10 members to be appointed by the state. Under section 23 and 24, the court shall presume that her husband or relatives has compelled pregnant women and a woman is liable for punishment. It also invokes removal of medical practitioners from roll of MCI on first offense for 2 years and 5 years for subsequent offense with a fine upto 50, 000. Hence laws are working as an instrument to remove social disabilities and for empowering women.

Government Initiatives to curb out discrimination against Girl Child

Government has taken up different programmes and policies, like ladly, Kannyashree, Sikshasree, Balika Samriddhi Yojana, Beti Bachao Beti Padhao, *Priyadarshini Yojana, Janani Suraksha Yojana (JSY*), *IGMSY (Indira Gandhi Matritya Sahyog), Ayusmati Yojana* etc. We shall discuss two important of such schemes.

Beti Bachao Beti Padhao (BBBP) campaign is supported by human rights groups, non-governmental organizations, and state and local government in India. Beti Bachao activities include large rallies, campaigns, wall paintings, billboards, and television commercials and short animations and video films. Celebrities such as video director Jagmeet Bal, and Bollywood actress Priyanka Chopra, have become actively

engaged in "Save the girl child" initiatives to end the gender-selective abortion of female foetuses, which has skewed the population towards a significant under-representation of girls in some Indian states.

Challenges of BBBP: The basic objectives are to prevent gender biased selective elimination, ensure protection of girl child, improve SRB, reduce child mortality, increase enrolment of girl's, provide toilet for girls in 100 low CSR[12] (Child Sex Ratio) districts by 2017 and promote a protective environment for Girl children. An annexure-I relating to low CSR district is enclosed. The strategic actions to be undertaken for Planning, Implementation & Monitoring at District/Block & Gram Panchayat levels by constituting District Task Force (DTF) headed by DC with representatives of Line Departments (Health AND Family Welfare; Appropriate Authority (PC&PNDT Act) Education; Panchayati Raj/ Rural Development, Legal Services Authority, Dept. of Disability Affairs & Police. Review the implementation of PC&PNDT Act. Follow-up with district Judge on PNDT cases and submit monthly report to the State Authority with copy to PNDT Division, GOI, establish linkages with Local NGOs working on the issue of Gender, Child Sex Ratio, Education. The technical support and guidance for the implementation of Action Plan in the district would be provided by District Programme Officer (DPO) in the District ICDS Office/PNDT Cell or any other structure as deemed fit by the DC/ DM, constitute Block Task Force (BTF) headed by SDM/SDO/BDO. Ensure follow-up actions are taken in a time-bound manner with Gram Panchayat(Action-Sarpanch/ Pradhan), orientation of District Officers/ Zila Parishad members/ Judiciary/ District Legal Services Authority (DLSA)/NGOs/Doctors for identifying role & responsibility. Orientation of Block Officers/Block Parishad/PanchayatPradhans/Sarpanches/Front line workers/SHG members (over a continuum), orientation of Panchayat members, Village Health Sanitation AND Nutrition Committee (VHSNC) members on tools for data collection/ Community Mobilization/dissemination of information on schemes and programmes/ Reporting, sensitization of Member of Parliament (MP)/Members of Legislative Assembly, institute Rewards for the informers to help in identify the unregistered/ illegal ultrasound machines and the clinics indulging in illegal practice of sex selection.

Improve awareness & utilization of MoWCD's Schemes and Programmes for women/ girls (ICDS, ICPS, IGMSY, Creche, Swadhar Greh, CARA, Working Women's Hostel-across the continuum. - Identify community watch groups (women panchayat members, trained teacher, youth groups, others) and local response points to ensure protective environment for girls. Incentivize Schools/ Panchayat/ Urban ward/ Frontline worker/ Community volunteer on annual basis, activate School Management Committees (SMCs) to ensure universal enrolment of girls through special drives- over a continuum. Create *Balika manches* to encourage participation of girls in schools and to link out of school girls-over a continuum.

Sukanya Samriddhi Yojana: Beti Bachao Beti Padhao is the main mantra with which PM Narendra Modi launched in Sukanya Samriddhi Yojana (SSY) on January 22nd

2015. Latter on Government issued a notification to allow 80 C exemption equal to the amount invested in the scheme upto ₹ 1, 50, 000 which one can invest maximum in this scheme in a financial year. The Finance Minister in this budget speech has proposed to make the interest component as well as the maturity process as tax free. SSY is small savings scheme which can be opened by the parents or a legal guardian of a girl child in any post office or authorized branches. The girls' child is the 'Account Holder" in this scheme. The guardian of a girl child 10 years of age or younger than that are eligible and can open the account. The scheme has been flagged off with a 9.1 per cent rate of interest higher than PPF. It will mature on completion of 21 years of age.

Janani Suraksha Yojana *(JSY*) is a scheme, which we all know that Indian Government aiming to reduce the neo-natal or maternal death. The scheme was launch way back in 12th April 2005. It is fully supported by the central government. The scheme incorporates cash assistance to the mother along with free delivery and care after delivery. The increased number of institutional deliveries among the poor families determined the success of this scheme. ASHA activists played an important role in this scheme. They acted as an inspiring role to boost the need of institutional deliveries among the women along with utilization of scheme.

The 'Low Performing States (LPS) is the term given to the states where the institutional deliveries are very low. These states include U.P, Jharkhand, Uttarakhand, Bihar, Chhattisgarh, M.P, Rajasthan, Assam, Odissa and J & K. Remaining states were termed as 'High Performing States (HPS). Following are the cash benefits given. The eligibility criteria for this scheme is pregnant women should be from BPL category or SC, ST and she should be of 18 years of age. The cash assistance was allowed only up to two live births. The package of this schemes are 1400 as mothers package in LPS from Rural area and 600 for ASHA package and ₹ 700 as mothers package in HPS area. It is different in Urban area. Mothers package 1000 in LPS and ₹ 200 for ASHA package and only 600 for HPS area.

Kannyashree—scheme launched by Government of West-Bengal for an unmarried girl child who is 13-18 years of old and reading in any recognized school in class VIII/IX/X/XI/XI will get annual scholarship of ₹ 500 if annual income of her parents is upto ₹ 1,20, 000. Eligible students will apply in prescribe form available from her institution. Who have already received annual scholarship and have ID in the last years, the head of the Institution will recommend their names for scholarship to the DM through SDO/BDO. A girl student born on or after 1.4.1995 and turned 18 years and 19 years and has prayed before turning 19 years will be eligible for getting one time grant of ₹ 25, 000 (Rupees twenty five thousand only) if she remains unmarried and continues her education. There will be no upper limit of annual income of parents if the girl child is with disability or if both parents are dead/if she is an inmate of JJAct Home.

Success Story: As a result, no one can deny that the participation rate of female in different schemes is growing and it is visible. But a proper study on what extent it is helping to curb out discrimination of girl child and reducing Child Sex Ratio is necessary.

But we should put up mentioning two success stories one, the BBBP programme and another on Kanyashree have reported some success in parts of India.

First one, in 2009, it has reported that in Gujrat, rate of female birth has increased from 802 to 882 for 1000 male birth. BBBP programme was credited with this improvement. The state Government of Gujrat launched an intensive awareness crusade to save the girl after 2011 census. Random audits resulted in seizure of more than 137 ultrasound machines and legal action against medical centers and doctors. The chief minister started awareness campaign and addressed an audience of more than 5000 Anganwadi (Child Care) workers. These workers further counseled the community members.[13]

The other success story is Kanyashree in West-Bengal, which is launched on 1st October, 2013, the response had been so huge that within a year 16 lakh girls were registered under the scheme. School dropout rate among girls falls in Bengal. According to a data from the National Sample Survey 2014 dropout rate for girls is 3.23 percent, the same for the State is 1.28 percent. In the 2009 survey, the figure stood at 2.34 percent for Bengal. After recognition by UNICEF and invitation to the Girl Summit 2014 in London, the Kanyashree scheme has been portrayed in a short-film made by an Oscar-winning director/filmmaker Megan Mylan on a young girl's fight to stave off marriage and help her family make ends meet.

Concluding Remarks

A few remarks as suggestions can be given for curbing the discrimination against girl child is that it will be wise to involve local religious/spiritual and political leaders including PRIs/ULSG leaders in advocacy and community mobilization programme. A massive awareness of Anganwadi workers is necessary so as to they could counsel the target population. All community level workers, leader from LSG must take a pledge and challenge to prevent an early childhood marriage and also promotion of equal property rights for daughters and sons through community mobilization initiatives is necessary call of the day.

Endnotes

1 http://www.worldlifeexpectancy.com/india-life-expectancy

2 Sanjoy Bhatt. Foeticide: The Worst Form of Femicide. Social Welfare, January 2001, Pp-13-16

3 National Family Health Survey 3.

4 https://www.google.co.in/?gfe_rd=cr&ei=gSgBVf_YK-fV8geXh4HQBw&gws_rd=ssl#q=Child+sex+ratio+in+2001and+201+in+Birbhum+district

5 Karlekar, Malavika, "The girl child in India: Does she have any right? Canadian Womens Studies, March 1995,

6 Dahlburg, "Where killing baby girls 'is no big sin'," *The Los Angeles Times* [in *The Toronto Star*, February 28, 1994.

7 Zeng Yi *et al.* "Causes and Implications of the Recent Increase in the Reported Sex Ratio at Birth in China," *Population and Development Review*, 19: 2 [June 1993], p. 297.

8 Marina Porras, "Female Infanticide and Foeticide" in www2.nau.edu/-bio372-c/../infant.htm.

9 Malavika Karlekar, "The girl child in India: does she have any rights?" Canadian Woman Studies, March 1995.

10 Cehat vs union of india—Mp Health services. www.health.mp.gov.in/../CHEAT-VS Union of India.

11 *Ibid.*

12 http://wcd.nic.in/BBBPScheme/02.12.2014%20Final-Guidelines_BBBP.pdf%20%281%29.pdf

13 Ashish Sadh and Payal S. Kapoor. *Save the Girl Child Initiatives in India -A Social Marketing Perspective, Indian Institute of Management, volume 4, issue 3, October 2012.*

References

Ashish Sadh and Payal S. Kapoor. 2012. *Save the Girl Child Initiatives in India—A Social Marketing Perspective, Indian Institute of Management,* **4***(3).*

Cehat vs union of India. Mp Health services. www.health.mp.gov.in/../CHEAT-VS Union of India.

Dahlburg, "Where killing baby girls 'is no big sin'," *The Los Angeles Times* in *The Toronto Star*, February 28, 1994.

Karlekar, "The girl child in India: does she have any right?" Canadian Women Studies, March 1995.

Malavika Karlekar, "The girl child in India: does she have any rights?" Canadian Woman Studies, March 1995.

Porras, "Female Infanticide and Foeticide". http://en.wikipedia.org/wiki/save_girls#cite-note-6

Sanjoy Bhatt. Foeticide: The Worst Form of Femicide. Social Welfare, January 2001, pp.13-16.

Census of India, 2001, Series-1, India: Primary Census Abstract, Total Population: Table A-5 & Census 2011.

Zeng, Y.I. *et al.* "Causes and Implications of the Recent Increase in the Reported Sex Ratio at Birth in China," *Population and Development Review*, 19: 2 [June 1993], p. 297.

4

Empowerment of Women in India: Issues and Challenges

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Abstract

The term women empowerment has become an important subject in intellectuals' discussion all over the world since the last quarter of the 20th century. The convention on the elimination of all forms of discrimination against women in 1979, The Rio conference in 1992, the Copenhagen Summit in 1993, the Cairo conference in 1994 talked much about women empowerment and it got a final shape in fourth world conference on women in Beijing in 1995. The Bejing+5 declarations and the millennium development goals (MDGs) gave further Phillip to this issue. Since then this has become a hot topic of discussion and thousands of articles have been published in this subject both nationally and internationally. Though the efforts and discussions on feminist issues have gained momentum in this subcontinent after 90's the question of gender equality as a policy principle was adopted long before it. The constitution makers were very much aware about the necessity of women empowerment and that's why this was reflected in Indian constitution in its preamble, in fundamental duties and in the directive principles. Article 14 and 15(1) of the constitution guarantees equal rights of women. A lot of schemes were also undertaken in this country since independence to empower the female community. The national policy for empowerment 2001 can be considered as a milestone in this regard. Despite these wilful efforts and high sounding slogans the objective of elimination of gender discrimination and gender (women) empowerment is still a hard target to be achieved. Not only for India it is a difficult task for all most all countries of the world even in the 21st century. The study published by the world economic forum in 2014, nineteen years after the Beijing conference, shows that no country even those in very high human development rank, has become successful in eliminating gender gap. India ranks 114 out of 142 countries taken for the report. As per gender 2013 inequality index India ranks 135 out of 187 countries in the world. This is not a healthy situation for a country like us where women got voting right much before U.S.A and some other European countries.

As against this backdrop the problem of women empowerment should be a vital agenda in the development discourse of all countries specifically for the developing countries like India. This paper attempts to discuss the question of women empowerment in India and the situation of this country in this vital aspect of human development. Delineating the essential issues towards achieving gender equality this work wants to highlight the challenges before the country to reach into the destination where women will be free to choose their own destiny.

Keywords: *Women Empowerment, MDGs, Gender gap, Gender inequality*

Introduction

The term women empowerment can be defined as the process by which women can gain control over the factors which affects their life and well being. Getting life sustaining articles, living with self-esteem and enjoying freedom enhances the quality of life of the people and an empowered woman is likely to have access to all these things. According to Kate Young(1993), empowerment enables women 'to take control of their own lives, set their own agenda, organize to help each other and make demands on the state for support and on the society itself for change' (Rahaman. Md Aminur 2013). Chen and Mahmud (1995) defines it as the process of positive change that makes an improvement of women's fallback position and bargaining strength within a patriarchal structure and identify different causal pathways of change such as material, cognitive, perceptual and relational (Rahaman. Md aminur 2013). Naila Kabeer (2001) defines empowerment as the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to him (Kabeer Naila 2001).

Whatever be the way the term be defined it has now become a practical challenge all over the world to eliminate gender gap and ensuring equal rights and opportunities and creating conditions where women can freely express their choices. These objectives have now occupied an important place in the development agendas of many countries of the world including India.

Empowerment of Women: Indian Perspective.

Background: Gender disparity specifically discrimination between men and women has a deep root in Indian society. The Brahminical traditions reserve the study of the Vedas to men of the twice born casts, and consider female education as a threat to social order (Dreze Jean and Sen Amartya 1995). In ancient scriptures we find many outstanding female intellectuals such as Maitreyi and Gargee, but they are only exceptions. Rather a highly unequal gender relations which manifests in the form of female seclusion, extremely low labour force participation rates, gender gap in literacy rates, highly restricted female property rights, strong male preference in fertility decisions, extensive neglect of female children, forced abortion of female foetus, drastic separation of married women from her natural family, characterise a great part of the Indian society for centuries.

Keeping these hard fact into consideration the independent India gave due importance on gender equality as is seen in article 14, 15(1), in the preamble, in fundamental duties and also in the directive principles of the Indian constitution. A lot of schemes have been undertaken in post independent India for the betterment of the condition of women. As regards female issues a remarkable shift of emphasis is being observed from 5th five year plan onwards from welfare to development and from 8th plan the emphasis being shifted from development to empowerment. Keeping in tune with the heightened international awareness for women a great deal of measures was adopted by the government of India for women's empowerment since 1990's.

Women empowerment measures in India

Within the institutional framework, India tries to develop policies and programmes and enacts certain laws for women's advancement in different spheres. The National Commission for Women was set up by an Act of Parliament in 1990 to uphold the rights and legal entitlements of women. The 73rd and 74th Amendments (1993) to the Constitution of India have provided for reservation of seats in the local bodies, Such as Panchayats and Municipalities, for women, laying a strong foundation for women's participation in decision making at the local levels. India has also ratified various international conventions and human rights measures committed to secure gender equality. The important among them is the ratification of the Convention on Elimination of All Forms of Discrimination against Women (CEDAW) in 1993. The Mexico Plan of Action (1975), the Nairobi Forward Looking Strategies (1985), the Beijing Declaration as well as the Platform for Action (1995), and the millennium declaration aiming to promoting gender equality and empowerment of women have been wholeheartedly accepted by India for appropriate follow up. The year 2001 was declared by the Government of India as the year of Women's empowerment. The national policy for women was passed in 2001 which was aimed at all-round development and empowerment of women by creating an environment where women can realize their full potential, enjoy all human rights and fundamental freedom on equal footings with man, get equal access to participate in social, economic and political life of the nation, get equal access in health care education, get actively involved in mainstream development activities, and live in a society which is free from any form of discrimination against women.(National policy for the empowerment of women 2001).

The schemes and programmes undertaken in independent India which have either full or partial bearings for the development and empowerment of women includes Indira Mahila Yojana, ICDS, National rural health Mission, Sarva Siksha Abhijan, Janani Suraksha Yojana, Integrated Child protection scheme, Swadhar a scheme for women in difficult circumstances, Ujjawala—A Scheme for Prevention of Trafficking and Rescue, Rehabilitation and Reintegration, IGMSY, Sabala, Indira Awas yojana, Swayam Siddha, Mahatma Gandhi employment Guarantee act/scheme(MGNREGA/MGNREGS). Besides the above mentioned schemes Government of India, in an attempt to strengthen the process that promotes all-round development of women, launched NMEM (National Mission for the empowerment of women) in 2010. The mission aimed at reinforcing inters- sector convergence; facilitating the process of coordinating all the women's welfare and socio-economic development programmes across ministries and departments and providing a single window service for all programmes run by the Government for Women under support of various Central Ministries. The mission is named as Mission Poorna Shakti, implying a vision for the holistic empowerment of women. Recently government of India launched 'beti bachao beti padhao" and 'Sukanya Samridhi Yojana' for the expansion of women empowerment across the country.

Women Empowerment: Indian position

The programmes and policies, campaign and slogans, schemes and actions have had created some impact on the empowerment of women in our country but still miles to go to achieve the goal of achieving gender equality, to eradicate all forms of discrimination against women, to grant full access to women in economic and political decision making, to stop abusing girl child, stopping forced abortion of female foetus, ensuring equal labour force participation rate, and full female inclusion in all spheres of life of the Indian society. Looking at different dimensions of women empowerment we see that Indian position is still not satisfactory.

Sex Ratio: Number of females per thousand males was 943 in 2011, 933 in 2001, 927 in 1991, and 934 in 1981 and 941 in 1961. Today female ratio is highest after 1961. Within this happy atmosphere the most unpleasant fact is that the proportion of girl child under the age group 0-6 has gone down by 2.5 percentage points where as in case of male child it has fallen by 2.2% points. The child sex ratio has declined from 927 in 2001 to 919 in 2011.

The comparison of sex ratio of India with ten most populous countries of the world show that India is far behind U.S.A (1025), Brazil (1042), Russian federation (1167), Bangladesh (978), Japan (1055) and Nigeria (987). India is slightly ahead of China (926) and equalling with Pakistan (943), but behind the world sex ratio of 984.

Table 1: Sex ratio (Females per 1000 males) in Major states of India

State	Sex ratio	
	2001	2011
Kerala	1059	1084
Tamil Nadu	987	996
Andhra Pradesh	978	993
Orissa	972	979
Himachal Pradesh	968	972
Karnataka	965	973
West Bengal	934	950
Assam	935	958
Madhya Pradesh	919	931
Rajasthan	921	928
Maharashtra	922	929
Gujarat	920	919
Bihar	919	918
Uttar Pradesh	898	912
Punjab	876	895
Haryana	861	879
India	933	943

Source: Census of India 2011, Chapter 1.

A comparison of the sex ratio of the selected Indian states reveals that (table 1) sex ratio is particularly low in large parts of north India, especially in Punjab, Haryana and Uttar Pradesh, relatively high in Tamil Nadu an Andhra Pradesh and highest in Kerala(above unity), a figure Higher than U.S.A.

Dreze and Sen mentions that (Dreze Jean and Sen Amartya 1995) these regional patterns are consistent with the character of gender relations in different parts of the country. Highly unequal gender relations in northern states are mainly due to female seclusion, low labour force participation rates, low rate of literacy, restricted female property rights, neglect of female children, and male preference in fertility decisions etc. In southern India social position of women is somewhat better. Kerala has a more liberated position of women in society, and a tradition of matrilineal inheritance for an important section of population.

The upshot of the analysis is that the female male ratio figure of India as well as some large states does not present higher social standing of women in the Indian society.

Labour force participation

Labour force participation is the proportion of population aged 15 and above that is economically active: all people who supply labour for the production of goods and services during a specified period of time. The world bank data (http://wdi.worldbank.org/table/2.2) suggests that labour force participation for man and women in 2013 was 80 and 27 respectively which was 83 and 34 in 2000. The data shows that over the past 13 years gender disparity in respect of labour force participation rate has increased. The world bank data also suggests that in respect of female labour force participation rate India is even behind the countries like Nepal (80), Bhutan (67), Bangladesh (57), who have a lower Human Development rank, compared to India.

Education and Health: The following table shows the educational attainment of males and females in India as per census 2011.

Table 2: Educational level and persons attending educational institution in India in 2011 (In percentage)

	Literacy rate	Literate Without educational level	Below Primary	Primary	Matric /Secondary	Higher Secondary	College	All Types of Institution
Males	82.14	54.84	53.40	53.92	60.19	60.06	59.13	54.22
Females	65.46	45.16	46.60	46.08	39.81	40.36	40.87	45.78

Source: Computed from census data2011

The above table clearly indicates gender disparity in respect of education as prevalent in our country till today. Females lag behind males with respect to literacy rate and attending educational institutional of different types. In the age group15-19 the percentage of female attending educational institution is 44.64% while it is 55.36% for male. This

age group thus shows a higher level of disparity as compared to the females for all age groups. Gross enrolment ratio for persons (age group6-13 years, Classes I-VIII) was 104.5 for boys and 103.3 for girls for the year 2010-2011 (Economic Survey 2013-2014).

Dreze and Sen (Dreze Jean and Sen Amartya 1995) points out that considerations involved in educational decisions are different for boys and girls. In case of male education the economic incentives are strong because improved education enhances the prospect of employment and parents expect a stake in the economic advancement of their son. But given the gender division of labour, marriage practices and property rights, the parents have little incentive from female education. The figure as seen in table 2 bears the testimony of these observations even after the first decade of the 21st century.

The same picture is observed in selected health indicators too. Infant mortality rate for male and female was 41 and 44 for male and female respectively in 2012. The picture is slightly healthy for women in case of life expectancy. Life Expectancy at birth for the period 2006-2010 was 64.6 for males and 67.7 for females. Infant deaths are 2.7% and 3% for males and females respectively in 2012 (CRS report 2012). Registered birth of female in 2012 was 47.6% and for male it was 52.4%. Maternal Mortality Rate (MMR) was 200 per 100000 live births in 2010, a figure which is quite high but not absurd for a country where almost 20 % of the mother does not get proper medical attention at the time of delivery. The mean age of marriage is 21.2 not a happy figure for a country with more than 1210 millions of population.

Participation in Decision Making

Though women have given 50% reservation in local self-governments, yet the representation of women in state legislative assemblies and in both houses of parliament are still quite low. In 2009 and in 2014 the numbers of female MPs were 59 and 62 respectively, comprising only 10.86% and 11.41% of the total seats. In states like Jharkhand, Haryana and Tripura there is no female representation in 16th Lok Sabha. In Rajya Sabha female members constituted only 8.98% and 11.8% of the total seats in 2009 and in 2014 respectively. In the states women share is only 8% in assemblies and 4% in state councils. In central council of ministers (2014) women's share is slightly above 15%. In the panchayet set up (As on March 2013) female representation is 46.7% female, with a maximum of 58.6% in Jharkhand and minimum 32.3% in Goa (6). As on 1.4.2014 there were only 2 women judges out of 30 judges in Supreme Court and there were only 58 women judges out of 609 Judges in different high courts. Women's presence in Indian administrative service in 2012 was only 14.14%, 15.17% in Indian statistical service, 19.17% in Indian Foreign Service and 30.28% in Indian economic service and only 11.76% in Indian Trade service in 2014.

The above figures indicate that there is a long way to go to ensure equal participation of women in decision making process, a factor which is extremely important for women empowerment.

Consumption of Specific Foods

The data obtained from the national family health survey 3 as shown in the following table 3 shows gender disparity with respect to specific consumption goods. The consumption of nutritious foods like milk, pulses or beans, fruits, eggs, fish, chicken, and meat, Indian society shows bias against women. As per the available data the percentage of women consuming these foods on daily, weekly basis falls short of the men in all categories of food. Men are ahead of women in occasional consumption of all categories of food except fruits where women are slightly ahead of men. This lies in the traditional Indian culture of fasting by women in different religious occasions and consuming fruits to break the fast. Percentage of women never consuming these categories of food is obviously higher than men in the period mentioned in the survey. Prevalence of strong gender bias in consumption of specific foods even in 21st century does not portrait a healthy sign if considered with respect to empowerment of women.

Table 3: Percentage distribution of women and men aged 15-49 by frequency of consumption of specific Foods, 2005-06

Type of Food	Frequency of Consumption			
	Daily	Weekly	Occasionally	Never
	Women			
Milk or curd	39.8	15.6	33.2	11.4
Pulses or beans	52.7	36.8	9.6	0.9
Fruits	12.7	27.2	56.6	3.5
Eggs	3.5	28.8	32.9	34.8
Fish	6.3	21.9	34.3	37.5
Chicken or Meat	0.9	21.8	42.2	35.1
Fish/chicken Meat	6.8	28.5	32.0	32.6
	Men			
Milk or curd	46.7	20.5	25.8	7.0
Pulses or beans	52.1	38.6	8.4	0.9
Fruits	13.1	34.4	50.0	2.6
Eggs	5.2	36.1	35.3	23.3
Fish	6.2	25.1	38.2	30.5
Chicken or Meat	1.2	27.1	46.0	25.6
Fish/chicken Meat	6.9	34.1	35.1	23.9

Source: National Family Health survey-3, 2005-2006.

Gender gap and Gender inequality

The global gender gap index (GGGI2014), prepared by world economic forum, examines gender gap in four fundamental categories (sub indexes): economic participation and opportunity, educational attainment, health and survival and political empowerment.

India with a score of .6455 ranks 114 out of 142 countries stands much behind the countries like Sri Lanka, China and slightly behind Nepal, Cambodia etc. In economic participation India (with a score of .4096) ranks 134 out of 142 countries much behind Bhutan and Nepal. Economic participation sub index reflects difference in labour force participation rates between men and women, gender difference in earned income and white collar jobs. In respect of educational attainment India ranks 126(.8503), lagging behind Ghana, Nepal Bhutan and many other Asian and African countries. Educational attainment sub index reflects gender gap in the primary, secondary and tertiary level of education. In health and survival India ranks 141 out of 142 countries, far behind Pakistan and all other Asian and African countries. Only Armenia is behind India in health and survival score. This sub index shows difference between men and women in sex ratio at birth (to capture the phenomenon of 'missing women') and women's and men's healthy life expectancy. In political empowerment India's performance is extremely well, much better than U.S.A. Canada, France and U.K. In this sub index India ranks 15 out of the all the countries surveyed. Actually because of this score India got a rank of 114, otherwise India's rank would have been much lower. This sub index measures the gender gap in highest level of political decision making, by considering the ratio of women and men in ministerial level and in parliamentary position. It is an astonishing fact that though only 11.41% of Lok Sabha and 8% of in state assemblies seats held by Indian women, India ranks 15 out of 142 countries of the world in respect of political empowerment.

Gender inequality index (GII) as prepared by U.N.D.P (U.N.D.P HDR 2014 -Table 4) is a composite measure reflecting inequality in achievement between women and men in three dimensions, namely reproductive health, empowerment and the labour market. India with a rank of 135 in H.D.I. ranks 127 in gender inequality index 2013. This apparently presents some relief in case of gender inequality but the striking fact is that the countries in the medium human development group like Bangladesh, Bhutan, and Cambodia who lies behind India in respect of H.D.I. are ahead of India in respect of G.I.I. Besides the countries in the low human development group like Nepal, Kenya, Myanmar, Rwanda, Zimbabwe, Senegal, Uganda who are far below India in respect of H.D.I. are doing well in gender inequality. The G.I.I data suggests that our country has sharp divergence between men and women in educational attainment and in labour force participation rate. Participation rate of 15+ male and 15+ female as in 2012 is 80.9 and 28.8 respectively, a striking difference no doubt.

Women Empowerment: issues and challenges

Despite the numerous measures, programmes and policies undertaken in India for women empowerment the real picture is not very satisfactory. In respect of economic participation, political participation, social inclusion, educational attainment, health and survival, social standing, labour force participation of women, India's achievement does not make us feel proud off. A strong male preference in fertility decision, illegal

abortion of female foetus, large number of 'missing women', plentiful number of female widows, gender bias in consumption of nutritious foods, unequal treatment in providing educational opportunities, characterise Indian society. In the name of traditional Indian culture and heritage, female child are trained for cooking, knitting, and other domestic jobs as an essential perquisite for marriage. Knowing these things is considered to be more essential than education to millions of Indian parent till today. In the name of culture gender bias is practiced in Indian families and Girl Childs grow in this atmosphere from their early life takes these things as usual and common and practice the same thing when they grow elder. In this way some sort of circular causation in respect of gender disparity runs in the Indian societies for centuries and even in this age too.

Breaking this circle is not an easy task. Crime records Bureaus figure suggests that rape, kidnapping, abduction, molestation, dowry death, cruelty by husbands and relatives, selling of girl child for prostitution in home and abroad, sexual harassment in the work place is on the rise with so called progress of the society. The brutality that is being observed in 'Nirbhaya' rape and murder case unmasks the deepest darkness of a patriarchal society which still considers women as an object of consumption.

To enlighten this darkness is the real challenge of the Indian society. For this to achieve only government programmes and policies and women reservation is not sufficient. A change in the mind set of the Indian mass is an essential precondition for attaining women empowerment. Educated youths have to come forward first to eliminate gender gap and ensuring equality between men and women. Print, electronic and social media has an important role in this respect. Media has to play some objective roll, irrespective of their business interest or their political affiliation, to create public opinion in women issues. Not only media, politicians are also expected some responsible role to play to uphold the position of women in this country. Only concerted efforts of common people, politicians, media and the women community particularly the enlightened section of the women can eradicate all disparity between men and women and establish a condition where women empowerment in real sense of the term would be possible.

References

Rahaman Md Aminur 2013. *Global Journal of Human social science and Culture*, **13**(6).

Kabeer, Naila 2001. "Reflections on the measurement of women's empowerment." In Discussing women's Empowerment-Theory and Practice. Sida Studies No. 3. Novum Grafiska AB: Stockholm.

Dreze, Jean and Sen, Amartya 1995. India Economic development and Social Opportunity, Oxford University Press, New Delhi.

Census of India 2011, Chapter 1, Office of the Register General and Census Commissioner, Government of India.

Economic Survey 2013-2014, Ministry of Finance, Government of India.

National Family Health Survey (NHFS-3) 2005-2006, Ministry of Health and family welfare, Government of India.

Vital statistics of India 2012. Office of the Register General, Ministry of Home Affairs, Government of India.

World Economic Forum 2014: The Global Gender Gap Report 2014.

U.N.D.P. (2014), Human Development Report (2014) Table 4.

World Bank (2015) World Development Indicators: labour force structure, Table 2.2: wdi.worldbank.org

Election Commission of India: eci.nic.in.

5

Inward FDI and its Dynamic Causal Relationships with Exports and Imports in India during the Post-reformed period: A Quantitative Analysis

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Abstract

The paper attempts to investigate into the causal linkages between exports, imports and inward FDI in the liberalized regime in India during 1991-92 to 2012-13. Granger Causality Test has been used to examine the causal linkages. The empirical analysis has confirmed that both exports and imports influence inward FDI and there is dynamic short-run causal relationship observed during the period of the study.

Keywords: *Inward FDI, Exports, Imports, Granger Causality Test, Post- reformed period*

The colonial pattern of trade has changed to suit the needs of a developing economy since independence. Extension of production capacity is a prerequisite for an economy that decides to get on with a programme of development. For this, imports of machinery and equipment, which cannot be produced in the initial stages at home, are essential. Such developmental imports either help to create new capacity in some lines of production or enlarge capacity in the other lines of production. And, it is generally agreed that free trade will increase welfare for the countries engaged in it.

A transformed investment climate, an improved business confidence and a wave of entrepreneurial optimism were generated after the reforms initiated in the early 1990s. With the initiation of reforms, the Indian economy has been increasingly becoming global.

An important dimension of global integration is trade, which has risen steadily as a proportion of GDP. Capital flows, as a proportion of GDP, had been on a clear uptrend during that decade. This is a natural outcome of the improved investment climate and recognition of the robust macroeconomic fundamentals like high economic growth, relative price stability, healthy financial sector and high returns on investment.

Among the components of capital inflows, foreign investment has continued to be a relatively stable component. The relative stability of investment flows is primarily due to steadily rising FDI inflows. The most welcome feature of the increased capital flows

was the 150 per cent increase in the net FDI inflows in 2006-07 to US$ 23 billion from US$ 15 billion in 2005-06. This trend continued in the first six months of the financial year 2007-08 with gross FDI flows reaching at US$ 11.2 billions. FDI inflows were broad-based and spread across a wide range of economic activities like manufacturing, construction, banking services, financial services and information technology services. FDI inflow data from different sources reveal the fact that FDI inflow in the agriculture and allied sector is very little in the liberalization period but in case of industry, it is better than agriculture after liberalization. Whereas in services FDI inflow increases over time in the post reform period and there is a steady improvement especially in the IT and ITES sector even after global financial subprime crisis held in September 2008. With outward FDI also increasing steadily over the last five years, the overall net flows (FDI balance in BoP) have grown at a slower rate.

It is generally claimed that FDI inflows in India has contributed to expanding exports, creating employment and also providing an important channel for global integration and technology transfer. The country expects to achieve export-led growth for which special focus has been given in the EXIM Policies (2002-09). The composition of exports shows a perceptible shift in this decade from light manufactures to heavy manufactures, petroleum crude and products, and services.

In the Indian context, the focus on import substitution has led to the setting up of industries in India with greater access to free flow of technology. FDI inflows might have a role to play here. The composition of imports shows that petroleum, oil and lubricants (POL), taken together, continue to be the single major item of imports. With the rise in crude oil prices, growth in POL imports continued to be high in 2007-08 though it moderated in the first half of 2008-09. The high growth in import of capital goods was contributed by both electrical and non-electrical machinery, reflecting higher domestic investment, resurgence of manufacturing, and rising needs of the export sector. A high import-oriented sector generally justifies FDI inflows in that sector.

An overview of trade (i.e. exports and imports) and FDI inflows appears to point to a close link between international trade and investment. The closer the relationship between trade and investment, the greater is the chance of the host country realizing the benefits from trade and investment liberalization. Trade liberalization implies a freer movement of goods and services, while investment liberalization implies a better environment for the movement of resources. Increasing international trade, according to comparative advantages, is the key condition for countries to realize gains from trade.

This paper tries to find out if there are linkages between India's exports, imports and FDI inflows in the liberalized regime.

Review of Literature

Geweke (1982) suggests a decomposition method where he has found that the causality from FDI flows to trade openness is stronger than that from trade to FDI flows. The

Proximity-Concentration Hypothesis (*Krugman*, 1983; *Horstmann* and *Markusen*, 1992; *Brainard*, 1993, 1997) suggests that greater transaction costs, resulting from higher trade barriers and transportation costs, lead to horizontal cross-border production expansion and, thus, stimulate international investment. In this view, international trade is more or less a substitute for international investment. On the contrary, the *Factor-Proportion Hypothesis* (*Helpman*, 1984; *Markusen*, 1984; *Helpman* and *Krugman*, 1985; *Ethier* and *Horn*, 1990) appears to predict that international trade and investment are complements as firms take advantage of factor price differences through cross-border vertical production integration.

A few studies have found a one-way causal relationship between exports and inward FDI, indicating that exports stimulate FDI (*Jun* and *Singh*, *1996*; *Khan* and *Leng*, 1997; *Zhang* and *Felmingham*, 2001). Few other studies indicate that there may be a bi-directional causal link, i.e. exports stimulate FDI inflows and FDI inflows promote exports (*Baliamoune-Lutz*, 2004; *Liu et al*. 2002; *Zhang* and *Felmingham*, 2001). *Brauerhjelm*, *Oxelheim*, and *Thulin* (2005) have investigated into the relationship between domestic investment and FDI outflows. They have found evidence of complementary relationships coinciding with industrial vertical integration practices as well as of substitution relationships coinciding with industrial horizontal integration.

Pacheco-López (2005) has found that there exists a bi-directional causality between FDI and exports and FDI and imports in Mexico. It is also interesting to note that some studies have concluded that positive association between inward FDI and exports is unfounded, indicating that foreign firms are not likely to stimulate exports (*Alici* and *Ucal*, 2003; *Sharma*, 2003; *Zheng et al*. 2004). *Aizenman* and *Noy* (2005) observe that it is common to expect bi-directional linkages between FDI and trade in goods. However, it is difficult to indicate whether inflows and outflows of FDI have different effects on trade in different types of goods. They have suggested that there is a strong relationship between FDI flows and trade, especially in manufacturing goods. *Wong* and *Tang* (2007) have examined the causality between FDI and exports using the electronics exports data of Malaysia.

The majority of the above-mentioned empirical studies have applied causality tests based on time series data to examine the nature of any causal relationship between FDI and exports. Some studies have not considered the endogenous nature of the export process and are subject to simultaneous bias (*Hood* and *Young*, 1979). Several are cross-country studies have assumed a common economic structure and similar production technology across countries, which may in fact not be true (*Hejazi* and *Safarian*, 2001; *Liu et al*. 2001). Lack of comparability in terms of time and country has been an obstacle to the meaningful conclusion with respect to the available empirical studies, although a majority of such studies indicate a one-way causal relationship between inward FDI and the host country's export performance.

Data

The data used for this study are secondary in nature.

Quarter-wise data of exports (X), imports (I) and inward FDI for 1991-92 to 2012-2013, have been considered which give 88 observations. Such data have been collected from various publications of the Reserve Bank of India (RBI), like RBI Bulletin, RBI Annual Reports, etc.

Methodology

The study has used the *Granger Causality Test* in a bivariate Vector Autoregressive (VAR) framework to examine the causal links between inward FDI and exports over the period 1991-92 to 2012-13. Causal links between inward FDI and imports have also been examined in the same manner for the same period. The period corresponds to the liberalization period during which there were market-oriented reforms in wide-ranging sectors with an emphasis on liberalizing investment and trade regime in order to make the Indian economy increasingly integrated with the global economy.

Sims (1980) was the first to introduce the VAR technique in econometric modelling to analyze the dynamic impact of random disturbances on the systems of variables. In a standard VAR model, each endogenous variable in the system is modelled as a function of its own past lags and the past lags of other endogenous variables. In *Sims*' VAR Methodology, all variables are treated as endogenous in order to identify and eschew spurious regressions.

Augmented Dickey Fuller (ADF), Phillips-Perron (PP) and *Kwiatkowski*, *Phillips, Schmidt* and *Shin (KPSS) Tests* have been performed to test the non-stationarity property of the series. *Engle* and *Granger* (1987) have said that a non-stationary (or unit root) series is said to be integrated of order "d", if it can be made stationary by differencing it "d" times, expressed as X~I(d).

The *ADF Test* consists of running of ordinary least square (OLS) regression of the first difference of the series against the series lagged once, lagged difference terms, a constant and a time trend. The ADF Regression for a time series Y_t is as below:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta T_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-i} + \varepsilon_t \qquad (1)$$

Y_t is variable interest, Δ represents differencing operator, t acts as time trend variable, *m* is the number of lags, which are added to the model to ensure that the residuals ε_t are 'white noise'. *Schwarz Bayesian (or Information) Criterion (SBC or SIC)* and/or *Akaike Information Criterion (AIC)* are/is used to determine the optimal lag length or *m.* In the above equation, the null hypothesis ($\delta = 0$) is tested, i.e., a unit root exists in Y (i.e., Y is non-stationary) against the alternative hypothesis ($\delta < 0$). The null hypothesis will

be rejected if the t-test statistic from the ADF Test is negative and significantly less than the critical value tabulated in *MacKinnon* (1991). Non-rejection of the null hypothesis implies that the series is non-stationary, whereas rejection of the null hypothesis indicates that the time series is stationary.

PP Test has also been performed to infer whether a variable has a unit root. The null hypothesis is that the variable contains a unit root and the alternative hypothesis is that a stationary process has generated the variable. It is based on the OLS estimator $\hat{\alpha}$ of α in the model.

$$y_t = \mu + \alpha y_{t-1} + \varepsilon_t \qquad (2)$$

The KPSS Test is a Unit Root Test in which the null hypothesis is opposite to that in the *ADF Test*. The null hypothesis is that the series is stationary. The alternative hypothesis is that the series is I(1). The basic idea behind this test statistic is very simple. If y_t can be written as $y_t = \mu + \mu_s$ (where u_t is some zero-mean stationary process), then not only does the sample average of the y_ts provide a consistent estimator of μ, but also the long-run variance of u_t is a well-defined, finite number. Neither of these properties holds under the alternative hypothesis.

The test itself is based on the following statistic:

$$\eta = \frac{\sum_{i=1}^{T} S_t^2}{T^2 \sigma^{-2}} \qquad (3)$$

$S_t = \sum_{s=1}^{t} e_s$ and $\overline{\sigma}^2$ is an estimate of the long-run variance of $e_t = (y_t - \overline{y})$. Under the null hypothesis, this statistic has a well-defined (non-standard) asymptotic distribution, which is free of nuisance parameters. H_o (null hypothesis) is rejected if η is higher than the appropriate critical value.

Next, it is to be considered whether all the variables that are included in the system are cointegrated, i.e., tied in a long-run relationship. Cointegration Test is done to determine the long-run economic relationship between the variables (*Thomas*, 1993), besides minimizing the spurious regression risk. In this study, the Error-correction Cointegration technique of *Johansen* (1988) and *Johansen and Juselius* (1990) has been applied to identify the cointegration relationship between the variables. *Johansen and Juselius*' (1990) approach to the number of cointegrating vectors is applicable only if two variables are I(1). The Cointegration Test of maximum likelihood (based on the *Johansen-Juselius Test*) is developed following a VAR approach initiated by *Johansen*

(1988). According to *Johansen* (1988), a p-dimensional VAR model, involving up to k-lags, can be specified as below:

$$Z_t = \alpha + \prod_1 Z_{t-1} + \prod_2 Z_{t-2} + \ldots\ldots\ldots \prod_k Z_{t-k} + \varepsilon_t \ldots\ldots\ldots (4)$$

Z_t is a $(p \times 1)$ vector of p potential endogenous variables and each of the $\prod_i$ is a $(p \times p)$ matrix (in our study 2×2) of parameters that can be estimated and ε_t is the 'white noise' term and α is a $(p \times 1)$ vector of constants.

Equation (4) can be formulated into a Vector Error Correction Model (VECM) form as below.

$$\Delta Z_t = \alpha + \prod_k Z_{t-k} + \sum_{i=1}^{k-1} \theta_i \Delta Z_{t-i} + \varepsilon_t \ldots\ldots\ldots (5)$$

Δ is the first difference operator, $\prod$ and θ are $(p \times p)$ matrices of parameters that can be estimated, k is the order of the VAR translated into a lag of $k-1$ in the ECM, and ε_t is the 'white noise' term. Π is a vector which represents a matrix of long-run coefficients and it is of paramount importance and the coefficient matrix Π is called the impact matrix and it contains information about the long-run relationships between the variables in the data vector. The long-run coefficients are defined as a multiple of two $(p \times r)$ vectors, α and β', and hence $\Pi = \alpha\beta'$, where α is a vector of the loading matrices and denotes the speed of adjustment with disequilibrium, while β' is a matrix of long-run coefficients so that the term $\beta' Z_{t-1}$ in equation (5) represents up to $(p-1)$ cointegration relationships in the Cointegrating Model. Evidence of the existence of cointegration is the same as evidence of the rank r for the Π matrix. *Johansen* and *Juselius* (1990) have shown that the rank of r of Π in equation (5) is equal to the number of cointegrating vectors in the system. It has full rank i.e. $r = n$ then it is said that there are n cointegrating relationships and that all variables are I(0). Cointegrated variables share common stochastic and deterministic trends and tend to move together through time in a stationary manner even though the two variables in the study are non-stationary. There are three possible cases.

◊ The rank of Π can be zero. This takes place when all the elements in the matrix Π are zero. This means that the sequences are unit root processes and there is no cointegration. The variables do not share common trends or move together over

time. In this case, the appropriate model is a VAR in first differences involving no long-run elements.

◊ The rank of Π could be full in this study, if rank =2. In this case, the system is stationary and the two variables can be modelled by VAR in levels. It represents a convergent system of equations with all the variables being stationary. In this study, if $\Pi = 2$ then all the components of Z_t are I(0) rather than I(1) and the cointegration analysis is irrelevant.

◊ Finally, the rank of Π can be reduced [$1 \leq Rank\Pi \leq (p-1)$]. In this case, even if all the variables are individually I(1), the level-based long-run component would be stationary. In this case, there are $p-1$ cointegrating vectors. The appropriate modelling methodology here is VECM.

Johansen and *Juselius* (1990) have developed two Likelihood Ratio Tests. The first Likelihood Ratio Test is based on the maximal eigen value which evaluates the null hypothesis of 'r' cointegrating vector(s) against the alternative hypothesis of 'r+1' cointegrating vector(s). The second Likelihood Ratio Test is based on the Trace Test which evaluates the null hypothesis of at most 'r' cointegrating vector(s) against the alternative hypothesis of more than 'r' cointegrating vector(s). If the two variables are I(1), but cointegrated, the *Granger Causality Test* will be applied within the framework of ECM in which the long-run components of the variables obey equilibrium constraints, while the short-run components of the variables have a flexible dynamic specification.

$$\Delta LnFDI_t = \sum_{j=1}^{p-1} \beta_{11,j} \Delta LnFDI_{t-j} + \sum_{j=1}^{p-1} \beta_{12,j} \Delta LnX_{t-j} + \alpha_1 ECT_{t-1} + \varepsilon_{1t} \text{.....} (6a)$$

$$\Delta LnX_t = \sum_{j=1}^{p-1} \beta_{21,j} \Delta LnX_{t-j} + \sum_{j=1}^{p-1} \beta_{22,j} \Delta LnFDI_{t-j} + \alpha_2 ECT_{t-2} + \varepsilon_{2t} \text{.....} (6b)$$

$$\Delta LnFDI_t = \sum_{j=1}^{p-1} \beta_{11,j} \Delta LnFDI_{t-j} + \sum_{j=1}^{p-1} \beta_{12,j} \Delta LnI_{t-j} + \alpha_1 ECT_{t-1} + \varepsilon_{1t} \text{.....} (7a)$$

$$\Delta LnI_t = \sum_{j=1}^{p-1} \beta_{21,j} \Delta LnI_{t-j} + \sum_{j=1}^{p-1} \beta_{22,j} \Delta LnFDI_{t-j} + \alpha_2 ECT_{t-2} + \varepsilon_{2t} \text{.....} (7b)$$

Δ is the first difference operator and ε_{1t} and ε_{2t} are 'white noise'. ECT is the error-correction term, and p is the order of the VAR which is translated to lag of $p-1$ in

the ECM. α_1 and α_2 represent the speed of adjustment after the inward FDI and Exports deviate from the long-run equilibrium in the period t –1. The coefficients of lagged value $\beta_{12,j}$ for $j = 1,.....p-1$ in equation (6a) represent short-run effects of export performance on inward FDI. The coefficients of lagged value $\beta_{22,j}$ for $j = 1,.....p-1$ in equation (6b) represent short-run effects of inward FDI on export performance. The coefficients of lagged value $\beta_{12,j}$ for $j = 1,.....p-1$ in equation (7a) represent short-run effects of import performance on inward FDI. The coefficients of lagged $\beta_{22,j}$ for $j = 1,.....p-1$ in equation (7b) represent short-run effects of inward FDI on import performance. A test of joint significance of these lagged terms constitutes a short-run *Granger Causality*.

If the variables contain a cointegrating vector, causality exists in at least one direction. According to *Engle* and *Granger* (1987), if two series, say X and Y, are integrated of order one [i.e., I(1)] and cointegrated, then there is possibility of a causal relationship in at least one direction. The direction of a causal relationship can be detected in the vector-error correction model (VECM). *Engle* and *Granger* (1987) have found that, in the presence of cointegration, there always exists a corresponding error-correction representation, captured by the ECT. This means that changes in the dependent variable are a function of the level of disequilibrium in the cointegrating relationship as well as changes in the other explanatory variable(s). The ECT captures the long-run adjustment of the cointegration variables. As such, in addition to the direction of causality, the incorporation of the ECT in the VECM allows to detect both short- and long-run causal relationships between the variables. On the other hand, if no cointegrating vector exists in the model, the standard VAR should be applied to test the causal relationship between the variables.

In order to examine the causal linkages between the variables, the *Granger Causality Test* is conducted. The direction of the impact of each of the variables is also determined from the analysis. In a vector autoregressive setting, the results from the *Granger Causality Test* are highly sensitive to the order of lags in the autoregressive process. Hence, a critical element in the *Granger Causality Test* is the determination of the lag length of the VAR[1]. VAR lag order selection between inward FDI and Exports and between inward FDI and Imports is shown in Tables 1 and 2 respectively. In order to capture the impact of the variables observed in the past time period in explaining the future performance, the optimal lag length p would be chosen and the criteria used in selecting the VAR model and optimal lag length require the combination of information criterion (minimum AIC or SBIC or HQIC or FPE value). Thus, the said selection criteria would guarantee that neither too short lag length is chosen to result in serially correlated errors nor too many lags are included that might induce specification bias for having inefficient

parameters (*Hendry* and *Mizon*, 1993). Having chosen the optimal lag length, short-run and long-run causality tests are carried out using the *Engle* and *Granger* (1969) method.

Table 1: VAR Lag Order Selection Criteria (inward FDI inflows and Exports) [Lnfdi and Lnx]

Lag	LL	LR	df	p	FPE	AIC	HQIC	SB(I)C
0	-96.371				.096218	3.33461	3.3621	3.40504
1	48.4837	289.71	4	0.000	.000812	-1.44013	-1.35765	-1.22885
2	54.0587	11.15	4	0.025	.000771	-1.49351	-1.35606	-1.14139
3	55.877	3.6367	4	0.457	.000831	-1.41956	-1.22712	-.926585
4	72.9862	34.218	4	0.000	.000534	-1.86394	-1.61652	-1.23011*
5	80.9323	15.892*	4	0.003	.000469*	-1.99771*	-1.6953*	-1.22303

Table 2: VAR Lag Order Selection Criteria (inward FDI inflows and Imports) [Lnfdi and Lni]

Lag	LL	LR	df	p	FPE	AIC	HQIC	SB(I)C
0	-104.936				.12109	3.56453	3.59183	3.63434
1	66.7602	343.39	4	0.000	.000452*	-2.02534*	-1.94342*	-1.8159*
2	68.436	3.3516	4	0.501	.000489	-1.94787	-1.81133	-1.59881
3	71.9139	6.9558	4	0.138	.000498	-1.93046	-1.73931	-1.44178
4	78.1732	12.519*	4	0.014	.000463	-2.00577	-1.76001	-1.37747

* indicates lag order selected by the criterion.
LR: Sequential Modified LR Test Statistic (each test at the 5% level of significance)
FPE: Final Prediction Error
AIC: Akaike Information Criterion
SBC or SIC: Schwarz Bayesian (or Information) Criterion
HQIC: Hannan-Quinn Information Criterion

Data Analysis

Table 3 presents the results of the *ADF*, *PP* and *KPSS Tests* of unit root by lag length chosen on the basis of minimum values of *Akaike Information Criterion (AIC)* and *Schwarz Bayesian (or Information) Criterion (SBC or SIC)*. The tests are performed on both the level and the first differences of the logged variables.

The variable *FDI* is stationary in level according to the *ADF Test*, the *PP Test*, and the *KPSS Test*. In the *ADF Test,* the null hypothesis of unit root can be rejected at levels of significance varying from 5% to 10%; in the *PP Test,* the null hypothesis of unit root can be rejected at levels of significance varying from 1% to 10%; while in the *KPSS Test,* the null hypothesis of stationarity cannot be rejected at levels of significance varying from 1% to 10% since the computed test statistic is less than the appropriate critical value.

The variable *Export* is stationary at level according to the *PP Test* and the *KPSS Test*, whereas the variable *Import* is stationary at level according to the *KPSS Test*. Based on all the three types of Unit Root Tests, it is found that the variable *FDI* is I(0). Based on all the three tests, it is found that the variable *Export* is I(0). Based on the *PP Test* and the *KPSS Test*, it is found that the variable Import is I(0). *Maddala* (2001) has pointed out that the *ADF Test* and the *PP Test* are not strong measures and, thus, should be disregarded. These tests will accept the null hypothesis of the existence of a unit root, only if there is strong evidence that it is based on the frequency. To circumvent this problem, the *KPSS Test* has been developed.

The Cointegration Test is not feasible in this study. It is feasible, if the variables are non-stationary at their levels. Generally, a set of variables is said to be cointegrated, if a linear combination of the individual series, which are I(d), is stationary. In other words, before testing the cointegration (i.e. to establish an existence or otherwise of a long-term equilibrium relationship) between two economic time series, say X and Y, it is first necessary to test whether they are integrated of the same order. This suggests that it would not be feasible to consider the cointegration analysis, which implies that a long-run relationship does not exist between inward FDI and Exports and between inward FDI and Imports. The prerequisite for the Cointegration Test is that the given two variables should be I(1). In the absence of the above prerequisite in India's data series pertaining to Exports and Imports, the Cointegration Test has been omitted.

Table 3: Test of Unit Root Test Hypothesis (1991Q1 - 2006 Q4) with Trend

		ADF Statistic		PP Test		KPSS	
Series		**Test Statistic**	**Lags**	**Test Statistic**	**Lags**	**Test Statistic**	**Lags**
LnFDI	Level	-3.747**	2	-4.870***	3	.20109**	3
	First Difference	-8.707***	0	-8.674***	3	.187456**	3
LnEXPORT (X)	Level	-1.241	4	-4.468***	3	.195768**	3
	First Difference	-3.744**	4	-15.287***	3	.177877**	3
LnIMPORT (I)	Level	-1.751	3	-2.534	3	.186195**	3
	First Difference	-10.449***	0	-10.578***	3	.119781**	3

Notes:

(a) The critical values are those of McKinnon (1991).

1 % ADF-Critical Value = -4.126; 5% ADF-Critical Value = -3.489; 10% ADF-Critical Value = - 3.173 in case of LnFDI (Logarithmic Value of FDI)

1 % ADF-Critical Value = -4.130; 5% ADF-Critical Value = -3.491; 10% ADF-Critical Value = - 3.175 in case of LnEXPORT (Logarithmic Value of Export)

1 % ADF-Critical Value = -4.128; 5% ADF- Critical Value = -3.490; 10% ADF- Critical Value = - 3.174 in case of LnIMPORT (Logarithmic Value of Import)

1 % PP-Critical Value = -4.121; 5% PP- Critical Value =-3.487; 10% PP- Critical Value =-3.172 in case of *LnFDI, LnEXPORT and LnIMPORT*

1 % KPSS-Critical Value = 0.216; 5% KPSS- Critical Value = 0.146; 10% KPSS- Critical Value = 0.119 in case of LnFDI, LnEXPORT and *LnIMPORT*

(b) ***, and ** represent the rejection of unit root hypothesis at the 1%, 5% and 10% levels of significance respectively.

(c) Number of Truncation Lags in the *PP Unit Root Test*, determined by the *Newey-West Criterion*, and Lag Length for the *ADF Test* are so chosen that the *Akaike Information Criterion (AIC), Schwarz Bayesian (or Information) Criterion (SBC or SIC), Hannan-Quinn Information Criterion (HQIC)* and *Final Prediction Error (FPE)* are minimized.

Causality Test

Although it has been concluded that there is no cointegration between inward FDI and Exports and between inward FDI and Imports, it does not mean absence of causality or relationship in the short run. In cases where inward FDI and Exports and inward FDI and Imports do not move together in the long run (i.e., there is no cointegration), it is possible for the variables to affect each other in the short run. The conventional *Granger Causality Test* is the most appropriate tool to determine the causal relationship. Since the variables are I(0), the *Granger Causality Test* can be performed as the level form in the framework of the VAR model. The VAR estimates are computed between inward FDI inflows and Exports and between inward FDI and Imports.

A time series, X, is said to *Granger-cause* another time series, Y, if use of past values of X improves the prediction of the current values of Y. In other words, if the changes in X precede the changes in Y, X is said to *Granger-cause* the changes in Y. This is tested by running a regression of Y on the past values of Y and X. The *Granger Causality Test* is validated only on the assumption that the variables are stationary. In this analysis, since the variables are level stationary, the *Granger Causality Test* is applied to the logarithm of the variables, which are stationary. The following equations are used:

$$LnFDI_t = \sum_{j=1}^{p} \alpha_{11,j} LnFDI_{t-j} + \sum_{j=1}^{p} \alpha_{12,j} LnX_{t-j} + \varepsilon_{t1} \text{.....(8)}$$

$$LnX_t = \sum_{j=1}^{p} \alpha_{21,j} LnX_{t-j} + \sum_{j=1}^{p} \alpha_{22,j} LnFDI_{t-j} + \varepsilon_{t2} \text{.....(9)}$$

LnFDI and LnX represent the time series of inward FDI inflows and Exports respectively which are in the logarithm form. ε_{t1} and ε_{t2} are 'white noise'. p is the lag length of

VAR[2]. A test of joint significance of these lagged terms ($\alpha_{12,j} = 0\, j = 1,.....p$ and $\alpha_{22,j} = 0\, j = 1,.....p$) constitutes a short-run *Granger Causality Test*.

$$LnFDI_t = \sum_{j=1}^{p} \alpha_{11,j} LnFDI_{t-j} + \sum_{j=1}^{p} \alpha_{12,j} LnI_{t-j} + \varepsilon_{t1} .....(10)$$

$$LnI_t = \sum_{j=1}^{p} \alpha_{21,j} LnI_{t-j} + \sum_{j=1}^{p} \alpha_{22,j} LnFDI_{t-j} + \varepsilon_{t2} .....(11)$$

LnFDI and LnI represent the time series of inward FDI inflows and Imports respectively which are in the logarithm form. ε_{t1} and ε_{t2} are 'white noise'. p is the lag length of VAR. A test of joint significance of these lagged terms ($\alpha_{12,j} = 0\, j = 1,.....p$ and $\alpha_{22,j} = 0\, j = 1,.....p$) constitutes a short-run *Granger Causality Test*.

The null hypothesis (i.e., *FDI Granger causes Exports*) is tested using the logarithm values of inward FDI and Exports, when both are stationary in their level form in the *Standard Granger Causality Regression*. The null hypothesis is accepted or rejected on the basis of chi-squared test based on *Wald Criterion* to determine the joint significance of the restrictions in the null hypothesis. If the null hypothesis is rejected, it can be concluded that the *FDI Granger causes Exports*. The lag length is justified by a minimum *FPE*, *SIC* and *Likelihood Ratio* test statistics. The test result suggests lag order of 5 as the optimal lag.

The small p value (0.000) in the first row of Table 4 indicates that the coefficients of the lags of Lnx (Exports) are not jointly zero in the equation for Lnfdi (inward FDI, indicating that the evidence favours the alternative hypothesis (i.e., *Lnx causes Lnfdi*), whereas the p value (0.977) (see Table 4) indicates that the coefficients of Lnfdi are jointly zero in the equation for Lnx. In this case, the null hypothesis (i.e., *Lnfdi does not cause Lnx*) cannot be rejected. Here, the presence of unidirectional causality from Exports to inward FDI is observed.

The null hypothesis (i.e., *FDI does not Granger cause Imports*) is tested using logarithm values of inward FDI and Imports, when both the variables are stationary in their level form in the *Standard Granger causality Regression*. The lag length is justified by a minimum *FPE*, *SIC* and *Likelihood Ratio* test statistics. The test result suggests lag order of 1 as the optimal lag.

The small p value (0.000) in the first row of the Table 5 indicates that the coefficients of

the lags of Lni (Imports) are not jointly zero in the equation for Lnfdi, indicating that the evidence favours the alternative hypothesis (i.e. *Lni causes Lnfdi*). The p value (0.533) in Table 5 indicates that the coefficients of Lnfdi are jointly zero in the equation for Lni. In this case, the null hypothesis (i.e. *Lnfdi does not cause Lni*) cannot be rejected. Here, the presence of unidirectional causality from Imports towards inward FDI is observed.

Table 4: Granger Causality Wald Tests (Inward FDI inflows and Exports)

Equation Excluded		chi^2	df	Prob >chi^2
Lnfdi	Lnx	34.498	5	0.000
Lnfdi	ALL	34.498	5	0.000
Lnx	Lnfdi	.80831	5	0.977
Lnx	ALL	.80831	5	0.977
Causality Inference: Exports → Inward FDI inflows				

Table 5: Granger Causality Wald Tests (Inward FDI inflows and Imports)

Equation Excluded		chi^2	df	Prob >chi^2
Lnfdi	Lni	12.531	1	0.000
Lnfdi	ALL	12.531	1	0.000
Lni	Lnfdi	.38899	1	0.533
Lni	ALL	.38899	1	0.533
Causality Inference: Imports → Inward FDI inflows				

Results

All the three variables, i.e. Exports, Imports and inward FDI are checked for stationarity using the *ADF, PP* and *KPSS Tests*. It has been found that the variable inward FDI is I(0) on the basis of all the three tests. The variable Exports is I(0) on the basis of the *PP* and *KPSS Tests*. The variable Imports is I(0) on the basis of the *KPSS Test*. Since the variables, Exports and Imports are either I(0) or I(1), depending on the particular unit root procedure(s), no cointegration has been performed as the variables are not integrated of the same order. The *Granger Causality Test* has been conducted, revealing a strong positive unidirectional causality existing from Exports to inward FDI and from Imports to inward FDI in the post-liberalization period.

Conclusion

The causal relationship that runs from Exports to inward FDI implies that the performance of Indian exports can stimulate more inward FDI. This indicates that countries with export potential attract FDI. However, there is no evidence of long-run reverse causality from inward FDI to Exports because inward FDI has been increasingly directed towards non-tradables and services in tandem with the progressive liberalization

of the financial and retail sectors in India and not much of inward FDI is observed in the case of merchandize goods. For example, foreign banks are expanding their banking and financial services throughout India and the outlets of foreign-owned hypermarkets are being set up in major townships. Uneven distribution of inward FDI throughout the country may be another reason behind non-causality from FDI inflows to Exports. A study conducted by *Jun* and *Singh* (1996) reveals that exports generally, especially manufacturing exports, are a significant determinant of FDI inflows for countries in which inward FDI is high.

A causal relationship between Imports and inward FDI inflows can be established from the fact that imports stimulate inward FDI inflows in the long run, which is supported by the theoretical analysis that a rise in imports in the host country justifies investment and production by MNCs (*Pacheco-López*, 2005). However, inward FDI do not promote imported inputs because most MNCs produce manufactured goods that are highly dependent on generic inputs with the exception for products that require high technology, e.g., electronics (*Sieh-Lee* and *Yew*, 1997). Thus, at the input end, the local industry has links with multinational trade and investment activities.

This paper provides evidence on the causal linkages between inward FDI, Exports and Imports for India. The major findings indicate that there is short-run causal relationship running from Exports as well as Imports to inward FDI, which clearly support the theoretical argument that trade liberalization in India can attract inward FDI that can foster technology transfer and lead India's transition towards high-technology industrialization. So far as the non-causality from inward FDI inflows to Exports in the long-run is concerned, it can be said that inward FDI are increasingly directed towards the services sector and the branches of foreign banks and the retail outlets of foreign-owned hypermarkets as a result of progressive liberalization of the financial and retail sectors by the Indian government. Moreover, continuous encouragement of inward FDI is needed and for that purpose greater incentives must be given to foreign firms, especially export-oriented foreign firms. Also, greater the investment in knowledge-based industry, greater will be the export performance. Increased competition from foreign rivals may force domestic firms to inject more resources to make their production become more competitive in the global market. Therefore, the Indian Government's efforts to attract FDI will positively encourage domestic firms to reduce inefficiency in production and improve the quality of products which will lead to increase in export performance of the domestic firms.

Endnotes

[1.] *Lütkepohl* (1993) indicates that over fitting the lag length (i.e. selecting a higher order lag length than the true lag length) causes an increase in the mean-square forecast errors of the VAR and under fitting the lag length often generates auto correlated errors.

[2.] *Akaike Information Criterion (AIC)*, *Schwarz Bayesian (or Information) Criterion (SBC or SIC)*, *Hannan-Quinn Information Criterion (HQIC)*, and *Final Prediction Error (FPE)* are

adopted in selecting the optimal order of lags in the estimations. Importantly, the causality is sensitive to the number of lagged terms included (*Khan* and *Leng*, 1997).

References

Aizenman, J and Noy, I. 2005. *FDI and Trade-two-way linkages*?, National Bureau of Economic Research (NBER) Working Paper, 11403, Cambridge, Massachusetts.

Alguacil, M. Cuadros, A and Orts, V. 2002. 'Foreign Direct Investment, Exports and Domestic Performance in Mexico: a Causality Analysis', *Economics Letters*, **77**: 371- 376.

Alici, AA and Ucal, MS. 2003. Foreign Direct Investment, Export and Output Growth of Turkey: Causality Analysis, *Conference Proceedings*, European Trade Study Group (ETSG) Fifth Annual Conference, September, Madrid, pp.11-13.

Baliamoune-Lutz, MN 2004. 'Does FDI contribute to economic growth? Knowledge about the effects of FDI improves negotiating positions and reduces risk for firms investing in developing countries', *Business Economics*, **39**(2): 49-56.

Brainard, SL. 1993. *An Empirical Assessment of the Factor Proportions Explanation of Multi-national Sales*, National Bureau of Economic Research (NBER) Working Paper 4580 Cambridge, Massachusetts.

Brainard, SL. 1997. 'An empirical assessment of the proximity-concentration trade-off between multinational sales and trade', *The American Economic Review*, 87(4): 520-544.

Braunerhjelm, P, Oxelheim, L and Thulin, P. 2005. 'The relationship between domestic and outward foreign direct investment: The role of industry-specific effects', *International Business Review* **14**(6): 677-694.

Engle, RF and Granger, CWJ. 1987. 'Cointegration and Error Correction: Representation, Estimation and Testing', *Econometrica*, **55**(2): 251-276.

Ethier, WJ and Horn, H. 1990. 'Managerial Control of International Firms and Patterns of Direct Investment', *Journal of International Economics*, **28**(1-2): 25-45.

Geweke, J. 1982. 'Measurement of linear dependence and feedback between multiple time series', *Journal of the American Statistical Association* **77**: 304–313.

Hejazi, W and Safarian, AE. 2001. 'The complementarity between U.S. foreign direct investment stock and trade', *Atlantic Economic Journal*, **29**(4): 420-437.

Helpman, E. 1984. 'A Simple Theory of International Trade with Multinational Corporations', *Journal of Political Economy*, **92**: 451-471

Helpman, E. and Krugman, P. 1985. *Market Structure and Foreign Trade*, MIT Press, Cambridge, Massachusetts.

Hendry, D.F. and Mizon, G.E. 1993. 'Evaluating dynamic econometric models by encompassing the VAR' In P.C.B. Phillips (ed.), *Models, Methods and Applications of Econometrics* (pp. 272-300), Oxford: Basil Blackwell.

Hood, N. and Young, S. 1979. *The Economics of Multinational Enterprise*, Longman, London.

Horstmann, IJ and Markusen, JR. 1992. 'Endogenous Market Structures in International Trade', *Journal of International Economics*, **32**: 109-129.

Johansen, S. 1988. 'Statistical Analysis of Cointegrating Vectors', *Journal of Economics and Control*, **12**: 231-254.

Johansen, S. and Juselius, K. 1990. 'Maximum Likelihood Estimation and Inference on Cointegrating with Applications to the Demand for Money', *Oxford Bulletin of Economics and Statistics*, **52**(2): 169-210.

Jun, KW and Singh, H. 1996. 'The determinants of foreign direct investment in developing countries', *Transnational Corporations*, **5**(2): 67-105.

Khan, K. and Leng, K. 1997. 'Foreign direct investment, exports and economic growth', *Singapore Economic Review*, **42**(2): 40-60.

Krugman, P. 1983. 'New Theories of Trade among Industrial Countries', *The American Economic Review*, **73**(2): 343-347.

Kwaitkowski, D, Phillips, PCB, Schnidt, P and Shin, Y. 1992. 'Testing the null hypothesis of stationarity against the alternative of a unit root', *Journal of Econometrics*, **54**: 159-178.

Liu, X, Burridge, P and Sinclair, PJN. 2002. 'Relationships between economic growth, foreign direct investment and trade: evidence from China', *Applied Economics*, **34**: 1433-1440.

Liu, X, Wang, C and Wei, Y. 2001. 'Causal links between foreign direct investment and trade in China', *China Economic Review*, **12**: 190-202.

MacKinnon, J.G. 1991. 'Critical Values for Cointegration Tests' **In** R. F. Engle and C. W. J. Granger (ed.), *Long-Run Economic Relationships: Readings in Cointegration*, Oxford: Oxford University Press.

Markusen, JR 1984. 'Multinationals, Multi-plant Economics, and the Gains from Trade', *Journal of International Economics*, **16**: 205-226.

O'Brien, L. 1993. 'Malaysian Manufacturing Sector Linkages' **In** K.S. Jomo (ed.), *Industrialising Malaysia: Policy, Performance, Prospects* (pp. 147-162), London: Routledge

Pacheco-López, P. 2005. 'Foreign Direct Investment, Exports and Imports in Mexico', The *World Economy*, 28(8): 1157-1172.

Perron, P. 1989. 'The great crash, the oil price shock and the unit root hypothesis', *Econometrica*, **57**: 1361–1401.

Raff, H. 2004. 'Preferential trade agreements and tax competition for foreign direct investment', *Journal of Public Economics*, **88**: 2745-2763.

Sharma, K. 2003. 'Factors determining India's export performance', *Journal of Asian Economics*, **14**(3): 435-446.

Sieh-Lee, M.L. and Yew, S.Y. 1997. 'Malaysia: Electronics, Automobiles and the Trade-Investment Nexus' **In** W. Dobson and S.Y. Chia (ed.), *Multinationals and East Asia Integration*, Singapore: Institute of South-East Asian Studies.

Thomas, RL. 1993. *Introductory Econometrics*: *Theory and Applications* (2nd edn.), Longman, London.

Wong, KN. and Tang, TC. 2007. 'Foreign direct investment and electronics exports: exploratory empirical evidence from Malaysia's top five electronics exports', *Economics Bulletin*, **6**(14): 1-8.

Zhang, Q. and Felmingham, B. 2001. 'The relationship between inward direct foreign investment and China's provincial export trade', *China Economic Review*, **12**: 82-99.

Zheng, P., Siler, P. and Giorgioni, G. 2004. 'FDI and export performance of Chinese indigenous firms: a regional approach', *Journal of Chinese and Economic and Business Studies,* **2**(1): 55-71.

6

Empowerment of Rural Women in India: A Study

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Abstract

Women play a significant and crucial role in all aspects of society, from village level to national level, but they are not provided their actual share in any process of the society. The principle of gender equality is enshrined in our constitution which guarantees equality to women, and empowers the state to adopt measures of positive discrimination in favour of women for removing the cumulative socio-economic, educational disadvantages faced by them. Within a framework of democratic polity, our laws, development plans, policies, projects and programmes have aimed at women's advancement in different spheres.

Empowerment in the literature refers to the act of bestowing power and authority on some one. Thus, women empowerment refers to the conferring of leverage to women who are otherwise deprived. This includes granting to women effectual decision making power and the power to influence others decisions along with economic, social and civil freedom. In India, as in most developing countries, women are believed to be and treated as inferior to men. Moreover, as the lives of women and men are embedded in a matrix of unequal gender relations, a decrease in the gender inequality is necessary for an outcome of 'empowerment' for women. However, the women, in order to be significantly empowered to achieve their perceived goal, firstly need authority at home, which in most cases they do not have. The process should, therefore, be carried out concurrently at home and outside. Within the family they must have equal say as men and so should be the case at work. Major attributes that contribute to women empowerment are education, social equity and status, improved health, financial stability and political participation.

In this paper an attempt is made to understand the various forms, challenges and solutions of women empowerment with special focus on rural women. The study lays emphasis on rural women in India because rural women constitute about 75 percent of the total female population of the country. Moreover, on any given indicators of development, the rural women are further disadvantaged vis-a-vis her urban counterpart. The study is descriptive in nature and no complicated models or tools are used. It is based mainly on secondary data collected from various published and unpublished sources.

Keywords: *Empowerment, socio-economic, civil freedom*

Women play a significant and crucial role in all aspects of society, from village level to national level, but they are not provided their actual share in any process of the society.

Especially in political process, lack of decision making is seen everywhere in the state. This is the reason that till 15th parliamentary election in India only 13 percent women had been given tickets and only less than 10 percent had won. The Women's Reservation Bill is still pending. It is unfortunate that because of centuries of inertia, ignorance and conservatism the actual and potential role of women in the society has been ignored and preventing them from making their rightful contribution to society and nation.

Empowerment in the literature refers to the act of bestowing power and authority on some one. Thus, women empowerment refers to the conferring of leverage to women who are otherwise deprived. This includes granting to women effectual decision making power and the power to influence others decisions along with economic, social and civil freedom. Empowerment, by its very definition, implies an increase in the ability to exercise power. In India, as in most developing countries, women are believed to be and treated as inferior to men. Moreover, as the lives of women and men are embedded in a matrix of unequal gender relations, a decrease in the gender inequality is necessary for an outcome of 'empowerment' for women[1].

Empowerment of women more particularly rural women is the urgent need of the hour. The emphasis on rural women in India is because: (a) Rural women constitute about 75 percent of the total female population of the country. (b) On any given indicators of development, the rural women are further disadvantaged vis-a-vis her urban counterpart. The profile of rural women is that of a poor, ignorant, illiterate, superstitious and suppressed being. She has low level of skills. Her access to information, assets and opportunities are also low. She is unorganised and unrepresented. Gender disparity manifests itself in various forms, the most obvious being the trend of continuously declining female ratio in the population in the last few decades in India. It is only 940 females per 1000 males according to the 2011 census. Social stereotyping and violence at the domestic and societal levels are some of the other manifestations of discrimination against women that can be seen in one or the other way in most parts of the country. Female infanticide is still a common practice in many of the rural areas[2]. Further female foeticide is common in some parts of India, despite the passage of 'Prenatal Diagnostic Technique (Prohibition of Sex Selection) Act in 1994. Thus, women are discriminated and marginalised at every level of the society whether it is social participation, economic opportunity, political participation, access to education, access to nutrition and reproductive healthcare. A significant few in the society still consider women as sex objects. Crimes against women are increasing and violence against women is all time high and in most cases, go unreported. Dowry related problems and death are increasing and is profoundly manifesting in the urban population. Workplace harassment of women is another phenomenon which is rapidly increasing as more women join the workforce[3]. Early age marriages are still taking place in large numbers and the number of girls going to school is abysmally low. Moreover, majority of the girls who join the school drop out by the age of puberty to get married and live a life of drudgery.

Goals and Objectives of Women Empowerment:

1. Advancement and development of women in every walk of life.
2. Creating an environment through positive economic and social policies for development of women and realisation of their full potential.
3. Equal access to participation and decision making of women in social, political and economic life of the nation.
4. Equal access to women to health care, quality education, career and vocational guidance, employment, equal remuneration, occupational health and safety, social security and public offices.
5. Strengthening legal system to eliminate all forms of discrimination against women.
6. Changing discriminatory societal attitudes and community practices by active participation and involvement of both men and women.
7. Elimination of discrimination and all forms of violence against women and the girl child.

How to Empower Women:

Women empowerment in India is a challenging task as we need to acknowledge the fact that gender based discrimination is a deep rooted social malice practiced in India in many forms since thousands of years. The malice is not going to go away in a few years. Formulating laws and policies are not enough as it is seen that most of the times these laws and policies just remain on paper. The ground situation on the other hand just remains the same and in many instances worsens further. However, we can take following measures to address the issue of women empowerment in India.

◊ Various issues that need to be addressed for improving overall conditions of the women in India include making access to affordable cooking fuel for rural women, providing safe drinking water, sanitation, increasing decision making capacity among women, providing equal wages to that of men, ending their exploitation, improving the political participation of women, eradicating poverty amongst women, increasing the security of women who are engaged in various jobs, providing affordable healthcare and nutrition and managing the risk of unwanted pregnancies, HIV infections and sexually transmitted diseases[4].

◊ The most important step for empowering women is to initiate ground level actions. The ground level actions should be focussed towards changing the social attitude and practices prevalent in the society which are highly biased against women. This can be initiated by working with the women at the root level and focusing on increasing women's access and control over resources and increasing their control over decision making.

◊ Women need to be trained and better equipped for taking informed decisions. In

this connection, NGOs and Women Self Help Groups can take positive effort in organising awareness and training programme.

◊ Mass campaigns need to be organised especially in the villages in favour of survival of the female child and provision of human rights for her, including education and health.

◊ Women's empowerment cannot take place unless women come together and decide to self-empower themselves. Self-empowerment can begin by addressing day to day issues faced by individual women and tackling them with a mindset of improving the overall living conditions of women at every level and strata of the society. A movement has to be build which awakens the individual self in each and every woman for creative and generative action. In this regard, progressive and resourceful women in the society need to come forward to help their less privileged sisters in as many ways as possible.

Government's Initiative for Women Empowerment in India

There has been significant shift in the approach towards the well being of women from 'welfare' during fifties to 'empowerment' during nineties. Human resource development has been taken up as one of the major thrust areas by the government of India during the eight plan and efforts were directed towards mainstreaming men, women and children into the national development on equal footing. While the main thrust in respect of children was to ensure their survival with special focus on the girl child, the emphasis in respect of women was to make them economically independent and self reliant. Empowerment of women is one of the major objectives of the Ninth plan too. The plan reiterates to create an enabling environment with requisite policies and programmes, legislative support, exclusive institutional mechanism at various levels and adequate financial and manpower resources to achieve these objectives. The strategy is to adopt an 'integrated approach' towards empowering women encompassing all fronts like social, economical, political and legal. Government of India has also prepared a national policy for the empowerment of women in 1996 which reflects all the above measures in details and the Ninth plan recommends expeditious adoption of this policy along with a well defined gender development index to monitor the same. The extent of empowerment of women in a nation is largely determined by three factors viz., economic, social and political identity. The 10th five year Plan (2002-07) called for a three pronged strategy of social empowerment, economic empowerment and providing gender justice to create an enabling environment of positive, economic and social policies for women and eliminating all forms of discrimination against them and thus advance gender equality goals[5]. Following are some of the strategies adopted by the government for empowering women in India.

(I)Economic Empowerment:

Seriousness about extending benefits of economic development to women started in

1980 with the Sixth Plan, after the report of the Committee on the Status of Women was published providing lot of information on the multiple roles of women and their developmental needs. The major thrust of the Sixth Plan was economic upliftment of women through greater opportunities for employment, imparting new skills and upgrading existing skills. As a result today there are 27 programmes involving 6 ministries and 8 departments which focus on women in forms of training, skill development, wage employment and income generating activities.

The Integrated Rural Development Programme (IRDP) which is the main plan of poverty alleviation provides 40 percent beneficiaries as women. The programme of Training of Rural Youth for Self-Employment (TRYSEM) again provides 40 percent trainees as women. Wage employment programmes such as Jowahar Rojgar Yojna (JRY) and Employment Assurance Schemes (EAS) have also to provide wage employment to women to the extent of 40 percent. Then the exclusive programme on Development of Women and Children in Rural Areas (DWCRA) provides income generating activities to them. Some steps are taken to ensure greater accessibility of women to credit through schemes like financing of self help groups and institutions like Rashtriya Mahila Kosh. Government is also promoting local women's self-help groups in a big way under the banner of Indira Mahila Yojana.

(II) Political Empowerment:

The constitution of India opened a new chapter in the matter of equality of women. Article 15(3) empowers the states to make any special provision for women and children even in violation of the fundamental obligation of non-discrimination among citizen inter-alia of sex. Reservation of seats for women in educational institutions has been held to be valid in view of these provisions. Ever since the first general election in 1952, women voter's participation in various elections has been increasing. But their representation in national Parliament has never crossed 13 percent. Keeping this in view a modified strategy to increase the women participation in political decision making by way of adopting a 'quota system to women' in the legislative bodies was adopted. The 73rd constitutional amendment providing for one third of the seats to women members in all the rural local self government institutions is considered as landmark attainment towards political empowerment of women. A similar provision for one third reservation to women in the Lok Sabha and in the Legislative Assemblies of the states is under consideration of the Parliament.

(III) Social Empowerment:

Social empowerment is by far the most difficult and long term goal to attain, because social equality includes equality of opportunity, equality of recognition and above all equality of status. It basically entails a change in perception, attitudes and values which are hard to come. In terms of rights and privileges Indian women not only enjoy constitutional protection but also special legislative enactment. The constitution of India grants equality to women and also empowers the states to adopt measures of

'positive discrimination' in favour of women for neutralising the cumulative socio-economic, education and political disadvantages faced by them. Fundamental rights ensure equality before law, equal protection of law, prohibits discrimination against any citizen on grounds of religion, race, caste, sex or place of birth and guarantees equality of opportunity to all in matters relating to employment. In fact, several important social legislations are also enacted which aim at social empowerment of women like:

a. The Maternity Benefits Act, 1961.
b. The Dowry Prohibition Act, 1961.
c. Equal Remunerations Act, 1976.
d. The Medical Termination of Pregnancy Act, 1971.
e. The Immortal Traffic (Prevention) Act, 1986.
f. The Indecent Representation of Women (Prohibition) Act, 1986.
g. The Commission of Sati (Prevention) Act, 1987 etc.

Thus, ever since independence a number of innovative programmes have been launched for the upliftment of women. But the overall scenario of women in India is still dark and result seems to be far from satisfaction, the prime reasons being improper identification of beneficiaries, lack of participation of women due to strong resentment by their male counterparts in many cases, high dependence on formal sector credit agencies which are yet to reach the vast majority of rural poor, and the lack of follow up action by the government itself. The problem required a complete paradigm shift where the flexible and responsive system meets the needs of the rural poor. The adoption of the approach of Self Help Groups (SHGs) can go a long way in this direction. It is through SHGs that the women get an exposure to outside world. The resources and organizations which were unseen earlier become accessible. As regards child sex ratio, rather than only worry about balancing numbers, what is required are state policies that actually seek to create the conditions for meaningful life chances, beginning with those of girls and women. Moreover, women must be economically and socially empowered through focussed efforts. Statistics showed the overall picture of gender inequality in India is stark and the way out is not to camouflage reality by resolving to tokenism and parading exceptions, but tackling problems head on. But mere Government intervention is not enough. Better results can be produced by determined women citizens empowering themselves and being encouraged to do so by enlightened segments of society and public opinion[6]. The government policies will only facilitate the 'process', reduce the hurdles and create an atmosphere conducive to transformation. Unless women become conscious of their oppression, show initiatives and seize the opportunities, it may not be possible to change their status.

Indeed, empowerment of women is the urgent need of the hour. It is also one of the important aspects of United Nations Millennium Development Goals (MDGs). Women's

concerns have to be kept at the centre of public policy, developmental planning and governance, with recognition of their role as critical growth agents and as ambassadors of social change. Empowerment of women will certainly bring down atrocities against women as they will have the strength and knowledge to stand up for their rights. The empowerment process encompasses several mutually reinforcing components but begins with and is supported by economic independence, which implies access to and control over production resources. Moreover, broader social attitudes towards fairer sex need to change if we have to reign in the growing instances of crimes against women. Really women's empowerment depicts a unified force. The necessary though difficult task of building a just and fairer nation is possible only with meaningful partnerships between men and women. To move the chariot of our country forwards both the wheels-men and women have to be strong and have to move ahead jointly.

References

Mukherjee, Meenakshi 1984. 'Reality and Realism: Indian Women in Protagonists in Four Nineteenth Century Novels', *Economic and Political Weekly*, **XIX**(2).

Narayanan, K.R. 2002. 'Human Rights and Empowerment of Women', Justice Sunanda Bhandari Memorial Lecture, Mainstream December, 21.

Malhotra, Meenakshi 2004. 'Empowerment of Women', Isha Books, Delhi.

Kaul, Vinita 2000. 'Women and the Wind of Change', Gyan Publisjhing House, New Delhi.

Arya, Sadhna 2002. 'Women, Gender Equality and the State', Deep and Deep Publications Pvt. Ltd., New Delhi.

Siwal, B.R. 2009. 'Empowerment of Women and Gender Issues', NIPCCD, New Delhi.

7

Lost in Counting: India's Vulnerable and Marginalized Children

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Abstract

This paper attempts to analyse the situation of children in India by presenting a holistic picture of what has been done for them and what has to be done yet? In doing so the entire article encompasses though the different constitutional provisions for children, causes for their vulnerability & marginalisation, impacts of the vulnerabilities upon them and response of the civil society. Reference drawn from the findings of different research and available statistical data are being used for substantiating the argument of the paper.

Keywords: *Holistic picture, vulnerability, marginalisation*

In most official documents related to children; it has been mentioned that children are the future of our nation. Thus safe guarding their rights and protecting their best interest becomes an important concern of the state and this goes on irrespective of their social back ground i.e. caste, class, gender, religion or other determinants of social stratification. Though it's pretty challenging in practice, our state have tried to implement it. A great initiative has been taken by ratifying the guidelines of United Nations Convention on Rights of the Children (UNCRC) and by keeping several acts and legislation in place for safe guarding the best interest of the child and to keep them away from any forms of exploitation.

In developing countries like India children are more than 40% of its total population. Despite of having a huge share in the population and despite of having protection from abuses in different laws, acts and policies, children are still mostly vulnerable and are exposed to a number of social evils like child labour, poverty, abuse etc.

Specifically while speaking of condition of children in our own country, it considers children as a support to parents, very tender, very deliberate. Sometimes even going beyond irrespective of any religion we worship them as God's representative. However in contrast to the earlier, the percentage of abuse, exploitation and violation occurred with children are so outrageous that it compels us to ask our self that do we really care for our children?

Children in our country can be categorised in respect to their caste, class, religion, region, ethnicity etc. Likewise, their entitlements also differs accordingly in a synchronised manner with their endowment sets. Thus the condition of children in India becomes vulnerable. Broadly speaking there are children who have to experience different forms of violence, abuse, neglect every day. In one hand they are exposed to different forms of vulnerabilities and on the other hand their fundamental rights have been denied. These category of children falls under the group which is mentioned very commonly in most of the official documents as 'Vulnerable and Marginalized Children'.

Tracing the condition of children who are in different forms of vulnerabilities, categorizing them and prioritising the same is very challenging. Because the consequences of the vulnerability is always dependent on various socio-economic factors, which exists within the children's social environment.

Subsequently following of available data's on pan India basis, leads to a blunt statement that the present condition of children in our country is a reason of serious concern. Multiple forms of exploitation are practiced on our children. The level and forms of it are widely dependent on the place where the violence is taking place. Similarly the impact and severity of it also defers from one state to another and thus making the entire phenomenon complex and multi-dimensional.

Existing Constitutional Provisions and Child Rights

Understanding of child rights and legal provisions and implementation of the same in convergence with government policies and programme is an emerging phenomenon; as there is a shift in understanding condition of children, their rights and entitlements. A number of international humanitarian law treaties and human rights convention's has accepted and ratified by the union of India for bringing a change in the life of children. Though the entire rights and entitlements of the Children's are guided by the human rights approach yet the children's are different from the adult's. Similarly, due to their diverse nature and different age group ranging till completion of 18 years they need special concern. Thus without having an understanding of the present law and provisions it is quite a herculean task to explain condition of children.

For protecting the rights of the children and safe guarding their best interest, government of India has enacted and tried to promote different provisions for the children. There are end number of central and state laws which focused on covering the children in all over India.

But enactment of new laws and making provisions for strict punishments for the offenders are ot the sole way to deal with the vulnerable condition of the children. For example, it has to be understood that the laws are not only made for protecting the children who's rights are violated but also to protect those children who are getting involved in unlawful activities, for example punishing a single juvenile offender who is in charge of rape, with capital punishment will not solve the issue as it is merely a way of taking revenge.

Now here the question emerges, children are seen as vulnerable and dependent, but when the same child commits any crime or somehow get involved in any unlawful activities then all our concern towards the child disappears and a demand of death as punishment emerges. It is very sad to say but is truth that there is always a feeling of collective proud in our society in respect of children but not the feeling of collective shame. In the same way, just framing and enactment of laws does not going to bring any change in the condition of these vulnerable children unless all the state and central machinery is working properly. The implementing mechanism has to be emphatic and should have concern towards children free from any bias. At present there are around 250 state and central statues under which children's of India are covered.

Beginning from our constitution, it provides the Fundamental Rights to all of its citizens. Especially, Article 14 grants right to equality and Article 23 grants Rights against exploitation this two fundamental rights along with other fundamental rights upholds the essence of our preamble. But along with the above mentioned there is Article 15 which is more centric towards the vulnerabilities of children. Article 15 explains that the state shall make provisions for Prohibiting discrimination on all the citizens on the grounds of religion, race, caste, sex or place of birth. But in the sub section 3 of this article it was mentioned that 'Nothing in this article shall prevent the State from making any special provision for women and children.' This article is the source of enactment of laws providing special provisions for the children in India. All of these provisions are written in part III and IV of the Indian constitution which is called Fundamental Rights and Directive Principles of state policy. Directive principles are the guidelines and principles which are fundamental for the governance of state and making special provisions for the children. Different article such as Art. 39.9.e explains that it is the responsibility and duty of the state to protect the children of tender age to not involve in the vocations unsuited according to their age by any economic necessity. Art.39.f adds that the children are entitled to get opportunity to develop themselves in a healthy manner with their freedom and dignity. Along with different constitutional provisions, several acts in an overarching manner tries to safeguard the rights of the children. A couple of them have been highlighted below to pull out the situation of children in India.

Factories Act, 1948

This act explains about involvement and exploitation of children in different labour forces. It particularly prohibits the employment of young children. The act provides the directive that no child below the age of 14 years should be allowed to be work in any forms of factory.

Mines Act, 1952

The act is also associated with the involvement of young children in various labour forces. In this act it was explained that no child should be allowed to be an employee of any mine and even the presence of a child in any part of mine below the ground or in any operations carrying out near mines is not allowed and is a punishable offence.

The Immoral Traffic (Prevention) Act, 1956

An important act which mainly talks about prostitution and it tries to provide separate provisions for children who are illegally trafficked for the purpose of commercial sex work. The amended act is for regulating prostitution and it grants wider scope by including not only women but also boys, men, *hijaras, koti* sex workers etc. and by replacing the terms like "women and girl" by "Persons" and "Person". Thus children gets a special provisions and they become visible in the eyes of the law.

The Child Labour (Prohibition and Regulation) Act, 1986

This particular act prohibits and regulates the engagement of children in certain workforces by categorising the working areas on the basis of its nature and intensity of labour required. It divides the entire area of work force into hazardous and non-hazardous sector. According to the act involvement of children below the age of fourteen years in any hazardous sector is a punishable offense. Similarly this act lay down different provisions for regulation and improvement of working conditions for children and make the entire working area child friendly. However, it does not prohibits the entire act of child labour.

The Pre-Natal Diagnostic Technique (Regulation and Prevention of Misuse) Act, 1994

It tries to focus on regulating the use of prenatal diagnostic techniques for the purpose of detecting genetic or metabolic disorders or sex liked disorders etc. and it prevents the misuse of such techniques for the purpose of prenatal sex determination which predominantly leads to female foeticide. This act bans the sex-selection techniques before or after conception and prevent the misuse of prenatal diagnostic technique for sex selective abortion.

The Juvenile Justice (Care and Protection of Children) Act, 2002

A land mark act which provides a mechanism to categorise children under the eyes of law. This act is presently in debates regarding the age of children who are in conflict with laws as this act clearly defines the age of children for their proceedings in justice system (Criminal justice system or Juvenile justice system). The act is regarding the juveniles/children who are in conflict with law and children who are in need of care and protection. This clearly demark the both categories of children and accordingly the boards which will look after the issues of these children as for example the children who are in need of care and protection will go to the children's home and the decisions will be taken by the child welfare committee.

The Prohibition of Child Marriage Act, 2006

As a significant act it protects the rights of children by defining marriage of any girl children below the age of 18 years and any boy children below the age of 21 years as a punishable offence and voidable too. This act primarily frames the different provisions for the children who are contracted to the act of child marriage and similarly it explains

the different action in which a person can be prosecuted, as for example if person is knows that child marriage is taking place and he/she is not compiling to the child marriage prohibition office or in local police station then he/she is worthy of getting booked under this act.

The Right of Children to Free and Compulsory Education Act, 2009

This act leads us a step ahead to ensure the right of the children to get free and compulsory education. In this act it was mentioned that all the children within the age group of 6 to 14 years are entitled to get free and compulsory education. Likewise it includes basic norms for all the schools providing elementary education and instructs all the private run school to reserve 25% of seats for the children on the basis of their caste reservation. This act also prohibits all unrecognised schools from practice, and makes provisions for all schools for not taking donation or capitation fees and any interview of the child or parent for purpose of admission. The Act also provides that no child shall be held back, expelled, or required to pass a board examination until the completion of elementary education. A provision for special training of school drop-outs to bring them up to par with students of the same age.

Protection of Children from Sexual Offences Act, 2012

Finally the most recent act which got passed in 2012. This act was mainly formed for the protection children from sexual exploitation and abuse. This act specifies any sexual act on children. Basically this act separately explains a multiple number of sexual offences done on children, according to their nature and severity. It also laid down the procedure of prosecution of the offenders. In this act it is defined that a child is a person below the age of 18 years and it provides protection to all children from the offences of sexual assault, sexual harassment and even showing/keeping child pornography. This provisions are added for the very first time in any act.

Besides of all the provisions given for the children by different laws there are different international treaties which contributes positively for the protection of child rights by making different provision and asking all the signatory countries to ratify those. As we know that according to UNCRC, the four important rights which are the entitlement of the children are:

- ◊ The right to survival - to life, health, nutrition, name and nationality.
- ◊ The right to development - to education, care, leisure, recreation.
- ◊ The right to protection – from exploitation, abuse, neglect.
- ◊ The right to participation – to expression, information, thought and religion.[1]

There is no hierarchy within the rights and entitlements of the children but there is an intense relationship between them. These are responsible for facilitating an enabling environment for implementation of every child centred programmes and policies. Apart from this broad four fundamental child rights given by UNCRC there are principals which are also important in practicing child rights. These are meant to understand the

convention and proposed to guide the nation programmes and polies to become more child centric. The four principles are formulated, in particular, in Articles 2, 3, 6 and 12.[2] The following are the broad principles:

Non-Discrimination (Art. 2)

It is the duty of the state to make provisions so that each and every children within its jurisdiction enjoy their rights and entitlements. Establishing the child's right and making endowments so that it apply to all children all the time, anywhere, without discrimination of any kind of the grounds like gender, disability, ethnicity, religion or citizenship.

Best Interest of the Child (Art.3)

It talks about the intention before every decision making process or decision taking on behalf of children which directly or indirectly going to affect them. A decision should always be taken for securing the best interest of the child. It establishes that in all actions concerning the children, the best interest of the child should be a primary consideration. This principle is related with bodies like judiciary, administrative authorities, law and policy makers and both public and private social-welfare institution.

The Right to Life, Survival, and Development (Art.6)

This principle basically prioritises children's rights to survival and development. But it provides emphasis on right to develop to their fullest potential in every aspect including their personality, talents and disabilities. Development as broad term emerged here which includes concept like mental, emotional, social, cultural development etc.

The Views of the Child (Art.12)

This principle tries to hear voices of all the children by making them visible to all policy makers. It has to be done so that children can share and convey their own issues and problems. It sets out the guidelines that children should be listened to on any matter which concerns them and their views are given due consideration in accordance with their age and maturity.

Cause and Factors in Child Vulnerability and Marginalization

Children in India are always considered to be vulnerable in its existence and dependent too. This can be considered as both causes and effects for forcing children to become a part of marginalised and vulnerable group. Though for protecting the rights of children, India has several nos. of safeguarding mechanism in place yet the situation is quite vulnerable. This has happened because India is not only affected by its own policy changes, poverty situation but also widely affected by global economic crisis and changes.

Multiple causes of child vulnerabilities and marginalisation overarchingly reflects the situation of children in developing countries like India. Multiple forms of vulnerabilities leads to different forms of marginalisation and thus makes the situation of children very

dynamic to encounter. Likewise some causes are also vulnerability specific and some are very widely affect all children who are in vulnerable circumstance. Sometimes all the causes and factors become so interrelated that one vulnerability could lead to other vulnerabilities.

Poverty

The fore most important cause of any forms of child vulnerability in India is its poverty. Though poverty affects some groups more severely yet it does not limit itself to any specific groups of children. It affects all children irrespective of their status, because it does not take into consideration whether the child is from rural areas or urban slums, whether the child is living with family environment or without it, whether the child is from any specific strata or not. Poverty exposes children to a number of risks and thus make their condition vulnerable.

Social Factors

Social factors are equally responsible for making the condition of children vulnerable. Social factors like caste, class, gender etc. are so deeply embedded in our social institution like community, society and families that protecting our children from its harmful effects is becoming a herculean task for the duty bearers.

Citing examples from my own experience of field work, one of the manual scavenger mentioned *"we don't want that our children go to school because in future they have to do the same work as ours for their livelihood so there is no point of going to school and if their children will get education then they will not opt for the same job.*" Here the question arise that if the children are forced to continue with their caste based occupation then what is the point of right to education? Similarly, forcing children to take their forefathers profession, stigmatizing victims of child sexual abuse are examples of the same.

Culture and Religion

Culture is also a significant contributor in creating the situation of children vulnerable and marginalised. However it defers from region to region as in the name of culture people exploits children. As for example in states like U.P and Rajasthan there is trend of practising child marriage. Likewise in many places of southern India there is cultural practise of '*Devdasis'* where a number of children were forced to become '*Devdasis'* and continue their life in devotion of god. Similar practise of early marriage of children are very oftenly seen in religion based personal laws. Thus culture and religion makes the condition of children vulnerable.

Illiteracy and Ignorance of Parents

Illiteracy and ignorance of family members and especially parents are also the contributing factors for vulnerable condition of children in India. Ignorant behaviour of parents or family members can be seen in cases of child sexual abuse. Predominantly

the parents compels the children to not to share the incident of sexual abuse. This notion makes the child as a soft target for the perpetrator. Likewise quieting the victim allows the perpetrator to continue with their act and children have to suffer the consequences and have to be subject of the offence repeatedly. Due to ignorance and lack of education, parents fails to safeguard their children and thus make them vulnerable.

Status of Children

In India children are not considered to be a part of decision making process. Despite of having participation rights their voices are not heard. A child is assumed to be a dependent population and thus their condition become vulnerable. Because they are considered to be cheap source of labour, easy target for sexual abuse etc. Likewise, children are considered as a stake holder and they have a right to life, education, participation. However due to their status, while delivering their rights, mostly the duty bearers consider children as dependent and don't follow the rights based approach.

Gaps in Social Policies

Lack of holistic approach and improper implementation of policies and programme creates the environment where children are not safe. Simultaneously lack of fund in all the educational and protective programmes provide the violator of child rights, a narrow escape.

Impact on Children

Though the impact of different vulnerabilities on children are significantly dissimilar from each other yet it has been categorised broadly for the purpose conceptualisation. Impact doesn't only consider physically, but also emotional and psychological. However the effect of later are mostly ignored by the adults. Overcoming emotional and psychological impact is difficult and thus can damage a child's overall development. So, an adult should be observant enough to address these impacts. Below mentioned categories have been defined for explaining the overall situation of children in India.

Physical Impact

Almost every forms of vulnerability or vulnerable condition has direct relation with child's physical health and thus have a severe impact on their physical health. Children who are involve in labour force are the worst sufferer of this, likewise in cases of child marriage most likely a girl child shall conceive below the age of 18 which adversely affects the physical health of the child. Whereas, children who have experienced any forms of sexual abuse are likely to face Sleep, speech disorder or other long-lasting effects.

Behavioural Impact

A number of behavioural impacts have also been noticed among the children who have experienced any forms of abuse or are from any vulnerable condition. Due to

their exposure to different reckless and difficult situations there behaviours also got shaped accordingly. Though they are child according to their physical age yet they have become an adult in their mental age. Be the children involved in labour force or be the children living on streets all are exposed to situation not appropriate to their age. As a result violent sexual behaviours, addiction, peer abuse are often witnessed among these children and thus make their condition more vulnerable.

Emotional Impact and Moral Deterioration

A very frequently observed effect upon children who are exposed to vulnerable situations like abuse, neglect etc. Predominantly sexual abused children have showed long lasting effects. This category of impact includes apprehensiveness to other child's cry, depression, anxiety, afraid of parents, deep sense of isolation, passiveness etc. However children involve in various labour force are suffer the moral deterioration. Children's develop a nos. of bad habits and moral corruptions like gambling, drug addiction, theft etc. due to extremely poor working condition, low pay, illiteracy, ill treatment by elder workers and employees.

Impact on Education

Different forms of vulnerabilities like child abuse, exploitation in forms of labour, sexual exploitation all have an impact upon children. Overarchily, all of these leads to the educational backwardness of the children. Children working in mines and factories are not able to attend school, similarly thousands of children have to remain out of school because they have to go for work and earn their livelihood in so tender age. Children who have contracted to child marriage have to give up their studies and thus became dropout from school and never return back. Likewise children who are from disadvantaged back ground like SC,s and ST,s are denied of access to school and treat differently which compels them not to come to school.

Analysis of Relevant Research Findings

Several researches have been conducted on pan India basis for having a clear understanding regarding situation of children. Attempts have been taken to assess the situation of children by studying the indicators like severity and types of experiences, exact number of children exposed to vulnerable circumstances etc. The researches have been conducted by government organisation, local & international N.G.Os and sometimes independent researchers. The researchers who have done the studies have focused them self on specific forms of vulnerabilities. The findings are quite interesting as it clarify the actual scenario of children in India with authentic sources.

In the year 2005, the international organization Save the Children and an Indian NGO, Tulir - Centre for Healing and Prevention of Child Sex Abuse, surveyed 2,211 school going Children, from different backgrounds, in Chennai. In that study, at least 48 percent of the boys and 39 percent of the girls interviewed said that they had faced sexual abuse of one form or another, mainly from people they knew, while 15 percent

of the children complained of severe forms of abuse, defined in this study as "oral sex, sexual intercourse, making the child touch the offender's private parts, or making the children take off their clothes and looking at them or taking their pictures."[3] Findings from above research explains the complexity and severity of situation of children. The children who were faced sexual abuse are particularly from marginalised community and are exposed to severe forms of vulnerabilities.

Other studies have also revealed the seriousness of the problem related with child sexual abuse. In 1998 the Indian NGO Recovery and Healing from Incest (RAHI) conducted India's first study of child sexual abuse. It surveyed 600 English-speaking middle and upper-class women, 76 percent of whom said they had been abused in childhood or adolescence, 40 percent by at least one family member, most commonly an uncle or cousin.[4]

Similarly, in the year 2012 Pratham N.G.O came with its report ASER which explains vulnerable situation of the girl children. It explains, girl children in the age group of 11 to 14 years are often the hardest to bring and retain in school. As an example in the states like Rajasthan and Uttar Pradesh, the proportion of out of school girls (age 11-14) has increased from 8.9% and 9.7% respectively in 2011 to more than 11% in 2012.[5] Thus the findings of Reality of situation of children revealed by ASER leads us to think about the quality of education which we are providing to our children, because in this entire survey more than half of the children were not up to their grades of study.

Poverty, limited facilities for education, poor economic condition, migration for better opportunities, need for supplementing family income, illiteracy or ignorance of the parents about education etc. have been considered as the factors contributing to the continuance and growth of child labour in the country.[6] In many researches, earlier mentioned are considered to be the major contributing factors for child labour.

Statistical References and Information

Situation of entire India regarding child vulnerability can be explained by the different recorded statistics. Ample amount of statics regarding different states as well as on pan India basis in available. However predominant emphasis have been given to capture the most vulnerable situations of children like child labourers, victims of child sexual abuse and condition child education, child marriage etc.

Annual Status of Education Report (ASER) of 2012 by Pratham Education Foundation explains the situation of child education with a special emphasis on rural areas of all the states within the territory of India. In this survey, besides being mapping out the child's enrolment rate in school the learning ability, condition of schools and teachers, reasons of becoming dropout ware also being identified. The survey threw light upon the condition of thousands of children who are in the most vulnerable situation by remaining out from the purview of formal education system.

Table 1: Annual Status of Education Report 2012, Pratham Education Foundation

Percentage of children not enrolled in school (6 - 14 years)			
State/India	All	Boys	Girls
India	3.5	4.8	6
Rajasthan	5.1	4.9	11.2
Jharkhand	4.4	6.4	6.3
West Bengal	3.3	6.5	4.2
Bihar	3.7	5	5.2

Condition of out of school children form five states i.e. Rajasthan, Jharkhand, West-Bengal and Bihar have been explained vis-à-vis entire India by Table 1. In this table, Rajasthan reported to have the most numbers of out of school children with almost 5% in overall and 11% of girl children still struggling to get themselves enrolled in mainstream education system. It has been also interesting to see that among the five worst performing states in respect to child's enrolment in school, West-Bengal was standing at the fourth position.

Table 2: Annual Status of Education Report 2014, Pratham Education Foundation.

Average attendance of students and teacher's on the day of visit		
Teacher/Children	Primary	Upper-primary
% enrolled children present	71.4	71.1
% Teachers present	85	85.8

Table 2 throws light on the average attendance of pupils as well as the teachers in school. Presence of children school in school varies across India, some states like Maharashtra, Andhra Pradesh etc. have recorded 80 – 90 % of attendance whereas states like West-Bengal, Bihar, Uttar Pradesh etc. have recorded attendance as low as 50 – 60%. Thus the situation of children in few states have been seen very vulnerable according to the latest data sets.

Similarly, available data of child labourers on pan India basis puts emphasis upon the magnitude of the problem and highlights the condition of children. Recorded data from National Sample Survey Organisations (NSSO) 66th round of Survey on Child Labour in Major Indian States, 2009-10 prioritized the vulnerability of children. It explains the percentage share of child labourers in some states which is diagonally opposite of what we think regarding the condition children. Uttarakhand have reported to have the highest numbers of child labourers by contributing around 36% followed West Bengal with an 11% contribution to India's child labour force. A recent report in the Hindu quoted a study, which said "nearly 80 percent of girl child labourers in Bihar and 52 per cent of such children in Chamarajanagar were agricultural labourers. The study found that a significant number of children were paying off their parents' debts." The

same report said that 49 per cent of child labourers in Bihar and 42 per cent of those in Chamarjanagar are involved in agricultural labour.[7]

According to the Indian census of 1991, India is the home of 11.28 million working children under the age of fourteen years. However, govt. of India have claimed that the number of child labourers have been decrease from 1.25crore (census 2011) to 90.75 lakhs in 2004-05 and recently to 49.6 lakhs (66th Round of NSSO) (YOJNA pp. 20). Likewise, Gender difference is quite evident in total child labour population because male children were mostly pushed in this work.

Thus the statistical information extracted from different data sets leads to one important argument regarding condition of children. If our national enrolment is standing on the edge of achieving 100% then how a huge numbers of children are still working as child labourers

Along with all other forms of vulnerability, present condition of children in India can't be explained without the heinous act of sexual abuse. Though it is so outrageous yet 53% of children of India have faced one or multiple forms of sexual abuse on them. Figures for children engaged in prostitution in India's metropolitan cities range from 27 lacs to 40 lacs.[8] Government of India estimated that 40 percent of its children are vulnerable to threats such as trafficking, homelessness, forced labour, drug abuse, and crime, and are in need of protection.[9] On the year 2007 an Indian government-sponsored survey came out. Based on the interviews with 12,500 children in 13 different states it reported serious and widespread sexual abuse and thereby putting the government on notice about the gravity of condition of children in India.

State/NGO/Civil Society Response and Intervention

N.G.Os, civil societies and state have played an important role in identifying and addressing vulnerabilities of children. Initiatives have been taken to address the different forms of child vulnerability and marginalisation and efforts have been made to make them count. As for example, Child Labour Regulation and Prohibition Act of 1956, the ILO's forthcoming Convention of Child Labour and most of the NGOs activities as well as media reporting is concentrating on these 6.3 lakh urban child workers in India against a total of 89 lakhs. In the Eight Five Year Plan (1992-97), a separate Centrally Sponsored Programme of grant-in-aid for street children was launched. In 1998, the government of India setup a 'Child Line India' in the country. The child line services respond to the emergency needs of children who require care and protection, and are in different circumstances. Because they have Rights for get the basic need for.[10] Together with non-governmental organizations, Indian media has also played an important role in increasing awareness of marginalisation and situation of children who are exposed to multiple vulnerabilities in the country as well as stress importance on the enormous magnitude of the problem. Public outrage after high-profile cases has forced the government to address the problem. But still the situation of children are not desired. Thus children are still engaged in various types of work, including those that

are classified as 'hazardous', i.e. harmful to the physical, emotional, or moral well-being of children. An estimated 2 million children still working in hazardous industries.[11]

The prevention of child labour/child abuse or any forms of exploitation by generating awareness programme for their citizen. Ngo's can work along with government regarding awareness of different forms of vulnerabilities and marginalisation due to their easy accessibility with people in community. Advocacy programme should have done to make children understand about the rights and entitlements and will compel the exploiter think twice before consider them as a soft target.

Forming groups of children from vulnerable section and making them realise their rights and entitlements. Doing survey and preparing advocacy documents for children, locating and identifying the pockets occupied with maximum number of children with vulnerabilities, identifying the causes and effects of those vulnerabilities of children, lobbying and negotiating with the government for effective functioning of state machinery and proper implementation of all the child centric programmes.

NGOs in collaboration with government can prepare themselves and do mass mobilisation of local people to work for elimination of different forms of vulnerabilities of children like child labour, child marriage etc. by adopting an area specific, time-bound and result and outcomes based approach.

Conclusion

In conclusion, I would like to mention that all the augments and explanations made in the entire paper is done by keeping in mind the condition of India's children. However their different form of vulnerabilities and marginalisation were used to describe the severity and versatility of the problem. Likewise, the paper tries to analyse vulnerable condition and its impact upon children on a pan India basis. It also highlights the adopted methods of convergence for improving the condition of children, as the population and vulnerabilities both are dynamic. Lastly, I would like to say that for improving the condition of children form vulnerabilities there is a need to work a responsible duty bearers from a Rights Based Perspective in each and every sphere.

Endnotes

1 United Nations Convention on Rights of the Children, 1992.

2 The Rights of the Child, Fact Sheet No. 10, United Nations, Geneva, 1996.

3 Tulir, "Prevalence and dynamics of child sex abuse among school going children in Chennai," 2006, http://www.tulir.org/images/pdf/Research%20Report1.pdf (accessed April 18, 2012).

4 Recovery and Healing from Incest, Voices from the Silent Zone (New Delhi: RAHI, 1998), p. 14.

5 Pratham: Annual Status of Education Report (Rural), 2012, pp. 47

6 Ghosh Debasmita, 2008. "Child Labour in West Bengal – A Spatio Temporal Analysis", *Geographical Review of India*, **70**(1): 71-79

7 "Declaration on child labour mandatory", Special Correspondent, The Hindu, 14 September, 2007.

8 UN ESCAP 1999. Op cit.

9 The Planning Commission, Government of India, "Report of the Working Group on Child Rights for the 12th Five Year Plan (2012 – 2017)," p. 15.

10 Ali, Hasniam and Khan Samsudding, 2012: The Overcoming of Child Labour in India: In perspective of Constitutional and legislative Framework, *Journal of Business Management and Social Sciences Research,* **1**(3): 87.

11 Figure provided by the Ministry of Labour and Employment, Government of India.

References

Ahuja, Ram. 1997. *Social Problems in India*, Second edition, New-Delhi: Rawat Publication, pp. 218-242.

Ali, Hasniam and Khan Samsudding, 2012: The Overcoming of Child Labour in India: In perspective of Constitutional and legislative Framework, *Journal of Business Management & Social Sciences Research,* Volume 1, No.3, pp. 83-91.

Bajpai, Asha. 2003. *Child Rights in India: Law, Policy, and Practice*, Second edition, Mumbai: Oxford University Press, pp. 1-29, 148-275, 327-367.

Government of India, Ministry of home affairs, Census of India 2011, Provisional Population Totals, Paper 2, Volume 1 of 2011, Data on rural & urban areas, West Bengal,

http://www.censusindia.gov.in/2011-prov results/paper2/prov_results_paper2_wb.html

Ghosh Debasmita, 2008: Child Labour in West Bengal – A Spatio Temporal Analysis, *Geographical Review of India*, 70 (1), 71-79.

Human Rights Watch, Breaking the Silence: Child Sexual Abuse in India. 2013: pp. 1-88, *www.hrw.org/sites/default/files/reports/*india*0113*For*Upload.pdf*

Ministry of Women and Child Development, Government of India, "National Study on Child Abuse: India 2007, pp.71-102, http://wcd.nic.in/childabuse.pdf

Mishra, Lakshmidhar. 2000: *Child Labour in India*, New Delhi: Oxford University Press, pp. 162-167, 271-289.

National Institute Of Public Cooperation And Child Development, State profile of children in India (District level data on children), http://nipccd.nic.in/reports/profile.pdf, pp. 267-274.

Pratham: Annual Status of Education Report (Rural 2012), 2013; http://www.asercentre.org/education/India/status/p/143.html, January 17th.

Shah Ahmed Nazir. 1992: *Child Labour in India*, New Delhi: Anmol Publications, pp. 33-72.

Special correspondent: Declaration on child labour mandatory, The Hindu, September 14th, 2007: http://www.thehindu.com/todays-paper/tp-national/tp-karnataka/declaration-on-child-labour-mandatory/article1911178.ece

UNICEF: The situation of Children in India, A Profile, May 2011, www.unicef.org/sitan/files/SitAn_**India**_May_2011.pdf, pp. 1-112.

8

Agriculture and Women Empowerment: The Challenges and Perspectives

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Abstract

When women are economically and socially empowered, they become agents of change. Right over productive resources, active participation in decision-making makes women economically and socially empowered and ensures them a dignified life. The role of women in agriculture cannot be ignored in a developing country like India where agriculture is the mainstay generating 13.5 per cent of GDP and providing employment to 55 per cent of work force. According to the census 2011 female workers and agricultural labourers constitutes a major fraction i.e. 55.21 per cent of total workforce. This paper attempts to study the role of women in agricultural sectors and to find out the problems they are facing and to discuss possible solutions and to ensure them economic and social empowerment. It is observed that even though women's participation in almost all type of agricultural activities only except ploughing the field is very high, they do not enjoy right over land (12.6% marginal farmers), most of them (43.4%) are agricultural labourers. Their participation in decision-making relating to agricultural practices is negligible. Transformation in existing social practices and strong implementation of legislations are highly imperative to achieve empowerment of women.

Keywords: *Work participation of women, agriculture and empowerment*

Empowerment is a continuous process of realising the goals of equality, human liberation and freedom. Women empowerment in India is dependent on different variables that include geographical location i.e. urban and rural, educational status, social status i.e. caste and class and age. Thus, women empowerment implies equality of opportunity and equality between the genders, ethnic groups, social classes and age groups, collective participation in different spheres of life. An important sphere in life of rural women all over the world revolves round agriculture. Especially in India where agriculture continues to be the mainstay of life women constitute the 57.8% of total agricultural workers.

M.S. Swaminathan, the famous agricultural scientist describes that "It was woman who first domesticated crop plants and thereby initiated the art and science of farming. While men went out hunting in search of food, women started gathering seeds from the native

flora and began cultivating those from the point of view of food, fodder, fibre and fuel." Women played an important role in decision making in traditional agriculture.

Women participation rate in the agricultural sector in India is about 47 percent in tea plantations, 46.84 percent in cotton cultivation, 45.43 percent growing oil seeds and 39.13 percent in vegetable production. A micro study conducted in Indian Himalayas found that, on a hectare, a pair of bullocks work for 1064 hours, a man for 1212 hours and a woman for 3485 hours (Shiva FAO, 1991). This corroborates the important role the women plays in agriculture. Of course it varies from country to country. Asian women contribute to about 50 per cent of the food production. And in Sub-Saharan Africa women produce 60-80 per cent of the supply of basic food stuffs. In India according to census 2011, while among male workers, other workers constitute a major proportion i.e. 47.20 per cent of total, among female workers; agricultural labourers constitute the major fraction i.e. 55.21 per cent of total workers.

In Odisha, according to 2011 census, 61.8 per cent of total workers are engaged in agriculture 57.8 per cent of which are women. Thus agriculture is tied to issues like economic independence, decision making abilities and access to education and health in India as well as in Odisha. Looking to the importance of women in agriculture, the Indian Council of Agricultural Research (ICAR) established the National Research Centre for Women in Agriculture (NRCWA) in April, 1996 at Bhubaneswar in Odisha. The Directorate has been renamed as ICAR- Central Institute for Women in Agriculture (CIWA) in the year 2015.There are 16 ongoing projects in the areas of gender study in agriculture and household economy, management of coastal agro-eco system, extension methods for farm women, standardization of women specific field practices, occupational health hazards, reducing drudgery of women in agricultural operations, improvement of farming system suited to farm women, eco-friendly pest management technologies for vegetables among farm women, evaluation of interactive learning modules, technological needs in empowering women in rural aquaculture, and improvement in storage practices of seeds and grains. All these projects directly target the women in agriculture with a greater objective of empowering them.

Objectives

The present study focuses on three main objectives.

1. To analyse the role of women in agriculture and allied activities.
2. To find out the main problems of women in agriculture sector.
3. To suggest measures for empowerment of women in agriculture.

Methodology

The paper makes use of secondary data collected from Census Report of Men and Women in India, Report of National Sample Survey Organisation 55 round (NSSO), National Commission of Women Report, Registrar General of India, Statistics of Women in India, Agricultural Statistics in Odisha.

Bar diagrams, pie chat and tables are used to analyse the data. Compound growth rate is also for studying the participation of male and female agricultural labourers and cultivators from the period 1971 to1990.

Equation

$$Y_t = Y_0(1+r)^t$$

i.e. log $Y_t = \log Y_0 + t \log (1+r)$

Where, r is the compound rate of growth is calculated by the equation i.e.

$$r = (\text{antilog } b_1\text{-}1) * 100$$

Result Discussion

Women are the major constituent of agricultural workforce. They play the key role in agricultural development and their contribution in the field of various categories like food security, horticulture, dairy, nutrition, sericulture, fisheries and other allied activities cannot be undermined. They are actively participating in all range of agricultural activities including pre-harvesting and post- harvesting. There are three main multidimensional roles of women. Firstly their agricultural activities include sowing, transplanting, weeding, irrigation, fertilizer application, plant protection, harvesting, winnowing, storing etc. Second one is domestic which includes cooking, child rearing, water collection, fuel wood gathering, household maintenance etc. Thirdly, cattle management, fodder collection, milking, preparation of milk products are some of other responsibilities of rural women in India.

The agricultural sector is the largest employer of women. They make up 32 percent of the total workforce in the Indian economy. Majority of the female workforce (84 percent) works in rural India (NSS, 2004-05). Women's participation in agriculture is growing relative to men in post liberalisation period.

Table 1: State Wise Women Participation in Agriculture and Non-Agricultural Activities

State	Female workers in Agriculture (%)	Female Workers in Non-Agricultural Activities (%)
Andhra Pradesh	73.44	26.56
Himachal Pradesh	82.47	17.53
Rajasthan	81.07	18.93
Manipur	55.59	44.41
Madhya Pradesh	79.45	20.55
Karnataka	61.11	38.89
Tamil Nadu	59.30	40.70
Maharashtra	74.53	25.47

Gujarat	57.12	42.88
Odisha	60.47	39.53
Punjab	24.51	75.49
Kerala	21.27	78.73
West Bengal	32.62	67.38

Source: Agricultural Statistics in India.

Table 1 presents women participation in agriculture and non agricultural activities in thirteen major states of India. A cursory glance at the table clearly shows that agriculture is the main occupation especially for women in most of the states. The female workers participation in agricultural activities is as high as 82.47 percent and 81.07 percent in Himachal Pradesh and Rajasthan respectively. In Madhya Pradesh, Maharashtra and Andhra Pradesh it is more than 70 percent whereas in Kerala, Punjab and West Bengal women are not participating in agriculture much. In Odisha, 60.47 percent of women workforces are engaged in agriculture and allied activities. The figure 1 presents the scenario.

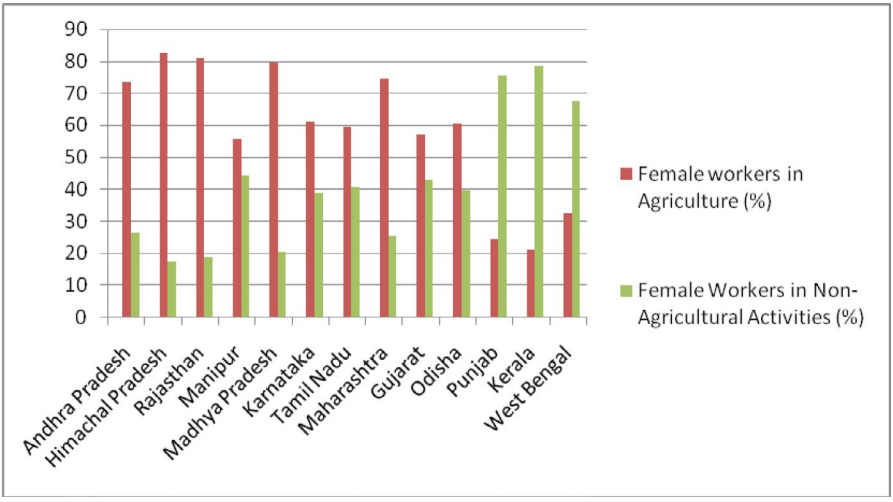

Fig. 1

Table 2: Involved of Farm Women in Agricultural Operation

Activity	Involvement (%)
Land Preparation	32
Seed Cleaning and Sowing	80
Inter Cultivation Activities	86
Harvesting reaping, winnowing, drying, cleaning and storage	86

Source: National Commission for Women, New Delhi Report.

Table 2 shows the women's involvement in different types farm activities in our country. It is found that 86 percent of women are highly involved in harvesting like reaping,

winnowing, drying, cleaning and storage where 86 percent do inter cultivation activities. 80 percent women do all the seed cleaning and sowing activities and 32 percent do land preparation. The same is represented in fig. 2.

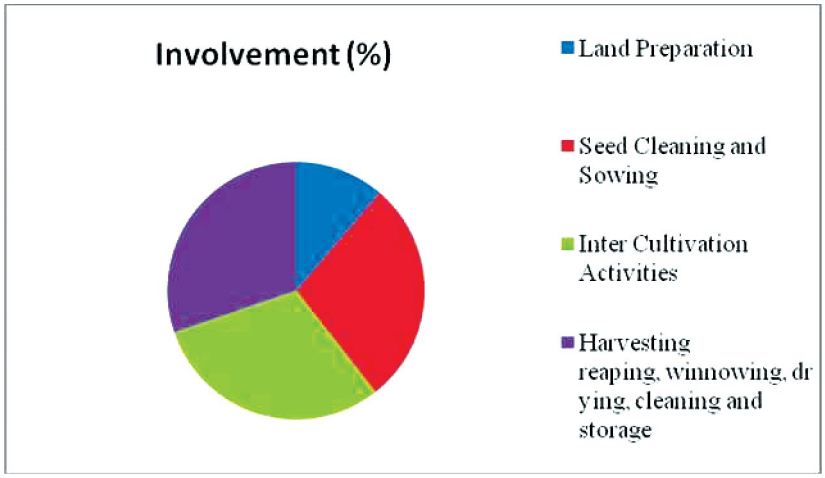

Fig. 2

Table 3: Time and Energy Devoted by Rural Women

Activities	During (hours/ min)	Energy (K.cal)	Percentage (%)
Domestic Activities	7.55	903	40.53
Agriculture and Allied Activities	7.00	283	39.69
Sleep	6.50	284	12.76
Rest and Reaction	2.15	155	6.97

Source: National Commission of Women, New Delhi Report.

Table 3 shows that average time spent by women workers in household activities and agricultural activities. Basically the rural women workers spend more time in domestic and agriculture and allied activities i.e. 7.55 and 7.00 hours respectively.

Table 4: Wage Discrimination in Agriculture

State	Wage Rate for Men (in ₹)	Wage Rate for Women (in ₹)
Andhra Pradesh	40-50	25-30
West Bengal	40	25
Uttar Pradesh	60	35-40
Odisha	50-60	35-40
Haryana	50-60	25-30

Source: National Commission of Women (NCW), 2005.

Table 4 represents the wage received by male and female in agricultural sector. It clearly indicates that women workers are getting very low wages as compared to the male. States like Andhra Pradesh, West Bengal and Odisha where mostly paddy is cultivated and women contribute hugely by working for 15-60 days (Mishra, 2009) are getting 15 t0 20 rupees less than their counterpart. In the state of Haryana and Uttar Pradesh, male wage rate is almost double the female gets. That reflects the intensity of the discrimination against women in those states.

Table 5: Decision Making in Agricultural Activities

Decision Making Areas	Male (%)	Female (%)
Purchase of Fertilizers	90.2	2.9
Purchase of Animals	93.1	—
Purchase of Agricultural Equipments	92.1	1.9
Changing of Crops	96	—
Selling of Crops, Cereals and Vegetables	83.9	10.7

Source: NCW and Chowdhury (2004).

Table 5 shows that participation of male and female in decision-making in agricultural activities. The above data indicate how negligible role the women are playing in decision making process relating to agricultural activities. This clearly reflects their status as simple manual labourers and followers of their counterparts in the field.

Table 6: Gender wise Distribution of Workers in Rural Sector (%)

Categories of Workers	Female	Male
Cultivators	36.46	42.19
Agricultural Labours	43.4	27.48
Household Industry Workers	5.44	2.83
Other Workers	14.70	27.49
Total	100	100

Source: Men and Women in India (2001).

Table 6 represents that gender wise distribution of workers in rural sector in different activities. 36.46 percent women work as cultivators and 43.4 percent as agricultural labourers followed by 5.44 percent in household industry workers and 14.70 percent in other workers. Figure 3 clearly shows the above results. They do lack ownership over farm land.

Table 7 represents the percentage of women participation of operational holders in different size group. A classification of operational holders consists of marginal group (below1.00 ha), small group (1.00 to 1.99 ha), semi medium group (2.00 to 3.99 ha), medium group (4.00 to 9.99 ha) and large group (10.00ha and above). Normally the male member of a farmers family enjoy the rights. Whatever meagre ownership they have that goes under marginal farmers.(12.60%) followed by small farmers(11.7%). Figure-4 clearly shows the above result.

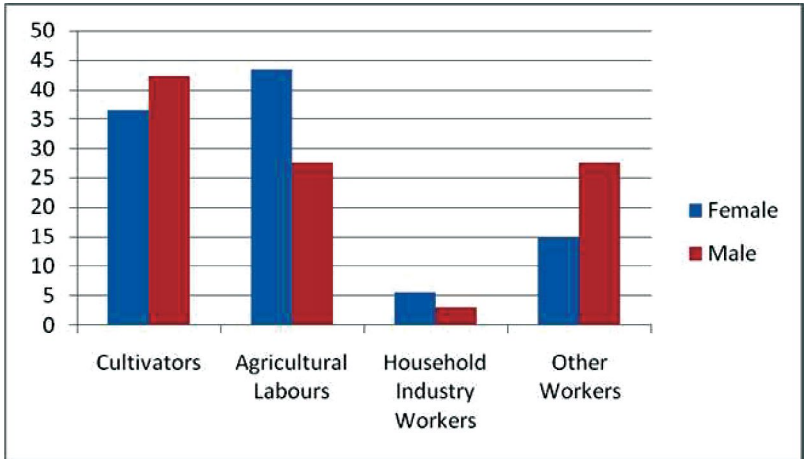

Fig. 3

Table 7: Percentage of Women participation in Different size group of operational holders

Size Group	Female Operational Holders (%)
Marginal	12.60
Small	11.10
Semi Medium	9.61
Medium	7.77
Large	6.00
All Size Groups	11.70

Source: Agricultural Census (2005-06).

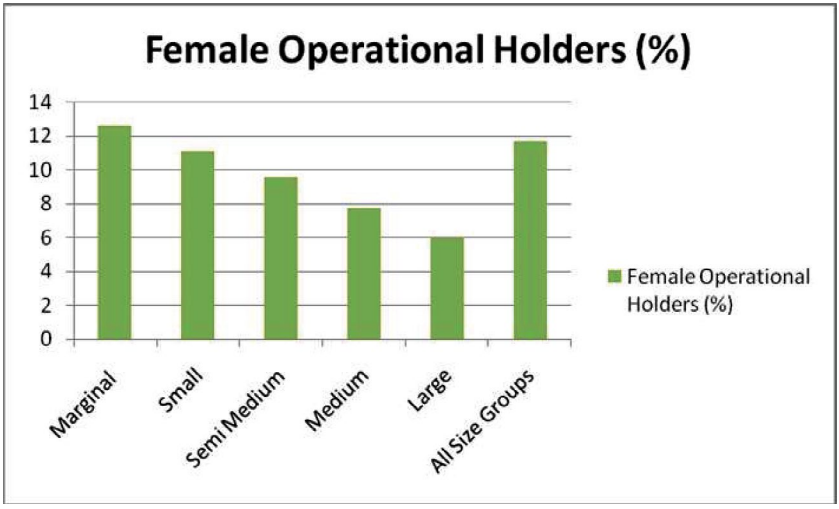

Fig. 4

Table 8: Compound Growth Rate (CGR) of Cultivators and Agricultural Labourer in India (Period 1971-2001)

Cultivators		Agricultural Labourer	
Male	Female	Male	Female
1.016	1.118	1.021	0.943

The Table 8 depicts the compound growth rate of male and female. The CGR is shown for cultivators and agricultural labourers for all India from the period of 1971-2001. Here the women and men participation of cultivators and agricultural labourer are significant at 1% level.

Obstacles to Women Participation in Agriculture

Women's status is low by all social, economic and political indicators. They face wide discrimination in every sphere of their life including the field of agriculture which is supposed to be the main occupation of rural women. Following factors are mainly responsible for their low status in an agrarian society.

Land: Land and labour are two basic factors available with rural people. Lack of entitlement to land is a strict barrier to empowerment of women cultivators because ownership is required for availing credit and as a basis for entitlement to irrigation and other inputs especially technology.

Credit: Lower capacity to avail credit is another important obstacle the women face in practising agriculture. No land no credit has been a common saying in the complex network of credit institutions towards agricultural lending. Due to their ownership over land and other property, women are lacking the accessibility to credit from formal and informal institutions.

Common Property Resource: Inequity in access to common resources like water bodies, forests, grazing grounds also adversely affects women from cultivating households, causal labour and all landless labour households.

Technology and Extension: This is another important constraint that women face. Technology in general is not designed keeping women in mind. They are rarely considered as clients for agricultural research and development. According to NCW Report, depressed production of subsistence food crops, often known as women's crops in comparison to increased production of cash crops i.e. often men's crops results in degradation of family nutrition. Women and girl child are at the forefront.

Marketing: It is another constraint in economic empowerment of women in agriculture. Despite their active participation in most of the agricultural activities, women have little access to sales proceeds as most of the marketing is done by the male members of the family. This is because of illiteracy and lack of knowledge of marketing. They have no representation in agricultural marketing committees.

Equitable wages: Women earn fewer wages, especially in joints, informal and private sector as compared to their counterpart.

Literacy, Education and Skills: Educational attainment of agricultural women workers is shockingly low (70 % illiteracy). And also they lack access to basic education, training for skill development and lack of computer knowledge. This keeps their productivity low making them economically backward.

Decision-making: Women in agriculture are known to be absent from decision making process. They do not know their legal rights so cannot participate. As it is discussed earlier maximum 10 percent of women are taking a decision about marketing of the farm products.

Suggestions

The above discussion finds that women in agriculture face variety of problems. They work hard without having any right over land, access to agricultural revenue, involvement in decision making so live in absolute powerlessness. This is the greatest challenge before the society and the government. Equal right, equal participation can only help in achieving the inclusive growth.

Followings are few suggestions for empowering women in agriculture:

- ◊ Women should have right to property (land) Framing of laws merely will not do, its proper implementation is highly imperative. This will not only enhance women's accessibility to credit and revenue but also increase their participation in decision making.
- ◊ Training on modern methods of cultivation should be imparted to women extensively. Normally male members participate in training programmes. But as the study reveals participation of women in agricultural activities is higher with proper training the productivity can be increased.
- ◊ The modern farm implements should be women friendly. These must be designed keeping women farmers in mind.
- ◊ Literacy rate among farm women should be increase through increase in their access to education. Even schools will be better for them as they remain busy throughout the day.
- ◊ Awareness about their legal rights, the importance of their role in agriculture, facilities that can be availed need be imparted. NGOs may be involved in this task.

Above all the women's contribution need be well recognised. Equal pay for equal work is the legal right of women. Agriculture being an informal sector the wide wage discrimination is going unnoticed. Eradication of discrimination shall help women live a dignified life.

References

Das, L. 2015. "Work Participation of Women in Agriculture in Odisha", *IOSR Journal of Humanities and Social Sciences,* **20**(7): 66-78.

Ghosh, M.M. and Ghosh, A. 2014. "Analysis of Women Participation in Indian Agriculture", *IOSR Journal of Humanities and Social Science,* **19**(5): 01-06.

Lal, R. and Khurana, A. 2011. "Gender Issues: The Role of Women in Agricultural Sector", *International Journal of Business Economics and Management Research,* **1**(1): 29-39.

Mohanty, S.R. *et.al.* 2013. "Empowerment of Women in Rural Odisha through Micro Enterprises", *IOSR Journal of Humanities and Social Science,* **12**(1): 01-08.

Kanchi, A. 2010. "Women Workers in Agriculture: Expanding Responsibilities and Shrinking Opportunities", *ILO Asia- Pacific Working Paper Series,* 01-42. www.ilo.org/India.

Censusindia.gov.in/Tables Published/S.

Statistics on Women in India (2010)

Statistical Profile on Women Labour 2009-2011.

Women and Men in India (2012).

Orissa Review (Census Special) Workers in Orissa (2010), 231-235.

www.icar-ciwa.org.in.

9

National Rural Health Mission and Rural Health Status in India: An Economic Analysis

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Abstract

National Rural Health Mission (NRHM) was implemented in India on 12 April 2005, to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups. NRHM was initially tasked with addressing the health needs of 18 states that had been identified as having weak public health indicators. These 18 states are Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Jammu & Kashmir, Manipur, Mizoram, Meghalaya, Madhya Pradesh, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttarkhand and Uttar Pradesh. Through this study an attempt has been made to study the impact of NRHM in terms of health infrastructure like Sub Centers (SCs), Primary Health Centers (PHCs) and Community Health Centers (CHCs) and to examine the impact of NRHM on health indicators like Crude Birth Rate (CBR), Crude Death Rate (CDR) and Infant Mortality Rate (IMR) and Total Fertility Rate (TFR) in India. This paper also indents to study the budget estimates, revenue estimates and actual expenditure of NRHM in health care. The study is based on secondary data. The data has been collected from different secondary sources. The study uses statistical tools like graphs and paired t test. Result shows that the number of Sub Centers, Primary Health Centers and Community Health Centers have increased between 2005 and 2014. Also, CBR, CDR, IMR and TFR have come down after the implementation of National Rural health Mission. The study also illustrates that the budget estimates, revenue estimates and actual expenditure in health has increases after the implementation of NRHM.

Keywords: *NRHM, Health Infrastructures, Health Indicators, Health Status*

Health is the state of complete physical, mental and social well being and not merely the absence of disease or infirmity".

Health is the most essential component of human life. Today it has become a very important factor in the process of economic and social development and improving the quality of life of the people. Without better health, we cannot think of development. Hence, this sector needs to be given priority by the government. Better health status leads to better productivity.

The development of the health is holistic process related to the overall growth and development of social, cultural, economic, educational and environmental factors. From a social point of view, good health is a pre-requisite for human productivity and the development process. It is essential to economic and technological development. Individually, health is a man's greatest possession, for it lays a solid foundation for his happiness.

Improvement in health would make a positive impact on economic development. Better health can increase the number of potential man hours for production by reducing morbidity and disability as well as by reducing mortality. Better health may result in more productivity per man as well as more men available for work.

Therefore, promotion of good health must be a prime objective of every country's development program. It is precursor to improve the quality of life for a major portion of mankind. The preamble to the WHO constitution also states that the enjoyment of the highest attainable standard of health is a fundamental right of every human being and Governments are responsible for the health of their people and that they can fulfil that responsibility by taking appropriate and social welfare measure. Health has found an important place in the constitutions of all nations of the world.

Hence, both developed and developing countries have started paying adequate role on improving the health status of people in the last three decades or so. A considerable portion of the Gross Domestic Product (GNP) has been earmarked for health promoting activities and health care represented by the number of medical institutions and availability of medicines.

National Rural Health Mission (NRHM)

Considering into account the above factors National Rural Health Mission was launched by the Hon'ble Prime Minister Dr Manmohan Singh on 12th April 2005 in the country. NRHM seeks to provide universal access to equitable, affordable and quality health care services which is accountable and responsive to the need of the people, reduction of child and maternal deaths as well as population stabilization, gender and demographic balance. It provides effective health care to rural population throughout the country with special focus on 18 states which have weak public health indicators and weak infrastructures. These 18 States are Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Jammu and Kashmir, Manipur, Mizoram, Meghalaya, Madhya Pradesh, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttarkhand and Uttar Pradesh. NRHM initiative as a whole with its wide approach is a national movement than just a national health project. It would also help to achieve the goals set under the NRHM policy and Millennium Development Goals. It is the biggest ever health project in the health sector in the last 50 years. It recognizes the importance of health care in the process of economic and social development and improving the quality of lives of our citizens.

Under the NRHM, the Empowered Action Group (EAG) States as well as North Eastern States, Jammu and Kashmir and Himachal Pradesh have been given special focus. The thrust of the mission is on establishing a fully functional, community owned, decentralized health delivery system with inter-sectoral convergence at all levels, to ensure simultaneous action on a wide range of determinants of health such as water, sanitation, education, nutrition, social and gender equality.

NRHM was for the period 2005-12. But due to the unsatisfactory outcome of NRHM, the Union Cabinet in May 2013 approved the continuation of the schemes as sub mission of an over- arching National Health Mission (NHM) for the period 2012-2017. The National health Mission (NHM) encompasses two Sub- Missions, National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM). Under National Health Mission, support is being provided to States/ UTs to strengthen their health care delivery system for provision of free and affordable healthcare, free drugs and diagnostic to all those who access public health facilities.

Health Infrastructure

Health Infrastructure is an important indicator to understand the health care delivery provisions and mechanisms in a region. It signifies the investments and priority accorded for creating the infrastructure in public and private sectors. In this present study we have considered health infrastructure in terms of Sub-Centers, Primary Health Centers (PHCs), and Community Health Centers (CHCs). As on 31st March, 2014, there were 152326 Sub Centres, 25020 Primary Health Centres and 5363 Community Health Centres functioning in the country.

Sub-Centers: The Sub-Centre is the most peripheral and first contact point between the primary health care system and the community. Each Sub-Centre is required to be manned by at least one Auxiliary Nurse Midwife (ANM) / Female Health Worker and one Male Health Worker. Sub-Centres are assigned tasks relating to interpersonal communication in order to bring about behavioral change and provide services in relation to maternal and child health, family welfare, nutrition, immunization, diarrhoea control and control of communicable diseases programmes. The Sub-Centres are provided with basic drugs for minor ailments needed for taking care of essential health needs of men, women and children. The Ministry of Health and Family Welfare is providing 100% Central assistance to all the Sub-Centres in the country since April 2002. Under the Swap Scheme, the Government of India has taken over an additional 39,554 Sub Centres from State Governments / Union Territories since April, 2002 in lieu of 5,434 Rural Family Welfare Centres transferred to the State Governments / Union Territories. Number of Sub Centres existing increased from 146026 in 2005 to 152326 by March 2014.

Primary Health Centre: PHC is the first contact point between village community and the Medical Officer. The PHCs were envisaged to provide an integrated curative and preventive health care to the rural population with emphasis on preventive and promotive aspects of health care. The PHCs are established and maintained by the State

Governments under the Minimum Needs Programme (MNP)/ Basic Minimum Services (BMS) Programme. As per minimum requirement a PHC is to be manned by a Medical Officer supported by 14 paramedical and other staff. Under NRHM, there is a provision for two additional Staff Nurses at PHCs on contract basis. It acts as a referral unit for 6 Sub Centres and has 4 - 6 beds for patients. The activities of PHC involve curative, preventive, promotive and Family Welfare Services. Number of Primary Health Centres existing increased from 23236 in 2005 to 25020 by March 2014.

Community Health Centers:

CHCs are being established and maintained by the State Government under MNP/BMS programme. As per minimum norms, a CHC is required to be manned by four Medical Specialists i.e. Surgeon, Physician, Gynecologist and Pediatrician supported by 21 paramedical and other staff. It has 30 in-door beds with one OT, X-ray, Labour Room and Laboratory facilities. It serves as a referral centre for 4 PHCs and also provides facilities for obstetric care and specialist consultations. Number of Community Health Centers existing increased from 3346 in 2005 to 5363 by March 2014.

Health Indicators

Health indicators like Crude Birth Rate (CBR), Crude Death Rate (CDR), Infant Mortality Rate (IMR) and Total Fertility Rate (TFR) are greatly influenced by the availability of health infrastructure. So for the present study we considered these health indicators. As on 2014, CBR, CDR, IMR and TFR fall to 20.22, 7.4, 40 and 2.3 respectively.

Crude Birth Rate: The crude birth rate is the total number of live births per 1,000 of a population in a year. It has decreased from 23.8 in 2005 to 20.22 by 2014.

Crude Death Rate: The crude death rate is the total number of deaths per year per 1,000 people in a year. It has decreased from 7.6 in 2005 to 7.4 by 2014.

Infant Mortality Rate: The infant mortality rate is the number of deaths of infants under one year old per 1,000 live births. This rate is often used as an indicator of the level of health in a country. It has decreased from 85 in 2005 to 40 by 2014.

Total Fertility Rate: The total fertility rate of a population is the average number of children that would be born to a woman over her lifetime. It has decreased from 2.9 in 2005 to 2.3 by 2014.

Review of Literature

Gopal (1987) examined the paramount role played by human capital in a country's economic development. she emphasizes that human resource development particularly in developing countries like India, goes a long way in both accelerating them tempo of economic activity and in promoting the welfare of the people the author has attempted to access the health status and nutritional status of two important indicator of human resource development of the people in Andhra Pradesh during the study period (1961-

1974) using time series data her analysis reveals that there has been no improvement in the health status but only a decline as pointed out by a substantial status of health and nutrition.

Pillai G. (1993) in their study found that the immediate causes of maternal mortality include pregnancy and delivery and the management of complications such as hemorrhage, toxic and bacterial infections (sepsis), eclampsia, and obstructed labor. The poor health, nutrition, and socioeconomic status of women are the underlying causes of maternal death. Gender bias in the allocation of meager food supplies results in the poor health and nutritional status of women, rendering a woman's pelvis too small, which causes obstructed labor and even death. Socioeconomic status is linked to access the family planning and health services which affect mortality and reproductive health.

Prasad (2000) made a study on the health related problems of the rural poor in Gujarat. His study suggests that most of the rural poor are facing problem in accessing healthcare services because the government fails to detect the social spaces or gaps in health care policies. He also finds from a study on the leptospirosis epidemic in Gujarat that the quick supply of drugs, increased allocation of equipment, health workers, doctors, and opening of special wards in the hospitals during the 1997-99 epidemics was less significant to save lives.

Bhat and Maheswari (2004) concluded that the health facilities provided by any private company depends on its profit and its financial status. Like the private company, the facilities provided by the government also depend on its budget allocation which further depends on the financial soundness of the government. For their study, they used unstructured interview method. He interviewed the CEO, hospital head and the other senior doctors of the hospital and reached at the above stated conclusion.

Kumar (2005) reported that study on Maternal Mortality Reduction and opportunity under National Rural Health Mission. Maternal Mortality Rate continues to remain high in our Country without showing any declining period of two decades. The proportion of maternal death contributes by direct obstetrics causes have also remained more or less the same in rural areas. There is a strong need to improve coverage of antenatal care, promote institutional deliveries and provide emergency of obstetric care.

Ramani (2006) “Status of Indian Health System” identified that the critical areas of management concerns in the Indian Health Care System are mainly non-availability of staff, weak referral system, poor service delivery, financial shortfalls and lack of accountability of quality of care.

Kaveri Gill (2009) in their study concluded that the National Rural Health Mission is on the right track of addressing the rural health care with the institutional changes it has brought within the health system. But there are problems in implementation, so that delivery is far from what it ought to be with respect to physical infrastructure, medicines and funding. Whereas with respect to human resources and to the extent these impact actual availability of services, structural issues of some complexity need

careful resolving with a definite long term investment in the training and education of paramedical and medical staff.

Suresh (2013) revealed that the latest review of NRHM has found that before implementation of NRHM in Odisha state have less number of PHCs and CHCs and high rate of IMR and MMR, but after implementation of NRHM number of PHCs and CHCs have been increased and IMR and MMR rate have decreased after implementation of NRHM.

Pandey (2013) suggested that other than financial and physical accessibility, acceptability of maternal health services in community emerges as critical avenue for the utilization of both maternal and child health care services. Apart from provision of immunization and delivery care, few public health educators and regular supervisors need to be embedded in the public health care delivery system, which may directs the pathways of service delivery according to women and the local community needs.

Patra *et al.* (2013) revealed that the health status of the rural areas of Orissa is very poor and is gradually increasing as a result of the implementation of NRHM and the staple reasons for this tendency are: low income, illiteracy, shortage of doctors, unwillingness doctors to go to remote areas and lack of health care facilities and lack of production of laboratory technicians and radiographers. There is a acute shortage of specialist in Odisha. Their study also found that the appointments of Health Worker (F)/ANM, Nurse Midwife, Radiographers and pharmacists at SCs and PHCs have increased from 2005 to 2009 after the implementation of NRHM in Odisha. Over the period 2005-2010, substantial amount are being released by the government and the expenditure out of the released amount is also incurred for the development of the health status of the people of Odisha. The crude death rate, infant mortality rate has been reducing over the period 2003 to 2008.

Saikia and Das (2014) found that there has been significant improvement in the rural health-care infrastructure in the north eastern region, especially in case of health centers after the implementation of NRHM in 2005. Although the northeastern states are in better position compared to the national level in terms of progress in physical infrastructure, many of the states are yet to satisfy the existing population coverage norms in one or the other types of health centres. Besides the health centres in many states are not well equipped with essential facilities and equipment such as labour rooms, operation theatres, stabilisation units and care corners for new born babies, electricity supply, water supply, X-ray machine, telephone connectivity, etc.

Pritam (2014) found that there is a little and marginal impact of National Rural Health Mission on health care facilities even after 5 years of implementation in Haryana. It has also been noticed that there is some progress in manpower like; doctors, specialist, staff nurse, auxiliary nurse midwife (ANMs) and AYUSH medical personnel but there is no progress in construction of new medical institution and other facility like; beds, laboratory and residential quarters etc. under national Rural Health Mission.

Objectives and Hypotheses

The following are the major objectives of the present study:

- ◊ To study the functioning of NRHM and the rural health Status in India.
- ◊ To analyse the impact of NRHM in terms of health infrastructure in India.
- ◊ To examine the impact of NRHM on health indicators, like IMR, MMR, CDR and TFR.
- ◊ To see the budget estimates, revenue estimates and actual expenditure in health after the implementation of NRHM.

Keeping the objectives in mind, the following hypotheses are framed.

- ◊ There is significant increase in health infrastructure like sub-centers, primary health centre, community health centre, sub divisional hospital and mobile medical units in India after the implementation of NRHM.
- ◊ There is significant reduction in health indicator like IMR, MMR, CDR and TFR after implementation of NRHM.

Database and Methodology

The study is based on secondary data. The collected data is time series data. The data is collected from various secondary sources like Ministry of Health and Family Welfare Statistical Report, NRHM Annual Reports, Economic Survey, Registrar General of India, Census of India and Planning Commission of India. Keeping the objectives in the mind the present study uses statistical tools like table, graphs and paired t test. For the study various articles, journals and book reports has been referred. The present study deals with NRHM and rural health status in India on the basis of secondary data available.

Results and Discussions

Statistical Analysis of Rural Health Infrastructure.

Table 1: Paired Sample T Test on Health Infrastructure in India

Infrastructures	Statistical Value	Before NRHM	After NRHM	Mean Difference	Correlation	T-Value	df	Sig
Sub-Centre	Mean	139227.0	147578.5	-8351	0.8051	-11.9884	9	0.0000
PHCs	Mean	22652.2	23620.1	-967.9	0.2642	-3.9533	9	0.0033
CHCs	Mean	3184.8	4489.5	-1304.7	0.6982	-9.2637	9	0.0000

Note: Computed and compiled from secondary data.

On the basis of analysis conducted with time series data from 1995-96 to 2014-2015 by using paired sample T test, it indicates that on an average number of sub- centre functioning was 139227 before implementation of NRHM and it is increased to 147578.5

after implementation of NRHM and the mean difference between these two periods is 8351. In the same it is also found that on an average the number of primary health centre functioning was 22652.2 and 23620.1 before and after the implementation of NRHM respectively and their mean difference is 968. Further, it is observed that the community health center was 3184.8 before the implementation and increased to 4490 after the implementation of NRHM and their mean difference is 1305. The t statistics are significant at 1 percent level. The null hypotheses are rejected which implies that there is a significant difference in the number of health centers (health infrastructure) such as Sub-Centers, PHCs and CHSs. Further, it pointed out that after implementation of NRHM scheme a significant increase was observed in the establishment of Sub- Centers PHCs and CHSs in India.

Functioning of Sub-Divisional Hospital, District Hospital and Mobile Medical Units in India since 2010

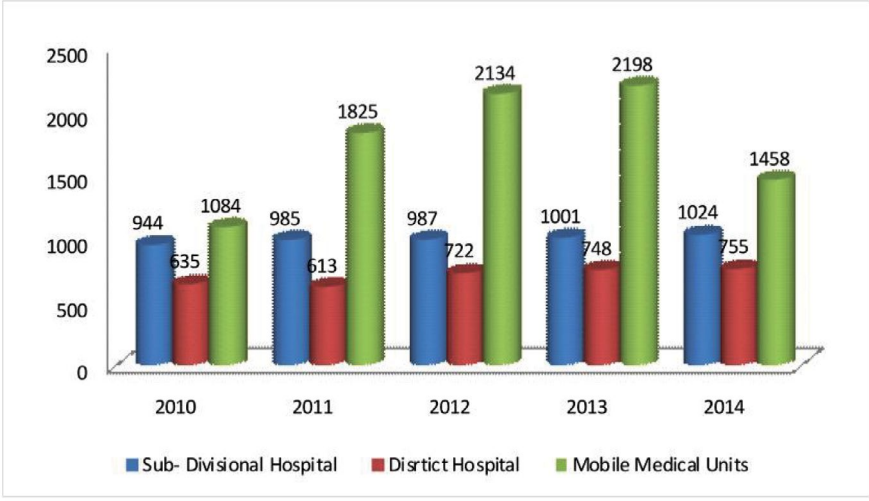

Fig. 1

Source: Ministry of Health and Family Welfare, Govt. of India

From the above bar diagram it is clear that sub-divisional hospital in India was 944 during 2010 and it was increased to 985 in 2011, 987 in 2012, 1001 in 2013 and 1024 in 2014. Hence here we observed that the numbers of sub-divisional hospitals are increasing over the years. Further if we see the functioning of divisional hospital, it is observed that hospital is increasing at a slower rate except during 2011. The number of hospital was 635 in 2010 and it was slightly decreased to 613 in 2011 and increased to 722, 748 and 755 in the year 2012, 2013 and 2014 respectively. In the same way if we look insight the mobile medical units functioning in India, it was 1084 in 2010 and increased to 1825 in 2011, 2134 in 2012, 2198 in 2013 but decreased to 1458 in 2014.

Statistical Analysis of Health Indicators

Table 2: Paired Sample T Test on Indicators of Health in India

Indicators	Statistical Value	Before NRHM	After NRHM	Mean Difference	Correlation	T-Value	df	Sig
CBR	Mean	26.06	22.28	3.78	0.9771	34.3051	9	0.0000
CDR	Mean	8.51	7.29	1.22	0.5531	8.8873	9	0.0000
IMR	Mean	67.4	51.3	16.1	0.7674	5.2056	9	0.0000
TFR	Mean	3.81	2.58	0.6	0.9698	40.2492	9	0.0000

Source: Computed and compiled from secondary data.

On the basis of analysis conducted with time series data from the year 1995-96 to 2014-15 by using paired sample T test, it is observed that the average IMR rate was 26.06 before implementation of NRHM and it has decreased to 22.28 percent after implementation of NRHM. Overall, the decreased rate of IMR was 3.78. The t statistic is significant at 5% (df: 9, t: 34.3051, sig.0.0000) level.

Budget Estimates, Revenue Estimates and Actual Expenditure in Health after the Implementation of NRHM (₹ in Crores)

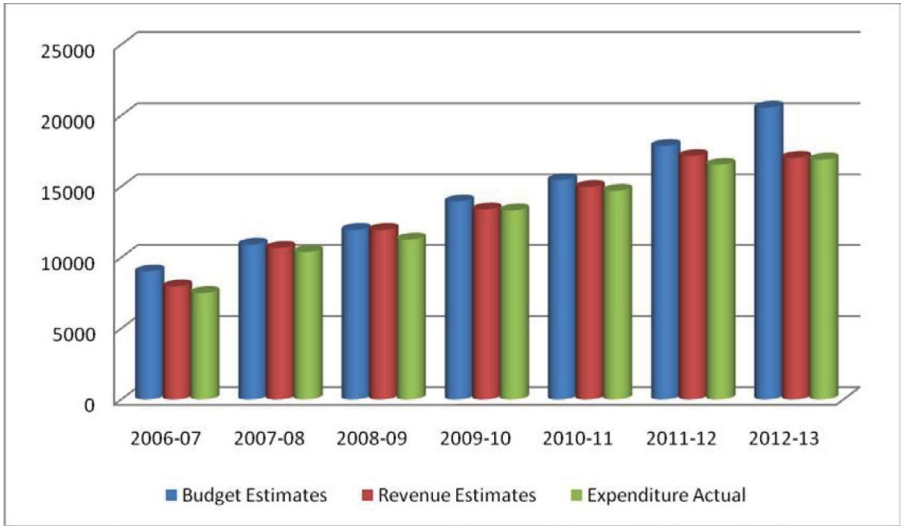

Fig. 2

Source: Ministry of Health and Family Welfare, Govt. of India.

Hence the null-hypothesis of no difference is rejected and alternative hypothesis of significant difference is accepted. With respect to CDR, the average rate of CDR was 8.51 before implementation of NRHM and it decreased to 7.29 percent after implementation of NRHM. Overall, the decreased rate of CDR was 1.22. The t statistic is significant at 5% (df: 9, t: 8.8873, sig.0.0000) level. Hence the null-hypothesis of no difference is

rejected and alternative hypothesis of significant difference is accepted. On the other hand, average IMR rate was 67.4 before implementation of NRHM and it decreased to 51.3 percent after implementation of NRHM. Overall, the decreased rate of IMR was 16.1. The t statistic is significant at 5% (df: 9, t: 5.2056, sig.0.0000) level. Hence the null-hypothesis of no difference is rejected and alternative hypothesis of significant difference is accepted.

Whereas, TFR rate was 3.81 before implementation of NRHM and it decreased to 2.58 percent after implementation of NRHM. Overall, the decreased rate of IMR was 0.6. The t statistic is significant at 5% (df: 9, t: 40.2492, sig. 0.0000) level. Hence the null-hypothesis of no difference is rejected and alternative hypothesis of significant difference is accepted. So null-hypothesis of no difference is rejected and alternative hypothesis of significant difference is accepted. Hence it is observed that CDR, CBR, IMR and TFR have decrease after the implementation of NRHM in India.

The above diagram shows the year wise i.e. from 2006-2007 to 2012-2013 budget estimates, revenue estimates and actual expenditure of NRHM in health. It is apparent from the above diagram that the budget estimates, revenue estimates and actual expenditure of NRHM in health has increased over the years. It is observed from the above result that there is slightly decrease in the revenue estimates of NRHM during 2012-2013 which is reduce from ₹ 17127 to 17000 cores. During the year 2006-07 the budget estimates was ₹ 9000 cores, revenue estimates was ₹ 7951.08 cores and actual expenditure was ₹ 7486.59 and these were increased to ₹ 20542 cores, ₹ 17000 cores and ₹ 16886.83 cores respectively in the year 2012-13.

Conclusion and Policy Prescriptions

The NRHM launched by the Government of India in 2005 has made considerable progress in health-care infrastructure and health indicators in the country, but the improvement has been quite uneven across regions with large-scale inter-state variations. The numbers of sub centers, primary health centers and community health centers in India have rapidly increased from 2005 to 2014 after the implementation of National Rural Health Mission. The functioning of sub-divisional hospital, district hospital and mobile medical units have increased between the year 2010-2014, except in 2014 mobile medical units has decreased from 2198 to 1458. There are substantial reduce in the crude birth rate, crude death rate, infant mortality rate, materiality rate and total fertility rate in the country after the implementation of NRHM. Over the period 2006-13 the actual expenditure made by the health and family welfare department in health care services has increased rapidly.

Though there has been a significant improvement in the health status of the people, some possible strategies for adoption by the state to improve the health status further have been suggested below:

1. Both the government organisation and non-government organisation should put combined effort to bring reforms in the health system in the rural areas of India.

2. The facility is not reaching all the groups. Government should extend effectively the facility to the hilly region people and tribal people.
3. Public Private Partnership should be given due importance in order to fill up the large
4. gap in the field.
5. More rural health infrastructure and facilities should be provided by the government so that every individual in the villages can assess the basic health care benefit at least possible cost.
6. After the implementation of NRHM health indicators like crude death rate, infant and maternal mortality can be reduced significantly. So Government has to promote this programme extensively.

List of Tables

Table 3: Health Infrastructure: Sub Centers, Primary Health Centers and Community Health Centers

Year	Sub- Centers (SCs)	Primary Health Centers (PHCs)	Community Health Centers (CHCs)
1995-96	136258	22149	2633
1996-97	136258	22149	2633
1997-98	137311	22875	3054
1998-99	137311	22875	3054
1999-00	137311	22875	3054
2000-01	137311	22875	3054
2001-02	137311	22875	3054
2002-03	145227	22370	445
2003-04	145227	22370	4045
2004-05	142655	23109	3222
2005-06	146026	23236	3346
2006-07	144988	22669	3910
2007-08	145272	22370	4045
2008-09	146036	23458	4276
2009-10	145894	23391	4510
2010-11	147069	23673	4535
2011-12	148124	23887	4890
2012-13	148366	24049	4833
2013-14	151684	24448	5187
2014-15	152326	25020	5363

Source: Ministry of Health and Family Welfare, Govt. of India.

Table 4: Health Infrastructure: Sub-Divisional Hospital, District Hospital, Mobile Medical Units

Year	Sub- Divisional Hospital (SDH)	District Hospital (DH)	Mobile Medical Units (MMU)
2010	944	635	1084
2011	985	613	1825
2012	987	722	2134
2013	1001	748	2198
2014	1024	755	1458

Source: Ministry of Health and Family Welfare, Govt. of India.

Table 5: Health Indicators: Crude Birth Rate, Crude Death Rate, Infant Mortality Rate, Total Fertility Rate

Year	Crude Birth Rate (CBR)	Crude Death Rate (CDR)	Infant Mortality Rate (IMR)	Total Fertility Rate (TFR)
1995-96	28.3	9.0	74	3.5
1996-97	27.5	9.0	72	3.4
1997-98	27.2	8.9	71	3.3
1998-99	26.5	9.0	72	3.2
1999-00	26.0	8.7	70	3.2
2000-01	25.8	8.5	68	3.2
2001-02	25.4	8.4	66	3.1
2002-03	25.0	8.1	63	3.0
2003-04	24.8	8.0	60	3.0
2004-05	24.1	7.5	58	2.9
2005-06	23.8	7.6	85	2.9
2006-07	23.5	7.5	57	2.8
2007-08	23.1	7.4	55	2.7
2008-09	22.8	7.4	56	2.6
2009-10	22.5	7.3	5	2.6
2010-11	22.1	7.2	47	2.6
2011-12	21.8	7.1	44	2.5
2012-13	21.6	7.0	42	2.5
2013-14	21.4	7.0	40	2.3
2014-15	20.22	7.4	40	2.3

Source: Ministry of Health and Family Welfare, Govt. of India, Census of India, Planning Commission of India and Register of India.

Table 6: Budget Estimates, Revenue Estimates and Actual Expenditure in Health relating to NRHM

Year	Budget Estimates (BE)	Revenue Estimates (RE)	Actual Expenditure (AE)
2006-07	90000	7951.08	7486.59
2007-08	10890	10668.61	10380.40
2008-09	11930	11930.00	11260.18
2009-10	13930	13377.75	13305.76
2010-11	15440	14960.45	14696.42
2011-12	17840	17127.00	16509.36
2012-13	20542	17000.00	16886.83

Source: Ministry of Health and Family Welfare, Govt. of India.

References

Bhat, R. and Kumar, M.S. 2004. Challenges in Sustaining a Hospital. Lessons for managing healthcare institutions. Working Paper No. 2004-02-03.

Kaveri, G. 2009. A Primary Evaluation of Service Delivery under the National Rural Health Mission (NRHM): Findings from a study in Andhra Pradesh, Uttar Pradesh, Bihar and Rajasthan, Working Paper 1/2009-PEO, Planning Commission of India.

Kumar 2005. Challenges of Maternal Mortality Reduction and Opportunities under National Rural Health Mission. A Critical Appraisal, *Indian Public Health*, **49**(3): 163-167.

Pandey, N. 2013. Perspective on Accessibility of Public Health Facilities in rural Uttar Pradesh, India. *International Journal of Social Science & Interdisciplinary Research,* **2**(4)*:* 69-74.

Patra, S.K., Annam, L. and Ramadas, M. 2013. *National Rural Health Mission (NRHM) and Health Status of Odisha: An Economic Analysis,* **13**(4): 305-3015.

Pillai, G. 1993. Reducing deaths from pregnancy and childbirth: Asia, Links, New York, **9**(5): 11-3.

Prasad, P. 2000. Health Care Access And Marginalised Social Spaces: Leptospirosis In South Gujarat. *Economic and Political Weekly*.

Pritam 2014. Impact of Rural health Mission on the Health Sector in Haryana. *American International Journal of Research in Humanities, Arts and Social Sciences* **5**(2): 201-206.

Ramani K.V. and Maavalakar Dileep, 2006. Status of Indian Health System: Opportunity and challenges for improvement. *Journal of Health and Organization Management*, **20**(6): 560-572.

Rani, G.K. 1987. Economics of Health and Nutrition. Chugh publications, Allahabad.

Saikia, D. and Das, K.K. 2014. Access to Public Health-Care in the Rural Northeast India. *The NEHU Journal,* **12**(2): 77-100.

Thammaiah, N. and Mamatha, K.G. 2014. National Rural Health Mission and Rural Health Status in Karnataka: An Economic Analysis. *Indian Journal of Research,* **3**(5).

World Health Organization. 2006. Constitution of the World Health Organization – Basic Documents, Forty-fifth edition, Supplement.

10

Gender Disparities in Rural Work: A Time Use Survey–based Evaluation in Rural West Bengal

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Abstract

The participation of women in 'productive' or economic labour activities has always been visibly lower than that of men, whether in rural or urban areas. However in the view of gender researchers, also reiterated by the National Commission on Labour, the economic contributions made by women as a labour category are grossly underestimated. Undervaluation of women's work also manifests itself in persisting wage-disparity, differential access and control over resources, lack of equivalence in infrastructural support, and above all through disparity in gender work burdens. Proper valuation of women's work thus requires fundamental labour research. Fuller accounting of the many labour contributions made by rural women also helps to clarify their significance within development processes. Nevertheless, despite its obvious productive and social worth, much of women's work remains invisible within national accounting and census frameworks, emphasising their urgent need for redesign.

The methodology of Time Allocation Surveys [TAS], or time-use analysis as these are more popularly called, overcomes many of the lacunae in conventional labour data collection and research, which disfavour women. Such surveys capture the segmentation of the working day by men and women between paid and unpaid work activities. While labour activities that enter the labour market are directly valued via their market price, many other forms of non-market activity which are directed towards home-consumption can also be valued either in terms of the opportunity costs of the labour time that is foregone, or vis-à-vis the price of close substitutes. Time use methods also remain free from any sociocultural or interpretative bias, since they merely record the various activities undertaken by survey respondents over the specified reference period

The paper re-examines the economics of rural work and gender divisions of labour between men and women within the rural household, based on a recent time allocation survey of poor rural households engaged in agriculture and allied activities in three villages located in Jalpaiguri district in northern West Bengal. The involvement of women in various forms of economic and non-economic activity is also explored, using stylised questionnaire methods that capture the nature of women's work and latent gender structures that create disparities between men's and women's work in agricultural households.

Keywords: *Productive, economic labour, Jalpaiguri, rural work, TAS*

Introduction

Foundational Issues

Although economic work, by definition, is usually measured as the contribution of an individual worker, the division of labour that supports it arises from interrelated decisions made within a mutually-dependent labour group, such as a society or family. The household thus functions as the basic social unit that allocates labour time towards production and consumption, and household production thus involves the collective generation of goods and services by the household, combining capital assets such as land, tools and implements and skills held or controlled by certain members with the unpaid labour contributed directly and indirectly by other members to support the production process (Ironmonger, 2001). The variety of gender-based activities that support household production indirectly thus include preparation of meals, cleaning and maintenance of homes, care for children and the elderly etc. Unlike rural households, those located in urban areas can also purchase the labour time to be expended on such support activities from the labour market, maximising their time-utility by choosing combinations of market-produced and home-produced goods and services, subject to availability and time constraints (Bryant, 1995). The theory of the allocation of time by the family (Becker, 1965) proves meaningful to this context, where household members are seen to make three decisions about where to allocate their time: i.e. to wage-work, household production or to leisure.

Despite the crucial responsibilities they undertake within the household, women are generally pushed into subordinate roles as agents of production, based on the perception that the labour time devoted by them to domestic work is not directly 'productive' (Patnaik and Debi, 1991). In rural households, the economic contributions made by women are more visible, since they often assume earning roles besides functioning as home-makers. Even then, control over the resulting family income is generally surrendered to their partners because they lack autonomy. When unpaid women's work supports home-based production, the earnings that accrue from it are ultimately surrogated by the males. Additionally, in situations where such male earnings provide inadequate support the rural household, women are compelled to secure subsistence for their family by selling their wage-labour below its reproductive cost, i.e. by undertaking arduous work that lengthens their working day, sacrificing rest and leisure.

Several conceptual difficulties in dealing with the household division of labour also arise because of the narrow economic definitions of work. Since economic work implies economically productive participation through activities that lead to the direct production of goods and services for consumption or exchange, activities undertaken by women within the household, such as cooking, laundering, childcare and livestock tending which do not result directly in the production of visible economic goods and services do not fall within the purview of this definition, and are therefore treated as optional or subsidiary activities for the purpose of national accounts. As can be surmised,

this fallacy arises from treating work as a purely individual function, disregarding the interdependence of work within the family group. The contribution of women to unremunerated and therefore immeasurable work within the household is productive in the sense that it extends the opportunities for other members of the family to participate directly in productive and remunerated work.

Although economic logic would dictate that the cost of labour contributions by the rural family unit should be subsumed within the production costs of the ultimate good or service, women's unpaid contributions to household activity and subsistence agriculture as family helpers remain unquantified. Thus the labour of rural women embodied in home-based production remains invisible. Although women also participate directly in the rural production process as cultivators or farm labour, or as petty entrepreneurs and traders, their labour contribution to such economic activities extends beyond the unpaid contributions they already make in the form of household work, and therefore tends to be undervalued. In actual fact, besides land-based activities like ploughing, tilling and irrigation which are exclusively male functions in most agricultural societies, most other cultivation-related work such as sowing and weeding and transplantation, as well as harvesting, drying and storage is generally shared by both men and women. Paddy cultivation, and rubber and tea plantation also provide typical instances of female-dominated agro activity. Despite minor variations across agro ecological regions, farming systems and sociocultural zones, rural women make critical contributions to all primary producing activities such as crop and livestock production, post-harvest activities, agro forestry, fisheries, etc. which are confirmed by studies across India and many other developing countries.

The present study documents the gender dimensions of work in rural West Bengal through an empirical survey of rural households. Since conventional survey methodologies are unable to measure and value invisible women's work, the alternative methodology of time use surveys is adopted. This also entails fundamental alterations in the definitions of women's work. Besides exploring such foundational issues, Section A of the study reviews relevant literature on women's work and its measurement through time use studies. Section B outlines recent survey research on the nature of women's work in West Bengal, and profiles the present study region and the gender activity patterns defined by the time use survey as preliminary results. Section C defines the gender structures that operate in rural West Bengal by measuring autonomy and interdependence within the activity patterns of rural men and women, and by indexing gender division of labour and the gender equity of time use. The concluding section discusses other qualitative results obtained from the survey and the broad conclusions derived from the study.

Women's Work and Economic Status

The access of women to productive resources and their power to control or dispose of these is an important indicator of their economic status. Early European studies however drew important distinctions between the exercise of autonomy by rural women in economic roles, depending on whether they were involved in market or non-market

activities. Several studies in South Asia subsequently documented similar evidence that rural women who participate in market-related activities and gain direct access to cash earnings are accorded higher social status and exercise greater autonomy in household decision-making (Blumberg 1978, FAO 1981, Acharya and Bennett 1982). Marginalisation of women's work forces their withdrawal from such 'visible work' on the field to 'invisible work' within the home, significantly reducing their access to productive resources and undermining their status within the household and rural society (Harris, 1982).

Gender stereotyping within labour force definitions also leads to false inferences that while non-participation by adult men in labour activity is involuntary, women who do not participate directly in wage-work and are involved in housework and support and subsistence activities have voluntarily opted out of the active labour force. Fundamental conflicts also arise within work definitions when housework performed in fulfilment of the needs of one's own family is not classed as economic activity, although the same activity when performed against payment by an employer is regarded as economic work. The use of the term 'housewife' to distinguish women home-workers from those engaged within the active labour force have thus been increasingly questioned (Fong, 1975). Since the estimated value of household services already amounted to approximately a fourth of the GNP in most developed countries by the end of the 1960s (Clark, 1967), it is difficult to see why such a significant contribution should still remain unquantified. However, in both developed and developing countries, significant cultural prejudices still prevail regarding the acceptability of married women going out to work. Thus in both Asia and Africa, women's shares in earned income and political and economic participation are disproportionately low compared to their existing work burdens, while primary control over family income is exercised invariably by men (Palmer 1980, Heyzer 1982, Agarwal, 1985).

In India, where three-fourths of the rural population still draws sustenance from agricultural livelihoods, rural women comprise half of the paid and unpaid labour force. More than 30 million women participate currently in the rural workforce, two-thirds of them as agricultural labourers, and a third in animal husbandry, in the production of craftwork and related activities (Census, 2001). Rural women play an important role at virtually all stages of crop production, ranging from land preparation to harvest and post-harvest activities, while in animal husbandry, their activities range widely from care of livestock and grazing and fodder collection to the processing of all livestock products. Although generally unremunerated when performed within the household, such rural activities are also classified socially as women's work.

Methodology and Utility of Time Use Studies

The methodology of time use studies originally evolved around the need for measuring the intra-household division of labour in developed Western countries, where workers are

largely involved in market-based activities. Inadequacy of data on women's participation in unpaid household activities in India leads to gross underestimation of their role in the labour force. The Census and NSS definitions of work differ substantially. Census sources identify workers on the basis of engagement in 'any productive work for which remuneration is paid and which is market related' while the NSSO extends this to engagement in any 'economically meaningful activity', thus including women's household activities such as livestock rearing, fodder collection, and agricultural processing, etc., and unpaid services rendered by them during farm and home production within the sphere of economic work NSS estimates of women's workforce participation are therefore consistently higher than Census enumerations of their work participation. Neither definition is however fully capable of capturing the nuanced nature and extent of women's work participation, since the vast range of activities through which women produce goods and services for family and home-consumption are excluded. Such activities which rest on the unpaid services of women lead to the reproduction of labour power within the household. Women's work within the informal and subsistence sectors and in domestic and voluntary activity is therefore subject to serious undercounting in Indian labour statistics (Hirway, 1999). Besides improving the overall accuracy of employment statistics, the alternative methodology of time allocation studies throws considerable light on the distribution of paid and unpaid work between men and women in different livelihood spheres, and is thus especially useful in estimating the value of household production.

The logical apparatus employed by Gary Becker in his theory of the allocation of time (Becker, 1965) is particularly useful for understanding the phenomenon of labour force participation. Under this, if more goods and services can be acquired by a household member through an extra hour of employment in market work than could be produced by her or him through an extra hour of unpaid home-based work, the individual will opt to join the labour force and use the income thus earned to purchase the required goods and services. This has now come to be known as the *production substitution effect* (Bryant, 1995). However, since time allocation is a collective decision within the household, the decision of one household member to participate in market work may be accompanied by matching increase in participation of other household members in home-based work, as the household seeks to optimise time allocation between market and non-market work in order to secure the largest accessible bundle of goods and services. This reasoning in fact explains why the domestic work burden of women in the household increases continuously as its menfolk participate increasingly in market work. Marxist theoreticians have thus acknowledged that formal labour markets are supported significantly by the household production system which aids the reproduction of labour by the working class (Gibson-Graham, 1993).

Time use surveys in India were first conducted on an experimental basis by the Central Statistical Organisation [CSO] in 1998-99 in six selected states, under a new activity classification where 154 activities were identified and categorised into three groups covering:

1. activities under the narrow definition of economic work, which are included under the System of National Accounts [SNA]
2. non-market activities extending beyond the narrow definition of remunerative work that support home consumption, which have been included since 1993 in the Extended System of National Accounts [XNA],
3. all other activities excluded under SNA and XNA definitions that lead neither to production or household consumption, but are needed for reproduction of labour power by the household (Bhatia 2002).

The present study thus seeks to quantify the allocations of labour time by rural households between different forms of economic and non-economic activity and to determine the underlying gender divisions of labour, following the methodology of time use studies. Use of labour time as a numéraire attribute is particularly useful when workers are known to perform a combination of wage-work and unremunerated home-based and household work, since the alternative valuation of work solely by means of the earnings derived would render the latter forms of activity invisible even if these involved significant outlays of labour time. Women in developing countries are known to spend up to 9.53 hours per day on standard work activities, against the average of 9.47 hours expended daily by men (Ghosh, 1991). However, of this, male workers devote 6.25 hours per day to economic activities and only around 3.22 hours to home production. Women workers in contrast spend up to 8.18 hours per day on the average in home production activities and only 1.35 hours in direct economic activities (Becker 1965, Gramm, 1974). Studies in Africa report considerably higher weekly time outlays by rural women amounting 23.83 hours on the average to agricultural activities against the weekly average of 16.59 hours expended on such activities by men (Dasgupta, 1977). In Asian settings, the time differences are minimal. Women in small farms in the Philippines put in 8.95 hours per day towards farm activities against 8.50 hours on the average for men (Quizon 1978). In more difficult ecological settings and terrain, women's daily time commitments to farm-related work rise substantially to an average of 9.91 hours, against the 5.86 hours contributed per day by men (Acharya and Bennett, 1982). Time use studies conducted in different parts of India report largely similar findings. Rural women were found to devote up to 8.25 hours per day to agricultural activities in Rajasthan (Saxena 1986), while in Himachal Pradesh, two-thirds or more of rural women were found to expend more than 8 hours on such activities during the agricultural peak season and between 4-6 hours per day during other seasons when farm work was slack (Hiranand, *et al.* 1988). In terms of class origins, women from poorer rural households were found to devote the maximum time to farm-related activities (Debi 1987, Ahuja and Oberoi, 1993), while a multi-state study carried out in three prominent rice-growing regions of the country showed that the average contributions by women to the earnings of landless rural households generally exceeded those of men, where both men and women functioned as wage-workers (Saradamoni 1982, Mencher and Saradamoni, 1982).

Study Framework

Women's Work Patterns in West Bengal

A recent time allocation survey conducted on a large sample of 500 households drawn from 10 West Bengal districts and comprising 2663 household members, examined the impact of post-reform economic scenarios on the activity patterns and coping strategies of poor families in both rural and urban areas in the state (Banerjee, 2005). Since the survey was also designed to capture the regional dimensions of women's work, it included time use studies on the nine forms of activity included under standard national accounts systems (SNA) that normally draw remuneration and are therefore listed as economic activities, as well as five other home-based activities that extend beyond SNA definitions for which no direct economic returns are obtained. The study revealed average daily time commitments ranging between 6-7.5 hours in urban households and 8-10 hours in rural households to the performance of extended household activities such as cooking, cleaning, fetching water and fuel-gathering, and caring for children as well as for the old and infirm, mostly representing time commitments that are made by women.

Among the individual tasks forming the SNA group of activities, men were found to perform the bulk of remunerated work in cultivation and in the salaried and self-employment categories, while in the case of wage employment, the variety and scale of tasks performed by men and women workers were nearly equal. However, since women also performed the vast majority of tasks in the unpaid category, comprising help rendered during the performance of SNA activities by other household members as well as the highly diversified tasks that form the extended SNA group, women household members were also found to contribute much more to subsidiary household activities on the average, compared to the male members who concentrated on principally on primary work. While unremunerated work by men was largely performed as a contribution to household enterprise, women's unpaid work spanned household enterprise as well as a vast range of other subsidiary activities. Since home-based work hours also tended to increase in the relatively prosperous districts, this implied that women's unpaid labour was being substituted for the unpaid time commitments previously made to the households by men, thereby increasing the arduousness of the work performed by women in general. Among the households surveyed, women workers were thus found to participate in 1661 different tasks compared to 1434 tasks performed by men, despite being fewer in number. However since they work for a short duration on each of these, combining many forms of activity into a single working day, many of these daily engagements are too short to fulfil the minimum time conditions that formally qualify activities as work by definition and often remain unrecognised. Despite this, the many forms of unpaid activity performed within the household by women boost the real household income even when these are not matched by equivalent wage and income flows to women workers to qualify as economic work. Under such extended definitions of economic and non-economic work, the estimated workforce participation rates [WFPR] among women increased to over 75 percent for the sample as a whole,

well ahead of the WFPR of just 16 percent estimated for rural women workers under the usual status category in West Bengal by the NSSO.

In order to deepen the understanding of women's work within rural households in West Bengal, the present study sought to extend the time use methodology to identify the determinants of gender work profiles and the exercise of autonomy by women workers and to uncover the underlying gender division of labour within rural families. A stratified four-stage sampling design was adopted for the study, with districts as the first units, blocks as the second stage units, villages as the third stage units and households as the fourth and ultimate survey units. The study thus covered three sample villages located in Alipurduar 1 and 2 blocks in Jalpaiguri district in northern West Bengal, which were chosen on the basis of:

- ◊ *agrarian characteristics*, where a vast proportion of the rural workforce drew its livelihoods from agriculture
- ◊ *rural location,* with the sample villages being selected from areas in the interior located at least 50 km away from urbanised settlements
- ◊ *gender work profiles,* with a significant proportion of rural women being engaged in agricultural activities.

The three locations thus chosen for the time allocation survey were the villages of Chaprarpar, Chandijhar and Salkumarhat in Jalpaiguri district (now it becomes Alipurduar district), from which a distributed sample of 150 rural households were surveyed during the study. The structured questionnaire designed for the study was administered to rural household heads and their spouses in order to collect information on daily time use by men and women in the study villages. The departure made here from the methodology of the preceding West Bengal study which had collected information on time allocations by all household males and females, was necessitated by the need to avoid unintentional gender biases within the small data sample arising from heterogeneities within the gender composition of the different families. Hence the survey collected time use information from 50 rural households, from individual women as well as their partners. Collection of qualitative information from both spouses ensured the intuitive capture of decision-making relationships within rural families that are important determinants of the intra-household division of labour.

Study Profile and Preliminary Results

The large district of Jalpaiguri spreading over an area of 6245 sq.km is located in the *terai* region along West Bengal's northern border with Bhutan and is predominantly rural. However, besides the agricultural lands situated to its west and south, the district also includes significant forest tracts and tea plantations. Blocks and villages located in these non-agricultural tracts were excluded from the sampling universe, and the sample population was drawn from an economic universe that largely comprises lower and middle income groups and a mixed social matrix dominated by SC groups (36%) and ST groups (18%). Although this lent considerable heterogeneity to the survey data

in terms of rural occupational choices and time outlays, time commitments by women respondents to household activities were universal.

Table 1: Sociodemographic Characteristics of Villages selected for Time Allocation Survey *vide* Census 2011

Attributes	Chaprarpar	Chandijhar	Salkumarhat	Jalipaiguri district
Total Households	957	1096	1393	868326
Total Population	4018	4615	5952	3872846
Total Males	2103	2393	3090	1983064
Total Females	1915	2222	2862	1889782
Gender Ratio (Females per 1000 males)	911	929	926	953
Average Household-size	4.2	4.2	4.3	4.5
Overall Literacy %	74.6	71.7	66.0	64.5
Male Literacy %	78.5	76.8	71.5	70.4
Female Literacy %	70.3	66.3	60.1	58.3
Work Participation Rate %	37.9	36.4	43.1	39.1
Male Cultivators %	25.5	26.0	30.4	18.1
Male Agricultural Labourers %	11.3	13.7	34.8	18.1
Female Cultivators %	8.8	8.5	22.8	6.0
Female Agricultural Labourers %	25.5	25.6	52.5	19.8

Source: *Census 2011: Primary Census Abstract for Jalpaiguri District*

As seen from Table 1, the three study villages had an agrarian character and were largely dependent on agriculture. The major agricultural crops raised there of rice and jute were rainfed. Being located close to the state highway, Chaprarpar has better access to transportation facilities, in comparison to which Chandijhar and Salkumarhat are located further in the interior. Consequently, while literacy rates in Chaprarpar were closer to or exceeded the district average, they were noticeably lower in the other study villages. On the other hand, overall work participation rates [WPRs] were lower in Chaprarpar and higher in the interior villages. The agrarian character of the study region is borne out by high rates of participation in agricultural activities. In all three villages, the proportion of workers involved in cultivation and agricultural labour activities exceeded the corresponding district averages, except in Chaprarpar where few women cultivators exist and rural women participate largely in agricultural labour activities. Since labour demands in this rainfed region were highly seasonal, a large number of agricultural labourers were also drawn in from outside during the peak harvesting season. Rural women therefore participated in agricultural work in largely marginal capacities, and at other times, also engaged in subsidiary activities such as *beedi* binding, sewing and quilt-making to support family incomes during the season of agricultural slack. Such work was generally carried out informally in household groups, where girl children

assisted older women by performing several unpaid tasks associated with such activities. Because of its seasonal nature, women's work of this kind went largely unrecorded. Main work opportunities in the study villages were few and were largely availed by men.

The questionnaire designed for the time allocation survey covered 27 forms of field and household activity usually performed by residents in the study region, comprising a mix of SNA, extended SNA and non-SNA activities listed in the table below. Since these included activities performed on seasonal as well as regular daily basis, the survey captured time allocations made by respondents towards both primary and subsidiary occupations, as well to other home-based work and leisure-time activities. The SNA activities performed by members of the rural households included the usual activity set associated with crop agriculture, including pre- and post-harvest activities as well as the market activities associated with crop cultivation. However, given the limited extent of landholding among families and their consequent economic dependence on wage-work, not all of these were necessarily performed by respondents as subsistence activities on their own account. Instead, the time allocations made towards these activities included labour services rendered against wage payments as hired agricultural labour, as well as the same services performed by respondents on their own account on self-cultivated lands.

A second subset of SNA activities included subsidiary livelihood activities usually associated with home production, including the time devoted to livestock husbandry and to the collection of domestic fuel, agricultural processing and storage for home consumption, and construction activities, as well as the production of artisanal craft items for home consumption and market sale. Once again, these included enterprise activities as well as services rendered against payment to other households, for instance in the commissioned construction of wells and dwellings by workers with the requisite artisanal skills, and the construction and management of local irrigation systems and village infrastructure, including earthworks, embankments and minor roads. The listed XNA activities included time allocations towards several unpaid domestic activities in which women play a major part, including cooking, cleaning and care-giving, educational and tutoring services, as well as community-work in the villages by respondents working as part of a group. The NNA set included activities of a more personal nature, including social contact hours, leisure, rest and recreation and personal care.

The patterns of time allocation by rural men and women from the respondent households across the 27 SNA, extended SNA and non-SNA activities that they routinely participate in over the standard reference week are represented in the table 2 below. . Divergent work patterns were observed to exist between women and men. Women's work spread over a much larger number of activities, compared to men's work which remained focused towards a few. Women's time commitments also showed greater variability across rural households in comparison to the time allocations to a few primary activities made by men where variability is less, except in a few widow-headed households and households where the spouses were absent for other reasons, and women bore the brunt of the

Table 2: Average Labour Time Commitments by Rural Workers to SNA, Estended SNA and Non-SNA Activities

DISAGGREGATED GENDER ANALYSIS

Activity-type	Activities	Weekly hours expended by all Women	Weekly hours expended by all Men	Daily hours expended by all Women	Daily hours expended by all Men	Daily hours expended per Woman	Daily hours expended per Man
SNA1	Land preparation	1561	2051	223	239	4.46	5.86
SNA2	Crop husbandry	—	68	—	9.7	—	0.19
SNA3	Post-harvest activities	78	—	11.1	—	0.22	—
SNA4	Crop protection	2	79.5	0.3	11.4	0.01	0.22
SNA5	Kitchen gardening	59.5	10	8.5	1.4	0.17	0.02
SNA6	Market sales & purchase	—	36.5	—	5.2	—	0.10
SNA7	Livestock tending	304	—	43.4	—	0.86	—
SNA8	Livestock grazing	24.5	69.5	3.5	9.9	0.07	0.19
SNA9	Making dungcakes	168	—	24	—	0.48	—
SNA10	Poultry rearing	47.5	—	6.8	—	0.13	—
SNA11	Water & fuel collection	38	—	5.4	—	0.10	—
SNA12	Processing & storage	7	44.5	1	6.4	0.02	0.12
SNA13	Dwelling construction	56	464	8	66.3	0.16	1.32
SNA14	Well/Irrigation construction	—	51	—	7.3	—	0.15
SNA15	Common infrastructure	413	504	59	72	1.18	1.44
SNA16	Making handicrafts	101.5	—	14.5	—	0.29	—
SNA17	Market purchase & sales	2	—	0.3	—	0.01	—

Cont...

XNA1	Cooking & cleaning	1085	—	155	—	3.10	—
XNA2	Childcare	311	—	44.4	—	0.89	—
XNA3	Care of elderly	56	—	8	—	0.16	—
XNA4	Community work	103	77	14.7	11	0.29	0.22
XNA5	Education & tutoring	66.5	10.5	9.5	1.5	0.19	0.03
XNA6	Training programmes	28	—	4	—	0.08	—
NNA1	Leisure	210	207.5	30	29.6	0.60	0.59
NNA2	Personal care	167	—	23.9	—	0.47	—
NNA3	Social conversation	185.5	3.5	26.5	0.5	0.53	0.01
NNA4	Rest & relaxation	286	292	40.9	41.7	0.82	0.83

Source: *TAS Survey data.*

work. Another broad pattern followed more or less consistently by the data indicates that women's labour time commitments tend to be lower in rural households where the work involvement of menfolk is lower, and increase as men's time allocations increase. However since rural women participate in more diverse activities compared to men, such changes in time allocations tend to be interdependent rather than independent and the activity choices of rural men thus influence time allocation by women.

Work participation by rural women is thus far more diversified than that of rural men. However, much more time on the whole is committed by male workers to the 10 SNA activities they are principally involved in, the bulk being allocated to land preparation Aggregate time commitments to different SNA, XNA and NNA activities by men and women from the sample households over the standard timeframe of a week are then averaged out in Table 2 to obtain daily time allocations by the respondents to each of these activities. However, it may also be noted that not all activities are undertaken simultaneously by all respondent families in the course of a day. Several are of a seasonal nature while many others of a skilled or specialised nature are undertaken by fewer rural households.

As summarised by Table 3, which shows collective time allocations by all rural workers to different activity categories over the standard timeframe of a week, sharp divergence exists in gender-work profiles in the study region. The tasking patterns implied within the table show that rural women workers participate in many more activities than male workers, 15 of which are activities in the SNA category and 6 in the XNA category. Male workers in comparison participate in 15 activities on the whole.

Table 3: Weekly Time Commitments to Different Activity Categories in Rural West Bengal

SUMMARY RESULTS

Activity-type	Weekly Hours committed by Rural Women	Total Women's Activities	Weekly Hours committed by Rural Men	Total men's Activities	Weekly Hours committed by all Rural Workers	Total Activities
SNA Activities	57.11	15	73.37	10	130.48	17
Extended SNA Activities	37.19	6	6.40	2	43.59	6
Non SNA Activities	12.77	4	6.41	3	19.18	4

Source: *TAS Survey data*

Although women workers do not participate actively in crop husbandry, primary market activities and construction activities in which male workers specialise, they share responsibilities for all other SNA activities and even work independently in some.

Of these, the most important in terms of daily time commitments by women include livestock rearing, water and fuel collection, and production of handcrafted items for home consumption as well as sale. Such SNA activities which are independently carried out by women may be termed *autonomous*, since they are accomplished irrespective of whether they are shared by men, and without being affected by the participation of women workers in other activities. These independent activities are largely of an income saving or supplementing nature. Although the autonomous participation of women in these diversified SNA activities limits the time they can freely commit to other economic forms of wage-work, women's time commitments to these are of an essential nature and important to the basic survival needs of rural households. Following Ester Boserup's analysis (Boserup 1970), these SNA activities in which rural women participate autonomously could conceivably be classified as market-oriented home production rather than as domestic work, since they facilitate subsistence production by rural households. Skill-based activities autonomously undertaken by women, such as the production of craftwork, also directly embody the value of women's work which enhances the intrinsic valuation of the finished products, whether made for home consumption or market sale. When these are sold, such products directly supplement the incomes of rural households. Men's autonomous SNA activities, in contrast, are polarised around a more limited set of field activities, construction skills and market trade. However, since all these are core economic activities in rural regions, they place men in a dominant economic role. This also effectively reinforces the proposition encountered elsewhere in the literature that rural women's work remains invisible and is largely unpaid, although women participate and contribute substantially to the rural production process, for instance in surveys on women in agriculture and productive work undertaken in northern and western India, where rural women were seen to do a vast amount of the work necessary for supplementary income generation through the growing of vegetables, food preservation etc (Bardhan 1983).

Within the extended SNA group of activities, household cooking and cleaning, childcare and care of elderly are activities undertaken solely by women, along with rural training programmes in which some women participate. Although participation in community work and in the education and tutoring of children is shared, rural women on an average devote much more time to the latter activity compared to their partners. In the NNA group, rural women report approximately the same amount of rest and free leisure time as rural men. However, they also allocate a certain amount of time every day to leisure-time activities such as personal care and social interaction, which most men do not report separately. Aggregate time allocations by rural women are thus weighted towards home production activities in the SNA group, as well as to XNA and NNA activities. However, a point that is significant to this context is that women's domestic XNA activities have to be undertaken without fail everyday on a continuing basis, unlike several SNA activities of men which are periodic or seasonal. Thus the diversity of women's work and the variety of autonomous tasks they are required to perform each day invariably limit the time they can afford to spend in rest and relaxation throughout the year.

Table 4: Average Labour Time Commitments by Rural Workers to SNA, Estended SNA & Non-SNA Activities

ANALYSIS OF VARIATIONAL PATTERNS

Activity-type	Activity	Weekly Mean hours spent by Rural Families	Standard Deviation	Weekly Mean hours spent by Rural Women	Standard Deviation	Weekly Mean hours spent by Rural Men	Standard Deviation
SNA1	Land preparation	72.24	*35.761*	31.22	*22.857*	41.02	23.875
SNA2	Crop husbandry	1.36	*1.139*	—	—	1.36	1.139
SNA3	Post-harvest activities	1.56	*1.445*	1.56	*1.445*	—	—
SNA4	Crop protection	1.63	*2.632*	0.04	*0.283*	1.59	2.641
SNA5	Kitchen gardening	1.39	*2.958*	1.19	*2.409*	0.20	1.414
SNA6	Market sales & purchases	0.73	*0.888*	—	—	0.73	*0.888*
SNA7	Livestock tending	6.08	*5.130*	6.08	*5.130*	—	—
SNA8	Livestock grazing	1.88	*2.362*	0.49	*1.583*	1.39	2.112
SNA9	Making dungcakes	3.36	*2.284*	3.36	*2.284*	—	—
SNA10	Poultry rearing	0.95	*2.216*	0.95	*2.216*	—	—
SNA11	Water & fuel collection	0.76	*1.419*	0.76	*1.419*	—	—
SNA12	Processing & storage	1.03	*1.894*	0.14	*0.495*	0.89	1.585
SNA13	Dwelling construction	10.40	*21.307*	1.12	*7.920*	9.28	20.310
SNA14	Well/Irrigation construction	1.02	*6.930*	—	—	1.02	*6.930*
SNA15	Common infrastructure	18.34	*31.714*	8.26	*17.871*	10.08	20.502
SNA16	Making handicrafts	2.03	*6.637*	2.03	*6.637*	—	—
SNA17	Market purchases & sales	0.04	*0.198*	0.04	*0.198*	—	—

Cont...

XNA1	Cooking & cleaning	21.70	*4.950*	21.70	*4.950*	—	—
XNA2	Childcare	6.22	*5.618*	6.22	*5.618*	—	—
XNA3	Care of elderly	1.12	*3.837*	1.12	*3.837*	—	—
XNA4	Community work	3.60	*9.040*	2.06	*4.196*	1.54	7.251
XNA5	Education & tutoring	1.54	*3.095*	1.33	*2.991*	0.21	*1.098*
XNA6	Training programmes	0.56	*1.918*	0.56	*1.918*	—	—
NNA1	Leisure	8.35	*4.630*	4.20	*3.000*	4.15	2.978
NNA2	Personal care	3.34	*1.218*	3.34	*1.218*	—	—
NNA3	Social conversation	3.78	*2.902*	3.71	*2.776*	0.07	0.495
NNA4	Rest & relaxation	11.56	*5.703*	5.72	*1.620*	5.84	5.422

Source: *TAS Survey data.*

Analysis of cumulative time allocations by rural households in the study region is equally revealing. Although the aggregate number of hours per week expended on SNA activities by rural women is slightly short of similar time commitment by rural men, the time cumulatively devoted to SNA and XNA activities by women greatly surpasses the aggregate time committed to these activities by men. This is primarily due to the extra time that women commit to XNA activities, within which the largest single unit is the performance of daily domestic chores like cooking and cleaning. Rural women thus shoulder the heaviest part of the work burden within the home, while rural men engage primarily in large-scale field activities that require the periodic application of physical strength, e.g. earthwork, construction and land preparation, crop husbandry and crop protection etc. However, other field activities that require sustained effort and endurance, like fetching fuel and water, livestock and poultry rearing, and post-harvest activities like threshing, winnowing, etc. are assigned mainly to women. Other activities that involve direct economic transactions, e.g., market sales & purchases of primary agricultural items and other produce, are largely monopolised by menfolk in rural households.

Variability in Rural Time Use

As mentioned earlier however, many agricultural activities in the SNA group which have a seasonal character do not require steady applications of labour through the year. Variations in labour application also occur because of differences in land and asset holdings between rural households, and thus between their resulting patterns of work. Table 4 which takes account of such heterogeneities among respondent rural households, also shows that they make heterogeneous time commitments to differing activities as a result. Standard deviations in the table indicate the extent of variability in labour time commitment among the rural households that participate in each activity. Thus in SNA activities in the construction group for instance, like the construction of dwellings, irrigation systems and common infrastructure, time allocations are highly variable between the participating households. The variational coefficients are very high relative to average standard weekly time, indicating that only a few rural households participate in this activity. In contrast, standard deviations for time contributed by rural households to SNA activities like land preparation or the making of dungcakes for fuel and in XNA activities like cooking & cleaning and childcare are relatively low relative to mean time commitments. This indicates that relatively similar time allocations to such activities are made by most rural households. Such variations between rural households in time commitments to different activities are based on enveloping factors such as differences in household sizes, landholdings, income levels and skills. The labour hours expended by each family thus vary on the basis of the activities they choose to undertake. Households with smaller landholdings for instance would commit less time to working their own lands. On the other hand, landless households who survive primarily on wage-labour commit more time towards field work on other people's lands. Similarly, the amount of time expended on livestock-related activities would depend on the livestock holdings of

the individual household. Rural households with no livestock allocate no time towards such activities. On the other hand, household time expended on domestic XNA activities which are performed entirely by women would depend on the size of the household and on the amount of labour available from girl children and other women in the family, since these activities are otherwise essential to every household.

Attention is thus called immediately to the intrinsic variability between the patterns of labour time commitment to different activities by rural men and women, which clearly point towards the gender divisions of labour that exist within rural households. Weekly time commitments by men show relatively high variability across rural households for SNA activities like kitchen gardening and the occasional construction of wells and irrigation systems and voluntary XNA activities like community work and the education & tutoring of children. In the case of dwelling construction and the building of common village infrastructure, male time commitments become less divergent. Male time allocations to land preparation and crop husbandry and towards rest and leisure-time activities are consistent across all households. For rural women, time commitments are much more variable than those of rural men for SNA activities like crop protection and dwelling construction and also show appreciable divergence in the case of SNA activities like livestock grazing, processing and storage and. However, the tending of livestock and the making of dungcake fuel essentially remains a woman's task and most rural women consistently commit time towards these livestock-related activities. Although time commitments by women to post-harvest activities show high consistency across rural households, the time they expend on other processing and storage activities is much more variable, in keeping with economic differences in the status of agricultural households and their capacity to produce. Among the XNA activities, women's time commitments are more variable in the case of activities like care of the elderly and education and tutoring, which depend largely on the age-structure of the household. For core domestic activities like cooking and cleaning and childcare, and activities in the NNA group, time allocations by women are highly consistent across all households.

Rural Gender Frameworks

Interdependence and Autonomy of Activities in Rural Households

Depending on their structure of asset holding and skills, the principal livelihoods of the rural households comprising the sample depended on a variety of land-based and non land-based economic activities. Most households cultivated at least a small amount of land, either on ownership or tenancy basis, while the relatively assetless and land poor households depended more on wage-based activities. A certain proportion of rural households also practiced artisanal or agricultural trade, which increased their relative involvement in market-based activities. Although activities like livestock and poultry rearing and artisanal work supplemented income and consumption in most rural households, their economic importance was relatively higher among the poorer households where these activities gave women a supplementary economic role. Thus

women's labour time allocations were at least partially conditioned by the economic status of the households, and therefore by the livelihood choices made by rural men. However, regardless of the amount of time they were able to commit towards such SNA activities, all rural women also made extensive time commitments to XNA activities within the household. It was not visible immediately from the data whether the time women devoted towards these activities which they usually performed autonomously led to the displacement of their labour time from other economic activities. Another potential form in which labour substitution could affect the participation of rural women in economic activities adversely would occur if the activity choices and time allocations made by rural men directly determined the labour time commitments of women to SNA and XNA activities. While in the first instance, the participation of women in economic work would be determined by the autonomous time allocations to other XNA activities, it would be determined cross-dependently in the second instance by the activity choices made by their male partners resulting in strong gender divisions among labour.

Stress was therefore laid during the analysis of survey data on evaluating the impact resulting from men's activity choices and time allocations upon the time spent by women in household and economic activities. This was based on the reasoning that the livelihood choices made by menfolk as the heads of rural households have a more primary role in determining women's work activities, rather than vice-versa. Interdependencies between the activity choices and time allocations of men and women respondents were extracted in the form of the cross-correlation coefficients in the W-M cross-correlation matrix in Table 5A, which summarises the gender dependency characteristics between rural men's and women's labour time allocation. The table however excludes 12 of the 27 SNA, XNA and NNA activities, where men's activity choices and time allocations have no impact whatsoever on the labour time committed by rural women. This group of autonomous rural women's activities, comprising 7 in the SNA category, 4 in the XNA category and 1 in the NNA category for which cross-correlation between men's and women's time allocations is zero, is listed separately in Table 5B below.

Three orders of interdependency between men's and women's activities and time allocations may be discerned in the cross-correlation table, which are analysed below, citing appropriate examples of each:

◊ In the first case, the order of interdependency is direct and higher time allocations by rural men in core activities like land preparation expectedly increase the time that has to be committed by women to post-harvest, processing and storage activities, as a consequence of greater cropping activity by the rural household. However, this reduces the time that can be expended by women on care of the elderly, community activities and their own rest and relaxation. Despite such exigencies, rural women still have to allocate substantial time towards other supplementary SNA activities like livestock tending and poultry rearing. Time allocation towards autonomous women's activities like cooking and cleaning and other household work nevertheless remains high. Increased time expended

Table 5A: Interdependence Patterns between Rural Men's and Women's Activities W-M Cross-Correlation Matrix: *Gender-interdependent Activities*

Activity-type	Women's Activities	Men's Activities SNA1 Land preparation	SNA2 Crop husbandry	SNA4 Crop protection	SNA5 Kitchen gardening	SNA6 Market sales & purchases	SNA8 Livestock grazing	SNA12 Processing & storage	SNA13 Dwelling construction	SNA14 Well/ Irrigation construction	SNA15 Common infrastructure	XNA4 Community work	XNA5 Education & tutoring	XNA7 Leisure	NNA3 Social conver-sation	NNA4 Rest & relaxation
SNA1	Land preparation	0.171	0.064	-0.181	-0.065	-0.175	-0.118	-0.093	0.211	0.163	0.066	-0.242	0.032	-0.112	0.156	-0.059
SNA3	Post-harvest activities	0.368	0.681	0.532	0.144	0.454	0.435	0.464	-0.151	-0.162	-0.238	-0.070	0.195	0.215	-0.156	0.139
SNA4	Crop protection	-0.248	-0.172	-0.087	-0.020	-0.119	-0.095	-0.081	-0.066	-0.021	-0.071	-0.031	-0.028	0.477	-0.020	0.031
SNA5	Kitchen gardening	0.125	0.309	0.056	0.138	0.254	0.061	-0.021	-0.159	0.135	0.056	0.351	-0.002	0.134	-0.071	-0.144
SNA7	Livestock tending	0.155	0.386	0.421	0.026	0.464	0.328	0.295	-0.057	-0.178	-0.210	0.281	0.035	0.384	-0.171	0.120
SNA8	Livestock grazing	0.132	0.296	0.408	0.274	0.147	-0.208	0.307	-0.020	-0.047	-0.047	-0.067	0.083	0.143	-0.045	0.101
SNA9	Making dungcakes	0.062	0.071	0.028	0.009	0.039	-0.100	0.004	0.067	0.018	0.255	0.000	0.012	-0.207	-0.086	0.057
SNA10	Poultry rearing	0.231	0.298	0.341	-0.062	0.367	0.246	0.253	-0.111	-0.064	-0.215	-0.031	-0.084	0.181	-0.062	0.235
SNA11	Water & fuel collection	0.107	0.086	-0.079	-0.077	-0.028	0.165	-0.075	0.167	-0.066	0.068	-0.067	-0.105	0.024	0.279	0.103
SNA12	Processing & storage	0.181	0.235	0.731	-0.041	0.227	0.220	0.527	-0.132	-0.042	-0.142	0.098	-0.055	-0.111	-0.041	0.236
SNA13	Dwelling construction	-0.248	-0.172	-0.087	-0.020	-0.119	0.144	-0.081	-0.066	-0.021	-0.071	-0.031	-0.028	-0.201	-0.020	-0.155
SNA15	Common infrastructure	-0.168	-0.107	-0.284	-0.067	-0.388	-0.310	-0.265	-0.215	0.270	0.363	-0.100	-0.090	-0.300	-0.067	0.003
SNA16	Making handicrafts	-0.006	0.024	-0.074	-0.044	0.143	0.116	-0.094	0.013	-0.046	-0.128	-0.066	-0.060	0.033	-0.044	0.208
SNA17	Market purchase & sales	0.129	0.116	-0.046	-0.029	0.179	0.206	0.014	-0.094	-0.030	-0.101	-0.044	-0.039	0.076	-0.029	-0.022

Cont...

XNA1	Cooking & cleaning	0.243	0.030	0.137	-0.020	0.385	0.288	0.201	0.004	-0.021	0.037	-0.031	-0.028	0.080	-0.020	-0.118
XNA2	Childcare	0.015	0.166	0.138	0.200	0.029	0.027	0.047	-0.099	-0.152	0.087	0.198	0.108	-0.118	-0.160	0.019
XNA3	Care of elderly	-0.250	-0.192	-0.151	-0.042	-0.161	-0.196	-0.144	-0.136	-0.044	0.044	-0.063	-0.057	-0.328	-0.042	0.551
XNA4	Community work	-0.165	-0.137	0.104	-0.071	-0.028	0.009	0.022	-0.229	-0.074	0.021	0.189	-0.096	0.016	-0.071	-0.059
XNA5	Education & tutoring	0.033	0.045	-0.011	-0.064	0.111	-0.061	0.227	-0.076	-0.067	0.070	-0.096	-0.087	-0.163	-0.064	0.029
XNA6	Training programmes	-0.337	-0.225	-0.123	-0.042	0.091	-0.196	-0.167	0.069	-0.044	0.057	0.440	-0.057	0.023	-0.042	-0.177
NNA1	Leisure	-0.081	0.217	0.118	0.135	0.153	0.204	0.017	-0.074	-0.042	-0.280	0.202	-0.121	0.200	-0.034	-0.090
NNA2	Personal care	-0.050	-0.024	0.201	0.019	0.110	0.076	0.017	0.061	0.020	-0.194	0.028	-0.028	0.010	0.019	0.361
NNA3	Social conversation	-0.072	-0.002	0.114	-0.011	-0.136	-0.093	-0.035	0.036	0.171	0.024	0.033	-0.015	0.000	0.171	-0.121
NNA4	Rest & relaxation	-0.255	-0.381	-0.192	0.114	-0.302	-0.315	0.010	0.286	-0.193	0.087	-0.139	0.154	0.096	0.114	0.028

Source: TAS Survey data.

Note: *Interdependencies between men's and women's labour time commitments are indicated by cross-correlation coefficients in the matrix. Vertical relationships represent the influence of men's time allocation to an activity on women's time allocations to different activities. Negative coefficient values imply that increasing time commitment by men to a given activity have a displacing effect on labour time allocation by women for the given activity-pair. Positive coefficient values indicate that men's time allocations enhance women's labour time commitments for the given activities. Activities with zero cross-correlation coefficients in which rural men and women participate autonomously are excluded from the matrix and listed separately in Table 5B. Since the column-wise impact of men's activity choices on women's time allocations diverges from the converse row-wise impact of women's activity choices on men's labour time commitments, the cross-correlation matrix, by definition, is asymmetric.*

by rural men on primary market trade in agricultural inputs and produce similarly increases the time expended by rural women on market-oriented SNA activities like post-harvest, processing and storage, as well as livestock and poultry rearing and kitchen gardening. However, since these women must autonomously expend a considerable part of their time on domestic XNA activities, the time available to them for rest and recreation is limited.

◊ In the second case, the order of interdependency between rural men's and women's activities has an inverse nature. Increasing time allocations towards certain men's activities like dwelling construction substantially reduce the time that rural women can devote to other group activities like the development of common infrastructure and community work, but increases the time consequently available for rest and relaxation.

◊ In the third case, where increasing time commitments to certain activities by rural men are gender neutral and have limited impact on women's time allocations, the activity choices made by men and women are largely autonomous rather than interdependent. This applies, for instance, to the time committed by rural men towards the construction of wells and irrigation systems, which are essentially periodic activities in which rural women play no part. As cross-correlation analysis shows, such activity by rural men to extend the reach of irrigation, for obvious reasons, has a mildly positive impact in increasing the time committed by women towards land preparation and kitchen gardening but is essentially neutral in most other respects.

Table 5B: W-M Zero Cross-Correlations: Autonomous Women's Activities

SNA3	Post-harvest activities
SNA7	Livestock tending
SNA9	Making dungcakes
SNA10	Poultry rearing
SNA11	Water and fuel collection
SNA16	Making handicrafts
SNA17	Market purchases and sales *(secondary)*
XNA1	Cooking and cleaning
XNA2	Childcare
XNA3	Care of elderly
XNA6	Training programmes
NNA2	Personal care

Source: *TAS Survey data*

Significantly, the autonomous activities carried out by rural women include a large proportion of home production activities in the SNA category, which produce visible inputs for household consumption or market sale. These include post-harvest and craft activity in the marketable segment, and livestock and poultry rearing, fuel and water

collection and the making of dungcakes in the activity segment that generates substantial savings and home consumption benefits for the rural household. In terms of women's time allocations, livestock tending and dungcake manufacture require significant time commitment every day. However, the other autonomous SNA activities performed by rural women also add fairly significantly to women's workloads. Daily cooking and cleaning and childcare are autonomous XNA activities to which every rural woman has to devote a substantial part of her day. The first two activities also add substantially to women's workloads, while childcare becomes a major commitment in families with very young children. Personal care and grooming is the only NNA activity on which rural women spend time autonomously. Very often, this is accompanied by the washing of utensils and clothes, which is not recorded separately among women's activities. It would also appear that the large number of XNA activities to which rural women have to allocate time autonomously limits the time they can commit autonomously to economic activities in he SNA group. Work-sharing by men is limited to SNA activities, and by and large does not extend into the rural household.

In terms of the inherent rural gender structures that create such gender divisions in labour time allocation, it would appear that the gender division of labour is defined socially, rather than in terms equivalent to women's economic roles which, as seen above, contribute rather significantly to home production, home consumption and household income-generation within the rural family. Under such social definitions, rural women are essentially assigned a managerial role within the domestic and household economy, which requires that they economise outflows from household resources by substituting their own labour where necessary, thus playing a pivotal role in domestic management within the household and in the management of the livestock production system. In the agricultural economy, rural women again contribute to the management of the production system through their participation in post-harvest and processing activities. However, their involvement in such managerial functions generally limits the participation of rural women in direct market-related activity. Here, the economic functions that are carried out almost entirely by men give them a disproportionate say in the economic decisions taken by the rural household. Male power within rural gender structures stems from this fact, and from their authority in controlling household expenditure budgets even though rural women contribute in no small way to income generation by the rural household

Qualitative Findings

Other Qualitative Findings

Gender structures and household divisions of labour are generally institutionalised by the acceptance of gender identities by men and women as concerned individuals. As the rural work participation patterns in the present study reveal however, these gender structures are not solidly based on the economic classifications of rural work, but are based instead on dominant ideologies. Unlike urban areas where such ideologies are being increasingly questioned as working women acquire a more powerful economic

voice, rural women tend to reinforce dominant gender ideologies by accepting gender divisions of labour and the invisibility of their own work. Ample evidence of this was found during the study in the way rural women underestimated the social and economic value of their unpaid work. Cooking food and meeting nutritional needs in the family was accepted voluntarily as a major familial responsibility of women, rather than as representing a major commitment of their labour time at the cost of their involvement in other activities. High participation rates of rural women in vegetable farming, seed storage and post-harvest activities and in rearing livestock and poultry were thus regarded as the extension of women's provident responsibilities beyond the domestic domain, rather than as a significant point of entry for women into the economic workforce. Other maintenance activities performed within the household, as well as childcare and care of the elderly and infirm to which rural women make major time contributions were similarly perceived to be familial or social responsibilities that women carry by obligation. Rural women were also involved in the fabrication of essential equipment and accessories for agricultural processing and storage operations, including the weaving of storage baskets and construction of clay stoves for parboiling paddy in large volumes. However, none of these activities was perceived by either the women themselves or by their spouses as resulting in economic work. Thus the dominant gender ideologies were equally shared within the rural household.

Besides being the major cause for the impoverishment of landless and marginal farming households, seasonality in agricultural work was also the principal reason for the undervaluation and marginalisation of women's labour activities. The peak period for rural activity each year spanned the post-monsoon months from late-October to November when the main *aman* rice crop was harvested and taken in, and women subsequently took part in post-harvest activities. Cultivation of winter vegetables in the following period months continued to engage women workers in large numbers uptil February. During summer when jute was the principal crop, the demand for agricultural labour dwindled and women found fewer opportunities for paid work. Thus in unirrigated agricultural areas, the months from March to mid-June formed a lean period when rural women generally engaged in home-based craftwork, stitching *kantha* quilts from old clothes and weaving *sitalpati* mats, in addition to performing their usual household chores. With the transplanting of new rice in late-June and July, rural demand for women's labour rose again. During the lean months, the menfolk from land-poor rural families sought substitute employment in construction activities or left the villages temporarily in search of outside work. The women from these rural families were unable to secure alternative work. Such seasonal instabilities in rural women's work opportunities and incomes played a big part in limiting the economic role of women as earners and confined them mainly to unpaid and marginal work.

Broad Conclusions from the Study

The study established that division of labour within a rural household generates a hierarchy of paid and unpaid work, pushing rural women into subordinate social and

economic positions by making their work invisible. The Time Use methodology proved particularly effective in capturing the working roles of rural women and making their dual labour contributions to economic and subsidiary household activities strongly visible. Alternative methodologies based solely on the quantification of rural women's earnings would have been unable to perceive these roles, and would have therefore relegated rural women to the subordinate position of unpaid domestic workers in which they are bracketed by dominant gender ideologies. However, such undervaluation of women's contributions to the rural household product is not merely ideological. Both Census and NSSO definitions of year round work, as currently applied in India, are unable to recognise the full extent of rural women's workforce participation which, like agriculture, is seasonal by nature. The study also bears out the main conclusions of rural research based on the food chain, which show that labour application by men and women in agricultural households is often sequential rather than simultaneous. While the labour contributed by rural men towards land preparation and crop protection and husbandry initiates the agricultural production chain, women's labour contributions to post-harvest activities and processing and storage enter the production chain at a later point, and do not secure equivalent recognition or economic rewards despite contributing significantly to the value of the agricultural product (Kabeer 1990).

Besides their foundation in gender specialisation within the agricultural production chain, existing gender divisions of labour in rural areas are also determined by rural property rights systems, particularly land-holding, and by differential access of rural men and women to other productive resources (Holmboe-Ottesen *et al.* 1989). Rural landlessness further restricts women's resource access and makes them especially vulnerable to seasonalities in rural labour demand. While rural men can compensate for landlessness by increasing the time they expend on wage-work, rural women cannot make similar adjustments because of the additional burden of domestic work that they carry within their homes. Rural poverty therefore immiserises women disproportionately by increasing their workloads without expanding their rewards.

The acceptance of gender structures by rural women reflects the livelihood insecurities they have to contend with, despite contributing substantial amounts of labour time to the survival of poor rural families. More complex issues arise, however, when such problems have to be redressed. In theory, agricultural growth would appear to offer a solution because it increases rural labour demands and wage-rewards. In practice however, the relation between agricultural progress and women's economic rewards is not so direct. The new economic opportunities generated by agricultural progress are more easily availed by men who do not have to carry an additional domestic workload. In this case, the rural gender structures can become further entrenched if increased participation by men in wage-based activities requires that their labour contributions to livestock rearing, processing and other home-based production activities be substituted by equivalent labour contributions from women, as is often the case. New cropping practices that replace subsistence crops by cash crops can fundamentally alter the rural

production chain by doing away with the post-harvest and processing activities in which rural women had specialised. Such problematic issues also emphasise that the transformation of social and economic situations of rural women cannot be accomplished solely by economic means. More fundamental transformations in gender structures though socio-legal means, for example, through fundamental changes in land-titling and inheritance systems must also be initiated to induce more equitable distribution of economic and gender rights.

References

Acharya, M. and Bennett, L. 1982. *Women and the Subsistence Sector: Economic Participation and Household Decision-making in Nepal,* Staff Working Paper no.526, World Bank, Washington DC.

Agarwal, Bina 1985. 'Women and Technological Change in Agriculture: The Asian and African Experience', in: Z. Ahmed *(ed): Technology and Rural Women: Conceptual and Empirical Issues*, Allen and Unwin, London.

Ahmed, Z. 1984. 'Rural Women and their Work: Dependence and Alternatives for Change', *International Labour Review*, **123**(1): 71-84.

Ahuja, P. and Oberoi, K. 1983. 'Time Utilization of Rural Households in relation to Size of Family and Socioeconomic Status'. *Punjab Agriculture University Journal of Research*, **21**(3): 436-441.

Anand, Sudhir and Amartya Sen 1995. *Gender Inequality in Human Development: Theories and Measurement,* Background Paper for the Human Development Report 1995, *UNDP HDRO, New York.*

Atkinson, A.B. 1970. "On the Measurement of Inequality', *Journal of Economic Theory,* **2**: 244-263.

Banerjee, Nirmala 1995. 'Women's Employment and All That', Paper presented at the FES-UNDP Workshop on *The Human Development Report 1995: The Structural Context for Empowering Women in India"*, 12-13 December, New Delhi.

Banerjee, Nirmala 1999. 'Women in the Emerging Labour Market', *Indian Journal of Labour Economics*, **42**(4): 543-557.

Banerjee, Nirmala 2005. 'Economics of Gender Roles', Paper presented at the CWS-Sachetana Seminar on *Women and Development: West Bengal Scenario*, 1-2 February, Centre for Women's Studies, University of North Bengal.

Bardhan, Kalpana 1983. 'Women's Work, Welfare and Status', *Economic and Political Weekly*, **20**(5): 2261-2269.

Becker, Gary S. 1965. 'A Theory of the Allocation of Time', *Economic Journal*, **75**(299): 493-517.

Beneria, Lourdes 1992. 'Accounting for Women's Work: The Progress of Two Decades', *World Development*, **20**(11): 1547-1560.

Bhatia, Rajesh 2002. 'Measuring Gender Disparity: Using Time Use Statistics', *Economic and Political Weekly*, **37**(33): 3464-3469.

Blumberg, R.L. 1978. *Stratification: Socioeconomic and Sexual Inequality*, W.M. Brown and Co., Dubuque, Iowa.

Boserup, Ester 1970. *Women's Role in Economic Development*, Allen and Unwin, New York.

Bryant, W. Keith 1990. *The Economic Organization of the Household*, Cambridge University Press, New York.

Clark, Colin 1967. *Population Growth and Land Use,* St. Martin's Press, New York.

Dasgupta, B. 1977. *Village Society and Labour Use*. Oxford University Press, New Delhi.

Debi, L.A. 1987. *Rural Women: Management in Farm and Home,* Northern Book Centre, New Delhi.

FAO, 1981. *Report on the FAO-SIDA Project on Promoting the Participation of Women in Rural Development*, Food and Agricultural Organization of the United Nations, Rome.

Fong, Monica, S. 1995. 'Rural Development and Women's Economic Roles in Asia'. in M.S, Das and V.K. Gupta *(eds)* : *Social Status of Women in Developing Countries*. MD Publications., New Delhi.

Ghosh. A. 1991. 'Awareness of IRDP Beneficiaries', *Kurukshetra*, **39**(7): 22-24.

Gibson-Graham, J.K. 1993. 'Waiting for the Revolution, or How to Smash Capitalism while Working at Home in your Spare Time'. *Rethinking Marxism*, **6**(2): 10-24.

Goldschmidt-Clermont, Luisella 1982. 'Unpaid Work in the Household: A Review of Economic Evaluation Methods', in *Women, Work and Development*, series 1, International Labour Office, Geneva.

Goldschmidt-Clermont, Luisella and Elisabetta Pagnossin-Aligisakis 1995. *Measure of Unrecorded Economic Activities in Fourteen Countries*, Background Paper for the Human Development Report 1995, UNDP HDRO, New York.

Gramm, Wendy Lee 1974. 'The Demand for the Wife's Non-market Time', *Southern Economic Journal*, **41**(1): 124-133

Harris, J. 1982. *Capitalism and Peasant Farming: Agrarian Structure and Ideology in Northern Tamil Nadu,* Oxford University Press, Bombay.

Heyzer, Noeleen 1982. From Rural Subsistence to an Industrial Peripheral Work Force: An Examination of Female Malaysian Migrants and Capital Accumulation in Singapore', in Lourdes Beneria *(ed.)*: *Women and Development: The Sexual Division of Labour in Rural Societies*, Praeger, New York.

Hiranand, Sharma. J.P. and Janardanjee 1988. *Contribution of Farm Women to Farm Operations and Decision-Making thereon with Special Reference to Potato*, Central Potato Research Institute, Shimla, cited in Neeta Lodha (2003) *op.cit*.

Hirway, Indira 1999. 'Estimating Work Force using Time Use Study Results and its Implications for Employment Policy in India', Proceedings of the UNESCAP-CSO International Seminar on Time Use Studies, 7-10 December, Ahmedabad.

Holmboe-Ottesen, Gerd, Ophelia Mascarenhas and Margareta Wandel 1989. *Women's Role in Food Chain Activities and the Implications for Nutrition,* Nutrition Policy Discussion Paper no.4.

Ironmonger, Duncan 1997. 'National Account of Household Productive Activities', Paper presented at the Conference on *Time Use, Non-Market Work and Family Well-being*, 20 November, Bureau of Labour Statistics, Washington DC.

Ironmonger, Duncan 2001. 'Household Production and the Household Economy', Departmental research paper, Department of Economics, University of Melbourne, http:// eprints. unimelb.edu.au/archive/00000059/01/759.pdf

Jain, Devaki 1996. 'Valuing Work: Time as a Measure', *Economic and Political Weekly*, **31**(43): 46-57.

Kabeer, Naila 1990. 'Women, Household Food Security and Coping Strategies', in UN (1990): *Women and Nutrition*, ACC/SCN Symposium Report, Nutrition Policy Discussion Paper no.6, World Health Organation [WHO], Geneva.

Kaur, S. 1987. *Women in Rural Development*. Mittal Publications, New Delhi.

Kaur, S. and Punia, R.K. 1988. 'Work Participation of Women in Rural Households: An Empirical Study'. *Guru Nanak Journal of Sociology*, **9**(2): 51-77.

Lodha, Neeta *(ed.)* 2003. *Status of Tribal Women: Work Participation and Decision-making Role in Tribal Society*, Mangaldeep Publications, Jaipur.

Mencher, Joan P. and Saradamoni, K. 1982. 'Muddy Feet, Dirty Hands: Rice Production and Female Agricultural Labour', *Economic and Political Weekly,* **17**(52): A149-A167.

Mencher, Joan, P. and Deborah D'Amico 1986. Kerala Women as Labourers and Supervisors: Implications for Women and Development', in Leela Dube, Eleanor Leacock, Shirley Ardener *(eds.*): *Invisibility and Power: Essays in Women and Society and Development*, Oxford University Press, New York.

Munjal. S., Punia, R.K. and Sangwan, V. 1985. 'Women's Economic Contribution in Farm Households in Haryana'. *Indian Journal of Agricultural Economics*, **11**(3).

Palmer, Ingrid 1991. *Gender and Population in the Adjustment of African Economies: Planning for Change*, Women, Work and Development Series no.19, International Labour Office, ILO, Geneva.

Patnaik. S.C. and Debi, S. 1991. 'Women's Economic Contribution'. in R.K. Punia (ed) (1991): *Women in Agriculture: Their Status and Role*, Northern Book Centre, New Delhi, **1**: 31-41.

Quizon. Elizabeth K. 1978. 'Time Allocation and Home Production in Philippine Rural Households'. *Philippines Economic Journal,* 17(1-2):185-202, cited in Rogers and Schlossman (1990) *op. cit.*

Rogers, Beatrice Lorge and Nina P. Schlossman *(eds.)* 1990. *Intra-Household Resource Allocation: Issues and Methods for Development Policy and Planning*, United Nations University, UNU Press, Tokyo.

Saradamoni, K. 1982. 'Women's Status in Changing Agrarian Relations: A Kerala Experience', *Economic and Political Weekly,* **17**(5).

Saxena, D. and Bhatnagar, S. 1986. A Comparative Study of Time Utilisation Pattern of Tribal Women in Rajasthan, *Indian Journal of Extension Education,* **21**(83), cited in Neeta Lodha (2003) *op.cit.*

Shimray, U.A. 2004. 'Women's Work in Naga Society: Household Work, Workforce Participation and Division of Labour', *Economic and Political Weekly*, **39**(17): 1698-1711.

Sisodia, J.S, 1985. "Role of Farm Women in Agriculture: A Case Study of Chambal Command Area of Madhya Pradesh", *Indian Journal of Agricultural Economics*, **11**(3).

UN 2005. *Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work,* Department of Economic and Social Affairs, United Nations Statistics Division, New York.

UNDP 1995. *Human Development Report 1995: Gender and Human Development,* United Nations Development Programme (UNDP), Oxford University Press, New York.

UNDP 2005. 'Technical Notes', *Human Development Report 2005: International Cooperation at a Crossroads: Aid, Trade and Security in an Unequal World,* United Nations Development Programme (UNDP), Oxford University Press, New York.

11

Land Conversion and Agricultural Distress: A Study of West Bengal

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Abstract

Land grab and converting its basic nature are extremely regular phenomena in present rural India. On these issues, West Bengal has been more highlighted especially when TATA Motors left the project in Singur and in addition there was a violent action by the government in Nandigram to acquire land from the farmers. There were also the cases of Shalboni forest, Nayachar Island etc. Moreover, due to those actions and reactions the thirty four years old political scenario of West Bengal has been changed. Though, contrasting with Singur and Nandigram, as per the official state reports of the Rajarhat Township stated that land acquisitions from the mid 1990's onwards has been peaceful. In this paper I would like to draw a clear picture of the 'developed' rural West-Bengal with the causes and effects of land acquisition and agricultural distress.

Keywords: *Land acquisition, land conversion, development, rural poverty*

The Bretton Wood Institutions (i.e. the World Bank and the IMF), different ministries of the Government of India, the bureaucrats and also the media discussed the high growth of GDP led by the neo-liberal macroeconomic policy reform in a very positive sense since 1990s. They have willfully drawn the example of development process as the rapid change in economic and social indicators since then. The economic elite within the country as well as a very substantial section of the middle classes have joined the celebration of the new growth 'miracle' in the developing countries followed by the market–driven globalization (Jha and Negre, 2007). According to the World Bank development classification of nations, in next one decade India is expected to be promoted from a Low-Middle Income country to Upper-Middle-Income country (Murthy, 2013). However, there are other large sections of the country's population who don't have the opportunity to get the basic need of life and those who continue to suffer very acutely with reference to a whole range of development deficits. In particular, implications of the services–driven nature of the recent growth experience, and the severe divide between GDP growth and decent employment are truly unsustainable. It may be that globalization has treated the developing countries as the way of the developed ones. Both policy makers and ministry bodies were compelled to draw the neo-liberal policies

from the western countries to bring the rapid growth in the economy. The result also has been seen in the growth in our country's national income. But the basic problem is that the globalization doesn't lead to inclusive growth in the economy, i.e., a major portion of the increased GDP is enjoyed by the higher or upper middle class and hence growth doesn't lead to development of the economy. As per the writings of Jemol Unni and Uma Rani, the process of globalization, industrialization and re-allocation of industries to the developing countries also lead to the increase in the employment in the informal sector. Critics have argued that the liberalization process could be avoided (Bhattacharyya, 2012).

Therefore in a closer look, there is a great debate among the set of commonly accepted indicators of development and about the story of 'miracle' whatsoever, rather there are several zones of darkness and disaster come into view largely day by day. Moreover, the existence of rural economy is in question after the economic liberalization. Observers of Indian economy would take it as an undeniable conclusion that the country is currently witnessing a serious agrarian crisis after the neo-liberal policies are adopted, in fact, the worst since independence (Patnaik, 2003; Reddy, N and Srijit Mishra, 2009; Jha, 2007). The rate of agricultural growth slowed noticeably under these reform policies and there was a significant change in agricultural land use patterns toward export crops. Moreover, the foodgrains growth rate fell below the population growth rate. In the eighties, the rate of growth of agricultural output (all crops) was 3.19 per cent; this figure was halved to 1.58 percent, in the subsequent period, and the yield growth rate was reduced to almost one-third over the time.

From the initial area of 127.8 million hectares used for food grain production in 1991, 6 million hectares were diverted to the cultivation of exportable crops by the mid-1990s, during which period exports from agriculture grew fast. Again from 1998 there was a new round of displacement, so that the net diversion of foodgrains area was over 8 million hectares by 2001, compared to 1991 when there was a 7 percent decline in the Initial foodgrains area and a 24 per cent rise in the initial non-foodgrains area (Patnaik, 2003.).

Hence all these conversion of land for foodgrain to land for non-foodgrain has led to the declining nutritional levels for the mass of the population. From the table 1 we can say that the area under cultivation for all crops (except a marginal increase in wheat) saw a negative growth of -0.25 per cent during 1990-91 to 2003-04, compared to the 0.1 per cent experienced during 1980-81 to 1990-91; and this may lead to the facts of growing landlessness among the peasantry, and transfer of land for non-agricultural purposes. As per the NSS data, the proportion of households without any access to land in the total rural households has increased from 38.7 per cent in 1993-94 to 40.9 per cent in 1999-00 and further to 43.1 per cent during 2004-05 (Ghosh and Chandrasekhar, 2004). A state wise disaggregation for the 1990s in this regard is given in table 2; except Haryana and Kerala, landlessness has been on the rise in all the major states.

Table 1: All India Compound Growth Rates of Area, Production and Yield of Major Crops

Crop	1949-50 to 1964-65			1967-68 to 1980-81			1980-81 to 1989-90			1990-91 to 1999-00			2000-01 to 2011-12*		
	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y
Rice	1.12	3.5	2.25	0.77	2.22	1.46	0.41	3.62	3.19	0.68	2.02	1.34	0.00	1.78	1.78
Wheat	2.69	3.96	1.27	2.94	5.65	2.62	0.46	3.57	3.10	1.72	3.57	1.83	1.35	2.61	1.24
Coarse Cereals	0.9	2.25	1.23	-1	0.67	1.64	-1.34	0.40	1.62	-212	-0.02	1.82	-0.80	3.00	4.44
T. Cereals	1.25	3.21	1.77	0.37	2.61	1.7	-0.26	3.03	2.90	0.04	-0.02	1.59	0.14	2.33	3.33
T. Pulses	1.72	1.41	-0.2	0.44	-0.4	-0.7	-0.09	1.52	1.61	-0.60	0.59	0.93	1.60	3.45	2.00
Food Grain	1.35	2.82	1.36	0.38	2.15	1.33	-0.23	2.85	2.74	-0.07	2.02	1.52	0.41	2.43	3.03
Sugarcane	3.28	4.26	0.95	1.78	2.6	0.8	1.44	2.70	1.24	-0.07	2.73	1.05	1.38	2.07	0.68
Oil Seeds	2.67	3.2	0.3	0.26	0.98	0.68	1.51	5.20	2.43	0.86	1.63	1.15	2.13	3.75	2.65
Cotton	2.47	4.55	2.04	0.07	2.61	2.54	-1.25	2.80	4.10	2.71	2.29	-0.41	3.21	13.53	9.99
Non-Food	2.44	3.74	0.89	0.94	2.26	1.19	1.12	3.77	2.31	1.18	2.69	1.09	2.26	3.83	2.39
All Crops	1.58	3.15	1.21	0.51	2.19	1.28	0.10	3.19	2.56	0.27	2.29	1.33	0.97	2.76	3.27

Source: Agricultural Statistics at a Glance (2004, 2012).

*Growth rates are based on fourth advanced estimates for 2011-12.

Total Oilseeds include nine oil seeds, cottonseed and coconut.

A- Growth rates of Area, P- Growth rates of Production, Y- Growth rates of Yield.

Table 2: Proportion of Rural Landless Households

States	1987-88	1993-94	1999-00	2004-05
Andhra Pradesh	45.9	49.5	52.3	60.73
Assam	31.2	29.4	35.6	24.31
Bihar	34.7	37.5	41.5	46.38
Gujarat	47.2	46.3	43.8	50.60
Haryana	45.6	51.5	49.3	59.30
Karnataka	40.0	38.3	42.2	46.06
Kerala	19.6	69.4	36.1	36.44
Madhya Pradesh	25.8	24.9	28.6	33.46
Maharashtra	39.1	43.0	46.0	47.96
Orissa	35.7	35.4	38.4	41.46
Punjab	57.1	61.5	61.2	68.35
Rajasthan	21.9	18.9	21.8	25.96
Tamil Nadu	57.1	63.4	67.0	71.83
Uttar Pradesh	22.7	22.9	26.2	28.19
West Bengal	39.6	41.6	49.8	47.45
All India	35.4	38.7	40.9	42.80

Source: RLE, Report on General Characteristics of Rural Labour Households

According to Utsa Patnaik the fall down of output growth in the 1990s under reforms is reflected in the significant lower rate of growth of rural employment (0.58 compared to 2.01 per cent). The daily status unemployment rate rose between 1993-1994 and 1999-2000 for rural males, rural females and this rise for rural males is the highest (29 per cent) (NSSO Reports). The more severe is in case of weekly status unemployment where there is an increase of 40 per cent from the year 1993-94 to 1999-00 for rural males, and of 66.7 per cent for rural females (NSSO Reports). Therefore there is a rise in informal jobs rather than the formal jobs.

Declining employment opportunities, especially in rural India, are reflected in changes in the headcount poverty ratio. The rural poverty ratio declined sharply until the end of the 1980s, after which there was a sharp increase by 1992-93, though declined after then, but still remained much higher in 1998 than in 1987-1988 (Patnaik, 2003). At the all-India level, poverty had risen sharply by 1992 i.e. in the post reform period, to 43-44 per cent in villages according to three independent estimates (Gupta, 1994; Sen, 1996; and Ravallion and Datt, 1995), and to 48 per cent according to the report of Tendulkar and Jain (1995). By 1993, rural development expenditures had fallen to 7.8 per cent of GDP, and they had fallen to 5.9 percent by 2001. By 1992, at the all-India level, poverty had risen sharply, and the crude death and infant mortality rates rose in a number of states (Patnaik, 2003). Perhaps the most terrible indicator of the crisis in Indian economy has been suicides made by farmers on large scale. According to a statement that made

in the parliament by the agriculture minister, between 1998 to 2003 more than 1lakh farmers had committed suicide, and the tragedy is still continuing.

Here in this article we are mainly concentrating on the huge landlessness of the agricultural households as shown above. One of the possible outcomes of agrarian distress has been an increase in landlessness and a decline in the proportion of cultivators; this may have added to the pressure on an already overcrowded agricultural labour market (Jha, 2013). It is very shocking to see the Table-3 that within agricultural labour households, there has been a very significant increase in landlessness between 1987-88 to 2004-05; also, it is worth noting that the trend in the 1980s was in the opposite direction. Thus it can be readily said that the neo-liberal reform has seized most of the surplus of the rural and especially agricultural economy with its giant paw. Clearly, the lower end of the peasantry, many of whom are also in the agricultural labour market, may have been forced to sell or give up their land due to the growing difficulties of cultivation.

Table 3: Agricultural Labour Households Land Asset Details

Agricultural labour Households with/without access to any cultivable land					
	1983-84	**1987-88**	**1993-94**	**1999-00**	**2004-05**
Households without access to any cultivable land	55.9	52.2	57.0	57.3	62.1
Households with some cultivable land	44.1	47.8	43.0	42.7	37.9

Source: RLE, Report on General Characteristics of Rural Labour Households, 1999-00 and NSS 61st round

History of Land Acquisition in India

Transformation of land use pattern from primary to other sectors is very common in Developing countries like India since the Colonial period. During that period so many people have to sacrifice their homeland land due to the division of India and Pakistan. There was no other option for the evicted peoples who had to sacrifice their native land. However, after the independence democracy has been approved by the govt. of India. But it was not practiced for all the citizens or it may be said that the law is there in name only, not in real sense.

Lands have been acquired in the name of infrastructural development i.e. for dams, roads, bridges; or for the secondary and tertiary sector development i.e. for industry, townships etc. Interestingly, mainly the poor, tribals, small and marginal farmers are affected most of the time; e.g. Narmada Dam, Tehri, Posco steel plant in kalinganagar in Orissa, Greater Mumbai, Noida, Salboni, Rajahat Township, Singur, Jharkhand, Chhattisgarh etc. At least forty million villagers have been displaced by the so-called 'development projects' since India's Independence (Padel, 2011). "On the global scale, the World Bank estimated that up to 200 million people were displaced by development projects during the last two decades of the 20th century. The pace is now accelerating as 15 million are now being displaced each year" (Cernea, 2000). Hence the private

property rights and also this kind of 'dispossession in the name of development' are debatable issues so far.

'Displacement' of peoples from their land is very much questioned on the ground that a small piece of agricultural land feed not only its landowner and his family but also agricultural wage labourers and their families. Moreover, agricultural and non-agricultural petty and marginal traders also depend on the production process. Hence with these several acquisition processes poor people have to sacrifice their means of subsistence, sometime their homestead and even if their basic identity. Though Government generally compensates those people with a lump sum amount of money, but their engagement to a job and social sustainability has been disturbed with the acquisition and displacement. Whatever the effect is, most of the time political agents, irrespective of the parties, are always try to gain profit out of these process; either persuading or forcefully. Hence in all such displacements there was protests, flogging, bloodshed; and sometime the protesters are killed. One place where such protest has escalated, with several people killed in August 2010 and May 2011, is near Noida in UP, where the Yamuna Expressway is taking fertile land from farmers. It was reported that, those farmland bought from farmers at ₹ 800 per square metre was sold on to developers, who are selling it off as housing plots at ₹ 14,000 per metre (Padel, 2011). Another case can be stated where 15 tribals were killed by the Orissa police for protesting the building of a huge steel plant planned by the south Korean steel company POSCO, and a Tata steel plant in the Kalinganagar area in 2006. On 19th April, 2007 police opened fire on 4000 Adivasis in Ghateha village in the Rewa District of the State of Madhya Pradesh to clear their protest against land acquisition by the forest officers. In West Bengal the tragic story of Nandigram is known to all. The police killed 25 people irrespective of ladies and children in 2007 entering into the Nandigram area.

Land Acquisition: Special study the case of West-Bengal

I am very likely to discuss about the facts happened in West Bengal because of the movements in this state opposed the then policies taken by the so-called Marxist government led by Communist Party of India, which has been in power for decades. The state government facilitated the controversy by using 1894 land acquisition act rule to conduct compulsory takeover of 997 acres (4.03 km^2) of farmland to have Tata build its factory in Singur, 10,000 acres of farmland in Nandigram to build SEZ by the Salim Group, 5000 acres in Salboni for steel plant by the Jindal group, 3500 acres in Rajarhat to establish a mega township etc. However there have also other examples of land acquisition in West Bengal such as Durgapur Township project, Siliguri Township project etc. But the facts of Nandigram, Singur are very well known to all. In Nandigram among the 4,44,000 villagers 95,000 villagers would be displaced to build a chemical hub in their land. In Singur more than 15,000 villagers had been evicted from their multicropped –fertile land with 1000 crores of investment. In Salboni more than 740 tribal households were displaced due to the 35,000 crores valued project of steel plant. Thus there would be a fear of joblessness among those farmers and this fear is created

by the govt. Mr D Bandopadhyay, West Bengal's former land reforms commissioner and secretary, revenue, government of India, had estimated that the Nano car project would surely lead to their loss of livelihood, starvation, morbidity, social and economic degradation, and also may be a high incidence of untimely deaths. According to the fact-sheet, land-losers of 400 hectares, numbering over 12,000, which includes co-sharers, produce crops worth ₹ 10 crore annually will be lost. Mr. Bandopadhyay says that according to the Centre's yardstick, a family of five, with an annual income of ₹ 22,000 and below, falls below the poverty line (BPL) category. But in Singur, even a marginal farmer and a sharecropper earns an average annual income of at least ₹ 32,000, which places him above poverty line (APL) category without any assistance from any quarter.

Against this backdrop, the package offered to Singur farmers is a pittance. If the barren and gravel land in Tamil Nadu's Sriperumbudur, where the Korean car major Hyundai has built two huge car manufacturing units on a 500 acre plot, can fetch over ₹ 2.10 crore an acre, there will be a definite question occurred that the state government must not pay between ₹ 7-12 lakh per acre for Singur's best cultivable land, while in terms of connectivity and proximity to Kolkata, Singur is better placed than Sriperambudur. Moreover, Reports suggest that the company will make only 100,000 cars annually, but that the Singur plant will eventually have capacity to produce 350,000 cars. For example, Proton, the Malaysian car company, makes 250,000 vehicles a year on a 250-acre factory in Shah Alam, Hyundai Motors India has installed capacity to make 530,000 cars at its 500-acre plant near Chennai, Ford Motors makes 300,000 vehicles annually on a 345-acre plot in Turkey, Toyota Motors makes 500,000 cars plus 500,000 engines in a 7 million square feet factory (about 180 acres) in the United States, Honda Motors makes nearly 200,000 cars on a 231-acre plant in Thailand. On the basis of land used by these facilities, it would seem that about one acre of land would be required to make 1,000 cars annually. Hence, if we consider the productive capacity Tata Motors would then need 350 acres approximately and not 650 acres to make 350,000 cars, perhaps even less as the Nano is much smaller than the cars made by the other companies.

The result is that Singur's "unwilling" farmers are convinced that the Marxist government is cheating them through land acquisition. Their general feeling is that the package is "highly exploitative" in nature. However, among all of these manufacturing industrial projects Jindal Group in Salboni had put a unique example with their high compensation. Mr. Sajjan Jindal announced that Jindal Steel would offer free shares farmer families, whose land would have to be acquired for the proposed mega steel plant at Salboni in West Midnapore district of West Bengal. While 50 percent of the compensation would be given in cheque, the balance would be deposited as an annuity policy payable monthly till death of the annuitant. JSW also promised to provide job to one member of the family following suitable training would be given by ICFAI Business School. The company would also provide equity according to the valuation of the land acquired. On the other hand the farmers of Singur, Nandigram had been declared to have a very substantial amount of compensation. At current market value, the price for the 645.67

acres at Singur is ₹ 93.73 crore, though the Tatas are paying ₹ 855.75 crore over a 90-year period, at present value this would be equivalent to paying only ₹ 18.62 crore. The Bengal Chamber of Commerce hailed Jindal's Salboni compensation package as a "unique trendsetting kind" and said that it represented "inclusive growth". However, Swati Bhattacharrya in Anandabazaar Patrika has concluded that Salboni villagers have missed three precious opportunities. One, they have not been able to articulate their demands over compensation package. Two, they could not obtain any infrastructural facility. Three, for their future livelihood and living they have now become dependent on the charity of industrialists.

However there are some cases where lands had been acquired from the farmers to build townships, malls, IT hubs, private nursing home, amusement parks etc. In Rajarhat, Durgapur, Siliguri (Matigara), Bardhaman, Barasat etc. we can see this type of land acquisition and these examples are really very pathetic in a state where more than 40% people are BPL. At Andal, near Durgapur an airport city, Aerotropolis (an integrated city with contemporary infrastructure for industries, a logistics hub, I.T., hospitality, healthcare, education, retail and residence) is being developed by Bengal Aerotropolis Projects Limited (B.A.P.L). The project is being developed over an initial 2,182 acres (8.830 km^2) plot of land. Hence, real estate in Durgapur has seen a major boom in recent years, with property prices being hiked exponentially during the past decade. Various famous companies are undertaking major residential development projects or investing millions for integrated townships and IT Parks. In Siliguri SJDA covers 1329.89 sq. km. in total; where there are prospected projects like townships in 300 acre, software Technology Park on 25 acres of land, IT parks on 3 acres, Food Park on 5 acres of land etc. The picture in Rajarhat is quiet close to same story. However, all these projects are mainly help the rich people and there is a continuous land encroachment from the farmers. Note that all those projects are close to urban centres like Kolkata, Bardhaman, Siliguri. Moreover, according to Arun Kumar 1999 land speculation and the housing market are at the root of India's Black Economy.

In Rajarhat apparently the new buildings, shopping malls, new offices look so polished or sophisticated and there is no protest or no controversies for the land acquisition were there, but the true story is very different from the show off. Media may be less attended to the real story of Rajarhat. However, in Rajarhat the protest began far before Singur and Nandigram. Almost 2.5 lakh people of 21 Mouzas were affected by the township project on more than 6000 acres land. According to the documents of the land revenue department the number of recorded landowners was over 30,000 while 5,000 were recorded Bargadars and the number of unrecorded Bargadars was double of that. Long before the government notification the land acquisition process had been started by the land mafia at cheap rates from the poor farmers. Hence, those who were actual needy, did not get the proper benefit of that change. Moreover, most of the people in Rajarhat used to be small farmers and agricultural labourers, and had been involved agricultural activities for generations. They were not well versed in any other alternative

livelihoods. Therefore it is only natural to expect bitter resistance on their part against the land acquisition carried out by the government, a fight that would get more and more desparate. But according to official reports nothing of that sort happened in Rajarhat. Though, there was also struggle, protests, and violence in Rajarhat to save the land, their subsistence of the-then farmers. There were also committees to protect land, but nobody could do anything. Though according to some government reports the production level was so low to keep fixed the farmland, the locals do not say the same and again the total area was based on large water bodies where the peoples were employed in fish cultivation. Therefore, the damages were just not because of employment, but because of large environmental degradation. The drainage system of the city proper is being largely affected by the covering of wetlands.

The same tragedy must be happened in other districts also, but there is no media to highlight the story like Singur and Nandigram. Moreover, the new township projects are not at all employment friendly for the uneducated or less educated poor farmers to be attached. Note that where as the sectoral distribution of primary, secondary and tertiary sectors are 27%, 19% and 54% respectively in 2004-05 data, the employment situation is much worse. The critical issue from the point of view of well-being of the people, of course, is how far the changes in sectoral composition of output have involved changes in employment patterns as well.

Table 4: Relative shares in output and employment by major sectors in 1999-2000 and 2004-05

Different Sectors	1999-2000		2004-05	
	Share of SDP	*Share of work force*	*Share of SDP*	*Share of work force*
Primary sector	34.45	47.76	26.42	46.35
Manufacturing	12.46	20.04	10.86	17.45
Electricity, gas & water supply	1.11	0.35	1.26	0.24
Construction	4.32	3.31	7.04	4.54
Trade, hotels & restaurants	11.49	10.35	13.5	13.36
Transport, storage & communications	5.37	4.27	5.75	5.57
Financial, real estate & business services	16.82	1.32	22.86	2.11
Public admin and other services	13.98	12.6	12.31	10.38

Sources: 1. BAES, Government of West Bengal for SDP. ; 2. NSSO Employment and Unemployment 55th and 61st

Rounds for work force data, referring to Usual Status Workers (Principal plus Subsidiary).

The Idea Relative to the Theory

Dislocation broadly means involuntary separation from traditional or habituated socio-economic settings and consequent loss of access to environmental and economic resources (Basu, 2013). According to the ideas of core economists like Hanna Arendt

(Imperialism), David Harvey (The New Imperialism) and Kalyan Sanyal, Anjan Chakraborti, Anup Dhar, Pranab Kanti Basu; 'accumulation by dispossession' (a term introduced by Sir David Harvey) is an inherent part of modern development. But in contrast to the position taken by Harvey the post colonial literature that has emerged basically from Kolkata argues that while Harvey is correct in proposing that dispossession inevitably accompanies every stage of capitalist expansion, the dispossessed do not find employment in the expanding capitalist sector in the post colonies like India (Basu, 2013). According to Prof. Amartya Sen's capability approach we can conclude that government is not actually worried about the process of development or removal of poverty, but about the speed of development or growth.

Conclusion

According to the policy makers shortage of land is the main problem of development in the developing countries like India and it is so because India is completely an agriculture based country from the very beginning. Almost 60% of people are still dependent on agriculture (Jha, 2013). However, after the economic liberalization this percentage has been decreased at a large base. There is a notable decline in rural population & side by side increase in urban population after the economic liberalization as per the census population data, however, rural poverty increased during this period.

Except few cases, most of all the cases of land acquisition and land conversion is nothing but a 'state sponsored terrorism'. To be more particular, the country is growing in every sphere and experiencing a lot of changes. But unfortunately the colonial Land Acquisition Act of 1894 has undergone little changes. With the ever increasing human population and human consumption the demand for land has gone up drastically. In October 2007, the Supreme Court had ruled against the comprehensive use of such expressions by the State for the sake of acquiring private land. The court laid down the parameters that ought to govern the acquisition of agricultural land for non-agricultural purposes. The fundamental concerns are justice and equity. A committee was appointed by the Planning Commission to examine these terms in 2008. The committee recommended that "land apparently acquired in the public interest should not be handed over to private entities." A private company which acquires Land is supposed to plough back the money for public purposes. The question that is to be answered is that if a company utilizes its profit just to produce employment opportunities; can it be called a "public purpose"? The puzzle centres on the model that the acquisition must be acceptable to farmers and investors. Farmers and villagers must have the right to protect their land. Unfortunately, this rarely happens in reality.

However, government of India is now trying to solve the problem with introducing new land acquisition bill 2013 where an additional compensation of up to 75% of the compensation already announced to be provided for the project affected persons. But the question is about the situation of peoples in earlier cases whose acres of agricultural land have already been acquired. Finally, we can say that growth and development and

also the natural resources of the economy must be equally distributed to the all sections of people to get the maximum positive outcome.

References

Bhattacharyya, S. 2012. Ed., Two Decades of Market Reform in India Some Dissenting Views, Anthem Press, pp. 1-16.

Basu, P.K. 2013. Globalisation displacement and conflict, Pranab Ghosh Memorial Lecture (24-8-2013) Pakistan India Forum for Peace and Friendship.

Cernea, 2000. 'Risks, Safeguards and Reconstruction: A Model for Population Displacement and Resettlement' in Cernea, M M and C McDowell, (eds. 2000), Risks and Reconstruction– Experiences of Resettlers and Refugees, The World Bank, Washington.

Chandrasekhar, C.P. and Jayati Ghosh, 2008. Recent Growth in West Bengal, 12th may, http://www.macroscan.org/fet/may08/fet120508West_Bengal.htm, accessed on 30th October, 2013.

Gupta, S.P. 1994. Recent economic reforms and their impact on the poor and vulnerable sections of society., paper presented at IDPAD Seminar on Structural Adjustment and Poverty in India (The Hague, November).

Jana, A. 2011. The State and its Indigenous People: Tribal Impoverishment, Protest and State Response in Eastern India in the Era of Liberalisation, OKD Institute of Social Change and Development: Guwahati, December 20-21, 2011.

Jha, 2007. Some Aspects of the Well-Being of India's Agricultural Labour in the Context of Contemporary Agrarian Crisis, Indian Journal of Labour Economics, http://www.macroscan.org/anl/feb07/Agrarian_Crisis.pdf accessed on 14th Oct, 2013.

Jha and Negre 2007. Indian Economy in the Era of Contemporary Globalisation: Some Core Elements of the Balance Sheet**,** Centre for Economic Studies and Planning, http://www.macroscan.net/pdfs/indian_economy.pdf accessed on 14th Oct, 2013.

Rajarhaat 2008. Uponogorir Ontorale Arto Manusher Kanna; http://sanhati.com/wp-content/uploads/2008/07/rajarhat.pdf accesed on 1st Nov, 2013.

Padel, F. 2011. Neo-liberal State and Its Challenges, OKD Institute of Social Change and Development: Guwahati, December 20-21.

Patnaik Utsa 2003. Global Capitalism, Deflation and Agrarian Crisis in Developing Countries, Social Policy and Development Programme, United Nations Research Institute for Social Development, Paper Number 15th October.

Ravallion M. and Datt, G. 1995. Growth and poverty in rural India., background paper for the 1995 World Development Report, World Bank, Washington, DC.

Sen, A. 1996. Economic reforms, employment and poverty: Trends and options, *Economic and Political Weekly,* Special Number, **31**: 35.37.

Tendulkar, S.D. and Jain, L.R. 1995. Economic reforms and poverty, *Economic and Political Weekly*, **10** June.

12

Hospital Ownership and Measurement of Efficiency: Evidence from the District of Burdwan, West Bengal

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Abstract

Experience in advanced economies shows that a combination of tighter budget controls and efficiency enhancing reforms in health care systems help in providing access to high-quality health care while keeping public spending in check. In India, the public healthcare system comprises three tiers of infrastructural setup; the primary tier, secondary tier and tertiary tier. When this structure is not evenly distributed in each and every corner of the country, two alternatives do exist to provide minimum healthcare service to the citizens of the country; first, increasing the efficiency of the public healthcare institutions and second, introducing more and more private healthcare providers. An increase in efficiency in healthcare domain, not only improves its performance but also increases the supply side quantity of the healthcare service and serves more number of people. This study concentrates on scrutinizing the hospital efficiency of three types of hospitals, namely, State Government Hospitals, Other Public Hospitals and Private Hospitals in West Bengal. The study has made an attempt examine the efficiency of these hospitals under three different ownership patterns. Data Envelopment Analysis has been employed to test the same. The article addresses the issue of finding relatively more and less efficient hospitals; and the findings reveal that State Government Hospitals are the most efficient hospitals, followed by Other Public Hospitals and Private Hospitals. It is projected that the findings of the article would be useful to the policy makers to build up important healthcare strategies.

Keywords: *Hospitals, Efficiency, Data Envelopment Analysis, Ownership, West Bengal.*

All countries should ensure equitable access to basic health care services and spend more efficiently on public health (Clements *et al.* 2011). Hospital performance has received distinct academic attention over the years and across different countries (Hollingsworth, 2003; Tandon *et al.* 2000; Joumard *et al.* 2010 etc.). Hospital efficiency, a particular measure of hospital performance, is considered for the overall development of healthcare service and its accessibility among the masses. In many underdeveloped and developing countries where healthcare resource constraints are very common, hospital administration are keenly interested in selecting appropriate mix of inputs (i.e. human capital, more technical and infrastructural equipments) to provide better and more services to the

patients. Due to lack of fundamental healthcare resources at the right quantity, doctors and nurses become vulnerable to provide the best service to the patients. In many cases, patients are directly paying for getting the healthcare service, but they are paying more for a less valued service as inefficiency exists in the operation of hospitals. It leads to a health imbalance and thus affects the society at large. The unsatisfactory performance of many underdeveloped and developing countries in health indicators can not be solely explained by insufficiency of inputs but also by the inefficient utilization of these resources. Thus, it is necessary to measure the efficiency score of the hospitals so as to assess the scope of their further improvement.

There have been strong deliberations on the need for rationalization and support for increasing competition among healthcare service providers. However, even with the uncertain implications on the consequence of competition among healthcare service providers' on efficiency, few countries have endorsed market-oriented modification intended to make monetary inducement for healthcare providers so as to develop their overall activity (Gaynor and Town, 2011). For encouraging competition among large public hospitals, few countries have also encouraged the entrance of privately owned hospitals with appropriate expertise. The discussions on the relative advantages of public and private healthcare service providers revolve round the question "who would more efficiently provide public goods?" (Hsu, 2010). One of the opinions in favor of superior efficiency of public healthcare institutions is: government's firm budgetary allotment makes sure that the public healthcare institutions function with superior efficiency than other similar hospitals (Lindsay, 1976).

Therefore, it is important to measure the relative efficiency of hospitals according to their ownership pattern, public or private. Though few cross-country evidences are provided to measure the technical efficiency of the hospitals in Brazil (Araujo *et al.* 2013), Nigeria (Ichoku *et al.* 2011), Ghana (Osei, 2005), Bulgeria (Kundurjiev *et al.* 2011), but measurement of efficiency level across ownership pattern is relatively scanty in the existing literature.

Some experiences on ownership-wise classification of hospital efficiency were provided by Helmig and Lapsley (2001) and Chang *et al.* (2004) in the context of Germany and Taiwan. In the context of West Bengal, no systematic effort[2] has yet been made to shed some lights on the variation of efficiency level across hospital category. Under this backdrop of analysis, this article attempts to examine the level of efficiency across healthcare institutions using hospital specific information collected from primary survey in the district of Burdwan of West Bengal.

The outline of the article is as follows. The next section deals with the data source and methodological framework to estimate hospital-specific efficiency score. In the section III, empirical results and discussion is undertaken; a comparison of the efficiency scores of different categories of hospitals is carried out by using data envelopment analysis. The concluding remarks have been presented in Section IV.

Data Source and Methodology of the Study

Data Source of the Study:

The micro-empirical study is conducted with the help of hospital-specific information collected through field survey at the institutional level in the district of Burdwan. Coexistence of three alternative institutions (State Government Hospitals, Other Public Hospitals and Private Hospitals) in the delivery of health care has guided us to select purposively the district of Burdwan as our study area and as the representative of the state of West Bengal. The district has been placed second in the indicator of number hospitals (72), just after Kolkata district (126) in the state (Table 1). Considering the area and the population covered per hospital for every district, the district of Burdwan is placed third in the ranking of the outreach of hospital to the masses. In fact, the average population covered by the district (107273) is comparatively higher in relation to state average (485892). This district is also positioned under top six districts of the state, considering the area covered per hospital.

Table 1: Number of Hospitals and its Coverage in Different Districts of West Bengal

District	Number of Hospitals	Area Covered Per Hospital (km^2)	Population Covered Per Hospital
Bankura	29	237.31 (15)	124010.06 (04)
Birbhum	26	174.80 (10)	134707.19 (06)
Burdwan	72	97.55 (06)	107273.09 (03)
Coochbehar	18	188.16 (11)	156821.11 (10)
Dakshin Dinajpur	11	201.72 (12)	151902.81 (09)
Darjeeling	36	87.47 (05)	51167.61 (02)
Hooghly	37	85.10 (04)	149199.70 (08)
Howrah	37	39.64 (02)	130855.08 (05)
Jalpaiguri	24	259.45 (17)	161236.45 (11)
Kolkata	126	1.46 (01)	35608.56 (01)
Malda	23	162.30 (09)	173824.78 (13)
Murshidabad	34	156.58 (08)	208895.00 (16)
Nadia	30	130.90 (07)	172282.93 (12)
North 24 Pargana	58	70.58 (03)	173842.27 (14)
Paschim Medinipur	42	222.50 (14)	141507.14 (07)
Purba Medinipur	23	205.91 (13)	221488.60 (18)
Purulia	16	391.18 (19)	182997.81 (15)
South 24 Pargana	39	255.38 (16)	209055.79 (17)
Uttar Dinajpur	10	314.00 (18)	300084.90 (19)
West Bengal	188	190.18	485892.21

Source: Author's calculation based on data provided by Directory of Medical Institution 2010, DHS, Government of West Bengal and different websites

Note: Figures within the parenthesis represent respective ranks of the districts.

In order to represent three categories of hospitals in our sample, stratified random sampling method has been used. In the first stage, a comprehensive list of all the different types of hospitals of the district of Burdwan is constructed. Then the present institutional structure of healthcare providers are stratified into three strata (State Government Hospitals, Other Public Hospitals and Private Hospitals) and from each stratum a representative sample of approximately 40 percent is selected uniformly through random sampling method. Primary data on the basis of a total sample size of 25 hospitals have been collected from a comprehensive list of 72 hospitals in the district of Burdwan. In the second stage, ultimate hospitals are chosen on the basis of random sampling method (proportional sampling procedure). For each category of hospitals, a fixed proportion of nearly 40 percent of the population is considered as the sample size. In fact, the sample size is comprised of 10 state government hospitals, 10 other public hospitals and 5 private hospitals. The list of selected hospitals in the district of Burdwan is placed at Appendix (Table A.1).

A structured questionnaire has been used to collect data from the service providers. The questionnaire deals with the subjects like facilities available, human resource, equipments and their performance. The data was mainly provided by the superintendent, chief medical officer or the hospital manager of the hospital with the cooperation of the data operator and other staffs. The hospital officials were asked about the socio-economic background of the patients and the locality. In order to ensure the reliability of information for a study of a very sensitive nature, it is essential to establish and maintain a good rapport with the hospital officials, government officials and other respected and knowledgeable persons in this field.[3] Thus, a participatory approach was followed in the entire course of our field study.

Estimation of Hospital Efficiency

A multi-input multi-output Data Envelopment Analysis (DEA) is used in this study to measure the technical and scale efficiency level of all three types of hospitals, namely State Government Hospitals (SGH), Other Public Hospitals or, Public Sector Undertaking Hospitals (OPuH) and Private Hospitals (PrH). Technical Efficiency (TE) reflects the ability of a firm to obtain maximal output from a given set of inputs. Its "constant return to scale" (CRS) assumption is only appropriate when all decision making units (DMU) are operating at an optimal scale. Imperfect competition, constraint on finance etc. may cause a DMU to be not operating at optimal scale (Coelli *et al.* 1998). Banker *et al.* (1984) suggested an extension of the CRS DEA model to account for variable return to scale (VRS) situations. The use of the CRS specification when not all DMU's are operating at the optimal scale will result in measures of TE which are confounded by scale efficiencies (SE). The use of the VRS specification will permit the calculation of TE devoid of the SE effects. SE= TE_{CRS} / TE_{VRS}. If there is a differences in the two TE scores (TE_{CRS} and TE_{VRS}) for a particular DMU, then this indicates that the DMU has scale inefficiency and that can be calculated from the difference between the two

scores (Coelli, 2002). In order to obtain separate estimates of technical efficiency and scale efficiency, we apply the input-oriented technical efficiency measurement to the data. This measurement satisfies two different types of scale behavior: constant returns to scale (CRS) and variable returns to scale (VRS).

The presence of optimal, sub-optimal and supra-optimal scale has been identified in the calculation of scale efficiency. If the hospital is scale-efficient, then it means that the hospital is operating at its optimum size, and hence that the productivity of inputs cannot be improved by increasing or decreasing the size of the hospital. If the hospital is considered to be not operating at its optimum size, then two possible cases arises: the scale inefficiency results from increasing returns to scale (i.e. increasing the size of the hospital helps to improve its productivity and thereby reduces unit costs) and the scale inefficiency is due to decreasing returns to scale (i.e. the hospital can raise its productivity and lessen unit costs by choosing a smaller size) (Nguyen *et al.* 2004). When the returns to scales are constant, increasing and decreasing then it is alternatively known as optimal, sub-optimal and supra-optimal scale respectively. In the analysis part, optimal, sub-optimal and supra-optimal scales are identified and the relative percentages of hospitals in each category are also estimated. Sub-optimal firms are operating below their optimal scale; this means that these firms could increase their technical efficiency by continuing to increase their size. Supra-optimal firms are operating above their optimal scale and hence could increase their technical efficiency by decreasing their size. (Bielik *et al.* 2004).

The input and output variables used for the estimation of efficiency are listed in Table 2.

Table 2: The List of Input and Output Variables and Their Definitions

Variable	Category	Code	Description
Output	Accessibility Indicator	IPBD	Number of In-Patient/Bed /Day
Output	Accessibility Indicator	DISC	Total no of Discharge/Bed /Day
Output	Accessibility Indicator	DLVY	Number of Delivery/Bed /Day
Output	Usage Indicator	ECGCS	Number of ECG case
Output	Usage Indicator	XRCS	Number of X-Ray case
Input	Human Resource & Infrastructure	DOC	Number of Doctors / Bed
Input	Human Resource & Infrastructure	NURS	Nurse/ Bed
Input	Human Resource	PARA	Number of Paramedical Staff
Input	Technical Equipment	NECG	Number of ECG Machine
Input	Technical Equipment	NXRY	Number of X-Ray Machine

In this study a variety of input-output combinations is considered in the framework of DEA. All the outputs are not the result of all the inputs. Thus, it is important not to construct a model where multiple inputs and outputs are used but all the variables in either side are not having any appropriate relationship. Thus, different analyses are done with different model designs, consisting of different sets of inputs and outputs. The Table 3 represents the model designs in details.

Table 3: Different Model Designs in DEA

Variable	Details	Model(s)					
		Treatment Oriented			Investigation Oriented		
		1	2	3	4	5	6
IPBD	Number of In-Patient/Bed /Day	O/P	×	O/P	×	×	×
DLVY	Number of Delivery/Bed /Day	×	O/P	O/P	×	×	×
ECGCS	Number of ECG case	×	×	×	O/P	×	O/P
XRCS	Number of X-Ray case	×	×	×	×	O/P	O/P
DOC	Number of Doctors / Bed	I/P	I/P	I/P	×	×	×
NURS	Number of Nurse/ Bed	I/P	I/P	I/P	×	×	×
PARA	Number of Paramedical Staff	×	×	×	I/P	I/P	I/P
NECG	Number of ECG Machine	×	×	×	I/P	×	I/P
NXRY	Number of X-Ray Machine	×	×	×	×	I/P	I/P
I/P: input variable; O/P: output variable; ×: not taken							

Results and Discussion

Different models of input-output set are considered to estimate hospital specific efficiency. Though the individual models express the tendency of the result of the study, but all the results are taken together at the final stage to reach the overall conclusion. The study is conducted at a single time period. In this efficiency testing study, only "input orientation" is used.

In private hospitals, it might be possible to increase the input resource to provide the service to a given maximum level of patients. But the same is not possible in case of government hospitals. Some time a few departments of a government hospital may have adequate or even more resources, but most of the other departments suffer from lack of assets. Again, as the healthcare sector is an example of pure service sector, with the very nature of service, it is not possible to forecast the appropriate demand for such service at every point of time. Again even if it may be forecasted, the fluctuating demand pattern of the service sector will not allow a service provider to accumulate the resources for the peak demand.

If it happens, the resources will be redundant at the slack periods. A hospital run by government or even by a private body will not allow its resources to be surplus; rather it should be sufficiently used or may be over used. Thus, in health sector, the data envelopment analysis will be judgmental with "input orientation", rather than "output orientation" (Zeithaml 2009). The detailed analyses of different input oriented models are given in following tables 4 and 5.

The results of different models of treatment orientation (Table 4) show that the state government hospital has the highest technical efficiency score, followed by other public hospital and private hospital. But the scenario is different in calculation of scale efficiency, where private hospital is having the second best score.

Table 4: Estimates of Efficiency Scores and Returns to Scale (Treatment Orientation)

Type of Hospital	No of Hospital(s)	Average Efficiency Score		Return to Scale		
		TE_{VRS}	Scale Efficiency	Increasing (IRS)	Decreasing (DRS)	Constant (CRS)
Model 1						
SGH	10	0.7976	0.8997	06(60.00)	02(20.00)	02(20.00)
OPuH	10	0.3653	0.5541	10(100.00)	00(00.00)	00(00.00)
PrH	05	0.2760	0.7306	05(100.00)	00(00.00)	00(00.00)
ALL	25	0.5200	0.7280	21(84.00)	02(08.00)	02(08.00)
Model 2						
SGH	10	0.7685	0.8998	08(80.0)	00(00.00)	02(20.00)
OPuH	08	0.3332	0.0537	08(100.0)	00(00.00)	00(00.00)
PrH	04	0.1530	0.3615	04(100.0)	00(00.00)	00(00.00)
ALL	22[4]	0.4980	0.4940	20(90.91)	00(00.00)	02(09.09)
Model 3						
SGH	10	0.8324	0.9358	06(60.00)	02(20.00)	02(20.00)
OPuH	8	0.3751	0.5533	08(100.00)	00(00.00)	00(00.00)
PrH	4	0.1965	0.7202	04(100.00)	00(00.00)	00(00.00)
ALL	22	0.5500	0.7580	18(81.82)	02(09.09)	02(09.09)

Source: Field Survey 2013-14

Note: The statistical analysis has been made using *DEAP* statistical package

Note: Figures within the parenthesis represent respective percentage with reference to number of hospitals in a specific hospital category.

SGH: State Government Hospital; OPuH: Other Public Hospital; PrH: Private Hospital; TE_{VRS}: Technical Efficiency at Variable Return to Scale; IRS: Increasing Return to Scale; DRS: Decreasing Return to Scale; CRS: Constant Return to Scale

Except in model 2, all three types of hospitals are having more than fifty percent of scale efficiency. In return to scale estimation, sixty percent of hospitals under state government hospital[5] and hundred percent under both other public hospital category and private hospital category, are having increasing return to scale, which means all the hospitals under these category can increase their technical efficiency by increasing their inputs. Only twenty percent of hospitals under state government hospital category are having decreasing return to scale, which means all the hospitals under this category can increase their technical efficiency by decreasing their inputs. Twenty percent of all the hospitals, including all under state government hospital are operating at optimal scale in all three model design. Interestingly, a disaggregated analysis suggests that Ban Nabagram Rural Hospital and Katwa Sub-Division Hospital are fully technically

efficient, whereas Ban Nabagram Rural Hospital, Katwa Sub-Division Hospital and Bhatar Rural Hospital are fully scale efficient.

Table 5: Estimates of Efficiency Scores and Returns to Scale (Investigation Orientation)

Type of Hospital	No of Hospital(s)	Average Efficiency Score		Return to Scale		
		TE_{VRS}	Scale Efficiency	Increasing (IRS)	Decreasing (DRS)	Constant (CRS)
Model 4						
SGH	06	0.9240	0.2303	06(100.0)	00(00.00)	00(00.00)
OPuH	10	0.5571	0.6733	07(70.00)	02(20.00)	01(10.00)
PrH	05	0.7014	0.6688	03(60.00)	01(20.00)	01(20.00)
ALL	21	0.6960	0.5460	16(76.19)	03(14.29)	02(09.52)
Model 5						
SGH	06	0.7116	0.1293	06(100.0)	00(00.00)	00(00.00)
OPuH	10	0.8018	0.3391	10(100.0)	00(00.00)	00(00.00)
PrH	04	0.7082	0.6252	02(50.00)	01(25.00)	01(25.00)
ALL	20	0.7560	0.3330	18(90.00)	01(05.00)	01(05.00)
Model 6						
SGH	05	0.6904	0.2886	05(100.0)	00(00.00)	00(00.00)
OPuH	10	0.8904	0.7989	07(70.00)	00(00.00)	03(30.00)
PrH	04	0.7570	0.8290	02(50.00)	01(20.00)	01(20.00)
ALL	19	0.8100	0.6710	14(73.68)	01(05.27)	04(21.05)

Source: Same as table 4.

The results of different models of investigation orientation (Table 5) show that the other public hospital has the highest technical efficiency score (except model 4). But the scenario is different in calculation of scale efficiency, where private hospital is having the best score. State Government Hospitals are having less than thirty percent of scale efficiency. In return to scale estimation, more than seventy percent of all the hospitals are operating at increasing return to scale, which means all the hospitals under this category can increase their technical efficiency by increasing their inputs. No state government hospital category are having decreasing return to scale. Very few private and other public hospitals are operating at optimal scale.

Considering all the model designs and their subsequent results, outcomes of model design 3 (treatment orientation) and model design 6 (investigation orientation) are considered for final exposure. Considering the two model designs, the distributions of scale of operation are presented in Figure 1 and Figure 2.

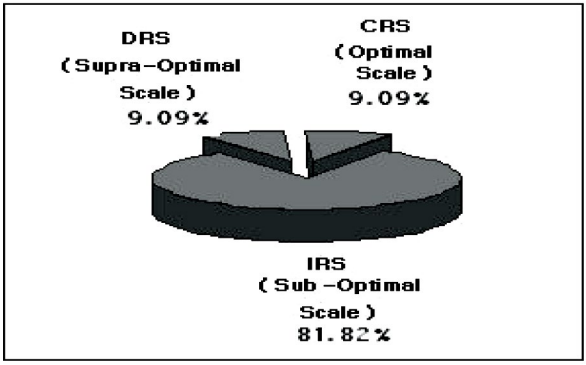

Fig. 1: Distribution of Hospitals by their Scale of Operation (Treatment Orientation)

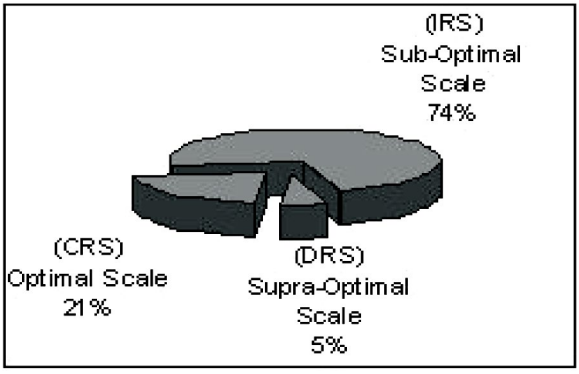

Fig. 2: Distribution of Hospitals by their Scale of Operation (Investigation Orientation)

It is significant to be acquainted with the fact that hospitals in our survey area are operating in all three categories of scale such as optimal scale, sub-optimal scale and supra-optimal scale. As revealed by the treatment orientation in Figure 1, 81.82 per cent of the total sample hospitals are operating at sub-optimal condition, 9.09 per cent are operating at supra-optimal condition and 9.09 per cent are operating at optimal situation. Again as revealed by the investigation orientation in Figure 2, 74 per cent of the total sample hospitals are operating at sub-optimal condition, 5 per cent are operating at supra-optimal condition and 21 per cent are operating at optimal situation. Overall, it can be suggested that there is enough scope of increasing the efficiency of hospitals as the majority of the hospitals belongs to sub-optimal scale. In other words, increasing the scale of operation through adjustment in the human resources and equipments would ensure efficiency in the operation of hospitals, both in the cases of treatment and investigation.

Conclusions

Efficiency in healthcare services is crucial in outreaching the services to the vast sections of the population. In this context, this study aims at the measurement of efficiency level

across organizational categories of hospitals in the district of Burdwan, West Bengal. The study has examined the sensitivity of the estimates of the hospital performance and efficiency to diverse input output combinations. The input-output provisions are translated into a set of model designs and the model designs are finally assembled together to frame two unanimous specifications with two major orientations, treatment and investigation. Empirical results based on DEA represent that the hospitals are categorically different in their efficiency, which is at its highest level in state government hospital, followed by other public hospitals and private hospitals. In fact, our empirical results tend to break the myth of the frequently held view that government hospitals in developing countries are not efficient. These three types of hospitals are operating in different scale efficiency values with different return to scale dimension. Majority of hospitals are operating at sub-optimal scale; thus the scope of enhancing their technical efficiency by scaling up their inputs is possible as per the model design in our study is concerned. Thus it is feasible to increase the hospital output by altering the scale, either through "increasing return to scale" or "decreasing return to scale" without any route to new expertise.

Endnotes

1 Dutta *et al.* (2014) have measured the efficiency of secondary level public hospitals, where only one ownership category (i.e. State Government owned) has been considered.

2 Prior to the data collection, permission order was taken from the Director of Health Service, Government of West Bengal, Swastha Bhavan, Salt Lake, Kolkata and the chief medical officer of health, Burdwan and the chief medical officer of health, Asansol health district.

3 Due to non availability of few inputs or outputs, the analysis rests on 22 hospitals in this model. Similar observations are found in other models also.

4 In model 2, the percentage of state government hospital operating under IRS is in fact 80 percent, whereas 20 percent of such hospitals follow DRS.

References

Araújo, C., Barros, C. P. and Wanke, P. 2013. Efficiency determinants and capacity issues in Brazilian for-profit hospitals, *Springer: Health Care Management Science.* Retrieved 23.04.2014 from http://link.springer.com/article/10.1007/s10729-013-9249-8

Bielik, P. and Rajčániová, M. 2004. Scale efficiency of agricultural enterprises in Slovakia. *Agricultural Economics*, *Czech Academy of Agricultural Sciences,* **50**(8) 331-335.

Chang, H., Cheng, M. and Das, S. 2004. Hospital ownership and operating efficiency: evidence from Taiwan. *European Journal of Operational Research,* **159***:* 513–527.

Clements, B., Coady, D., Shang, B. and Tyson, J. 2011. Healing Healthcare Finances. *Finances and Development, International Monetary Fund,* **48**(1).

Coeli, T. 2002. *An introduction to efficiency and productivity.* Massachusetts: Kluwer Academic Publishers.

Coelli, T., Rao, D.S.P. and Battese, G.E. 1998. *An introduction to efficiency and productivity analysis.* Boston: Kluwer Academic Publishers.

Dutta, A., Bandyopadhyay, S. and Ghose, A. 2014. Measurement and determinants of public hospital efficiency in West Bengal, India. *Journal of Asian Public Policy,* **7**(3): 231-244.

Gaynor, M. and Town, R.J. 2011. Competition in health care markets. In M.V. Pauly, T.G. McGuire, and P.P. Barros (Ed.), *Handbook of Health Economics,* **2**: 499-637. Amsterdam: North-Holland.

Government of West Bengal. 2010. Directory of Medical Institutions, State Bureau of Health Intelligence, Directorate of Health services, Swasthya Bhavan, Salt Lake, Kolkata.

Helmig, B. and Lapsley, I. 2001. On the efficiency of public, welfare and private hospitals in Germany over time: a sectoral data envelopment analysis study. *Health Services Management Research,* **14**(4): 263–274.

Hollingsworth, B. 2003. Non-parametric and Parametric Applications Measuring Efficiency in Health Care. *Health Care Management Science,* **6**(4): 203–218.

Hsu, J. 2010. *The relative efficiency of public and private service delivery* (Background Paper 39). World Health Report. Retrieved from World Health Organization website: http://www.who.int/healthsystems/topics/financing/healthreport/P-P_HSUNo39.pdf (02.05.2014)

Ichoku, H.E., Fonta, W.M., Onwujekwe, O.E. and Kirigia, J.M. 2011. Evaluating the Technical Efficiency of Hospitals in Southeastern Nigeria. *European Journal of Business and Management,* **3**(2).

Joumard, I., André, C. and Nicq, C. 2010. Health care systems: efficiency and institutions (Working Papers No 769). Organization for Economic Co-operation and Development. Paris.

Kundurjiev, T. and Salchev, P. 2011. *Technical efficiency of hospital psychiatric care in Bulgaria – Assessment using Data Envelopment Analysis.* Paper No. 28953, Retrieved 06.07.14 from http://mpra.ub.uni-muenchen.de/28953/MPRA

Lindsay, C.M. 1976. Theory of government enterprise. *Journal of Political Economy,* **84***:* 1061-1077.

Nguyen, K.M. and Giang, T.L. 2004. *Non-parametric Analysis of Efficiency Performance for Hospitals and Medical Centers in Vietnam.* (MPRA Paper no. 1533). Retrieved 05.04.13 from http://mpra.ub.uni-muenchen.de/1533/1/Minh_and_Long_Hospital_and_Medical_Center.pdf

Osei, D., d'Almeida, S., George, M. O., Kirigia, J.M., Mensah, A.O. and Kainyu, L.H. 2005. Technical efficiency of public district hospitals and health centres in Ghana: a pilot study. *Cost Effectiveness and Resource Allocation, 3(9).* Retrieved 22.12.2013 from http://www.resource-allocation.com/content/3/1/9

Tandon, A. and Cashin, C. 2010. *Assessing Public Expenditure on Health from a Fiscal Space Perspective* (Health, Nutrition and Population Discussion Paper). Retrieved from World Bank http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/AssesingPublicExpenditureFiscalSpace.pdf (15.12.13)

Zeithaml, V.A., Gremler, D.D., Bitner, M.J. and Pandit, A. 2009. Services Marketing: Integrating Customer Focus Across the Firm, TMH, New Delhi.

APPENDIX

Table A.1: List of Surveyed Hospitals in the District of Burdwan

Hospital Type	Region	Name of the Hospital	Block
State Government Hospital	Urban	Asansol SDH	Jamuria
		Katwa SDH	Katwa 1
		Bhatar RH	Bhatar
		Memari RH	Memari 2
	Rural	Singot RH	Mangalkot
		Ban-Nabagram RH	Ausgram 2
		Jamalpur RH	Jamalpur
		Laudoha RH	Faridpur
		Pithaikeary RH	Salanpur
		Ballabhpur RH	Raniganj
Other Public Hospital	Urban	Andal Railway Hospital, Andal	Andal
		Burnpur Hospital, Bunpur, Asansol	Hirapur
		D P L Hospital, Durgapur	Faridpur
		D T P S Hospital, Durgapur	Faridpur
		E S I Hospital, Durgapur	Faridpur
		K G Hospital, Chittaranjan	Salanpur
		Kajora Hospital	Andal
	Rural	Central Hospital (Kalla), Asansol	Jamuria
		Regional Hospital, Chhora, Bohula	Andal
		Satgram Hospital, Jamuria	Jamuria
Private Hospital	Urban	HLG Hospital, Asansol	Jamuria
		I.R.C.S. Hospital, Durgapur	Faridpur
		The Mission Hospital, Durgapur	Faridpur
		Vivekananda Hospital, Durgapur	Faridpur
	Rural	CAMRI Hospital, Burdwan	Burdwan-II

13

Infrastructure and Primary Education

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Abstract

Any person in modern society requires knowledge and skill to participate in various social processes in the public domain and being associated with gainful economic activities. In primitive society the knowledge was based on experiencing natural events and survival of human depended on learning related to gathering food and meeting other essential needs, which was quite little. There was also little inequality in the society caused by difference in knowledge of different individuals because education was not so linked with the means of livelihood. The present knowledge base of the society has been built over thousands of years and has grown tremendously in last few centuries. In keeping with that, system of education has been evolved for developing knowledge and related skill from childhood. Functionality and well being of any person now largely depends on utilizing available knowledge and skill learnt through such education system. Also, for leading a meaningful life everyone has to relate him or her with others in the society and to realize their cultural values and social identity. All those are enabled by appropriate formal education in addition to the process of socialization within the family and the community. Since independence the Govt of India individual state govt businesses and NGO's have implemented several primary schools education initiatives throughout the rural and urban India. Today net primary school enrolment rates are above ninety percent. Though the country is far from achieving universal primary education-a scenario where all children go to school regularly and learn sufficiently. But there are so many problems regarding the quality of primary education. Infrastructural problem is one of the important problems of education. Education is the indicator of development. The development of education depends on large number of factors including the infrastructure resources available to a school. This is a quantitative indicator which helps to measure the quality of education. Improved infrastructure will help to improve the quality of education. Physical infrastructure and non-physical infrastructure both are important to judge the quality of education. In West Bengal the Infrastructural facility is very poor for primary education system.

Keywords: West Bengal, education, NGO, economic activities

Any person in modern society requires knowledge and skill to participate in various social processes in the public domain and being associated with gainful economic activities. In primitive society the knowledge was based on experiencing natural events and survival of human depended on learning related to gathering food and meeting other essential needs, which was quite little. There was also little inequality in the society caused by

difference in knowledge of different individuals because education was not so linked with the means of livelihood. The present knowledge base of the society has been built over thousands of years and has grown tremendously in last few centuries. In keeping with that, system of education has been evolved for developing knowledge and related skill from childhood. Functionality and well being of any person now largely depends on utilizing available knowledge and skill learnt through such education system. Also, for leading a meaningful life everyone has to relate him or her with others in the society and to realize their cultural values and social identity. All those are enabled by appropriate formal education in addition to the process of socialization within the family and the community. Since independence the Govt of India individual state govt businesses and NGO's have implemented several primary schools education initiatives throughout the rural and urban India. Today net primary school enrolment rates are above ninety percent. Though the country is far from achieving universal primary education-a scenario where all children go to school regularly and learn sufficiently. But there are so many problems regarding the quality of primary education.

India defines literacy as the ability to read and write for a person aged 7 or above, which is roughly equivalent to UNICEF's definition. Census figures from 2001 put India's literacy rate at 65.4% leaving over 250 million (counting only people above the age of 7) people who can't read and write. The female literacy levels are worse. In 1991, less than 40 percent of the 330 million women aged 7 and over were literate, which means then there are over 200 million illiterate women in India. The situation has improved marginally in 2011 with still around 35% of women in India above 7 years age group can read and write. A country hailed internationally for its engineers and doctors is also home to about a third of world's illiterates.

In India, shortfall in pupil enrolment and retention, especially in rural areas, in urban slums and among girls and members of scheduled castes and tribes remains a severe challenge for a long time. Our feeling is that not only the quantity but also the quality of primary education need to be emphasized if the goal is to create meaningful and capable human resources in this age of neo-liberal globalization. With improved quality, one may expect better results in terms of high literacy rates, high student enrolment and retention ratio at least, and also, a much better human resource well-endowed with skill and knowledge. Otherwise, social justice as an avowed objective of Indian Plans would remain a hollow cry. India would grow but with it would also grow the number of illiterates, ignorant and destitute masses with "inclusive growth" making only illusory dents.

We can't measure the quality. So quality of primary education also can't be measurable. But we can measure the quantitative factors of primary education by which we can draw a concept regarding quality of education. Some effects indicators will help to understand the quality of education. To illustrate the problem of primary education some quantitative and some qualitative indicators are required. There are some quantitative indicators by which the quality of the primary education can be judged.

The quantitative indicators are shown below:

Quantitative indicators: Infrastructure, student teacher ratio, gender disparity.

Quantitative Indicators: The quantitative indicators are quantified and by quantifying it the effects of these indicators can be judged to assess the quality of primary education. Some Infrastructural problems are regarding as quantitative indicators. There are two types of infrastructural problems:

◊ Physical infrastructural problem.

◊ Non- physical infrastructural problem

Physical Infrastructure: The main problem of primary education is related to physical infrastructure. Most of the primary schools are suffering by this problem. The space of the classrooms, teacher's room, and office room is very short in primary schools. Due to inadequate space for classroom students are not properly accommodated by the schools. On the other hand the facility of toilets for male and female as well as teacher and student too are very poor in primary schools. The drinking water facilities as wells as electricity facilities are not up to the mark. Half of India's have a leaking roof or no water supply. 35% of the schools have no black board or furniture, and close to 90% have functioning toilets (Ramachandran, Mehrotra, Jandhyalay, 2007). There is no availability of playground for the student.

There are some other non-infrastructural problems which are related to student and teacher.

Non –Physical Infrastructure: This includes the problems related to students and the problems related to teachers.

Problems faced by the students: There is insufficient and low quality reading materials for students. As a result, the quality of education remains very low. Most of the students have no proper school uniform. The is no adequate play instruments for the students in many primary schools and also the students are not getting the facility of computer in primary schools. Due to these problems related to the student infrastructure help to decrease the number of students in primary schools. The students are not getting the primary schooling. The another problem related to student infrastructure is the lack of adequate meal before attending the school what has usually been referred to as short- term hunger, an adverse impact on the child's performance in school, her ability to concentrate as well as learn new concepts. (Ramachandran, Jandhalay, Saihjee, 2003 p. 4994).

Problems related to teachers: Another main problem of primary education is teacher absenteeism, low quality teacher, inadequate number of teacher, and poor availability of teacher. Supply of education refers to both availability and the quality of school facilities materials and teachers. The lack of qualified special educated teachers threatens the quality of education that students with disabilities receive. (Bonnie S. Billingsley, 2004, pp. 2-4). Due to the shortage of skilled teacher the quality of primary education does not improve. There are four major things related to supply factors. These are teacher's

characteristics and personal factors, teacher's qualifications, work environment, and teacher's effective reactions to work. The attitudes of teachers in urban areas remain a big issue. The social distance between teachers (who are middle class) and vast majority of children (who come from extremely poor families) reveals vast and abusive behaviour, derogatory language and punishment which in turn affect the self esteem and confidence of children. (Ramachandran, 2006, p.383). The teachers are not made accountable for learning outcomes of children, especially in the primary and middle schools where there is no board examination. (PROBE 1999, Vimala Ramachandran 2002, Pratichi Education Report 2002, Jha and Jhingan 2002).

Student Teacher Ratio: In primary schools of India the student teacher ratio is very low. The Student teacher Ratio is defined by the ratio between student and teacher, i.e. the number of students in a school who attend the class with respect to the number of teachers. The student teacher ratio is 42:1 at the primary level, i.e. there is one teacher at every 42 students.

Student Teacher ratio = Number of student enrol in school/number of school teachers.

Rise in this ratio implies the number of students increase rather than increase in school teachers and vice-versa which is not desirable. So, to improve the quality of primary education the ratio should be reduced. Increase in teachers than increase in students is more required.

Gender disparity: Gender disparity is measured by the ratio between female participation in education to male participation in education. The gap between female participation in education and male participation in education is called gender disparity. High gender disparity implies the female participation in education is very low. Census figures projected during 1991–2001(Selected Educational Statistics Primary Education 1999–2001 MHRD, Govt. of India) show male literacy to be 63.86% and 75.85% against female literacy of 39.42% and 54.16%. Out of 13,459,734 dropouts from Secondary schooling, 6.08% are males and 7.98% are females. There is a wide gender disparity in the literacy rate in India. Effective literacy rate in 2011 were 82.14% for men and 65.46% for women. The low female literacy rate has had a dramatically negative impact on family planning and population stabilization effort in India (en. wikipedia.org/wiki/ literacy –in-India).

The condition of physical infrastructure of primary schools in West Bengal is also very poor. We can explain it by the help of secondary data.

Data Collected

To analyse the infrastructure of the primary education of West Bengal we have to collect the data from secondary source from the year 2001-2002 to 2011-2012. To understand the effect of infrastructure in primary education the following indicators which are based on primary schools of all the districts of West Bengal are required. These indicators will help to judge the effect of infrastructure in primary education. These are:

1. Percentage of schools with common toilet. (+)
2. Percentage of schools with girls' toilet (+)
3. Percentage of schools with playground facility. (+)
4. Percentage of schools with electricity facility. (+)
5. Percentage of schools with computer facility. (+)
6. Percentage of schools with library facility. (+)
7. Student Classroom Ratio (SCR) (-).

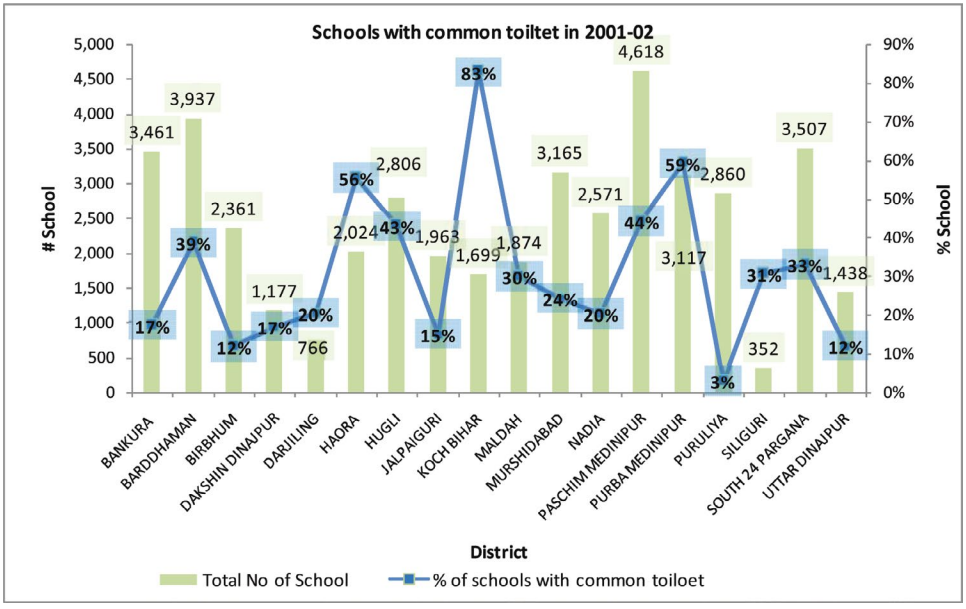
Among the seven indicators six indicators have the positive effect on infrastructure that is as the % of schools with common toilet, girls' toilet, playground facility, electricity facility, computer facility, and library facility rise the condition of infrastructure will develop.

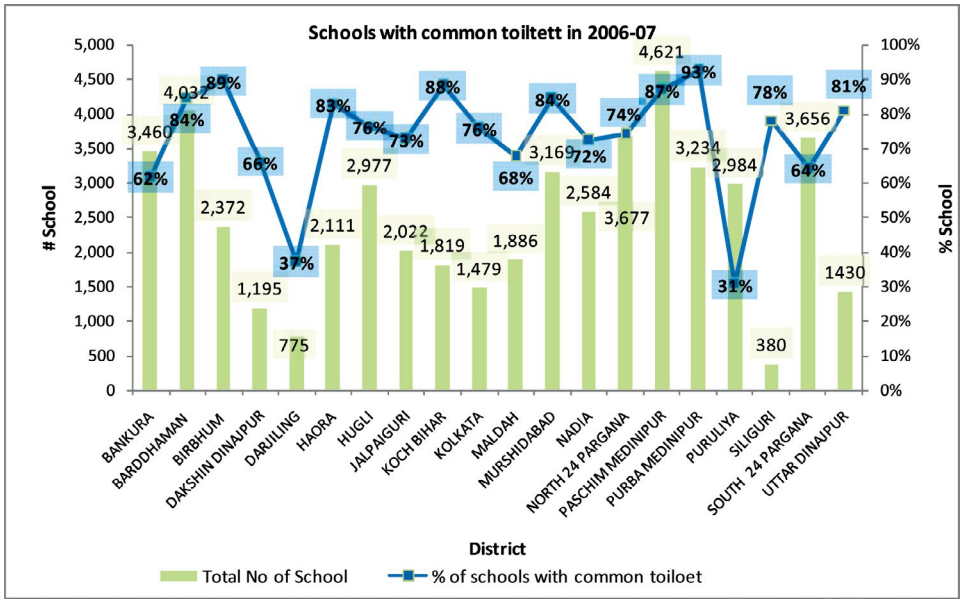
On the other hand Student Classroom Ratio has the negative effect on infrastructure. As the value of student classroom ratio rises the students feel uncomfortable in classroom which will affect the education.

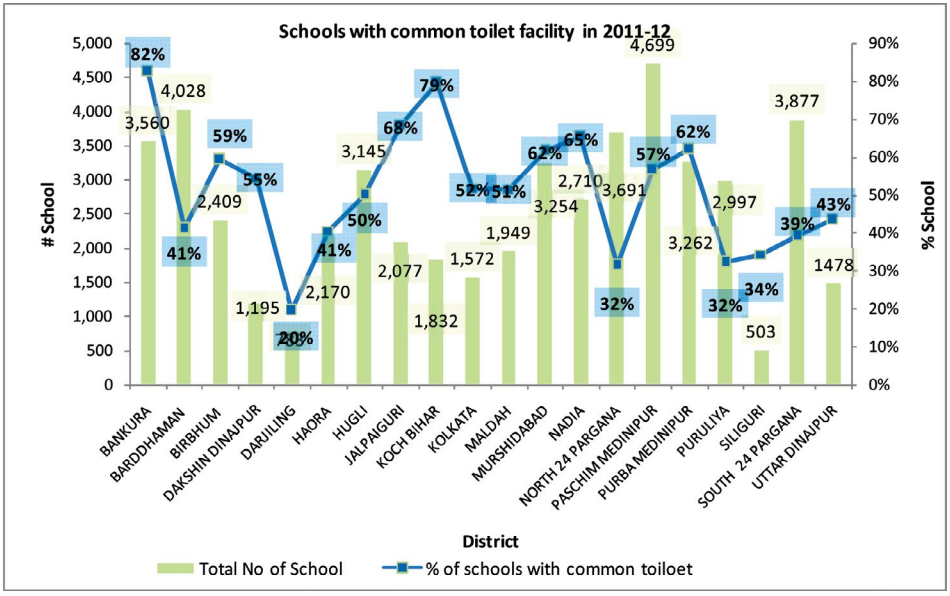
Now, we represent the secondary data through line diagram and pie diagram. These diagrams help to understand the comparative study from the year of 2001-2002 to 2006-2007 to 2011-2012.

Comparative Analysis: We make a comparative study for the year of 2001-2002, 2006-2007 and 2007-2008.

Common Toilet







In the year of **2001-2002** in case of common toilet the schools of Koch Bihar has the highest contribution where as the schools of puruliya has the lowest value. Bankura, Birbhum, Dakhsin Dinajpur, Jalpaiguri, Uttar Dinajpur are nearer to Puruliya. Purba Medinipur takes the second last position.

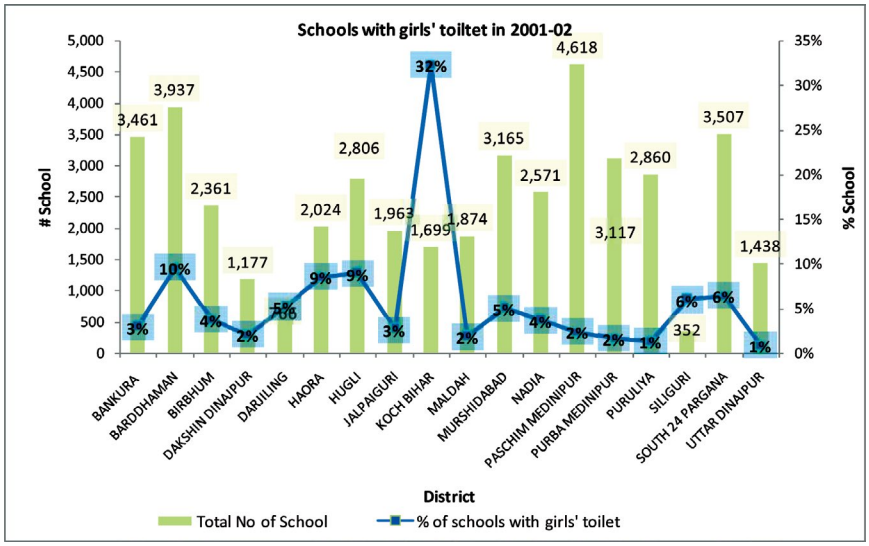
In the year of **2006-2007** the schools of Purba Medinipur has the highest contribution where as the schools of Puruliya has the lowest contribution of it.Birbhum, Koch Bihar,

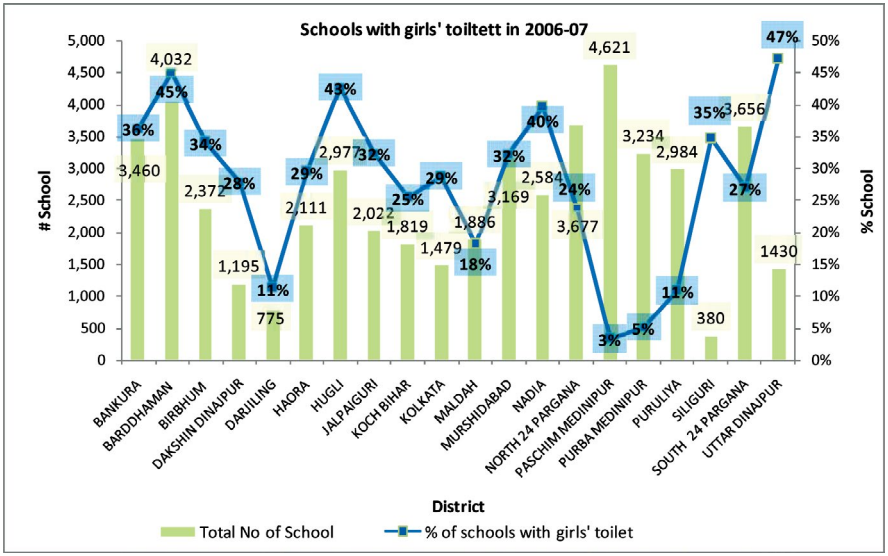
and Paschim Medinipur are closer to Purba Medinipur. Darjeeling is very much closer to Puruliya.

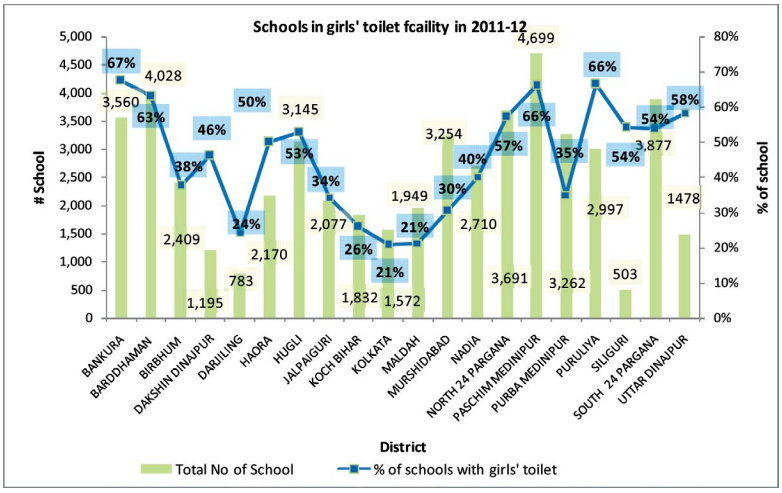
In the year of **2011-2012** The schools of Bankura has the highest contribution and the schools of Darjeeling has the lowest contribution of it. Koch Bihar is nearer to Bankura. North 24 pargana, Puruliya are nearer to Darjeeling.

We can say that in this regard Bankura has made a significant improvement. The other districts stay more or less at their previous position.

Girls' Toilet







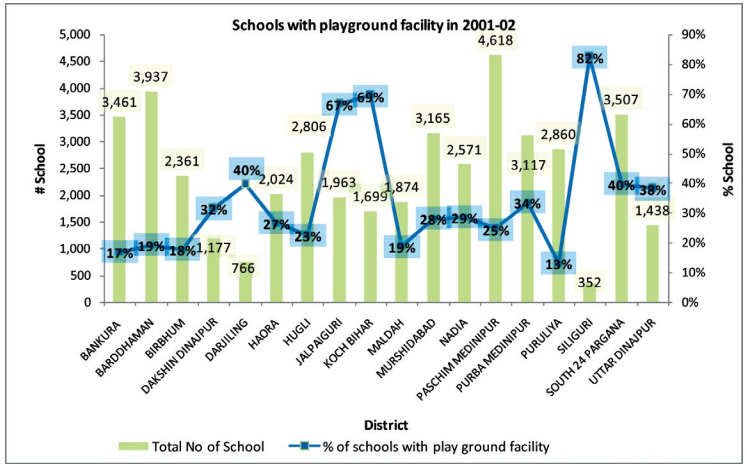
In the year of **2001-2002** in case of girls' toilet the schools of Koch Bihar has the highest value and the schools of Puruliya and Uttar Dinajpur has the lowest value. Except Koch Bihar the performance of all other districts is very poor.

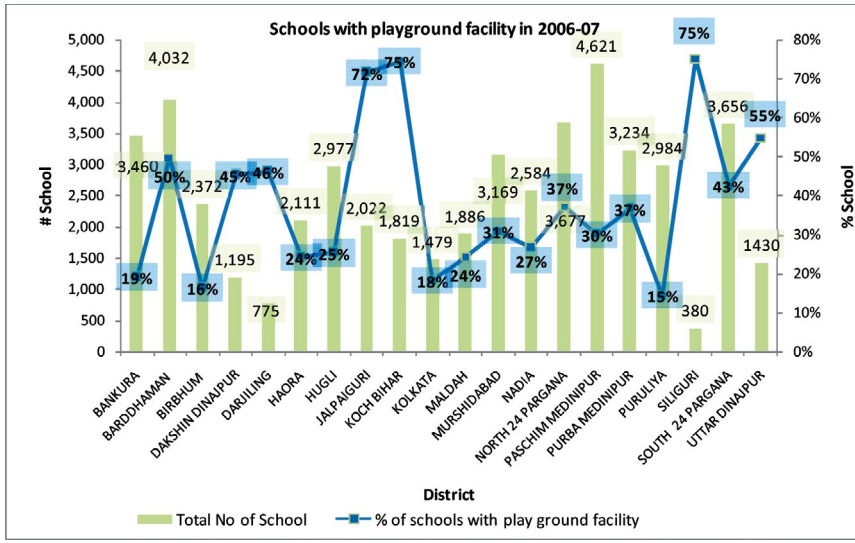
In the year of **2006-2007** the schools of Uttar Dinajpur has the highest contribution and the schools of Paschim Medinipur has the lowest contribution of it.Hugli is closer to Uttar Dinajpur and Purba Medinipur is closer to Paschim Medinipur.

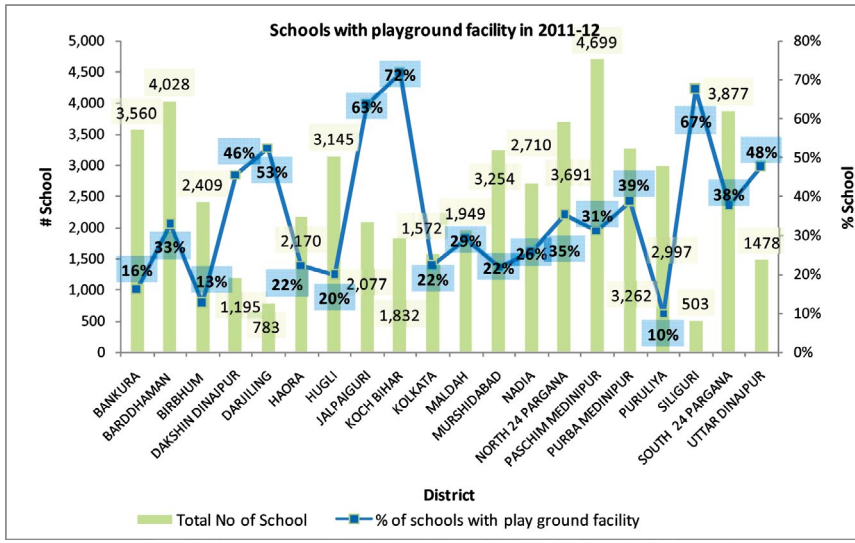
In the year of **2011-2012** the schools of Bankura has the highest contribution and the schools of Kolkata and Madah has the lowest contribution of it.Puruliya and Bardhaman are closer to Bankura. Darjeeling and Koch Bihar are closer to Kolkata and Maldah.

We can say that Uttra Dinajpur has made a significant improvement on it over 10 years where as Koch Bihar slow down on it.

Playground facility







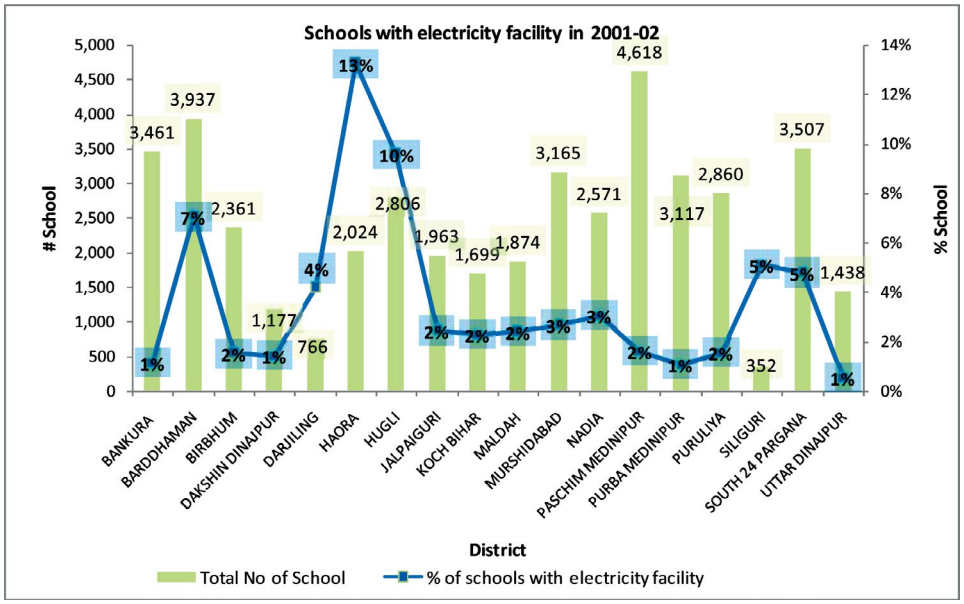
In the year of **2001-2002** in case of playground facility the schools of Siliguri has the highest contribution and the schools of Puruliya have the lowest contribution. Jalpaiguri and Koch Bihar are closer toSiliguri. Bankura, Bardhaman, Birbhum, Maldah are very much nearer to Puruliya.

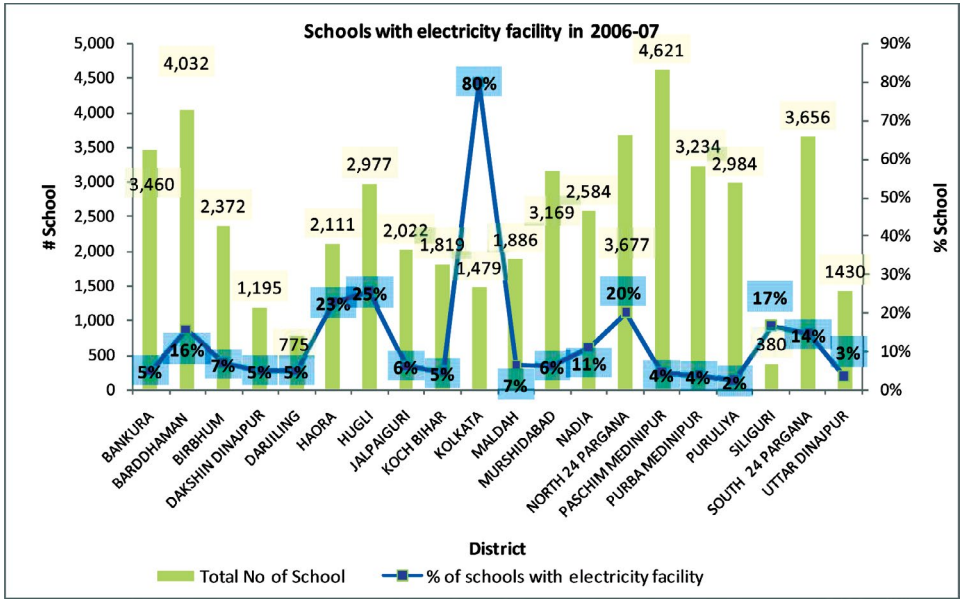
In the year of **2006-2007** the schools of Koch Bihar and Siliguri have the highest contribution and the schools of Puruliya have the lowest contribution of it. Jalpaiguri is very much closer to Koch Bihar and Siliguri. Birbhum is very much closer o Puruliya.

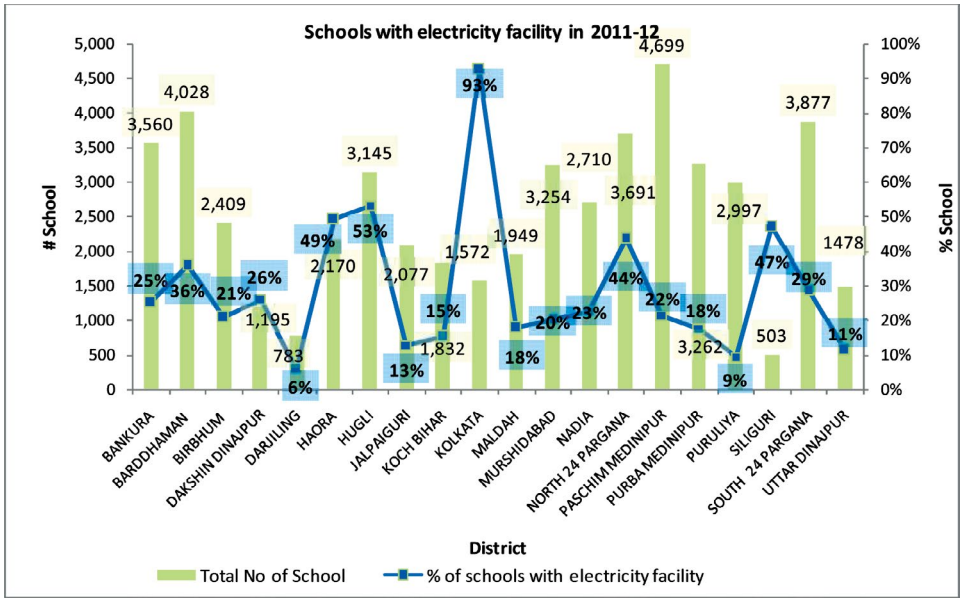
In the year of **2011-2012** the schools Koch Bihar has the contribution and the schools of Puruliya have the lowest contribution of it. Jalpaiguri and Siliguri are closer to Koch Bihar and Bankura and Birbhum are closer to Puruliya.

We can say that Koch Bihar is consistent through the 10 years. Siliguri also improved. There is no improvement in Puruliya Birbhum, Bankura.

Electricity facility







In the year of **2001-2002** in case of electricity facility the schools of Haora has the highest value and the schools of Uttar Dinajpur, Dakhsin Dinajpur, Bankura and Purba Medinipur have the lowest value. Hugly is nearer to Haora. Except Haora and Hugli the contribution of all other the districts of West Bengal is poor.

In the year of **2006-2007** the schools of Kolkata has the highest contribution and the schools of puruliya has the lowest contribution of it. Except Kolkata the electricity facility of all other districts is not very much up to the mark.

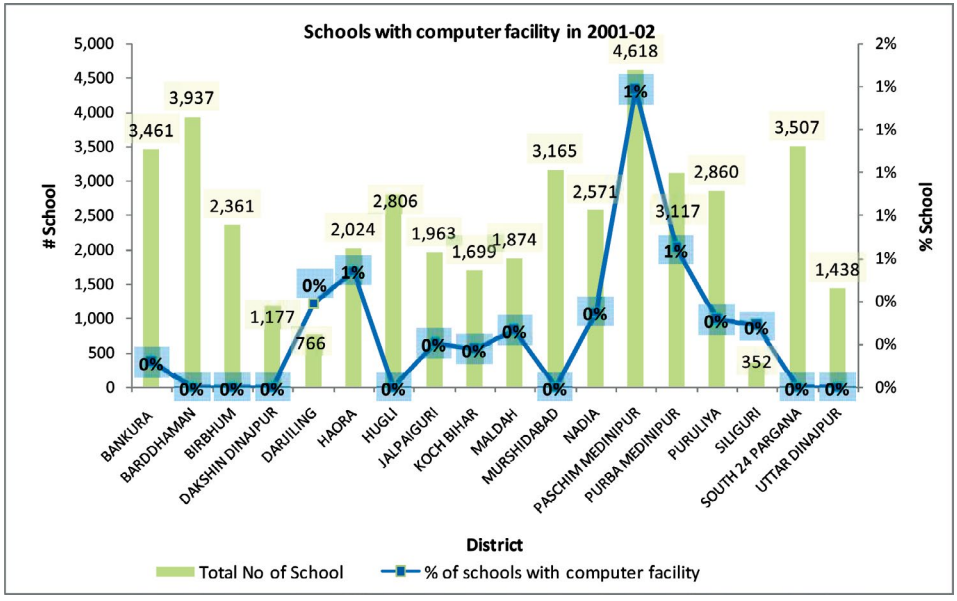
In the year of **2011-2012** the schools of Kolkata has the highest contribution and Darjeeling has the lowest contribution. Puruliya is closer to Darjeeling. No other district is nearer to Kolkata (like93%).Hugli takes the second position (53%).

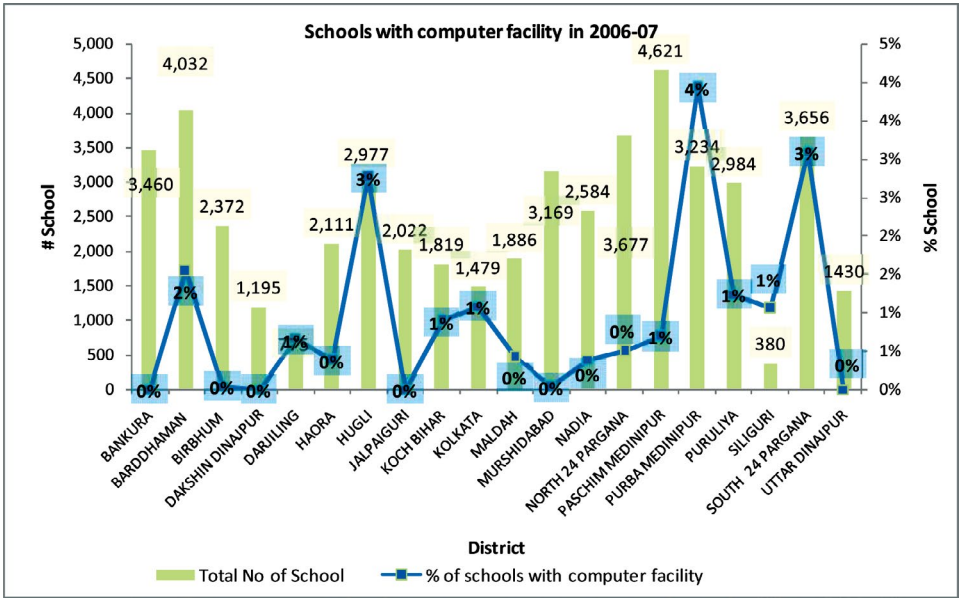
We can say that Kolkata's performance rises over the year. Haora's performance is far away from Kolkata. Puruliya's performance does not improve.

Computer facility

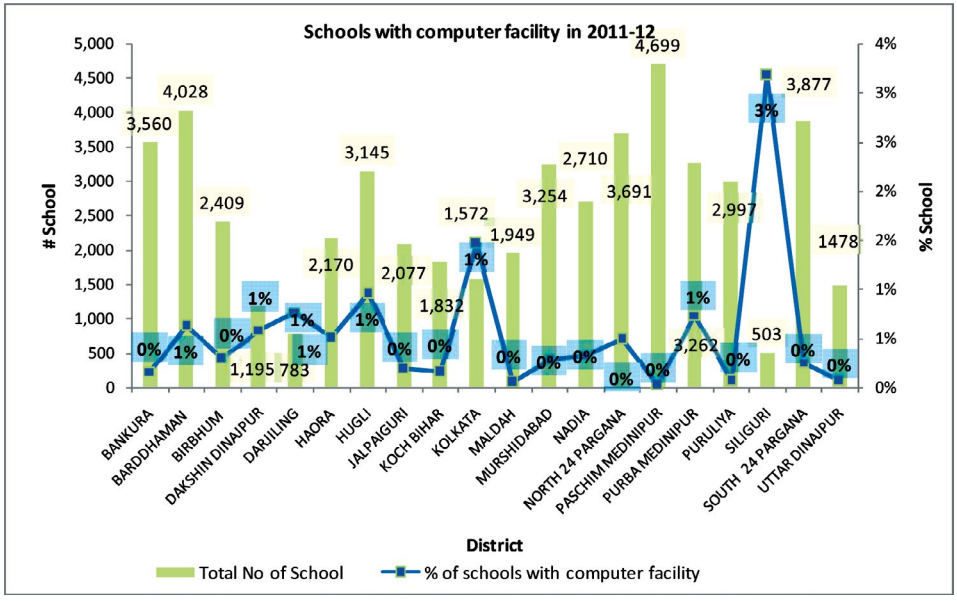
In the year of **2001-2002** in case of computer facility except the schools of Purba Medinipur, Paschim Medinipur and Haora there is no computer facility at the school for the rest of the districts of West Bengal though the condition of above said districts in case of computer facility is very minimum like 1%.

In the year of **2006-2007** the schools of Purba Medinipur has the highest value. Bankura, Birbhum, Dakhsin Dinajpur, Haora, Jalpaiguri, Maldah, Murshidabad, Nadia, North 24 Pargana, Uttar Dinajpur have no contribution (0% contribution of it).

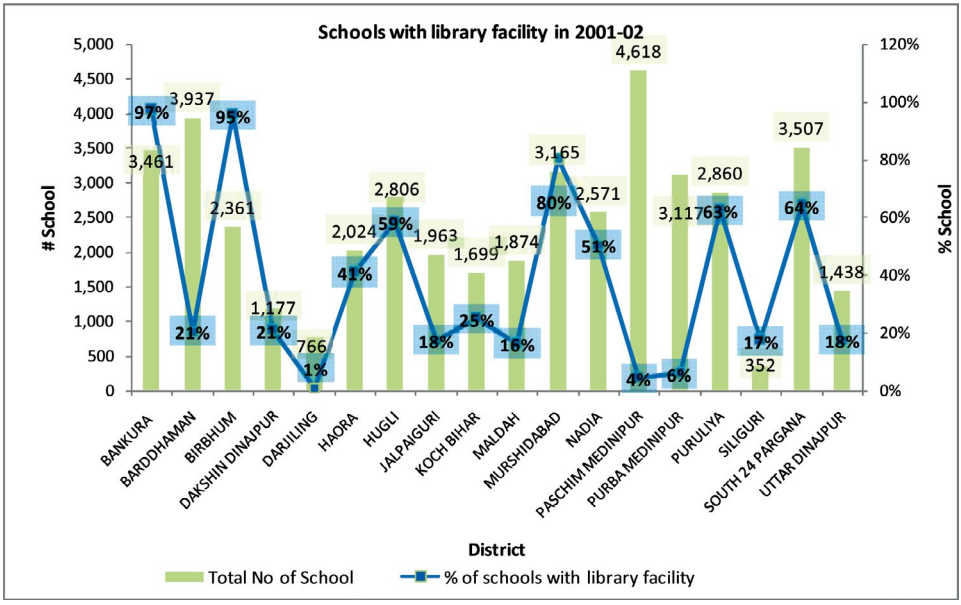


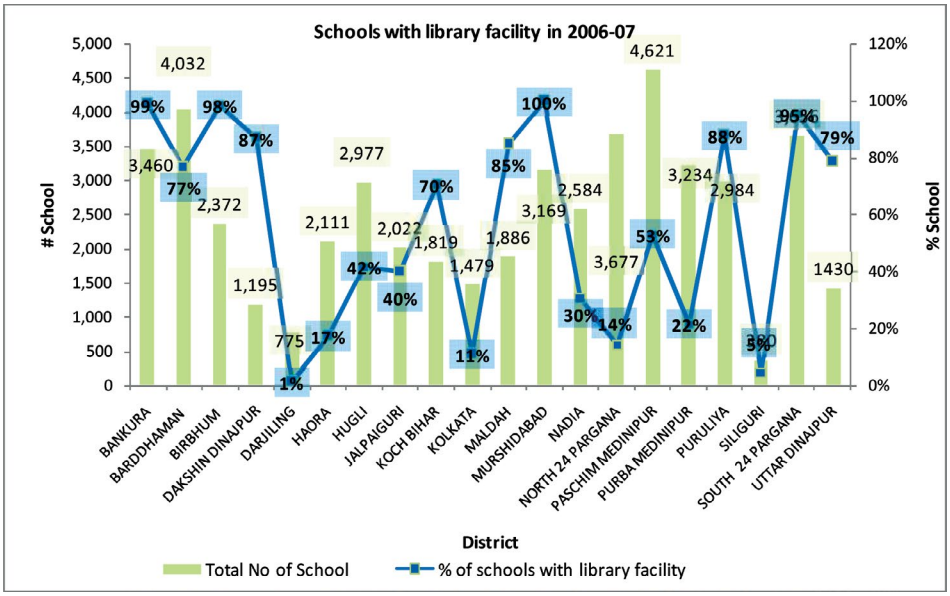


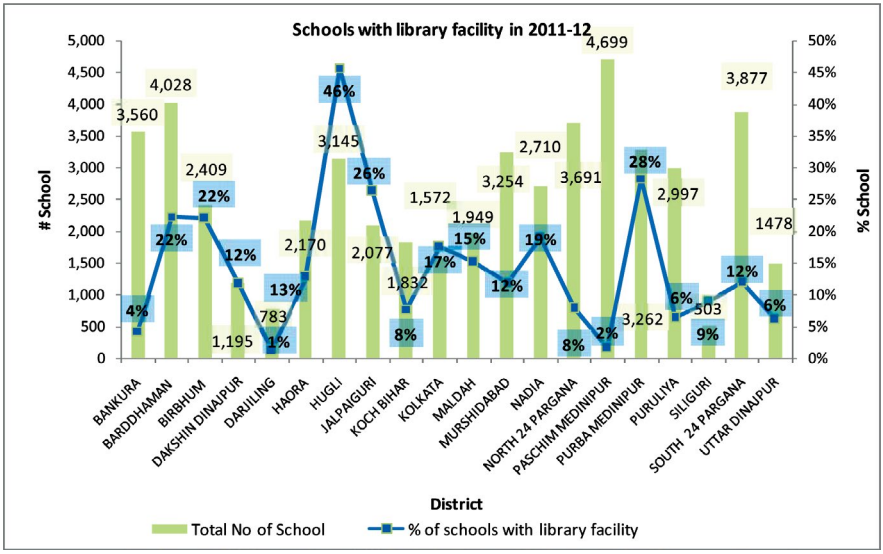
In the year of **2011-2012** the schools of Siliguri has the highest value. Except it the performance of all other district is very low.



Library facility







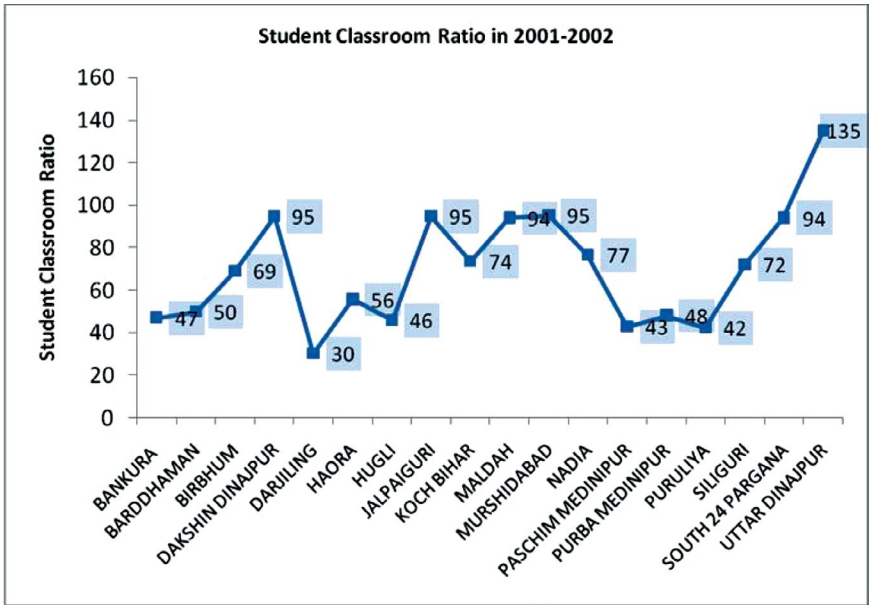
In the year of **2001-2002** in case of library facilityAll the districts maintain the library facility of their schools. 97% of the schools of Bankura district have the library facility and 1% schools of Darjeeling district have the library facility. The schools of the Birbhum district and Murshidabad District have greater library facility and the schools of the Purba Medinipur and paschim medinipur have very minimum library facility.

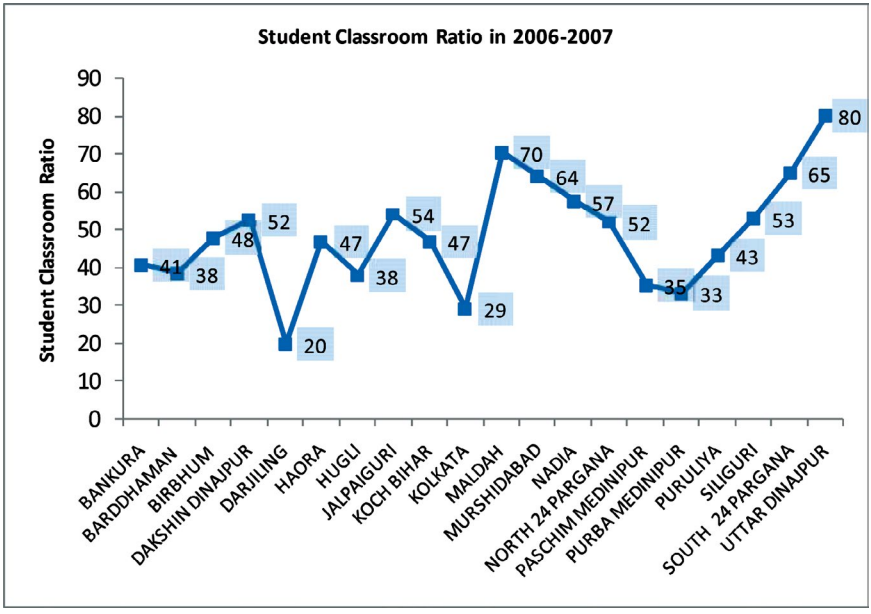
In the year of **2006-2007** the schools of Murshidabad have 100% contribution of it and Darjeeling has the lowest value. Bankura, Birbhum is very nearer to Murshidabad and Siliguri is nearer to Darjeeling.

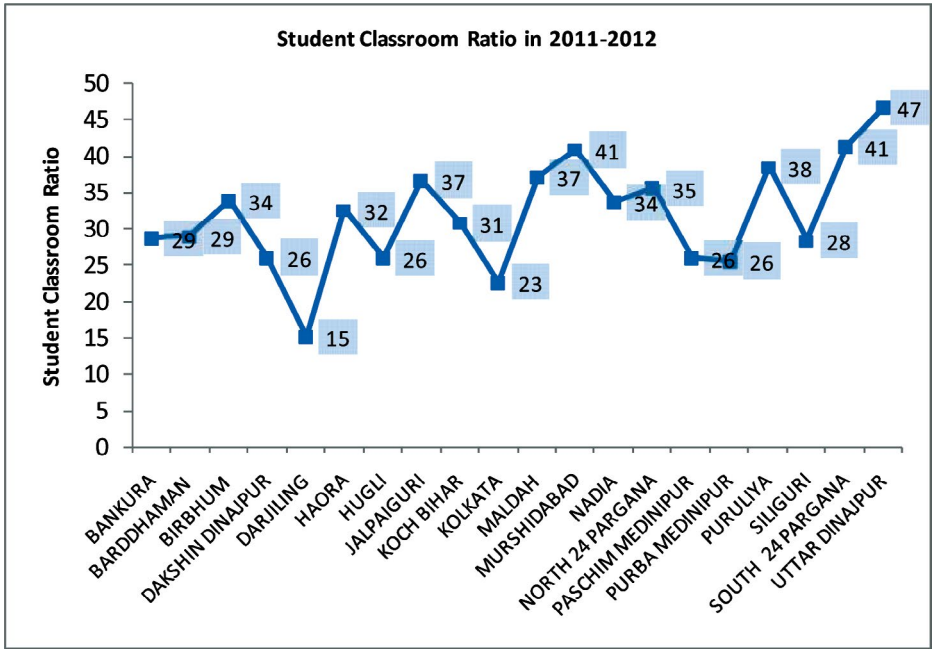
In the year of **2011-2012** the schools of Hooghly has the highest value and Darjeeling has the lowest value. The performance of the other district is not up to the mark.

Sao we can say that Bankura district is consistent regarding it

Student Classroom Ratio







In the year of 2001-2002 the schools of Uttar Dinajpur has the highest student classroom and the schools of Darjeeling has the lowest of it. Dakhsin Dinajpur, South 24 Pargana, Jalpaiguri, Murshidabad are nearer to Uttar Dinajpur and Paschim Mediniupur and Puruliya are nearer to Darjeeling.

In the year of **2006-2007** the schools of Uttar Dinajpur has the highest student classroom and the schools of Darjeeling has the lowest of it. Maldah, Murshidabad and South 24 Pargana are nearer to Uttar Dinajpur and Kolkata is closer to Darjeeling.

In the year of **2011-2012** the schools of Uttar Dinajpur has the highest student classroom and the schools of Darjeeling has the lowest of it. Murshidabad and South 24 Pargana is closer to Uttar Dinajpur and Dakhsin Dinajpur, Hugli, Paschim Medinipur, Purba Medinipur are closer to Darjeeling.

So it can be said that Uttar Dinajpur and Darjeeling are consistent over the 10 years. No improvement is noticed for the district of Darjeeling and Paschim Medinipur.

Conclusion

India is a poor underdeveloped economy. Poverty affects the education. The fund for primary education should increase. The primary schools should enrich financially. Infrastructural imperfections help to increase the dropout rate and decrease the enrolment. Now a days, many kinds of learning instruments are using in the school to attract the children and to improve the quality of education.

If we provide some audio visual system in primary education and give the free computer education to all the children at primary level then it will attract the children and infrastructure will strong and hence quality of education will improve.

References

Bonnie S. Billingsley 2004. "Critical Issues in Special Education: Teacher Supply and Demand", *the Journal of Special Education*, **38**: 2-4.

Jha, J. and Jhingran, D. 2002. *Elementary Education for the Poorest and Other Deprived Groups: Centre for Policy Research.* New Delhi.

Literacy in India cited in en.wikipedia.org/wiki/Literacy_in_India accessed on June 24, 2011.

PROBE, Report 1999. Public Report, on Basic Education in India. Oxford University Press: Delhi.

Pratichi (India) Trust 2002. "The Pratichi Education Report": New Delhi.

Ramachandran, V. 2002. *Hierarchies of Access: Gender and Social Equity in Primary Education in India*. European Commission: New Delhi.

Ramachandran, V., Jandhyala, K. and Saihjee, A. 2003. "Trough the Life Cycle of Children: Factors that facilitate/ impede successful Primary School", *Economic and Political Weekly*, **XXXVIII** (47): 4994.

Ramachandran, V., Mehrotra, N. and Jandhyalay, K. 2007. "The Status of Health and Education in India: Critical questions in The Nations Development", *Economic and Political Weekly,* **XXXVI**(2).

14

Child Labour in India- An Overview of Issues and Challenges

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Abstract

The study of child labour assumes considerable importance. This paper highlighted the factors that accounts for child labour are poverty, economic relations and lack of education. According to National Sample Survey Office (NSSO) report 2009-10, the total number of child labour, aged (5-14), estimated to be at 49.84 lakh. The presence of Child Labour is not uniform across the country. This paper also provides a comparative picture child labour of the major states in our country by using CENSUS, NSSO and UNICEF data. This paper also dwells on the extent, incidence, causes and consequences of child labor in our country. Other relevant socio-demographic issues, benefits of education, Constitutional Provisions, India's Legal Obligations are also highlighted in this paper. This paper concluded that, to control the malady of child labour, a massive problem of unemployment, inequality and poverty should be declined.

Keywords: *Child labour, child hood, education, poverty alleviation, Constitutional Provisions, human capital formation*

'*Child slavery is a crime against humanity. Humanity itself is at stake here. A lot of work still remains, but I will see the end of child labor in my lifetime.'*

—Kailash Satyarthi

"In India, innocent and poor children are victims of child labor."

—Malala Yousafzai.

Child labour appears to be major problem in the developing world. It has been recognized as extreme violation of human rights, is interlinked with other important issues like human rights, human resource development, right to education and social security. It hits the headlines frequently by the effort of NGOs, educationists, social workers, researchers and child worker activists. Post- industrial revolution period witnessed a growing child labor both in developing and developed countries. 11% of the workforce of India is child labour (UNICEF, 2015). It implies that one in every 10 workers in India is a child. The term "child labour" is often defined as India's Census 2001 office define

child labor as participation of a child less than 17 years of age in any economically productive activity with or without compensation, wages or profit. It represent extreme violations of human rights. The worst form of child labour found in child trafficking, prostitution, pornography and illicit activities and slavery.

Childhood is a critical stage of life which gives full potential for growth and development. It is the formative years of life which brings out all round development personality. Children should get sufficient food, adequate nutrition, health care and education and they should enjoy their childhood in playing and learning as playing plays crucial rule in development of socialization. But working children deprives of all such privileges. Children belonging to poorer sections of the society are forced to do work after school hours and during school holidays. Most working children are helping in their family farm or business. The case of girl child labor is typical one. They typically occupy in family enterprises such as helping their parents around the home, assisting in a family business, low-paid and low-status jobs. They are innocent, helpless and do not claim enough for their work and hence most neglected and most exploited. They carry out a very wide range of tasks and activities some of them are difficult and exposes to a variety of health problems. The condition of orphan, destitute or abandoned working children, street children, children living in slums, children of prostitutes, children living with women prisoners, children born in out-of wedlock, children with disabilities and the working children victimized by natural calamities are even worse than that of children engaged in family run enterprises as they are the most deprived and the most abused. In general, they are coming from the economically deprived sections of society and from below-the poverty-line. The problem of child labour is not only ethical and social in nature but also it is an economic problem. Working children are exploited morally, physically and mentally. They deprived of access to education, family, school, peer group, friends and playmates. In some cases their condition is extremely miserable. They are exploited in terms of Intensity of work; they are subject to physical, mental and moral exploitation. The emergence of child labour is serious social and economic issue. It has been recognized as violation of human rights.

There is no universally accepted definition on child labour as it is complex socio economic problem. We can define Child labour as the full-time or part time employment of children who are below the age of 14 on part or fulltime basis that interferes with their schooling, their potential and their dignity, and that is harmful to physical, moral, mental and social development. “Child labour refers to the employment of children in any work that deprives children of their childhood”. (Subhadarsani Swain, 2014). Child labor as defined by the ILO comprises of “(i) all children between 5-11 years of age who are economically active, (ii) children between 12-14 years of age who work in an economic activity for 14 or more hours per week, and (iii) children between 12-17 years of age who work in an economic activity that is classified as belonging to the “worst forms of child labor.” The principal objective of this paper is to study the nature and extent of child labour in our country. The paper has examined global prospective of child labour.

The rest of the paper is divided as follows. Section 2 describes Magnitude and trend of child labour in our country. Section 3 discusses Nature and Extent of Child Labour in our country. Section 4 deals with the demography of child labour in our country. Section 5 deals with the Child Labour across the world. Section 6,7,8,9 and 10 discusses the Characteristics of child labour, Factors underlying child labour, Social and economic impacts of child labour, Eradication of child labour, Policy Recommendations respectively. The last section contains concluding portion of the study. The research is based on secondary data. These are the major sources of secondary data such as, National Sample Survey Office (NSSO) Rural Labour Enquiry Report on Wages and Earnings of Rural Labour Households (61th round of N.S.S.O) 2004–05, (66th round Of N.S.S.O)2010-11, The National Crime Records Bureau, Economic survey, Census of India, 1971,1981,1991, 2001 and 2011 and data from ILO.

Magnitude and trend of child labour in our country

We face many challenges in measuring child labour as actual problem is invisible and inclusive and data is inadequate as children work largely in the unorganized sector.

Table 1: Percentage of child Labours in India

Year	Number of working children (Age group 5-14)
1971 (Census)	1.07 crore
1981 (Census)	1.30 crore
1991 (Census)	1.13 crore
2001(Census)	1.27 crore
2011 (Census)	43.54 lakh
2004-05(NSSO)	90.75 lakh
2009-10 (NSSO)	49.84 lakh

Source: Census 1981, 1991, 2001 and 2011 And NSSO 2004-05 and 2009-10 estimate of Child Labour.

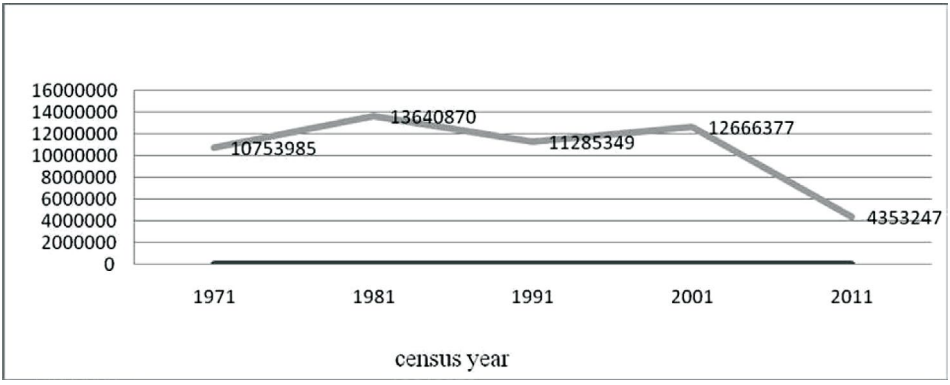


Fig. 1: Number of working children (Age group 5-14): All India

Source: Census 1981, 1991, 2001 and 2011.

Sadly our country is the home to the largest number of child labourers in the world. The official data shows that there is a significant reduction in the economically active working Children in India. The Census found a considerable increase in the absolute number of child labourers from 1.13 crore in 1991 to 1.27 crore in 2001. According to the Census 2011, the number of working children in the age group of 5-14 years has further reduced to 43.53. However, there is considerable decrease in the absolute number of child labour between 2001 and 2011.

The above data depicts a fluctuating trend in child labour and depicts a general decreasing trend in the magnitude of child labour over the last five decades in absolute number. The absolute number of child labourers declined from 1.07 crore in 1971 to a total 43.54 lakh in 2011. According to National Sample Survey Office (NSSO) report 2009-10 estimated the total number of child labour, aged (5-14), to be at 49.84 lakh while it was estimated to 90.75 lakh in 2004-05. Thus, above all, table reveals that that the prevalence of child labour has been falling in recent years. Child labour has been witnessing enormous decline in the last two decades, both in terms of extent and trend. The 2011 national census of India found the percentage of child labour, aged 5–14, to be at 1.67 percent of the total child population. As per the Census 2001, there are 1.26 crore economically active children in the age-group of 5-14 years. It was 1.13 crore in the 1991 Census. Thus we can conclude that child labour is declining very fast both in absolute number as well as in percentage. 2004-05(NSSO) revealed that child labour incidence rates in India is highest among Muslim Indians, about 40% higher than Hindu Indians. Child labour was found to be present in other minority religions of India but at significantly lower rates.

Nature and Extent of Child Labour in our country

India is considered as one of Child Labour concentrated countries in the world. The presence of Child Labour is not uniform across the country. NSSO (66th round of Survey) on Child Labour revealed the fact that the proportion of child labour in Utterpradesh and Uttarakhand is one of the highest in India followed by West Bengal, Rajasthan and Gujrat.

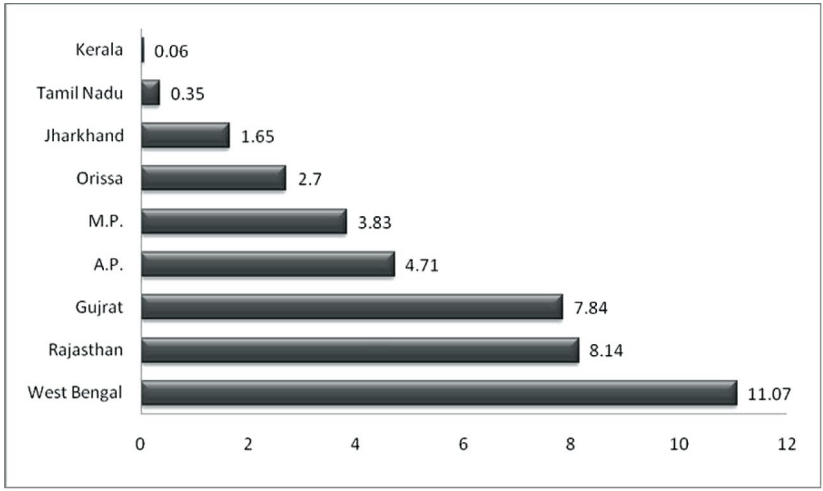
Table 2: Child labour across states in India (Age group 5-14)

Group of states	Sl. no	States	Total Child Labour	% share of child labour
Group I states	(1+2+3+4)		3150911	63.22
	1	Utterpradesh and Uttarakhand	1802704	36.17
	2	West Bengal	551584	11.07
	3	Rajasthan	405936	8.14
	4	Gujrat	390687	7.84
Group II states	(5+6+7+8+9+10)		1378525	27.66

	5	Bihar	276522	5.55
	6	Maharashtra	260673	5.23
	7	A.P.	234662	4.71
	8	Karnataka	226497	4.54
	9	M.P.	191017	3.83
	10	Assam	189154	3.8
Group III states	11+12+13)		289227	5.8
	11	Orissa	134563	2.7
	12	Jharkhand	82468	1.65
	13	Haryana	72196	1.45
Group IV states	(14+15+16+17+18 + 19+20+20)		135837	2.73
	14	Punjab	48836	0.98
	15	J&K	29285	0.59
	16	Delhi	18576	0.37
	17	Tamil Nadu	17351	0.35
	18	Chhattisgarh	11626	0.23
	19	H.P.	7398	0.15
	20	Kerala	2765	0.06
Total		All India	49, 83,871	100

Source: NSSO (66th round of Survey) on Child Labour in Major Indian States, 2009-10.

The above depicts a regional analysis of child labour across the states of our country. On the basis of magnitude, we have identified four different groups of states in our country.



Percentage Share of Child NSSO across major states (66th round of Survey) 2009-2010

Fig. 2: Child labour across states in India (Age group 5-14): All India

Group-I states (Uttarakhand, Utterpradesh, West Bengal, Rajasthan and Gujarat) are those states where magnitude is significant and constitute 63.22 percent the total child labour in our country. Group-II states such as Bihar, Maharashtra, A.P, Karnataka, M.P. and Assam are having moderately higher levels of percentage share of Child Labour. In group-IV states Child Labour is not a major problem, at least during the period under consideration. In Group–III states (Orissa, Jharkhand and Haryana) the rate share of Child Labour is relatively lower. There is considerable increase in the absolute number of child labour between 1991 and 2001 in the states of Bihar and West Bengal whereas the States of Odisha, Tamilnadu, Andhra Pradesh, Gujarat and Maharashtra have shown significant decline in the number of child labour. However all the states have shown a decline trend between 2001 and 2011.

Table 3: State-wise Distribution of Working Children according to 1971, 1981, 1991 and 2001 Census in the age group 5-14 years

SL. No.	Name of the State	1971	1981	1991	2001	2011
1	Andhra Pradesh	1627492	1951312	1661940	1363339	404851
2	Gujarat	518061	616913	523585	485530	250318
3	Maharashtra	988357	1557756	1068427	764075	496916
4	Orissa	492477	702293	452394	377594	92087
5	Tamil Nadu	713305	975055	578889	418801	151437
6	West Bengal	511443	605263	711691	857087	234275
7	Bihar	1059359	1101764	942245	1117500	451590
	All India level	10753985	13640870	11285349	12666377	4353247

Source: census 1971, 1981, 1991, 2001 and 2011.

Data on the number of child labour of major states are summarized in the above table. Though data from 1971 and 2011 revealed a significant declining trend in child labour across the states, absolute number of child labour is still very high in many states.

Demography of child labour in our country

According to National Family Health Surveys (NFHS) 2005-06, "About 12.1% children from households headed by Hindus are engaged in work, while the corresponding figure for Muslim and Christian are 10.8% and 7.4% respectively. 16.6% children from households headed by a member of a scheduled tribe are engaged in work while the corresponding figures for Scheduled Caste and Other Backward Class 11.6% and 12.2% respectively".

Gender Composition and Work Participation of children

Child labour, according to official data, is prevalent overwhelmingly among the male child labourers in our country. The extent of concentration of child labour among males

has witnessed a steady decline.

Table 4: Work Participation of children Age (5-14 in years) by Gender

Year	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2004-05	56	50	53	46	25	36	54	44	49
2009-10	29	22	25	24	8	16	27	19	23

Source: Authors' analysis of NSSO July 2009- June 2010, Employment and unemployment situation in India.

Worker Population Ratio (WPR) of children an important indicator which reveals the number of children employed per 1000 child population in the age group of 5-14 years. The above data reveals that there is a significant decline in the number of child workers per 1000 by principal usual activity category during 2004-2010. We can conclude that during this period, the number of child employment declined sharply in our country.

Child Labour in Hazardous Occupations, 2001

According to ILO definition, labour that jeopardizes the physical, mental or moral well-being of a child, either because of its nature or because of the conditions in which it is carried out, known as hazardous Occupations. Working children in Hazardous Occupations is a subcategory of child labour also known as worst form of child labour. Indian law specifically defines 64 industries like Brick-klins, Tiles, *Pan*, *Bidi* and Cigarettes as hazardous and it is a criminal offence to employ children in such hazardous industries. According to Census 2001, an estimated 1% of all child workers, or about 1219470 children in India were in a hazardous job. Children carry out many kinds activities. Some are hazardous and difficult. The major occupations employing child labour are *Pan*, *Bidi* and Cigarettes (20.72%), Construction (17.12%), Domestic workers (15.21%) and Spinning and weaving (10.57%).

Table 5: Child Labour in Hazardous Occupations, 2001

Sl. No.	Hazardous Occupations	No. Of children Employed, 2001	Percentage of Children employed in 2001
1	Domestic Workers	185505	15.21
2	Dhabas/ Restaurants/ Hotels/ Motels	70934	5.81
3	Pan, Bidi And Cigarettes	252574	20.72
4	Construction	208833	17.12
5	Spinning/ Weaving	128984	10.57
6	Brick-klins, Tiles	84972	6.97
7	Auto-workshop, Vehicle Repairs	49893	4.10
8	Gem-cutting, Jewellery	37489	3.08
9	Others	200286	16.42
	India Total	1219470	100.0

Source: census 2001.

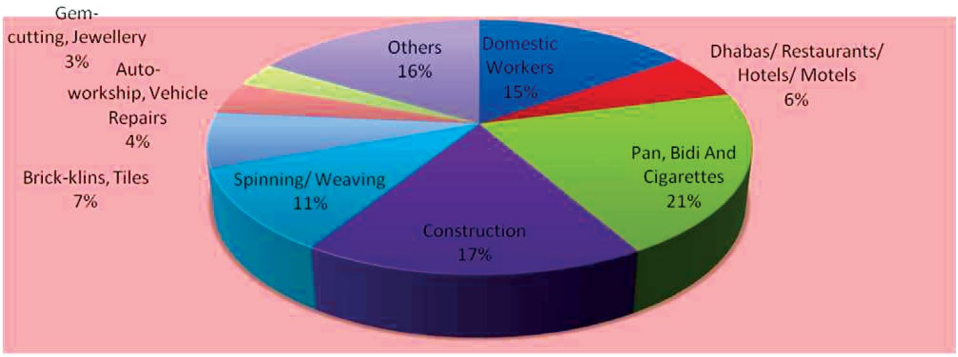


Fig. 3: Child Labour in Hazardous Occupations, 2001

Source: Census 2001.

Child Labour across the world

The child labour problem is not unique to our country. It is wide spread across the countries. ILO in 2002 estimated that One in every six children aged 5 to 17 worldwide is exploited by child labour in its different forms. According to the World Bank report, the incidence of child labour in the world decreased from 25% to 10% between 1960 and 2003. According to the global estimates for the year 2000, 186 million children aged 5-14 are engaged in child labour.

Table 6: Child Labour in various countries

Countries	Child labour (%) (2005–2013)		
	Male	Female	total
India	11.6	11.9	11.8
Bangladesh	17.5	8.1	12.8
Indonesia	7.9	5.8	6.9
Brazil	10.6	6.0	8.3
Afghanistan	11.0	9.6	10.3

Source: State of the World's Children, unicef.org in 2015

As per the Global Report on Child Labour published by UNICEF on "State of The World's children 2015 Country Statistical Information "activity rate of Child labour (%) in 2005–2013 is 11.8 percent in our country while in brazil it is 8.3 percent. The data reveals that, In general, boys are much more likely to be economically active than girls but interestingly in our country economic activity rates of girls exceed slightly those of boys. Between 2000 and 2008 the number of child labourers worldwide fell by some 30 million. Notwithstanding this progress, at the end of that period there were still over 215 million child labourers, and over half of them were doing hazardous work. The

phenomenon of child labour exists in almost all countries. Existence of child labour has been uneven across countries. (ILO, 2010). India is one among the many countries where child labour problem is severe.

Worldwide Sectoral distribution of working children

Children engaged in child labour work in almost all the three broad groupings of economic activity say agriculture, industry and services. In our day to day life we found child labour in betel shops, hotel and family based industries, factories, workshops, bus stops and street corners. Worldwide engagement of child labour in various sectors of the economy is as follows.

Table 7: Worldwide Sectoral distribution of working children

Sectoral distribution of child labour	Percentage share in 2008	Percentage share in 2012
Agriculture	60.0	58.6
industry	7.0	7.2
Services	25.6	32.3
Others (undefined)	7.4	1.9

Source: Marking progress against child labour - Global estimates and trends 2000-2012 / International Labour Office, International Programme on the Elimination of Child Labour (IPEC) - Geneva: ILO, 2013.

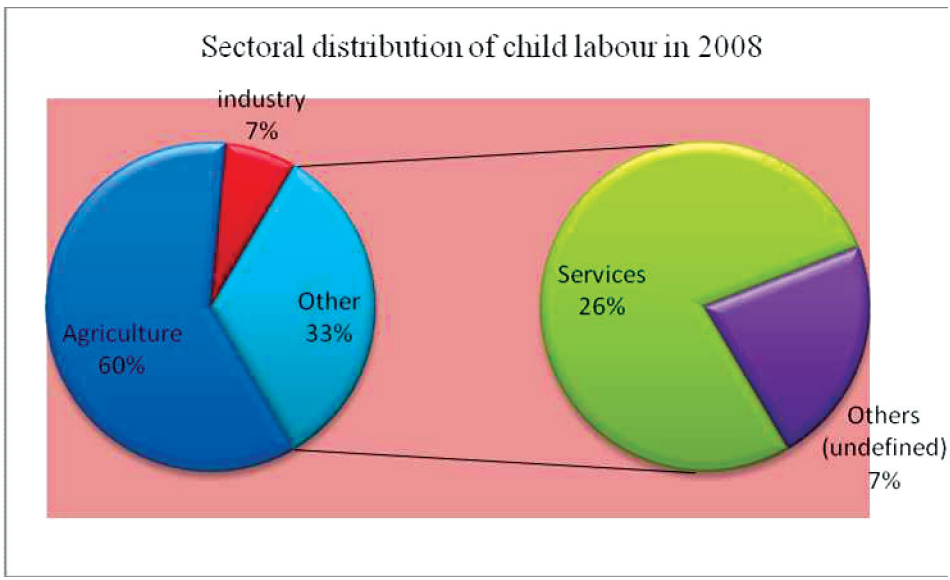


Fig. 4: Sectoral distribution of working children

Source: Marking progress against child labour - Global estimates and trends 2000-2012 / International Labour Office, International Programme on the Elimination of Child Labour (IPEC) - Geneva: ILO, 2013.

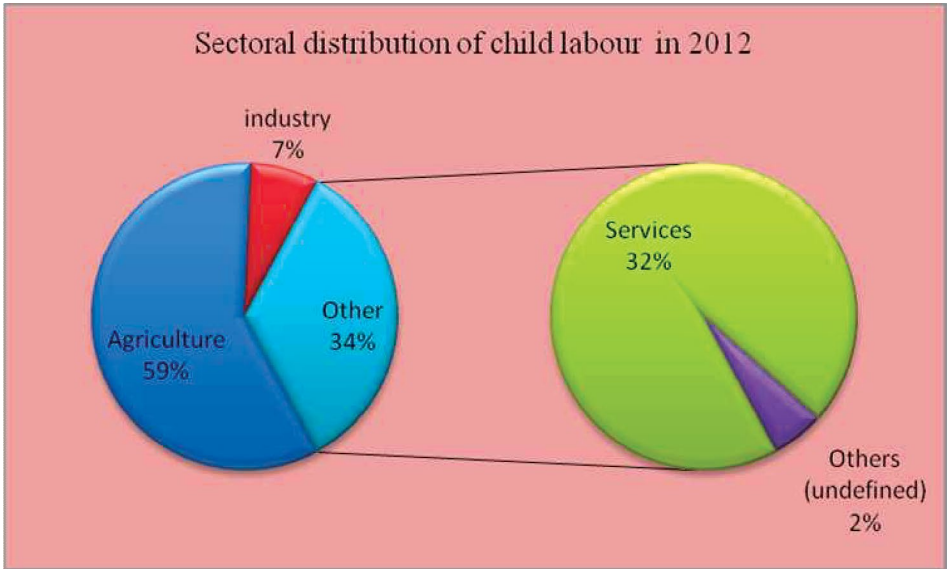


Fig. 5: Sectoral distribution of working children

Source: Marking progress against child labour - Global estimates and trends 2000-2012 / International Labour Office, International Programme on the Elimination of Child Labour (IPEC) - Geneva: ILO, 2013.

Agriculture is the most important sector and is the largest employer of child labour in the world, accounting for 59 per cent of those entire in child labour. The share of total child labourers in agriculture reduced from 60 per cent in 2008 to 59 percent in 2012. Child labour is also observed in almost all informal sectors. The numbers of child labourers in services and industry are by no means negligible, accounting for 41 percent of all those child labour in 2012. Among child labourers ages 5 to 17 in the world, 58.6 per cent are involved in the agricultural sector, 7.2 per cent are employed in industry and 32.3 per cent in services in the year 2012. There is a net increase of child labour in services sector over the last four years, from 25.6 to 32.3 per cent.

Global estimation of child labour and hazardous work

Children working in hazardous work forming the worst forms of child labour. These forms of child labour are intrinsically harmful.

Table 8: Estimated number of children involved in the worst forms of child labour (Age group 5-17 years)

Type of worst form of child labour	Global number of children (in millions)	
Child labourers	245.5	Children in worst form 178.9 million
Children in worst forms of child labour	178.9	
Children in hazardous work	170.5	

Forced and bonded labour	5.7	Children in unconditional worst forms 8.4million
Forced recruitment into armed conflict	0.3	
Prostitution and pornography	1.8	
Other illicit activities	0.6	
Trafficked children	1.2	
Total	8.4	
Children in hazardous work	170.5	

Source: ILO estimates for 2000 based on various secondary sources.

According to International standards definition on child labour statistics, "In general, hazardous work conditions include night work and long hours of work, exposure to physical, psychological or sexual abuse; work underground, under water, at dangerous heights or in confined spaces; work with dangerous machinery, equipment and tools, or which involves the manual handling or transport of heavy loads and work in an unhealthy environment which may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels, or vibrations damaging their health (paragraph 20 of the international standard)". Other worst forms of child labour includes All forms of slavery or similar practices, trafficking, debt bondage, serfdom, forced or compulsory labour, forced or compulsory recruitment in armed conflict, Child prostitution pornography, Illicit activities and trafficking of drugs, etc. The worst form of child labour involve children being forcibly recruited, prostituted, enslaved, trafficked, forced into illegal activities or exposed to hazards. According ILO estimates for 2000, around 170 million children are in worst form. However, the above table shows 8.4 million child labour are in unconditional worst forms.

Table 9: Global estimation of child labour and hazardous work, aged 5-17 years age, 2000-2012

Year	% Male child labour	% Female child labour	Total % of child labour	% Male child labour hazardous work	% Female child labour hazardous work	Total % of child labour in hazardous work
2000	16.8	15.2	16.0	12.2	10.0	11.1
2004	14.9	13.5	14.2	9.3	7.1	8.2
2008	15.6	11.4	13.6	9.0	5.4	7.3
2012	12.2	8.9	10.6	6.7	4.0	5.4

Source: Children in hazardous work: A review of knowledge and policy challenges (Geneva, ILO IPEC, 2011), p. 8.

The above table shows the Child labour declined sharply during the period 2000 to 2012. Decline in child labour was greatest 22 per cent decrease during the most recent four-year period. Child labour involvement is much higher among boys than girls for the 5-17 years age Group. Boys outnumber girls in hazardous occupations. ILO estimates indicate that 168 million children worldwide are in child labour, accounting

for almost 11 per cent of the child population as a whole. The total number of children in hazardous work, which comprises by far the largest share of those in the worst forms of child labour, declined by over half. Also progress was especially pronounced among younger children, with child labour for this group falling by over one third between 2000 and 2012. The percentage of children in hazardous work accounts for almost half of all child labourers (5.4% out of 10.6 percent of total child labour). The worldwide incidence of child labour in hazardous work also dropped from a rate of 11.0 percent in 2000 to 5.4 percent in 2012.

Child labour by level of national income across the countries

The incidence of child labour is not surprisingly confined to developing or poor countries. It is found in all countries, to a greater or lesser extent. The above table depicts the global estimate of child labour for different levels of national income. According to their gross national income (GNI) per capita, the countries are grouped into three categories low income, lower middle income and upper middle income. The incidence of child labour in low income countries is 22.5 per cent, against 9 per cent in countries with lower middle income and 6.2 per cent in countries with upper middle income. Thus we can conclude that incidence of child labour decreases with increase in level of national income and the situation of low income countries or third world countries is quite critical.

Table 10: Child labour by level of national income across the countries

National income category	Percentage of Child labour
Low income	22.5
Lower middle income	9.0
Upper middle income	6.2

Source: Marking progress against child labour - Global estimates and trends 2000-2012 / International Labour Office, International Programme on the Elimination of Child Labour (IPEC) - Geneva: ILO, 2013.

Characteristics of child labour

According to ILO estimates, one child in every six aged 5-17 can be called as a child labourer:

◊ Six out of ten child labourers work in agriculture.

◊ While child and adult workers in the same situation face similar hazards, children are at greater risk from these dangers as their minds, bodies and emotions are still developing and they are less able to protect themselves.

◊ India is home to the highest number of child labourers in the world.

◊ One in every three malnourished children in the world lives in India.

Factors underlying child labour

Child labour is an undesirable economic or social outcome of poverty and unemployment. UNICEF suggests that poverty is an important determinant of child labour. It is the poverty of the resource poor people that compels them to send their children to work for their survival. Social exclusion, discrimination, Migration of families, lack of adequate social protection, lack of social security, lack of qualitative education, lack of employment and living wages for adults are lead to child labor. People belonging to lower sections of the society predominantly send their children to work in early ages of their life.

Social and economic impacts of child labour

Child labour has both short term and long term adverse effects for any economy. It is not only ethical and social in nature but also an economic problem. The most striking aspect of the Child labour is that it adversely affects the human resource development generally they are preferred by the employers as then do not claim for higher payoffs and paid lower than adults. Child labour in the labour market reduces the room for employment of adults also. They deprive of skills which would enable them to earn higher payoffs in future and are likely to be trapped in to the vicious circle of low living standard. A study revealed that there is a tradeoff between child labour and future human capital formation. Long working hours damages their psychological state of mind. They often suffer from many fatal diseases in the early years of life. However, Children in hazardous working conditions (worst form of child labour) are even in worse condition. The national Crime records Bureau (NCRB) 2012 report revealed that there is an increasing trend of both 'Crime against children' and 'Crime committed by children'. The percentage of juvenile crimes to total crimes is around 1%. It was argued by many economists that if all child labourers were to be set free, then the economy would be affected negatively in countries that are sustained on child labour.

Eradication of child labour

The immense benefits of abolition of child labour cannot be measured in economic terms alone; it has enormous long term beneficial impact on the Society as a whole. The complete Abolition of child labour and proper regulation thereof in accordance with the statutory provisions should be our prime objective.

Constitutional Provisions and India's Legal Obligations

Government of India resolve to combat child labour is evident from following major national legislative developments aimed at preventing child labour. The child labour Act is applicable up to 14 years of age in our country. The government of India, in 1979, formed first committee called Gurupadswamy Committee to study the issue of child labour and means to eliminate it. On the recommendations of this committee The Child Labour Prohibition and Regulation Act was not enacted in 1986. A National

Policy on Child Labour was formulated in 1987 to focus on rehabilitating children working in hazardous occupations. The Factories Act, 1948 prohibits employment of a child below 14 years in any factory. Art. 21-A recognizes that the Right to Education as fundamental right and it mandates that, the state shall provide free and compulsory education to all children of age of six to fourteen years in such manner as the state may, by law, determine. Our Constitution contains provisions protection of children. In Article 23(fundamental rights, part III of our constitution), prohibits traffic in human being and beggar and other similar forms of forced labour and Under Article 24 it has laid down that "no child under the age of 14 years shall be employed to work in any factory or mine or engaged in any other hazardous employment". Article 45 (DPSP) provides, for free and compulsory education for all children until they complete the age of 14 years. The Right of Children to Free and Compulsory Education Act, 2009 The Right of Children to Free and Compulsory Education Act, 2009 intended to provide free and compulsory education all the children of the age 6-14 years. The Juvenile Justice of Children Act, 2000 made to withdraw and rehabilitate working children, beginning with those working in hazardous occupations. Apart from the aforesaid constitutional provisions, Many Non-governmental organizations (NGOs) like Bachpan Bachao Andolan, CARE India, Child Rights and You, have worked tirelessly for child rights and eradicate child labour in our country.

Initiatives against child labour in our country

Government of India has taken various measures to address the issue. The National Child Labour Project Scheme (NCLP) Scheme was started in 1988 to rehabilitate Child Labour in pursuance of National Child Labour Policy. Government is undertaking various proactive measures like Ministries of Human Resource Development, Women & Child Development, Urban Housing & Rural Poverty Alleviation, Rural Development, Railway, Panchayati Raj institutions etc. so that Child Labour and their families get covered under the benefits of the schemes of these Ministries'. Others measures such as Midday Meal scheme- benefited children from an estimated 22.8% of rural households in 2004-05, Integrated Child Development Scheme (ICDS) benefited 5.7% of rural households, the Food-for-Work Scheme, only 2.7%, and the Annapoorna scheme for the elderly, 0.9% ICDS scheme benefited 1.8% households, 0.2% urban households were benefited from Annapoorna Yojana, and 0.1% from Food for Work."(SAARC Development Goals.2013)

The benefits of education in child hood

In our present well advanced global community, a sea change in awareness education worldwide. Education of women is the most powerful engine and irrefutably the heart of human resource development. It is an ingredient in reducing poverty and inequality, improving health, enabling the use of new technologies, uplifting skill and productivity. Deprivation from education means they deprived education in physically, intellectually, emotionally and psychologically. Working children have also fewer options for future. In our country, as in most children from rich families enroll and stay in school. But

many poor children never enroll, and those who do stay only a few years. Due to long hours of labour poor children cannot attend schools. Laws regarding universalisation of primary education and compulsory enrollment in schools are not fully implemented. Some children continue both schooling and employment. School is an important institution to withdraw child labour from the labour market. School and child labour are not mutually exclusive, but it will be feasible only when their economic condition is improved. Not attending school is not only a cause but also an effect of child labour.

Policy Recommendation

In addressing the problem of child labour, both constitutional and developmental measures are required to eliminate child labour. To control the malady of child labour, at first, massive problem of unemployment and poverty should be declined. To accomplish the aforesaid task, Initial Five Year Plans of our country focused on the so-called trickledown theory that a high rate of growth and poverty alleviation programs would eradicate poverty. Another measure is strict implementation of child labour laws. Overtime, even though economy registering higher economic growth, trickledown effects were remain too slow and uneven. The problem of child labour should also be solved both in legal and humanitarian ground. Education is powerful engine and should be made Compulsory policy to curb the problem. Availability and quality of schooling should be given priority to curb this serious issue. Education, in this regard, is an important instrument to eliminate child labour. The study also recommended that the government should facilitate income-generating activities for enhancing poor people's income and reduce inequality.

Conclusion

The trend of child labour as reported by NSSO and CENSUS showed a declining trend. Despite various initiatives both on the legal as well as policy and program levels, condition of children still remains a cause of great concern. Eradication of Child Labour is a big challenge for us but rehabilitation of child labourers is another critical task to accomplish. To address this issue mere prohibition of child labour and the imposition of school attendance are not enough. To eradicate it another measure that provision of qualitative education and affordability of schools for poorer sections of the society should be taken in to consideration. The picture is clear that the problem of Child Labour cannot be eradicated by government alone; it requires active participation of people in general. There is a need to create large scale awareness on this issue. Effective rehabilitation measures should be undertaken to prevent further entry of children into the work force.

References

Article 21A inserted by the Constitution (Eighty Sixth Amendment) Act, 2002, Sec., 2.

Census of India (2011): Primary Census Abstract – Total Population: Series; India, Registrar General & Census Commissioner, India, New Delhi.

Census of India (2001): Primary Census Abstract – Total Population: Series; India, Registrar General & Census Commissioner, India, New Delhi.

Geetha B. Nambissan and Mona Sedwal, "Education for All: The Situation of Dalit Children in India," India Education Report: A Profile of Basic Education, pp. 72-86.

Government of India (GOI): Various issues of The National Crime Records Bureau (NCRB), Annual publication, 'Accidental Deaths and Suicides in India' (ADSI), Ministry of Home Affairs.

ILO (1996), Child Labour: Targeting the intolerable, ILO, Geneva.

ILO, "Investing in Every Child": An Economic Study of the Costs and Benefits of Eliminating Child Labour, International Labour Office, Geneva. December 2003.

ILO, Global estimates.

Central and State Statistical Organizations (COCSSO). 21st Conference Panjim, Goa 23-24 January, 2014.

Venkat Narayana, K. "Combating Child Labour In India: An Empirical Study In Andhra Pradesh". Department of Economics, Kakatiya University, Warangal – 506 009.

http://www.haqcrc.org/publications/status-children-india-inchttp://www.haqcrc.org/publications/children-globalising-india-challenging-our-conscience

http://www.brainyquote.com/quotes/quotes/k/kailashsat686594.html

http://www.unicef.org/infobycountry/india_statistics.html.

https://en.wikipedia.org/wiki/Child_labour

http://labdirodisha.gov.in/?q=node/27%27%3B

Magnitude of Child Labour in India, Table 12, Section 8.12, Government of India.

(http://ncpcr.gov.in/Reports/Magnitude_of_Child_Labour_in_India_An_Analysis_of_Official_Sources_of_Data_Draft.pdf)

NSSO 61th round (2004-2005): Rural Labour Enquiry Report on Wages & Earnings of Rural Labour Households.

NSSO 665th round (2009-2010): Employment and Unemployment Situation in India.

Raju, Dhushyanth and Fares, jean. (2007). "Child labor across the developing world: Patterns and correlations". Child labor across the developing world: World Development Report, World Bank Policy Research Working Paper 4119, February 2007.

SAARC Development Goals, India Country Report 2013, Statistical Appraisal.

UNICEF, (1990). "First Call for Children: World Declaration and Plan of Action from the World Summit for Children." New York: UNICEF. pp - 5-6.

Swain, Subhadarsani (2014). "An Economic Perspective of Child Labour in Odisha: A Case Study of Rourkela, National Institute of Technology, Rourkela – 769008, Odisha, India.

The Child Labour (Prohibition & Regulation Act (1986).

The Factories Act, 1948, Sec. 1(2)

The Mines Act, 1952, Sec 45(i)

National Commission on Rural Labour (NCRL), 1991, Director General, Labour Welfare, Ministry of Labour, Government of India.

15

Health Status of Rural Women: An Important Determinant of their Empowerment

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Abstract

The health of Indian women is intrinsically linked to their empowerment status. Diet and nutrition are two important factors in the promotion and maintenance of good health of our rural women. But the dietary intake and nutritional status of our rural women is found to be poor as indicated by various studies conducted on them. Hence a revised National Health Policy addressing the existing inequalities, and working towards promoting a long term perspective plan, mainly the health of rural women, is imperative. The need of the hour is to reform in the public health sector through the healing touch of innovation, efficiency, accountability and political will.

Keywords: *Rural women, health status, empowerment, nutritional status*

"You can tell the condition of a nation by looking of the status of its women".

– J.L. Nehru

India is a country where 70% of the population resides in rural area and males significantly outnumber females, an imbalance that has increased over time. The difference between man and woman is conceptualized in terms of 'gender' that broadly refers to the cultural construction of the sexual difference between male and female in human society. Sex is a biological category and gender is a cultural category. Sex differences are grouped as male and female based on the human reproductive function. Research into women's status in society has found that the contributions Indian women make to families are often overlooked. Instead they are often regarded as economic burdens and this view is very common in rural areas. There is a strong preference for sons in India because they are expected to care for ageing parents. This son preference and high dowry costs for daughter results in the mistreatment of daughters.

Although the subordinate position of women has been the impetus to develop the concept of empowerment, the process itself operates within the structure of male dominance. Empowerment is a word widely used, but seldom defined. The terminology

of empowerment has arisen from the theoretical debates as well as practical debates especially from the experience of women working at grass root level in many parts of the world (Roland, 1997). The dictionary meaning of the term empowerment is to give power, to give them capacity to perform some physical or mental activity, to delegate authority, to give to legal rights, to entitle, to endow (invest with powers). The concept of empowerment is related to the concept of freedom. Empowerment is equipping one to improve his / her living conditions (Devdas *et. al.* 1988).

The health of Indian women is intrinsically linked to their empowerment status, especially for those living in rural areas. They typically have little autonomy, living first under the control of their fathers, then their husbands, and finally their sons. These factors have a negative impact on the health status of Indian women. As per NFHS – 3 data, India accounts for 19% of all live births and 27% of all maternal deaths. In rural areas, where women are less educated and economically deprived, their health condition is worse. The NFHS – III data also indicated that about 75% of health infrastructure, medical man power and other health resources are concentrated in urban areas where 28% of the population live and only 25% of medical fecilities are concentrated in rural areas where rest 72% people live.

Sex ratio in rural India clearly indicates (Table – 1) the status of Indian rural women.

Table 1 : Sex Ratio in Rural India

Age group	Sex ratio
0 – 4 years age group	975 per 1000 males
5 – 9 years age group	940 per 1000 males
10 – 14 years age group	816 per 1000 males

The main reason behind this disorder due to the following reasons :

◊ Social discrimination

◊ Neglect of female in the matter of health

◊ 12 mn female children born every year

◊ About 1.5 million of them die before celebrating their first birth day

◊ One million before their 5th year

◊ Nine million will be alive at the age of 15.

Maternal mortality is the another important indicator to understand the health status of Indian women. Maternal mortality is the maternal death. Maternal death is the death of the women while pregnant of within 42 days of termination of pregnancy, irrespective of the duration and site pregnancy, from any cause related or aggravated by the pregnancy or its management but not from accidental or incidental cause. In this context it is to be noted that more maternal deaths occur in our country in one week than in all of Europe in one year.

Table 2 : Maternal Mortality Ratio (MMR) of Indian Women

Category of women	MMR
MMR among ST	652
MMR among SC	584
MMR among other caste	516
MMR among illiterate women	574
MMR among women who completed middle school	484
MMR in less developed village	501
MMR in well developed village	488

Source : UNICEF, India

Diet and nutrition are two important factors in the promotion and maintenance of good health throughout the life cycle. Income, prices, individual preferences and beliefs, cultural traditions, as well as geographical, environmental, social and economic factors all interact in a complex manner to shape dietary consumption patterns and affect the morbidity and clinical status of women. The dietary intake and nutritional status of our rural women is found to be poor as a result of various studies conducted on them.

The Recommended Dietary Allowances (RDAs) for adult females are given in the Table – 3.

Table 3 : Recommended Dietary Allowances

Nutrients	RDA
Energy (kcal)	1900
Protein (g)	55
Fat (g)	20
Carbohydrate	55 – 60% total energy
Calcium (mg)	600
Iron (mg)	21
Vitamin A (retinol - mcg)	600
Thiamine (mg)	1.0
Beta – Carotene (mcg)	4800
Riboflavin (mg)	1.1
Niacin (mg)	12
Vitamin B_6 (mg)	2
Vitamin C (mg)	40
Foliate (mcg)	200
Vitamin B_{12} (mcg)	1

Source: ICMR (2010).

Table 4 : Balanced diets (g) at low cost for children and adolescents, pregnant, lactating women

Food stuffs	School Children						Adolescents Girls	
	7 – 9 Yrs		10 – 12 yrs		13 – 15 yrs		13 – 18 yrs	
	V	NV	V	NV	V	NV	V	NV
Cereals	250	250	320	320	400	400	350	350
Pulses	70	60	70	60	70	60	70	50
Green leafy vegetables	75	75	100	100	100	100	150	150
Other vegetables	50	50	75	75	150	150	150	150
Fruits	50	50	50	50	50	50	30	30
Milk	250	250	250	250	250	250	250	150
Fats & Oils	30	30	35	35	40	40	35	40
Meat, fish, eggs	–	30	–	30	–	30	–	30
Sugar, jaggery	50	50	50	50	50	50	30	30

V = Veg, NV = non-veg

Calories needed for 7 – 9 yrs children – 1800 kcal
10 – 12 yrs children – 2100 kcal
13 – 18 yrs children – 2200 kcal

Source : Swaminathan (1988).

Table 5 : Balanced diets for normal, pregnant, lactating women

Food stuffs							Additional allowances	
	Sedentary work		Moderate work		Heavy work		Pregnancy Lactation	
	V	NV	V	NV	V	NV	V	NV
Cereals	300	300	350	350	475	475	50	100
Pulses	60	45	70	55	70	55	–	10
Green leafy vegetables	125	125	125	125	125	125	25	25
Other vegetables	75	75	75	75	100	100	–	–
Roots & tubers	50	50	75	75	100	100	–	–
Fruits	30	30	30	30	30	30	30	30
Milk	200	100	200	100	200	100	150	150
Fats	300	35	35	40	40	40	–	–
Meat / fish	–	50	–	50	–	50	50	50
Eggs	–	30	–	30	–	30	–	–
Ground nuts	–	–	–	–	40	40	–	–

V = Veg, NV = non-veg

Calories needed for Sedentary work women – 1900 kcal
Moderate work – – 2200 kcal
Heavy work – – 3000 kcal
Pregnancy = + 300 kcal, Lactation = + 700 kcal

Source : Swaminathan (1988)

Various studies have been undertaken to find out the dietary intake and nutritional status of rural women in India as well as the neighbouring countries. Some of the studies carried out among women are listed in Table – 6:

Table 6 : Studies showing dietary intake and nutritional status of Indian rural women

Sl. No.	Author & Year	Major Findings
1	Verma *et. al.* (2003)	Calorie, Fe, Ca, Vitamin C, Vitamin A intake <RDA; protein intake> RDA
2	NNMB & INP (1975 – 2005)	Decrease in energy, protein and Fe intake and increase in fat intake over three decades
3	Singh (2006)	18% and 43% of female consume milk daily and once a week, respectively
4	Mittal & Srivastava (2006)	Severe deficit of pulse, green leafy vegetables, roots and tubers; micronutrient deficiency prevalent were Fe, Vitamin A & free folate
5	Khetrapal (2007)	Low intake of vegetables, fruits & milk products; adequate intake of oil, sugar & jiggery
6	Mallikarjuna *et. al.* (2010)	Low intake of all food groups except other vegetables, roots and tubers; micronutrient deficiency prevalent were Fe, Vitamin A & free folate

Today rural women are the worst suffers in the society due to drudgery, ill health, illiteracy, deprivation and humiliation. Backwardness of women is a sign of poverty. No wonder, India hosts over one third of the poor in the world, as a lack of empowerment of women is a significant cause of poverty.

The extent of burden and sufferings of the rural women in India vary widely with the social and economic status, local customs, size of family and many other factors. Based on the needs, the drudgery reduction measures introduced for women include :

◊ Creation of safe drinking water sources closer to their houses.

◊ Maternal and child health and family welfare.

◊ Strengthening of traditional health care practices.

◊ Training of midwives and upgrading the skills of local healers.

◊ Awareness on health, hygiene and sanitation.

◊ Training of local youth as health guide for first-aid.

◊ Establishment of community gain banks and promotion of nutrition garden.

◊ Establishment of Anganwadis and awareness of girl's education.

'Upadhyaayan dasacarya acarryanam satam pitu; Sahasram tu pitrnmatu gauravera-tiricyate'

("A guru who teaches veda is 10 times superior to an ordinary teacher and the father is 100 times more than a teacher, but the Mother is 1000 times more superior than the father")

~ **Manu Samhita** (Chapter II, Para 145)

References

Swaminathan, M. 1988. *Hand book of Food and Nutrition*. BAPPCO, Bangalore, pp. 179 – 180.

Roland, J.O. 1997. *Questioning Empowerment*, Oxfam; Oxford.

Devadas, R.P., Lakshmi Santha, Rajagopal and Ramathilagan, A. 1988. *Home Science, Education and Women's Empowerment*. Paper presented for association of Women in Development Conference, Global Empowerment of Women, Washington.

Verma, *et. al.* 2003. *Food Intake among Rural Females of Shimla*, Himachal Pradesh.

Singh, 2006. Nutrient Intake among Rural Women in Haryana, fklip.iimb.ernet.in/Among_women/kaur_Burdeu_of_amarica_rural.

Mittal & Srivastava 2006. *Nutritional Status and Food related Traditions of Oraon tribes of New Mall, Jalpaiguri*. www.nebi.nlm.nih.gov/pubmed/16602836.

Mallikharjuna, Balkrishna, *et. al.* 2010. Diet and Nutritional Status of Women in India. *J. Hum. Ecol*, **29**(3): ICS – 170.

NNMB, 2005. Dietary Intakes and Nutritional Status Procedings – 4.2.2005.

Khetarpal, 2007. Healt and Well-being of Rural Women. *International journal of Nutrition and wellness,* ISSN 1937-8277.

16

Disabled Women in Rural India: Issues and Challenges

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Abstract

Disability has existed since human memory can recall. Disability as a condition carries medical implications and also impacts the individual in the social sphere of life. What makes the situation even more delicate is the prevalent isolation and marginalisation that disabled people face in society, as well as the multiple barriers that disabled individuals face in realising their potential or even the struggle to have normal and regular life experiences that are taken for granted by others. This affects their self-image and identity formation.

Having a disability often gives people a minority status fundamentally affecting their life chances and their ability to live the kind of life they might otherwise be expected to live. To be disabled, therefore, is also to be disadvantaged. It translates into being unable to participate meaningfully in social, political and economic activities which most people take for granted. It means confronting the negative attitudes of others on a daily basis and sometimes internalising these negative reactions until they become a part of the psyche.

In the Indian context, women with disabilities face a double discrimination in all their spheres of daily living because of gender and disability. This leads them to have far more negative experiences in their interactions with society that affect their level of participation in the society in a holistic manner. Such stigmatization is even more pronounced in the case of disabled women in rural India because of the multiple levels of discrimination that occurs against them. They are stigmatized for their gender and their disability because it is observed that rural India still does not have a favourable attitude towards girl children and women, viewing them as 'burdens' to be married off with a substantial dowry, and the impact of disability on the perceived value of a girl for marriage. Rampant poverty in rural India aggravates the oppression and marginalisation of women with disabilities, often to the extent that their families also get shunned in the rural society due to prevailing negative attitudes.

This paper is an attempt to understand some of the issues and challenges that are faced by disabled women in rural areas in India. It will also involve a discussion on some aspects of women's empowerment that are crucial to combating the negative attitudes surrounding women with disabilities in the Indian rural context.

Keywords: *Disability, human memory, empowerment, burdens, Rampant poverty*

It is acknowledged that people with disabilities form the largest and most marginalised among all minority groups. As a human condition, disability carries medical implications and also impacts the way individuals function in the social sphere of life. What makes the

situation even more delicate is the prevalent isolation and marginalisation that disabled people face in society, as well as the multiple barriers that disabled individuals face in realising their potential or even the struggle to have normal and regular life experiences that are taken for granted by others. This affects their self-image and identity formation.

Having a disability often gives people a minority status fundamentally affecting their life chances and their ability to live the kind of life they might otherwise be expected to live. To be disabled, therefore, is also to be disadvantaged. It translates into being unable to participate meaningfully in social, political and economic activities which most people take for granted. It means confronting the negative attitudes of others on a daily basis and sometimes internalising these negative reactions until they become a part of the psyche.

To understand the concept of disability we can evaluate it from the two popular approaches widely cited to conceptualise disability. The first is the medical model of disability that tends to view disabled people first and foremost as having physical problems that need to be cured and 'normalised'. The medical model perceives disability as a problem located in the disabled individual and assumes that working on the individual can solve the problem. In the medical model, disabled people are regarded as individuals with physical limitations who cannot live a reasonable quality of life due to the restrictions imposed by their impairment. The disabled person becomes defined solely in terms of his or her diagnosis, as a patient with medical needs and no longer as a person with a whole range of needs. In this model, the onus of adjustment and adapting to the existing environment and the society is on the disabled people themselves.

The social model on the other hand shows disability as a consequence of the barriers set up by the society against disabled people in the form of environmental, institutional and attitudinal barriers that establish, propagate and reinforce the differences between the disabled and non-disabled. The problem of disability lies in the society's response to the individual and the impairment, and is mainly located within the physical environment which is mainly designed largely by non-disabled people to meet the needs of non-disabled people. Hence the problem of disability takes on a social dimension and leads to social exclusion and the denial of human rights. The problem is not in the individual, nor in his or her impairment. The impairment exists, but its significance is neutral – neither necessarily negative nor necessarily positive. It results in negative or positive experiences based on the social context in which it is placed.

Women and Disability

Worldwide research on the issue of disability has spawned a great deal of material covering both specific impairments and disability in general, but there has been a marked lack of serious deliberations on the ways in which gender might structure and colour the experience of disability and hence disabled identities. Like many social change movements, the disability movement has often directed its energies towards primarily male experiences (Deegan and Brooks, 1985). Part of the reason for this is

that the experience of disability is geared towards the 'ideology of masculinity' (Brittan and Maynard, 1984), which acts as a limiting factor to the range of responses open to both disabled men and women. Whereas disabled men have to fight the social stigma of disability, they can aspire to fill socially powerful male roles. Disabled women do not have this option. Disabled women are perceived inadequate for economically productive roles (traditionally considered appropriate for males) as well as the roles of child bearing and child rearing – reproductive roles considered appropriate for females (Fine and Asch, 1985).

Hence disabled women, like other non-disabled women, find it difficult to enter male roles because of the social barriers imposed by their gender but at the same time are often unfortunately denied access to traditional female roles as well because they are often seen as asexual and unsuitable for or physically and mentally incapable of motherhood. It is this double disability which structures the experience of disabled women and compounds the oppression of disability for them. In the context of disabled women in rural areas in India, it would be a triple disability owing to the added oppression that poverty entails.

Disability and poverty are closely interrelated. In a country with mass poverty, poverty also causes disability. The causes include malnutrition, inadequate access to proper preventive and curative medical care, and the heightened risks of accident or occupational injury. Poverty interfaces simultaneously with caste, family size and the quality of parental or caregiver support to create the condition of simultaneous deprivation. Amartya Sen (1992) finds that simultaneous deprivation is further compounded by a syndrome of ideological reinforcement, punitive experience, psychological extinction, stimulus deprivation and a cognitive and verbal development that severely affects their participation in the economy of low caste and low income groups. This syndrome sets up barriers to the participation of all types of disabled people, but more severely affects girls and women with disabilities.

Disabled Women in Rural India

The Census of 2011puts the total number of disabled people at 26.8 million in India, out of which 18.6 million people reside in the rural areas. Out of these 18.6 million disabled people in the rural areas, 10.4 million are males and 8.2 million are females. In the Indian context, women with disabilities face a double discrimination in all their spheres of daily living because of gender and disability. This leads them to have far more negative experiences in their interactions with society that affect their level of participation in the society in a holistic manner. Such stigmatization is even more pronounced in the case of disabled women in rural India because of the multiple levels of discrimination that occurs against them. They are stigmatized for their gender and their disability because it is observed that rural India still does not have a favourable attitude towards girl children and women, viewing them as 'burdens' to be married off with a substantial dowry, and the impact of disability on the perceived value of a girl for marriage. Rampant poverty in rural India aggravates the oppression and marginalisation

of women with disabilities, often to the extent that their families also get shunned in the rural society due to prevailing negative attitudes.

Education of women with disabilities is also very low especially in the rural areas because it has been observed that very often the older children, particularly the physically or mild to moderate mentally disabled girls are kept at home and given the responsibility of cooking and cleaning the house and looking after the younger siblings in the house. Secondly, in a scenario where the general education level and other resources for the non-disabled 'normal' children is so constrained, the scope for disabled children, particularly disabled girls is much more difficult.

In rural India, women are expected to participate in agricultural and household activities. Other than agricultural fieldwork, animal husbandry, household chores and childcare is also primarily seen to be women's work. It is therefore a difficult situation for disabled girls when they cannot fruitfully participate in such work in the rural community in which they live. Besides, girls in rural India remain discriminated against in terms of food distribution and health care. Disabled girls are much lower down the priority list of rural families when it comes to food and health care since families anyway struggle to cope with meagre resources. This further reinforces the experience of marginalisation for the disabled girls and women in the rural context. Furthermore, the rural disabled women face more problems compared to men because of inadequate or absence of information, rehabilitation services and the like. These difficulties are compounded by high illiteracy, long distances and lack of easy access to services and facilities and more severe conditions of poverty. Fewer opportunities for gainful work and participation in the rural economy for the disabled women make them perceived as a greater burden in their families. The concerns of disabled women are pushed under the carpet due to their inferior status in their society. They are also much more vulnerable to neglect and physical, mental and sexual abuse.

Conclusion

Disability is not the primary disadvantage of women and girls in rural India, rather it turns out to be an additional burden to their already marginalised gender position. Disability is engendered in specific ways. Management of the disability in the context of the rural community is often undertaken only in a crisis situation and is more often than not in a permanent order. The more permanent form of rehabilitation is located within the household of the disabled woman where she learns to cope with her disability with the help of several social mechanisms. Rarely is professional help sought in most cases.

The Persons with Disabilities Act 1995 provides a broad framework and direction for governments to make positive provisions for disabled people. The Act however does not recognise the social and gender implications of individuals with disabilities in their families and communities. Moreover, the needs of the rural disabled women find no place in the policy framework, and hence they continue to remain marginalised.

Women with disabilities in rural societies in India have specific needs and requirements to help them cope with their existing situations. They are at a disadvantage on account of gender, disability and poverty, besides being located in a rural area. Women's empowerment cannot happen unless these stark inequalities are considered and remedied upon. The programmes and policies for disabled people, even though well-meaning, cannot be implemented fully unless other inequalities like gender, caste, class and poverty are also considered. We need to consider an active agenda of affirmation for the rights of the disabled so that our society can become more inclusive and fair to all concerned.

References

Oliver, Michael 1990. *The Politics of Disablement: A Sociological Approach.* Palgrave Macmillan.

Mehrotra, Nilika 2008. 'Women and Disability Management in Rural Haryana, India,' *Asia Pacific Disability Rehabilitation Journal,* **19**(1): 38-49.

Harriss-White, Barbara and Janakarajan, S. 2004. *Rural India Facing the 21st Century.* Anthem Press.

Office of the Registrar General & Census Commissioner, India 2011. *Census of India 2011: Data on Disability.* New Delhi.

17

Transferring magic stick to farmers – Sustainable Livelihood Promotion by Economizing Paddy Cultivation through Change of Methodology

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Abstract

In West Bengal, Howrah is the second most densely populated district. It is in a phase of transformation from rural agrarian economy to industrial one. Fragmented landholdings, low productivity and high cost of cultivation have forced farmers to look for multiple avenues of earnings for a decent livelihood. With industry all around finding casual wage labour work is not difficult. Consequently, agriculture is neglected which is aggravating problems for the farmers. Paddy is the staple crop of the area which is cultivated mostly on subsistence basis. Sometimes farmers even incur marginal loss in paddy farming. A cement manufacturing organization under its CSR program is trying to change the situation for the better. Through effective capacity building and demonstrations, crucial input support, organization of farming community, effective linkages, continuous monitoring and hand holding support they could convince the farmer to alter their traditional methodology and adopt System of Rice Intensification (SRI). With the adoption of this methodology soon paddy farming became a profitable venture. Some farmers who were refraining from agriculture, keeping their land fallow and neglected have now revived their relationship with their farm. This study is likely to provide directions to others who wish to initiate similar interventions.

Keywords: *West Bengal, Howrah, cultivation, SRI, CSR program*

Farmers of the Howrah district are cultivating paddy but factors like small and fragmented landholdings owing to rapid industrialization and high growth of population, rising prices of agricultural inputs, knowledge gap etc have made the paddy cultivation less economically viable. The objective of this intervention by Ambuja Cement Foundation (ACF) is to improve the standard of living and quality of life of the marginal farmers in the area by economizing paddy cultivation in a eco-friendly and sustainable way with the promotion of System of Rice Intensification methodology. Farmers who once were keeping their land fallow owing to high cost of cultivation are now reaping good profit. The productivity of their land have improved with application of organic manures. The situation has changed significantly for the better.

Objective of this study

The study is planned with the following objectives:

- ◊ To access the impact of SRI promotion on the socio-economic condition of the marginal farmers.
- ◊ To document the tacit knowledge on how it has soon spread to different blocks of Howrah district.
- ◊ To disseminate the knowledge amongst the development professionals and livelihood practitioners.

Methodology

The present study will be limited only to the SRI promotion areas directly supported and facilitated by ACF, Sankrail unit. These areas are the 7 blocks (Sankrail, Ulluberia I, Uluberia II, Shampur I, Jagatballabpur, Domjur and Panchla) of Howrah district of West Bengal. The study area has been selected purposively. The study is based on primary and secondary data. The source of secondary data are journals, statistical books, internet resources etc. Primary data are collected using observation method, interview method, case study method, general and issue focused group discussions (IFGDs) etc. with the target group. Besides field diaries for process documentation are maintained with around 30 to 50 progressive farmers each season. These farmers are selected by ACF representatives judging their level of interest and seriousness. Such records of 604 farmers are analyzed using complete enumeration method.

Context

India has to feed 17% of world's human population and 15% of the livestock with only 2.4% of its geographical area and 4% of its water resource. Rice is the staple crop in India for more than 65% people and hence it has a significant impact on the social, cultural and economic life of the people. 44 million hectares area under paddy cultivation is the biggest in the world. It is the second largest producer of rice in the world with a production of 94.02 million tonnes. During 11th (2007-08 to 2011-12) 5 year plan the area under paddy cultivation has increased by 0.18%, productivity has increased by 2.41% increasing production by 2.69%. Rice comprises about 42% of the total food grain production and 45% of the cereal production in India. Rice production in India has increased by 4.75 times during the last 61 years from 50.82 m-t in 1950-51 to 241.57 m-t in 2010-11. However, rice productivity is growing at a much slower rate compared to that recorded in the earlier decades. In India at present the average productivity of rice is 2.2 tons/ha as compared to the global average of 2.7 tons/ha. Stagnant productivity on one hand and the higher food grains demand on the other hand to feed the ever growing population are becoming the major challenges in India. Under traditional method of cultivation rice needs about 3000 to 5000 liters of water to produce 1 kg of grain. At global level 70-80% of fresh water is withdrawn to meet

the demand of agriculture and rice accounts for 85% of this. Considering the increased rice requirement in the coming years it is unlikely that the available fresh water would be sufficient to meet the total demand. According to International Water Management Institute, India is already experiencing physical water scarcity. It is obvious that with limited arable land and limited fresh water for agriculture the country is not in a position to increase rice production without improving the methods of cultivation. With the limited water resource a time has come to use the water judiciously in agriculture by enhancing the Water Use Efficiency without compromising the productivity. It is expected that improved cop management practices with good varieties can solve the problem to a greater extent.

West Bengal ranks first in terms of area under rice cultivation with 5434 thousand ha under rice cultivation, with the average productivity of 2688 kg/ha which is 13.32% more than the national average of 2372 kg/ha in the year 2011-112. West Bengal accounts for 14-16% of India's rice production.

In West Bengal, the main stay of the economy of our study area Howrah district is both agriculture and industry. Rice is the staple crop of the people here. Boundaries of the district are naturally determined by Rupnarayan River on West and south-west and by Bhagirathi-Hooghly river on east and south-east side. On north side, the boundary is an artificial one except for Bally-Canal on north-east and Damodar River on north-west. The fertile and alluvium-rich soil of the area with flat alluvium plains, good rainfall of around (1405 mm) and a moderate temperature ranging between 8 and 39.4 degree Celsius is favorable for rice cultivation and also for growth of rich biomass. Productivity of rice in Howrah district is 2105 kg /ha in 2011-12 with is 27.70% less than the state average and 12.68% less than the national average. The area under paddy cultivation is gradually decreasing from 133.1 thousand hectares in 1990-91 to 113.3 thousand hectares in 2000-01 and further to 107.1 thousand hectares in 2011-12. The railways and other industries have acquired and bought land from the farmers. A considerable amount of land has also been used for the expansion of the peri-urban area, particularly for construction of housing. Besides the above mentioned factors ever increasing pollution has led to subdivision and fragmentation of land leading to continuous decrease in the land holding, presently average land holding being 0.44 ha. In the areas where ACF is working almost all the farmers are either marginal farmers or share croppers. Low production has become an emerging problem in the area. Cost of cultivation is also increasing at a fast rate. Due to lack of awareness or improper land records majority of the farmers do not get access to formal credit facilities. For agriculture loan farmers get exploited in the hands of indigenous moneylenders who charge exorbitant interest rates ranging anywhere between 60 and 120% per annum. As a considerable number of farmers are sharecroppers they are least concerned about soil health. They exploit the land to the fullest which leads to further decline in productivity.

Sustaining livelihood only from agriculture became difficult. The farmers had to look out for other options and with industry all around finding some kind of casual employment

was not a difficult proposition. Some worked as zari workers. As a result they were keeping their land fallow or neglected which further aggravated the problem.

ACF which is the Corporate Social Responsibility (CSR) arm of Ambuja Cement Ltd. (ACL) has been working in the area since 2001. It has undertaken several need-based programs for the overall development of the rural communities in the area and worked in partnership with the community. As ACF interacted with the rural population they came to understand this dimension of the paddy growers and resolved to initiate some program to improve the situation.

Intervention

With the objective of reviving the relationship between farmers and their land, ACF started this intervention in planned phases.

Phase I

Need assessment

In the year 2008 several Focused Group Discussions (FGDs) on the problems and prospects of paddy cultivation has been organized in 4 villages of Sankrail block. In the workshops ACF members learnt that the paddy varieties they cultivate in Kharief season are N.C Kalma, Ranjeet, Patnai, Sarnamasuri etc. The average paddy production of the area varies from 22.5 to 36 quintals per hectare in the Kharif season and it ranges from 37.5 to 42.52 quintals per hectare in the Boro season. The seed varieties they cultivate in the Boro season are Satabdi, Ratna, Lalat, Hera, M. Sankar, Jingasal, CR 1010, IR 64 etc. Like other paddy growing districts of West Bengal, farmers here were also facing acute problems from numerous species of weeds. Controlling weeds involves a lot of money, time and effort. Farmers are ignorant of the fact that allowing weeds to grow unchecked in and around rice fields can attract insects, pests, rodents and can also act as hosts for diseases. Farmers here preffered to keep their fields water logged only for controlling weeds. In order to curtail labour cost and for lack of awareness rampant use of extremely toxic, non-biodegradable herbicides were popular especially among the sharecroppers. Often these herbicides are carried into streams by runoff rainwater and are leaching into underground water supply polluting them. Herbivores were eating the plants treated with herbicides and when carnivores were eating herbivores the toxic herbicides were passing up the food chain. The farmers have never calculated the ‘cost benefit ‘involved in their conventional practice of paddy cultivation. In the workshop it is calculated for the first time. They were hardly earning any profit from paddy cultivation and sometimes they were even incurring marginal losses. Still they were persisting with paddy cultivation for subsistence. They have no exposure and training on modern methodologies. They have poor knowledge of disease, pest and nutrient management of paddy and were exploited in the hands of fertilizer retail traders. Taking note of their concerns and ground realities, ACF resolved to initiate SRI Promotion program with

the expectation that with the help of this method farmers could maximize the yield of paddy with minimum inputs.

Awareness generation, piloting and cross learning

In order to help farmers visualize the promising methodology, trained ACF representatives conducted 12 capacity building workshops including video shows with 440 farmers before the Kharief season of 2008. In the capacity building program the scientific basis of each principal of SRI is explained and farmer's quarries were addressed. Only those farmers having upland is encouraged to go for SRI in the first season to minimize the risk. Even after the Capacity building programs and IFGDs most of the farmers were not convinced with the methodology and expressed their fear that it might not be applicable in their area. ACF managed to convince only 10 farmers each cultivating 0.13 hectares of land in the Kharief season of 2008. 1.07 hectares of demonstration is done at Sankrail block and 0.26 hectares at Bagnan block. Technical guidance has been shot from the agriculture scientists and professors of Bidhan Chandra Krishi Viswavidalaya (BCKV) for determining the package of practice and input combination for SRI in the area based on soil testing. In the first season ACF wanted the farmers to believe in the methodology and hence not much change in the prevailing input practices were made. Only doses of inputs were regulated, seed selection, seed treatment and use of vermicompost was introduced. They cultivated MTU7029 variety of paddy. Unfortunately, 0.26 hectares of Bagnan block and 0.13 hectares of Sankrail block was destroyed due to heavy rain at a very early stage and the farmers could not gather enough courage to adopt SRI method in that season. They transplanted their field in traditional methods purchasing seedling from other farmers. In the first season the rest of the seven farmers got an average yield of 5400 kg of paddy per hector i.e. 3618 kg of rice which is 87% more than the yield of rice in the Aman season of Howrah district for 2008-09 and it was 50% more than the average yield of the nearby paddy fields in the area. The highest yield was 750 quintals from 33 decimal. They have managed to reduce the cost of cultivation from ₹ 26751 per hectare to ₹ 22722 per hectare. From this grand success in the first season ACF has decided to replicate the method at a larger scale and therefore took it as a campaign. ACF conducted exposure visits with 110 farmers of the neighboring villages to these demonstration plots at several stages. ACF also took 18 farmers to Gosaba block of Sundarban district to see the SRI fields promoted by an NGO named "Prasari". These exposures visits facilitated cross learning's among the farmers and farmer to farmers transfer of methodology. The farmers could see that how this methodology could be adopted in different agro climatic conditions. A short movie was prepared with the process documentation at different stages which is used for the awareness generation in the next season. Video documentation of SRI cultivation in Howrah district was more acceptable to the farmer.

Learning from failure

In next Boro 2008-09 we could convince 63 farmers in 10 villages of three blocks of Howrah district to cultivate 12.4 hectares of land under SRI cultivation. In this season

ACF introduced neem cake for soil conditioning and also for control of pests. The objective was to gradually convert the fields to organic in next 5 years. Unfavorable temperature at the time of ripening of paddy badly affected the yield. SRI fields were more adversely affected as most of our SRI fields were scattered, our efforts of organic control of pests did not worked. As other farmers rampantly applied chemical pesticides pest migrated from their field to the SRI fields and damaged the crop badly. As some of the farmers primarily worked as day labourer and agriculture was their secondary occupation they neglected the weeding operation and some of the farmers applied additional nitrogenous fertilizers than the prescribed doze which aggravated the problem. In this season the maximum yield from our SRI field were 6900 kg of paddy i.e. 4623 kg of rice per hector. About 75% of the farmers suffered from serious pest attacks and got only 1950 kg of paddy i.e. 1307 kg/ ha of rice which is 18% less than the average yield of the district in the Boro season of 2008-09. In spite of having a partial set back in the second season of SRI cultivation, neither ACF nor most of the farmers lose hop. Farmers who suffered crop loss in the second season is mostly from stem borrow attacks. These farmers got satisfactory number of tillers and long panicles but most of the panicles they got were chaffy and this symptom is commonly known as "white hair head". They farmers could well understand that this crop loss is not due to any lacuna in the SRI method but due to improper management of crops and unfavorable temperature fluctuations.

Phase II

Revision of strategies and up calling replications

We consulted with various experts and revised our strategy. Initially ACF turned back to the existing practice of using chemical fertilizers but simultaneously promoted 88 Vermicompost pits among the SRI farmers since 2008 for sustainable and cost effective use of organic fertilizers necessary for soil conditioning. For stronger backward and forward linkage we gradually formed 9 Farmers clubs with 150 farmers under the guidelines of NABARD. We provided capacity building support to these farmers clubs and they in turn provided handholding support to the farmer's in their villages. These farmer's clubs were linked with various government departments, agriculture universities, KVKs etc. for their sustainability. For further upscaling SRI at the State level, collective effort of all the organizations and individuals involved in SRI promotion in the state became a bare necessity. To initiate such a collaboration, in the year 2009, an association named *"Banglar SRI"* was formed with 29 organizations and individuals promoting SRI in West Bengal. ACF is one of the leading members of this association. "*Banglar SRI"* have conducted state level symposiums and will continue to facilitate SRI promotion by way of encouraging government ministries and departments to increase their participation in the effort to reach out to more rice-producing households. They provide support to every organization and individuals seeking technical assistance for promotion of SRI in West Bengal. The vision of Banglar SRI is to forge a broad

alliance of organizations and collective action, from the village level up to the whole state and across all sectors-public, private, academic, and grassroots, with civil society providing 'glue' for their cooperation – to banish food insecurity and create economic opportunities on a widespread basis as all citizens in West Bengal can benefit from increased productivity of our land, laour, water and capital resources. ACF leveraged funds from NABARD to reach out to maximum number of farmers as possible. So far ACF has successfully promoted SRI with 4863 farmers in 1355 hectares at 35 villages in 7 blocks of Howrah district. The table below show some of the broad costs.

Table 1 Investments made for SRI promotion (only for input support) is as follows:

Year	ACF's Contribution (includes, Weeders, crucial input support) INR	Fund received from NABARD's (Includes awareness, demonstration, Field day, Weeders, Facilitator Charges, Documentation, MIS and travel (INR)	Contribution from farmers (INR)	Total investment Amount (INR)
2008-09	Data not available	0	Data not available	
2009-10	Data not available	0	Data not available	
2010-11	600000	497133	145828	1242961
2011-12	405679	980000 (Jan to Dec 2011)	190735	1576414
2012-13	530000	732000 (Jan to Dec 2012)	137500	1399500
2013-14	722000		156670	878670
2014-15	703000		220000	923000

Source: Financial investments from records of ACF and Anual report.

Table 2: Showing unit costs of some important investments

Sl. No.	Type of investments	Approximation of investment per unit
1	Capacity building of farmers on SRI	₹ 400 per training
2	Capacity building of farmers on plant protection, nutrient management, vermicomposting, organic compost and manure	₹ 5000 per training
3	Exposure visit and field days	₹ 30000
4	Input support for promoting SRI in the boro season – Tricodarmaveridy, vermicompost,, micronutrients and chemical fertilizers in small quantities	₹ 595 per farmer for 33 decimal land

5	Input support for promoting SRI the Kharief season – Dhaincha seed, Tricodarmaveridy, vermicompost, micronutrients and chemical fertilizers in small quantities	₹ 615 per farmer for 33 decimal land
6	Weeder support (1 weeder for every 5 farmers)	₹ 1650 per weeder
7	Pheromone traps and lures	₹ 105 for 33 decimal
8	Encouragement for Vermicompost pit promotion and vermin worm support	₹ 3000 per farmer
9	Soil testing	₹ 65 per sample

Outcomes

It has been observed over the years that SRI confers encouraging results and has great potential in Howrah district. One of the critical issues for the area while promoting SRI is again ensuring controlled irrigation in the crucial Kharif season and summer. Inspite of this constraint the farmers of our working area have largely benefited from this method. SRI intervention has already shown some positive outcomes which are as follows:

Economizing paddy cultivation: Average increase in yield of Boro (summer) paddy is recorded as 43.30 % (from 4252 kg per hectare under the traditional method to 6093 kg per hectare under the SRI). Cost of cultivation is reduced by 12% (from ₹ 44140 per hectare under the traditional method to ₹ 38724 per hectare). Hence income of the farmers is increased by 169% (from ₹ 19470 under traditional method to ₹ 52428 under SRI) – income from straw is considered as 10% of income from paddy. By cultivating only in Boro season, the food security of the farmer's family has increased from 28 months to 40 months. (Average family size = 4.5, average land holding 0.44 hectare, per capita consumption of rice per month = 9.923 kg or 14.785 kg paddy). In the Khrief season the average yield under traditional method was 3600 kg it increased to 55.55 kg under SRI methodology. Thus by cultivating only in Kharief season, the food of the farmer's family has increased from 24 months to 37 months. For keeping stock for his family for 1 year the farmer can now sell off the excess paddy.

Box 1: Leading the way to success

Paresh Paul of Baniban village of Ulluberia II block is a progressive farmer who first heard about SRI from a radio program but started practicing after practical training from ACF. In 2010-11 he organized a village meeting with 49 farmers but only 19 of them started; others waited for them to demonstrate and could not take the risk. He took the lead role. Inspired by his success latter 160 farmers have adopted the method in 43 hectares. He started with 0.13 hectares of land but now cultivates 0.4 hectares. He believes that due to increase in yield and reduction in cost of cultivation in last five years he has earned an additional income of ₹ 42000 (cultivating in both Boro and Khaief season). He used his additional income for better education of his daughter. He has engaged a private tutor for her in order to give her a competitive edge over her friends in school. He now can provide better nourishment for his infant son. He has also used some of his additional income for renovation of his house.

Capacity building of the farmers: Previously farmers were using fertilizers in unscientific doses and were not efficient with the plant protection measures. They were totally dependent on the fertilizer retail shop owners. This was adding to their cost of cultivation and crop loss. Now after several capacity building programs the farmers have learnt to use fertilizers in proper doses and at right time. They have learnt to deal with the plant protection measures better.

Reduction in labour dependency: With the industry all around agriculture labour is scarce. With the use of weeders the farmers can weed their land by themselves instead of depending on others.

Box 2: Once unknown now indispensible

Farmers like Nitai Patra, Sukumar Makhal and Sk Hanif of Sankrail block are applying 3 mechanical weeding at 15, 25 and 35 days after transplantation following paddy cultivation under SRI method. Each time after weeding they have observed that the plants are bearing many more new tillers. They realized that with weeding the soil is being aerated and loosened. This helps the plants in better root growth. Weed free agricultural plot is less susceptible to pest and diseases. With more number of tillers and less incidence of pest and disease the quality and quantity of yield is automatically improving. These farmers attribute 15% increase in yield only due to the use of weeder machines.

Improving soil health: Most of the farmers here are share croppers they were reluctant to use costly organic manures in their field. After several training and exposure visits many farmers have learnt to prepare vermicompost, vermin wash, other organic manures, bio pesticide and bio herbicides with organic waste materials available in their surroundings. Farmers are now gradually adopting the use of organic matters in their field. They are also cultivating Dhaincha and pulse seed for natural addition of nitrogen in the soil. Farmers using weeder machine avoid using harmful chemical herbicides. Previously during hand weeding under traditional method the farmers use to throw away the weeds out of their agricultural land. Now with the help of weeders they are mixing the weeds into the soil which is decomposing into rich organic manure. Loose and aerated soil provides a favorable environment for the beneficial aerobic microbes and bacteria to multiply which in turn helps in improving the soil health.

Box 3: Earning both ways

Farmers like Sk Hanif, Sulekha Kanji, Bhaskar Adak from Sankrail block, Ajoy Mondal from Ulluberia I block and many more have adopted SRI methodology and have managed to increase their paddy yield and reduce their cost of cultivation on one hand and on the other they are also earning about ₹ 20000 per annum by selling vermicompost which they manufacture in their backyard. With the use of vermicompost and vermin wash micronutrient deficiencies which is common in the area could also be controlled.

Conservation of valuable resources: Under SRI method resource use efficiency of various inputs are improved resulting in resource conservation. Under this method seed requirement is reduced by 90 % (75 kg seed per ha in traditional method and 7.5 kg

in SRI method). Satisfactory result have been achieved by adding chemical fertilizer Nitrogen: Phosphate: Potash (N:P:K) in the ration 60:30:30 in the Kharief season and 80:40:40 in the boro season in SRI field. This doze is altered in certain field based on soil testing. In the traditional method the recommended doze is much higher it is 80:40:40 for the kahrief season and 120:60:60 for the boro season. Farmers in general use more chemical fertilizer than the recommended dozed. In order to control weeds previously farmers preferred to keep their paddy field water logged (3 to 5 cm of stagnant water) at all stages of crop cycle. After using weeder machines the farmers try to keep as less water as possible as now they are not scared of weeds as they have became aware of the benefits of keeping their field in moist condition. In general 3000 to 5000 lts of water is required to produce 1 kg of rice. Now as they only flood their field in critical stages hence about 30% less water is used. Besides with the improvement of productivity water use efficiency has also improved.

Learning

Farmer selection is crucial: During the first three seasons ACF selected some resourceful farmers who could take the risk of trying a new method and could put up successful demonstration before other farmers of the area. After few successful demonstrations ACF started selecting the poorest of the poor and most needy farmers as they take the program more seriously. ACF conducted several FGDs for identifying the neediest farmers. At a later stage farmers clubs facilitated ACF to make this selection.

Making farmers accountable: During first year ACF learnt that giving anything free does not build any accountability. Farmers who registered free and got trained refused to follow the method resulting in wastage of inputs. From the second year onwards ACF decided to take cash contribution, allotted direct support of only 33 decimal to a single farmer expect for the nearby villages and provided input stage wise and not at a time. Farmers who did not follow the method stopped getting inputs. It is ensured that major investment come from the farmer and only crucial input support is provided. The free riders dropped out but proper implementation could be ensured and miss utilization of resource could be stopped. In case of weeder machines a single weeder machine is shared with every 5 farmers but at times it has been observed that they tend to neglect the weeders as they were getting the service free of cost. Latter on the farmer's clubs promoted by ACF are given the responsibility of managing the weeders and they are charging ₹ 5 per day from the individual farmers as service charge. This has helped in proper maintenance of the weeders and an additional source of income for the farmer's clubs.

Methodology transfer is successful if….: Strong monitoring, handholding support, forward and backward linkage with the farmers are the key reasons for the success of this program. It has been observed that inspite of several capacity building programs when the farmer is trying this methodology for the first time they tend to do mistake in following the principals in a proper manner either during laying seed bed or during

transplantation. If the farmers is not present in the field during transplantation the labourer inspite of having proper instruction tends to deviate from the SRI principals. So during these crucial stages field days are organized in the villages in presence of ACF representatives. Trained farmers clubs members provided handholding support to the other farmers. Specialized SRI transplantation team is formed in the villages to ensure proper transplantation. Farmers clubs also provided credit to the farmers. Initially farmers has difficulties in laying seeds sparsely, transplanting single seedling with the soil intact, maintaining straight line from both side of the field, proper handling weeder machine etc. The ACF facilitators identified the practical problems in the field and resolved the same with continuous hand holding support capacity building and exposures.

Strategy is never static: Initially ACF planned to promote organic farming simultaneously with SRI and gradually move towards fully organic cultivation in 5 years. But soon, ACF learnt that this would not work as the SRI fields are scattered and most of the farmers are sharecroppers. ACF changed its strategy and limited itself in providing information and allowed the farmers experiment and innovate with their input combinations. ACF wanted to build confidence on the SRI methodology first and then gradually capacitate the farmers on sustainable organic farming with the available local resources.

Involving farmers in decision making process: Farmers who are the primary stakeholders needs to be viewed as partners in the entire process of implementation. They need to be consulted regularly and should be encouraged to chart out the path. For example in the first two seasons ACF supported the farmers with good quality seeds but soon realized the farmers preferences differed and many of them did not opt the same variety offered by ACF. Through farmer's club they can now make important collective decisions like farmer selection, capacity building need etc.

Conclusion

SRI has evolved in the farmer's field of Madagaskar in early 1980s. Now it has spread across 40 countries. It was first introduced by PRADAN (NGO) in West Bengal in the year 2003. In India, with the effort from civil societies, interested individuals, funding agencies and as the farmers learn from each other more than one million farmers across almost all the rice cultivating districts are practicing SRI. While the area under SRI is still relatively small as under 800000 ha it is expanding rapidly. SRI is a methodology and not a technology i.e. there is scope for the farmers to innovate during the course of adoption. There is debate among the agriculture scientists in respected to the effectiveness of this method. Some scientists who oppose the promotion of this method says that this method causes excessive nutrient mining, though green house gas like methane (CH_4) emission is reduced under this method but emission of Nitrite oxide (N_2O) increase which is more harmful than methane. Others in favor of SRI argue this methodology conserve resources by increasing the resource uses efficiently, they help in maintaining good soil health and is eco-friendly. These arguments are yet to be

justified scientifically for which extensive research is essential. In Howrah district this methodology has proved to be "a magic stick for the farmer's" which has transformed their lives and livelihood. Paddy cultivation which was carried out on subsistence basis has now become a profitable venture. As the farmer's clubs get into higher cycle of savings and credits, enter into ventures like fertilizer retail trade sustainable livelihood will become a reality in near future.

References

State of Indian agriculture 2012-13, Government of India, Ministry of Agriculture, Department of Agriculture and cooperation New Delhi, Chapter 1, Pg 1, Chapter 1 pg.3 Table 1.2.

Business standard, Rice production in West Bengal is likely to be higher, Namrata Acharya | Kolkata September 25, 2013, http://www.business-standard.com/article/markets/rice-production-in-west-bengal-likely-to-be-higher-113092500117_1.html

Directorate of economics and statistics, department of agriculture, govt of India, Table 4.3, Table 4.6(b), Table 4.5(a), http://eands.dacnet.nic.in/latest_20011.htm

District Statistical Hand book 2012, Bureau of applied economics and statistics, Department of Statistics and program implementation, government of West Bengal, Table 1.2, Table 1.3, Table 5.1(a), Table 5.3(a)

G.V Ramanjaneyulu and Rajitha (December 2006), "Sustaining rice cultivation in India experiences from System of Rice Intensification" LEISA INDIA, volume 8 no. 4, Pg 19.

NSS 68th Round (July 2011 - June 2012), "Household consumption of various goods and services in India 2011-12", Ministry of Statistics and program implementation, Government of India, June 2014, Pg 42.

http://agricoop.nic.in/imagedefault/trade/Rice%20profile.pdf

https://en.wikipedia.org/wiki/Indian_states_ranking_by_household_size

IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS) e-ISSN: 2319-2380, p-ISSN: 2319-2372.Volume 5, Issue 6 (Nov. - Dec. 2013), PP 82-85 www.iosrjournals.org www.iosrjournals.org 82 | Page Performance of Raised Bed Irrigation in Comparison to AWD and Flood Irrigation for Boro Rice S. M. I. Hossain, Pg.82, http://iosrjournals.org/iosr-javs/papers/vol5-issue6/M0568285.pdf?id=8123

New hope for Indian food security? The system of Rice Intensification, Biksham Gujja and T.M Thiyagarajan, gatekeeper 143: November 2009

Statistical Hand book of West Bengal 2012, Bureau of Applied economics & statistics government of West Bengal, Table 5.2, Pg 64, Table 5.5, Pg.77, 78, Table 5.6, Pg.91

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18

Disaster Management by the Local Self-Government: A Study Among the Aila Affected People

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Abstract

The local self-government is a statutory body elected by the local people through a well defined democratic process with specific responsibilities and duties. The elected members are accountable to the people of the ward, rural community, block and the district. One of the main tasks of local self government is disaster management. This study was undertaken in cyclone 'Aila' affected areas in West Bengal to assess the role of local self government on disaster management (as perceived by the respondents). The empirical study revealed that main role performed by the local self-government were providing relief materials, organizing health camp, involved in rescue operation, arranging temporary shelters and so on as disaster management operation. The findings of the study indicated that no significant differences were observed on the opinion of the villagers and officials on rescue support. Different opinions were observed among the opinion of the affected people and officials on formulating reconstruction plans for houses, community buildings, roads, organize village-level task force/volunteers and immediate survey to assess loss and supply of adequate quantity of relief materials.

Keywords: *Disaster management, local self-government, rescue and relief operation*

Bengal has borne the brunt of a large number of disasters like flood, cyclone, drought etc. The main reason of the susceptibility of such disaster is lesser of its geographical locations, weather and other physical features. Cyclonic Storm Aila wrecked havoc on the coastal South 24 Parganas district of West Bengal on May 25, 2009. Aila was the second tropical storm formed in Northern Indian Ocean in 2009. According to the Government data more than 11, 00,000 people who fled (their) homes had been sheltered in several hundred shelters in eight coastal districts so far. The Government survey estimated that the total Aila affected areas were: Blocks 111, Municipality 39, Villages 15401, and Population 4,53,8018.00 (GOI, 2009). While the government has the duty to help people in distress, the latter have a greater responsibility to help the government help them to cope with disasters. Panchayati Raj bodies are the most appropriate local institutions for involving people in natural disaster preparedness. Panchayati Raj bodies

have a role to play in all phases of disaster management. The ensuing analysis discusses the major roles of PRIs during a crisis situation (Jain and Polman, 2003). The Role of Local Self-Government in managing natural disasters and thereby implementing relief, rehabilitation and reconstruction activities are considered one of the major tasks entitled to the local self-governments. Panchayati Raj institutions have already been recognized as capable and competent to shoulder the constitutional responsibilities. Without proper examining and facilitating atmosphere, there has been an emphasis on degrading and downgrading their potential (Taori, 2005). Keeping these in view the present study was undertaken to assess the opinion of the affected people towards the role of local self government in disaster management.

Materials and Methods

The districts North and South 24 parganas of West Bengal were selected purposively for the study because these two districts were the most severely affected by Aila. Seven blocks namely Basanti, Gosaba, Namkhana, Kakdwip, Sandeshkhali I, Sandeshkhali-II and Parthar pratima and were selected purposively. From the selected blocks, 30 gram panchayats and 150 villagers were selected randomly as respondents.

Results and Discussion

After disaster, relief operation includes provision of distributing the urgent needs for survival to the affected people. It requires expertise and instant action. Relief for the purpose of study is defined as short term and immediate activities which are immediately needed to get back the social status quo. Therefore, only the activities like distribution of food, distribution of emergency drugs and distribution of daily use household articles have been studied and analyzed.

Table 1: Opinion of respondents towards relief activities taken by the panchayats (n=150)

Sl. No.	Measures	Opinion of the respondents				Mean score	Rank Position
		Strongly agree	Agree	Disagree	Strongly disagree		
1	Set up temporary shelters/relief camps after initial warning/ store food and water for people/ livestock	26	51	35	38	2.43	VI
2	Evacuation of people and livestock should start immediately after final warning	30	42	39	39	2.68	V
3	Supervise rescue and relief activities with block-level officers	51	45	27	27	2.80	III

4	District/block medical/relief teams asked to take position at strategic points and coordinate with village volunteers/task forces	12	21	60	57	1.92	IX
5	Providing relief materials both for people and domestic animals	63	48	25	14	3.08	II
6	Assessing loss of life, livestock and damage to farming, property, etc.	75	40	20	15	3.17	I
7	Arrange supply of food and other items to relief camps in adequate quantities	32	24	60	32	2.37	VII
8	Immediate shifting to rehabilitation place	49	41	28	32	2.71	IV
9	Proper health and sanitation care at rehabilitation centre	21	30	55	44	2.19	VIII

(Maximum obtainable score-4)

Mixed responses were obtained from the respondents towards relief and rescue activities provided by the panchayat as observed from the above table. The rank position reveals that the affected people got assistance from panchayat particularly on assessing loss of life and livestock followed by relief materials for people and domestic animals and supervise relief operation which got I, II and III respectively. But in case other aspects like immediate shifting to rehabilitation place, evacuation of people and livestock, setting up temporary shelters, arrange adequate quantities of relief materials, proper health and sanitation care at rehabilitation centre and block/district team coordinate with the task force were got IV, V, VI, VII, VIII, and IX ranks respectively.

Table 2: Opinion of Panchayat officials towards relief activities (n=30)

Sl. No.	Item	Opinion of the panchayats officials				Mean score	Rank Position
		Strongly agree	Agree	Disagree	Strongly disagree		
1	Set up temporary shelters/ relief camps after initial warning/store food and water for people/livestock	14	8	4	4	3.07	VI
2	Evacuation of people and livestock should start immediately after final warning	16	6	6	2	3.20	V
3	Supervise rescue and relief activities with block-level officers	20	10	00	00	3.67	III

4	District/block medical/relief teams asked to take position at strategic points and coordinate with village volunteers/task forces	12	8	5	5	2.90	VIII
5	Providing relief materials both for people and domestic animals	24	06	00	00	3.80	I
6	Assessing loss of life, livestock and damage to farming, property, etc.	21	09	00	00	3.70	II
7	Arrange supply of food and other items to relief camps in adequate quantities	15	5	6	4	3.03	VII
8	Immediate shifting to rehabilitation place	18	06	3	3	3.30	IV
9	Proper health and sanitation care at rehabilitation centre	07	05	12	06	2.43	IX

(Maximum obtainable score-4)

It is observed from the table-2 that majority of the panchayat officials were strongly agreed for providing relief materials both for people and domestic animals, and majority of the respondents agreed for assessing loss of life, livestock and damage to farming, property. The rank position also indicated for better support provided by the concern panchayats officials themselves on supervising the distribution of relief materials and shifting of cattle, important document to safer place.

Table 3: Comparative analysis of opinion on relief activities

Sl. No.	Item	Mean score		Diff (%)
		Affected people	Panchayat official	
1	Set up temporary shelters/relief camps after initial warning/store food and water for people/livestock	2.43	3.07	20.84
2	Evacuation of people and livestock should start immediately after final warning	2.68	3.20	16.25
3	Supervise rescue and relief activities with block-level officers	2.80	3.67	23.70
4	District/block medical/relief teams asked to take position at strategic points and coordinate with village volunteers/task forces	1.92	2.90	33.80
5	Providing relief materials both for people and domestic animals	3.08	3.80	18.95
6	Assessing loss of life, livestock and damage to farming, property, etc.	3.17	3.70	14.32

7	Arrange supply of food and other items to relief camps in adequate quantities	2.37	3.03	21.78
8	Immediate shifting to rehabilitation place	2.71	3.30	17.87
9	Proper health and sanitation care at rehabilitation centre	2.19	2.43	09.87

As revealed from the table-3, the major differences of opinions were observed among the people and official respondents with respect to proper placement of medical team at strategic points and coordinate with village volunteers/task forces (33.80%). Others major differences of opinions were observed on the opinion on supervise rescue and relief activities with block-level officers (23.70 %), arrangement of food and other items to relief camps in adequate quantities (21.78%) and set up temporary shelters/ relief camps after initial warning and store food and water for people/livestock (20.84). The findings therefore suggested that the panchayat officials have to develop strategy to create all these suggested facilities and organized the disasters affected communities accordingly to overcome the ill effect of disaster.

Rehabilitation also includes restoration of public health services, education, drinking water, environmental management and law and order problems. The houses are to be constructed according to the individual needs, cash compensation to be paid to the families for any death, disability and other losses. It requires technical assistance, training and local institutions for livelihood programme and reconstruction of houses.

Table 4: Opinion of the respondents towards rehabilitation support provided by the panchayat (n=150)

Sl. No.	Measures	Opinion of respondents				Mean score	Rank position
		Strongly agree	Agree	Disagree	Strongly Disagree		
1	Immediate survey to assess loss	65	47	21	17	3.07	II
2	Identifying victims for compensation	70	58	15	07	3.27	I
3	Formulate reconstruction plans for houses, community buildings, roads, etc.	42	36	32	40	2.53	VI
4	Organize village-level task force/volunteers	24	21	54	51	2.12	VIII
5	Immediate repairing of embankments, roads and village institution	35	29	44	42	2.38	VII
6	Special assistance to resource poor	10	15	75	50	1.90	IX
7	Encourage local people to insure assets/livestock	45	33	34	38	2.57	V

8	Arrange for emergency communication	51	32	45	22	2.75	III
9	Assist in supervising and monitoring reconstruction and development projects.	42	31	54	23	2.61	IV

(Maximum obtainable score-4)

The data in the table-4 depicted that majority of the respondents were strongly opined that panchayat officials identified victims for compensation. Though mixed responses were obtained on other aspects.

Table 5: Opinion of the officials towards rehabilitation support (n=30)

Sl. No.	Items	Opinion of officials				Mean score	Rank position
		Strongly agree	Agree	Disagree	Strongly Disagree		
1	Immediate survey to assess loss	24	06	00	00	3.80	I
2	Identifying victims for compensation	20	10	00	00	3.67	II
3	Formulate reconstruction plans for houses, community buildings, roads, etc.	18	6	4	2	3.34	III
4	Organize village-level task force/ volunteers	08	10	6	6	2.67	VIII
5	Immediate repairing of embankments, roads and village institution	12	04	07	07	2.70	VII
6	Special assistance to resource poor	05	04	10	11	2.10	IX
7	Encourage local people to insure assets/livestock	12	06	08	04	2.87	VI
8	Arrange for emergency communication	15	05	07	03	3.07	IV
9	Assist in supervising and monitoring reconstruction and development projects.	14	08	03	05	3.03	V

(Maximum obtainable score-4)

As revealed from the table majority of the official respondents had strongly agreed for immediate survey to assess the loss incurred to the community as well as individual families and identify the victims for compensation and ranked first and second respectively. The official respondents were also favorably opined to the support on formulation of reconstruction plans for houses, community buildings, roads, etc. and they also arrange communication facilities immediate during and after the disaster.

Table 6: Comparative analysis of the opinion on rehabilitation support

Sl. No.	Item	Mean score		Diff (%)
		Affected people	Panchayat official	
1	Immediate survey to assess loss	3.07	3.80	19.21
2	Identifying victims for compensation	3.27	3.67	10.90
3	Formulate reconstruction plans for houses, community buildings, roads, etc.	2.53	3.34	24.25
4	Organize village-level task force/volunteers	2.12	2.67	20.60
5	Immediate repairing of embankments, roads and village institution	2.38	2.70	11.85
6	Special assistance to resource poor	1.90	2.10	09.52
7	Encourage local people to insure assets/livestock	2.57	2.87	10.45
8	Arrange for emergency communication	2.75	3.07	10.42
9	Assist in supervising and monitoring reconstruction and development projects.	2.61	3.03	13.86

From the table-6, minor differences of opinions were observed among the affected people and officials on opinion on special attention to resource poor, identifying victims for compensation, arrange for emergency communication. All these facilities definitely provide relief towards proper rehabilitation to the disaster affected people. Major differences were observed on formulation of reconstruction plans for houses, community buildings, roads, etc. (24.25%), organize village-level task force/volunteers (20.60%) and immediate survey to assess loss (19.21%). Moreover, considerable gap over average mean score conclude that these facilities were not adequately provided to the disaster affected people in the study areas.

Table 7: Opinion of the affected people towards management support (n=150)

Sl. No.	Item on technological support	Extent of opinion				Mean score	Rank
		Strongly agree	Agree	Disagree	Strongly Disagree		
1	Installing weather forecast system at panchayat level	00	00	55	95	1.37	VIII
2	Provide financial assistance in houses/ crops/ livestock loss	65	55	10	20	3.10	I
3	Guidance to manage crops	32	37	48	33	2.45	III
4	Close monitoring and supervision	69	41	24	16	3.08	II
5	Healthcare for domestic animals	12	27	54	57	1.96	VII
6	Timely supply of crop inputs and materials	23	21	67	39	2.19	VI

7	Organized training and education for the villagers	22	39	44	45	2.25	V
8	Arrange crop loan for farm activities	32	23	49	46	2.27	IV

(Maximum obtained score-4)

Mixed responses were obtained from the respondents towards management support extended to them after occurrence of disaster. Flood and cyclone affected people generally needs sufficient management support towards early warning messages for prepared themselves well in advance support for getting good harvest to compensate the loss. The rank position also indicated that the local institutions provided financial assistance in case of houses damaged partially or fully and monitoring the situation. This ranked first among the management support. But respondents opined negatively towards the timely support for crop loans and healthcare for domestic animals which were ranked sixth and seventh respectively.

Table 8: Opinion of the official towards management support (n=30)

Sl. No.	Item on management support	Extent of opinion				Mean score	Rank
		Strongly agree	Agree	Disagree	Strongly Disagree		
1	Installing weather forecast system at panchayat level	00	00	12	18	1.40	VIII
2	Provide financial assistance in houses/ crops/ livestock loss	18	12	00	00	3.60	I
3	Guidance to manage crops	08	06	11	05	2.57	V
4	Close monitoring and supervision	14	11	03	02	3.23	II
5	Healthcare for domestic animals	09	07	05	09	2.53	VI
6	Timely supply of crop inputs and materials	07	06	06	11	2.30	VII
7	Organized training and education for the villagers	10	06	07	07	2.63	IV
8	Arrange crop loan for farm activities	12	07	05	06	2.83	III

(Maximum obtainable score-4)

As observed from the table majority of the official respondents strongly agreed for the support on provided financial assistance for the houses/livestock/ crops losses, monitor the situation after the disasters and arranged crop loan for farm activities. These statements were ranked first, second and third respectively. Interestingly it is observed from the table that weather forecast system was ranked last. Further attempt have also been made for a comparative analysis on the opinions of people and official respondents. The same critical ratio test have been employed for the comparative analysis and results presented in table below:

Table 9: Comparative analysis of opinions on management support

Sl. No.	Opinion	Mean Score		Diff (%)
		Affected People	Official	
1	Installing weather forecast system at panchayat level	1.37	1.40	02.14
2	Provide financial assistance in houses/ crops/ livestock loss	3.10	3.60	13.88
3	Guidance to manage crops	2.45	2.57	04.67
4	Close monitoring and supervision	3.08	3.23	04.64
5	Healthcare for domestic animals	1.96	2.53	22.52
6	Timely supply of crop inputs and materials	2.19	2.30	04.78
7	Organized training and education for the villagers	2.25	2.63	14.45
8	Arrange crop loan for farm activities	2.27	2.83	19.78

Comparative analysis of the opinions of both the affected people and official respondents indicated the contradictory opinions on some aspects of management support were emerged since mean score value of the official respondents were at higher side than the affected people. A maximum (22.52%) difference of opinions was observed towards provide healthcare for domestic animal followed by arrange crop loan for farm activities (19.78%). The least difference (2.14%) was found from the table on installing weather forecast system at panchayat level.

Conclusion

Disaster management occupied an important place in the country's policy frame work as it is the poor and under privileged sections are worst affected on account of natural disasters. The agriculture and rural sector are severely affected by disasters particularly floods and cyclone. The goal of any disaster management initiative is to build a disaster resilient community to equip with safer living and sustainable livelihood to serve its own development purposes.

References

Goel, S.L. 2006. Policy and Administration, Deep and Deep Publications, New Delhi, p. 404.

Government of India 2009. Disaster Risk Management Programme, New Delhi, p. 21.

Jain and Polman 2003. The Panchayati Raj model in India, Bangkok, Thailand.

Taori, K. 2005. Disaster Management through Panchayth Raj, Concept Publishing Company, New Delhi, p. 97.

Mukhopadhyay, A. 2009. Cyclone Aila and the Sundarbans: an enquiry into the disaster and politics of aid and relief. Mahanirban Calcutta Research Group publication, pp. 3-5.

19

Crop Diversification: A Case Study in Birbhum District

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MISSING DESIGNATION

Abstract

Present study is attempt to gather knowledge about cropping pattern, crop diversification and examine determents of crop diversification on the basis of cross-section analysis of farmers under varied condition with regard to infrastructure, irrigation and varied level of development at farm level in Birbhum district in West Bengal. A field survey has been done in three villages in Illambazar block in Birbhum district. Data has been collected from farmers of different size groups from three villages. The study has found some important determinants of crop diversification. Farm size, irrigation, family labour, subsidiary occupations are impotent factors of crop diversification. More over profit per unit of investment play an important role for cultivating higher value crops.

Keywords: *Crop diversification, irrigation, farm size, family labour, profit per unit of investment*

Agriculture is the source of income for overwhelming majority of rural people, although rural nonfarm economic activities are gradually assuming important role in the rural economy. In agriculture, traditional crops like paddy and wheat occupy major share of total produce. But at this present time farmers are diversifying from traditional crop to higher value crops like fruits and vegetables. At this present scenario, it is important to examine the factors influencing farmer's decision to produce high value crops side by side with traditional crops or in place of traditional crops. There may be various causes for crop diversification such as farm size, irrigation facilities, subsidiary occupations, availability of family labour, profitability of vegetables and traditional crops and infrastructural factors like road, availability of warehouse, cold storages, transportation and the marketing condition of vegetables and traditional crops. Farmers may cultivate more vegetables where irrigation facilities are not available. Because, if irrigation facility is available then they will cultivate traditional crops. But it may not be universally truth. Because, if irrigation facilities are not available then farmers will not get water for cultivation of vegetable. So irrigation facility may impact positively or negatively on the crop diversification. Therefore, the study has considered different

sources of irrigation. Cultivation of vegetables require more labour. Small farmers can provide more labour than big farmers. So small farmers may cultivate more vegetables than traditional crops. Subsidiary occupations reduce the availability of labour on the other hand it give the alternative source of income. So availability of subsidiary occupation may reduce the crop diversification. Vegetables are perishable commodities. So availability of infrastructural facilities like road, coldstorages and warehouse may increase the cultivation of vegetables. While some studies have been made on the above determinants of crop diversification concentrating more on inter district and inter province differences in the extent of crop diversification and production of high value crops, the study has focused on factors influencing decision-making at the farm level. The main concern here would be first to examine economics of cultivation of different export oriented high value crops, find out the factors influencing decision making under varied conditions with regard irrigation, infrastructure.

Objective

The objective of present study is to examine the determinants of crop diversification on the basis of cross section analysis of farmers under varied condition with regard to farm size, infrastructure, irrigation and varied level of development. Existing literature examines demand and supply side determinants of crop diversification. The will reexamine only the supply side factors on the basis of more disaggregated farm level data and also consider (a) pattern of availability of irrigation instead of extent of irrigation in term of area irrigated (b) availability of subsidiary occupation.

Methodology

The study has been conducted in Birbhum district in West Bengal. Illambazar block has been selected purposively. It is moderately agricultural developed block in Birbhum district. Three villages of different characteristics have been selected. First, village 'Payer' is very near to town (2 km from 'Illambazar' town) and transportation condition is more improved than others. It is more developed compared to other two villages with regard to education, and occupation. More people's have subsidiary occupations. Second village, Sahebdanga is near to the town (4 km from Illambazar) but road facility and infrastructural conditions are not good. This village is underdeveloped compared to other two villages with regard to education, and occupation. Very few peoples have subsidiary occupation. Third village 'Dumrut' is far from town (7 km from Illambazar town) but road facility and infrastructural conditions are very good. It is developed compared to second village but underdeveloped compared to first village. Some peoples have subsidiary occupation. Basic information regarding farming household has been collected from different Govt. offices at block level and Gram Panchyat level.

The farmers have been divided into five groups according to their net operated area. First farming group has less than or equal to 0.50 hector net operated area, Second farming group has from 0.50 hector to 1.00 hector, Third group has from 1.00 to 2.00 hectors,

Forth group has from 2.00 to 4.00 hectors and Fifth group has above 4.00 hectors net operated area.

First village 'Payer' contains 322 farmers. Out of 322 farmers, 70.19 percent is in first farming group, 12.42 percent is in second group, 9.94 percent in third group, 5.90 percent is in forth group, and 1.55 percent is in fifth group. Second village 'Shaebdunga' contains 308 farmers. Among this 77.92 percent is in first group, 10.39 percent is in second group, 8.12 percent is in third group, 2.27 percent is in forth group, and 1.30 percent is in fifth group. Third village 'Dumrut' contains 300 farmers. Out of 300 farmers, 74.33 percent is in first group,13.00 percent is in second group, 8.00 percent is in third group,3.00 percent is in fourth group and 1.67 percent is in fifth group.130 farmers have been selected from three villages; 40 farmers from Payer, 50 farmers from Sahebdanga and remaining 40 from Dumrut. Among sample farmers from Dumrut and payer, 35.00 percent farmers is in first farming group, 25.00 percent in second group,20 percent in third group, 12.50 percent is in fourth group and 7.50 in fifth group. Among sample farmers from Sahebdanga, 34.00 percent is in first farming group, 26.00 percent is in second farming, 20 percent in third group, 12.00 percent in fourth group and 8.00 percent in fifth farming group.

Proportionate share of different crops in gross cropped area has been used to measure the cropping pattern and Simpson index of crop diversification has been used to measure the crop diversification. Different probable factors have been examined across the villages, farm size groups and proportionate share of vegetables to find out the determinants of crop diversification. Some regression also have been used to find the determinants of crop diversification

Result and Discussion

Cropping pattern and crop diversification

Cropping pattern has been discussed across three villages and across different farm size groups. Cropping pattern has been studied in term of the proportion of gross cropped under different crops.

Table 1: Cropping pattern and crop diversification across three villages

Villages	Share of different crops in gross cropped area (%)						Simpson index of crop diversification
	Paddy	Wheat	Oil seeds	Potato	Vegetables	Others	
Payer	87.37	1.77	7.48	2.48	0.39	0.50	0.49
Sahebedanga	55.47	0.00	4.06	25.99	11.30	3.18	0.74
Dumrut	75.59	4.71	6.29	1.02	5.89	6.50	0.54
Total	72.95	2.01	5.95	10.17	5.75	3.16	0.59

Cropping pattern and crop diversification across three villages

Paddy is the main crop in all the villages and it cover maximum share in gross cropped area. The cropping pattern is not same in the three villages. The first village produces

more paddy compare to other villages. On the other hand, second village produce more vegetable compare to other villages. Third village produce more wheat compare to other villages.

The share of paddy in gross cropped area in Payer is 87.37 percent which is higher than other villages. The share of vegetable in Sahebdanga is 11.30 percent in gross cropped area which is greater than other two villages. On the other hand share of wheat is 4.71 percent in the Dumrut and it is higher than other villages. The village 'Sahebdanga' is more diversified compared to others. On the other hand Payer is less diversified compared to others. Simpson index of diversification is 0.49 in Payer, 0.74 in Sahebdanga and .54 in Dumrut. From above discuss it can be concluded that Sahebdanga is more diversified compared to other villages from traditional crops to vegetables. On the other hand, Payer is less diversified compared to other villages from traditional crops to vegetables.

Cropping pattern and crop diversification across the farm size groups

The cropping pattern significantly differs across the different farm size groups. As the farm size increase, the share of paddy increase and share of vegetables decrease. On the other hand large farmers cultivate more oil seed and small farmers cultivate more potato.

Table 2: Cropping pattern and crop diversification across farm size groups

Farm size group	Share of different crops in gross cropped area (%)						Simpson index of diversification
	Paddy	Wheat	Oil seeds	Potato	Vegetables	Others	
0.50<	65.47	0.00	5.00	17.60	8.58	3.35	0.64
0.50 -<1.00	67.83	1.83	5.67	11.86	9.72	3.10	0.63
1.00-<2.00	71.30	1.21	6.28	12.33	6.17	2.72	0.60
2.00-<4.00	72.81	4.05	4.12	8.98	3.82	6.21	0.56
4.00>	85.88	2.54	7.91	1.99	0.75	0.93	0.51
Total	72.90	2.00	6.00	10.20	5.80	3.00	0.59

The share of paddy in gross cropped area is 65.47 percent in the first group of farmers, whereas, it is 85.88 percent in the fifth farm size group (in Table 2). The share of paddy in overall three villages is 72.90 percent which is higher than other crops. Big farmers also cultivate more oil seed. The share of oil seed in gross cropped area is 5.00 percent in the first group of farmers, 6.28 percent in the third group and 7.91 percent in the fifth group. Small farmers also cultivate more vegetables compare to big farmers. The share of vegetable is 8.58 percent in the first group of farmer, 6.17 percent in the third group and 3.82 percent in the fourth group of farmers. Therefore, above discussion conclude that small farmers are cultivating more vegetable compared to small farmers, whereas, larger farmers are cultivating more paddy compared to small farmers.

Determinants of cropping pattern and crop diversification

Different probable factors have been examined across the villages, farm size group and share of vegetables in gross cropped area.

Productivity of Amon and Boro paddy are higher in third Dumrat (moderate diversified) compare to the other villages. On the other hand productivity of potato is highest in the Sahebdanga (highest diversified village).Again the productivity of vegetable is highest in the Dumrut.

Table 3: Productivity of different crops in different villages

	Quintal per hectare					
Village/crops	**Amon**	**Boro**	**Potato**	**Muster seed**	**Wheat**	**Vegetables**
Payer	42.03	54.63	36.66	11.03	25.45	280.00
Sahebdunga	44.37	51.07	53.71	9.18	—	289.72
Dumrut	51.85	59.20	47.51	11.68	31.42	471.30

Source: Field Survey.

Productivity of paddy is 51.85 quintal per hectare in Dumrut and 42.03 quintal per hectare in Payer and 44.37 quintal per hectare in Sahebdanga (Table 3). The productivity of vegetable is 289.72 quintal per hectare in Sahebdanga and 471.30 quintal per hectare in Dumrut. Productivity of potato is highest in Sahebdanga. Productivity of potato is 53.71 quintal per hectare in Sahebdanga, 36.66 quintal per hectare in Payer, 47.51 quintal per hectare in Dumrut. Productivity of oil seed is the highest in Dumrut. So there is no systematic relationship between crop diversification and productivity of crops. But the productivity of vegetables is higher than other crops. This may be cause for diversification from traditional crops to higher valued crops like vegetables.

It can be seen that as share of vegetables in gross cropped area increases crop diversification also increases. This implies that farmers are diversifying toward vegetables. Farm size and crop diversification are oppositely related. Table-4 and Table-5 show that as average farm size increases Simpson index of crop diversification also increases. On the other hand, share farmers from first, second and third farming group is highest in Sahebdanga, second in Dumrut and third in Payer. This implies share of small farmers is highest in Sahebdanga, second in Dumrut and third in Payer. Therefore, crop diversification is highest in Sahebdanga, second Dumrut and third in Payer.

Table 4: villages wise irrigation, family labour, subsidiary occupation, and average farm size

Villages	**Share of vegetables in gross cropped area (%)**	**Net irrigated area (percentage out of total land**	**Share of family labour (%)**	**Subsidiary occupation (%)**	**Average farm size (hectare per family)**	**Simpson index crop diversification**
Payer	2.00	45.46	52.88	37.50	1.49	0.49
Shebdunga	14.64	86.8	70.66	16.00	0.83	0.74
Dumrut	10.08	38.05	61.66	30.00	1.35	0.54

Source: Filed survey.

Table 5: Farm size wise irrigation, family labour, subsidiary occupation, and average farm size

Farm size group	Net irrigated area (percentage out of total land)	Share of family labour(%)	Average farm size(hectare per family)	Simpson index of crop diversification	Share of vegetables (%)
.5<	87.60	79.74	0.26	0.64	16.56
.5-<1	67.00	66.33	0.72	0.63	13.80
1-<2	55.18	56.07	1.60	0.60	11.67
2-<4	45.06	46.72	2.30	0.56	5.86
4>	46.64	24.29	4.71	0.51	0.71

As these villages are not engaging in commercial agriculture, vegetables require more family labour because vegetable growers have to go market regularly. Family labour is more appropriate for marketing than hiring labour. So the farmers who can provide more family labour will cultivate more vegetables. Small farmers can provide more family labour compared to large farmers. Therefore, small farmers are more diversifying toward vegetables.

Subsidiary occupation affects cultivation of vegetable negatively (Table 4). If alternative occupation is available then they cannot provide own labour (family labour) which is more appropriate for vegetable cultivation. On the other hand, the farmers who have no alternative occupation, will try to utilize his own labour cultivating vegetable and can earn more profit (Table 6).

Table 6: Irrigation from different sources

Village	Submersible	Deep tube well	Electric Shallow	Pond
Payar	68.62	24.37	0.00	7.01
Sahebedanga	41.47	1.91	53.78	2.83
Dumrut	46.56	0.00	0.00	53.44
Total	50.21	6.68	18.95	24.17

Traditional crop require more water but for short time, but vegetable require water for a long time. Therefore, irrigated area is also a essential condition for crop diversification toward vegetables. Table 5 shows that as farm size increases proportion of net irrigated decreases and crop diversification also decreases. Source of irrigation is also important factor for cropping pattern. Submershible and deep tube well can provide huge amount of water and it is appropriate for traditional crop like paddy. On the other hand irrigation from pond and electric shallow is not appropriate for paddy.

Profit is the most important for cultivating any crop. Vegetables are more profitable compared to other crops among all groups of farmers in three villages. It can be seen that the average profit per unit of investment is lowest in the first village. Profit per unit of investment is declining as farm size increase for Amon paddy in three villages. Amon

Table 6: Farm size group wise profit per unit of investment in different crops

Profit per unit of investment (₹ per one rupee)																		
	Amon			**Boro**			**Potato**			**Mustard Seed**			**Wheat**			**Vegetables**		
Farm size group	**Payer**	**Shebd-unga**	**Dum-rut**	**Payer**	**Sheb-dunga**	**Dum-rut**	**Payer**	**Shebd-unga**	**Dum-rut**	**Payer**	**Sheb-dunga**	**Dum-rut**	**Payer**	**Sheb-dunga**	**Dum-rut**	**Payer**	**Sheb-dunga**	**Dum-rut**
.5<	4.65	6.71	—	2.61	3.26	0	2.65	3.52	0	4.68	1.03	—	—	—	0	0	11	—
0.5-<1	4.13	4.92	5.58	1.64	2.02	2.64	1.03	1.65	1.61	3.9	1.77	2.99	0.60	—	3.63	0	9.4	12.7
1-<2	3.82	3.34	4.5	1.97	1.82	2.17	1.14	2.06	1.4	3.05	1.67	3.26	7.17	—	3.42	5.09	11	9.81
2-<4	2.08	4.94	4.42	2.55	1.43	1.98	1.54	1.19	1.38	5.57	2.26	4.11	—	—	3.66	0	12	10.7
4>	2.85	0	—	1.91	0	—	1.42	0	0	3.13	0	2.82	1.77	—	2.31	6.92	—	—
Total	3.5	4.98	4.47	2.14	2.13	2.4	1.56	2.11	1.46	4.07	1.68	3.3	4.64	—	3.25	6	11	11.1

Source: Field Survey.

paddy is more profitable in the third village compared to the first and third village. This similar trend can be found in Boro paddy that is, as farm size increase profit per unit of investment decrease. Boro is more profitable in the village in the first village than second village but less profitable than third village. Profit per unit of investment of potato decline as farm size increase in the second village. Potato is more profitable in the second village compare to other villages. Mustard seed is more profitable in the first village. On the other hand muster seed is less profitable in the second village compare to other two villages. Muster seed is more profitable for a large farmer in third village. Again wheat is more profitable in the third village than other two villages. Wheat is more profitable for large farmers in third village. Above discussion cannot find any systematic relationship between profit per unit of investment and crop diversification. But profit per unit of investment from vegetables is higher compared to other crops in all the villages and in all the farm size groups. Therefore, farmers are diversifying from traditional crops to vegetables.

Two regressions have been taken to show at what extent above factors are responsible to affect crop diversification and proportionate share of vegetables. Now we shall take two linear regressions to check how probable factors discussed above are responsible for fostering crop diversifying. In the first regression, dependent variable is crop diversification index and independent variables are net irrigated area, share of family labour, average farm size, subsidiary occupation, profit per unit of investment. In second regression, dependent variable is share of vegetable in gross cropped area and independent variables are as before.

REGRESSION: 1

The dependent: Crop diversification index

R^2	F-Value	Significance-F	Number of observations
0.4027	16.72	0.00	130

Variable	Coefficient	t-Statistics
Intercept	0.38824	6.89***
Net irrigated area out of total agricultural land	0.00284	7.26***
Share of family labour out total labour	0.00106	1.79*
Profit per unit of investment	0.00048	0.91
Average farm size per household	-0.00439	-0.30
Subsidiary occupation, Presence=1, absence=0	-0.06406	-2.17**

Note: *** represents significant at the 1% level.

The regression result shows that crop diversification depends net irrigated area, share of family labour out of total labour of the household and availability of subsidiary occupation of the household. The result shows that if the irrigated land increases by 1 percent, on the average, crop diversification index would increase significantly (1%

level) by controlling the above variables. On the other hand, if the share of family labour out of total labour increases by 1 percent, on the average, crop diversification index would increase significantly (10% level) by controlling the above independent variables. It is also found that the average crop diversification of household having subsidiary occupation is significant (5% level) lower than household not having a subsidiary occupation.

REGRESSION: 2

Dependent variable: Share of vegetables in gross cropped area

R^2	F-Value	Significance-F	Number of observations
0.3532	13.54	0.00	130

Variable	Coefficient	t-Statistics
Intercept	-5.44194	-1.90*
Net irrigated area per household	0.09202	4.63***
Share of family labour out of total labour	0.12607	4.2***
Profit per unit of investment	0.03812	1.42
Average farm size	-0.02925	-0.04
Subsidiary occupation, Presence = 1, absence = 0	-3.50987	-2.34**

Note: *** represents significant at the 1% level.

The regression result shows that the share of vegetables in gross cropped area depends on net irrigated land of household, share of family labour out of total labour of the household and availability of subsidiary occupations of the household. The result shows that if the irrigated land increases by 1 percent, on the average, cultivation of vegetables would increase significantly (1% level) by controlling the above variables. On the other hand, if the share of family labour out of total labour increases by 1 percent, on the average, cultivation of vegetables would increase significantly (1% level) by controlling the above independent variables. It is also found that the average cultivation of household having subsidiary occupation is significant (5% level) lower than household not having a subsidiary occupation.

Summary and Conclusion

Farmers cultivate more traditional crops where adequate water is available but water is an important factor for cultivating vegatables. Family labor is an important factor for crop diversification, because vegetables require more family labour compared to traditional crops. More over subsidiary occupation play a negative role on diversification. Small farmers are more diversified compared to large farmers because small farmers can provide more family labour. Some farmers have decrease vegetables crops due to decreasing in size of land. Infrastructure is not so important, because it has been seen that

Sahebdanga is not infrasturaly developed, inspite of that, it is more diversified. On the other hand Payer is infrusturally developed but level of diversification lower compared other villages. Farmers get more profit from vegetables compared to other crops. Therefore, Government should take appropriate policy to promote crop diversification from traditional crop to vegetables.

20

Prospects of Onion Cultivation (*Allium cepa* L.) in West Bengal

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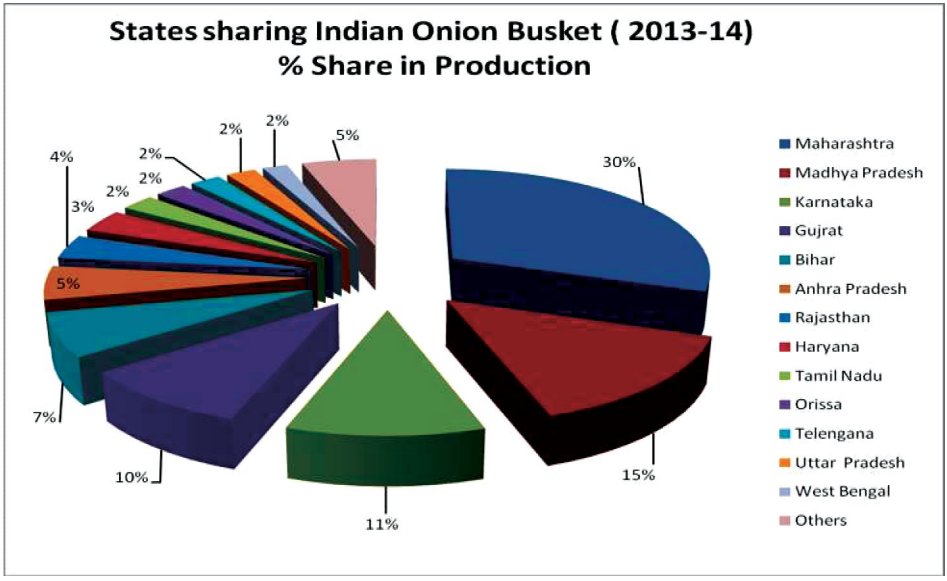
Abstract

Onion (Allium cepa L.) is important and indispensable item in worldwide kitchen as condiment and vegetable. India produced around 19.40 million MT of onion from 1.20 million Ha in 2013-14. Maharashtra contributes maximum share (30%) in total onion production of India whereas West Bengal contributes only 1.77%. In West Bengal major produce comes from Hooghly, Murshidabad, Burdwan, Nadia and North 24 Parganas district during March – April mostly as Rabi crop. Demand for onion in West Bengal was estimated 8.56 lakh MT per year against which production was to the tune of 3.43 lakh MT from an area of 23.5 thousand hectare during 2013-14. The State extremely depends upon supply from other States like Maharashtra and Karnataka particularly during the offseason of West Bengal i.e. July to February. In Kolkata market, there is a trend of price rise from June onwards and it lowers during March-April every year. Popularization of Kharif onion in uplands of West Bengal particularly in Western Red and Lateritic Zone and storage of Rabi onion may be the options towards minimizing the deficit of onion in the State as well as dependency on supply of onion from other States and price stabilization. Feeling its importance, FPI& Horticulture Department, Government of West Bengal launched cultivation of Kharif onion scheme with Agrifound Dark Red variety during 2013 in eight districts and the same has been extended to another seven districts during 2014 which is running during 2015 also. Increasing area under kharif onion by shifting / replacing rainy season vegetables like cucurbits, brinjal or bhindi has been observed in different districts. Farmers are selling both green onion as well as mature bulb of kharif onion based on market demand. In Murshidabad and Nadia, this off season onion has been also adopted by some traditional rabi onion growers. Traditionally 'Sukhsagar' – the indigenous onion cultivar of West Bengal is stored for domestic use and seed bulb purposes. Several low cost onion storage structures of 25 MT capacities were established mostly in Murshidabad, North 24 Parganas and Hooghly with the financial assistance of FPI& Horticulture Department, Government of West Bengal. Seeds of 'Sukhsagar' are being produced mostly in Hooghly and Nadia. There is scope of kharif onion seed production also. Apart from other leading onion growing States, a huge amount of onion is exported from West Bengal to Bangladesh at lower prices during peak harvest period through ports i.e., Ghojadanga, Kotwaligate, Hili and Petrapole. West Bengal has huge scope for augmentation of onion production through scientific and professional crop management by strengthening production and handling techniques, storage, enhancing productivity and penetrating in foreign markets. Survey and

diagnosis of lands suitable for onion and development of area specific farming system model in cluster approach is needed. Supply of quality seed, sufficient storage facilities, coverage under crop insurance may increase onion area. Seed production for all season onion may be encouraged through seed village/ cluster programme.

Keywords: *Onion, scope, varieties, storage, export, West Bengal*

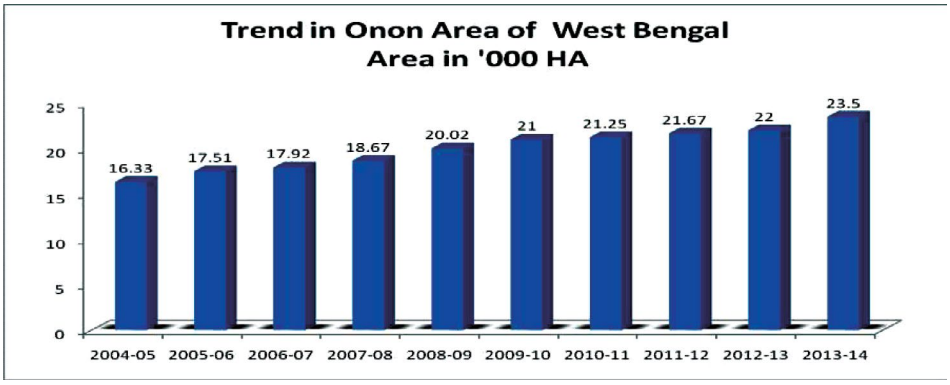
Onions (*Allium cepa* L.) have an extensive culinary, dietary, therapeutic, trading, income and employment generation value. It is the most important and indispensable item in worldwide kitchen as condiment & vegetable. Onion (*Allium cepa* L.) is one of the few versatile vegetable crops that can be kept for a fairly long period and can safely withstand the hazards of rough handling including long distance transport. Bulb contains allyl-propyl disulphide, a volatile oil that accounts for its distinct pungent flavour. It lowers the bad LDL, cholesterol and triglycerides and increases the good HDL cholesterol in blood. Quercetin, one of the important flavonoids found in onion, helps to prevent high blood pressure. Eating onions is beneficial in the treatment of diabetes, cancer and asthma besides heart diseases. Onion juice is used for external application on burns, insect bites and wounds and taken internally as a digestive stimulant. Onion has great demand in processed forms also apart from green leaves, immature and mature bulbs, and immature inflorescence. Processed products like, onion Flakes, Powder, Paste, Crush and Pickles not only reduce transport cost but also storage losses.



Area, Production and Productivity

India produced around 19.40 million metric tons of onion from 1.20 million ha of land and is the second largest onion producer in the World after China. However, the average

productivity (16.1 t/ha) of India is low as compared to world average i.e. 19.3 t/ha (NHB, 2014). Maharashtra, Karnataka, Rajasthan, Madhya Pradesh, Gujarat, Andhra Pradesh and Bihar are major onion producing States in India. The share of Maharashtra in the total onion production of the country is around 30%. In contrast, West Bengal contributes only 1.77% (NHB, 2014 and Ann., 2015). In West Bengal major produce comes from Hooghly, Murshidabad, Burdwan, Nadia, North 24 Parganas district during the month of March – April mostly as *Rabi* crop.



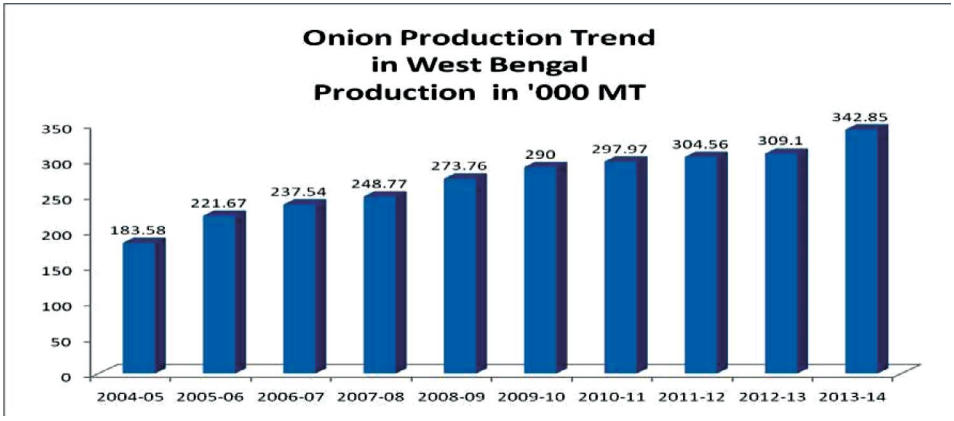


Table 1: Area and Production trend of onion in West Bengal

Year	Area ('000 Ha)	Production ('000 MT)	Productivity (MT/Ha)
2004-05	16.33	183.58	11.24
2005-06	17.51	221.67	12.66
2006-07	17.92	237.54	13.26
2007-08	18.67	248.77	13.32
2008-09	20.02	273.76	13.67
2009-10	21.00	290.00	13.81

2010-11	21.25	297.97	14.02
2011-12	21.67	304.56	14.05
2012-13	22.00	309.10	14.05
2013-14	23.50	342.85	14.59

Source: Economic Review, 2005 to 2014; Ann., 2015.

Scope in West Bengal

The estimated per capita consumption of onion in India is about 9.37 kg/year (Samra *et al*. 2006). So, demand for onion in West Bengal may be estimated as 8.56 lakh metric tons per year against which production was to the tune of 3.43 lakh metric tons during 2013 – 14. Considering post harvest losses as 15 – 30% (Chadha and Pareek, 1993), about 2.91 to 2.40 lakh metric tons may be available for domestic consumption in West Bengal. So, there is an estimated gap of 5.65 to 6.16 lakh metric tons per year between actual onion production and consumption in West Bengal. As West Bengal produce mostly *Rabi* crop, the State extremely depends upon supply from other States like Maharashtra and Karnataka particularly during the offseason of West Bengal i.e., July to February. This situation leads to explore the scope of onion cultivation during *kharif* and late *kharif* season and storage of *rabi* onion.

In India, the production seasons and arrivals of onion in market lead to a typical situation where prices tend to peak during September to November and reduces from January to March/April every year. The three main seasons of *Kharif* (monsoon), *Late Kharif* and *Rabi* (winter) contribute 20%, 20% and 60% respectively, to the total onion production in India (Tripathy *et al*. 2013). Generally the onion storage filled by *Rabi* onion gets emptied by around August to September beyond which storage loss rises to 30% and above (Samra *et al*. 2006). There is a scarcity period during October – November. The deficit in market supply during the period after September is responsible for the higher prices that prevail during September to November. In Kolkata market, there is a trend of price rise from June onwards and it lowers during March – April every year (NHB, 2014).

Production of onion in *Kharif* and *Late Kharif* season is a new strategy to have supply of onion during November onwards in West Bengal and to minimize dependency on supply of onion from other States. Importance of *Kharif* cultivation of onion to stabilize the prices is well accepted (Ann., 2013). Exploitation of scope of *Kharif* onion in uplands of West Bengal particularly in the western Red & Lateritic Zone may be a good option as the average productivity of Upland Paddy in this region is very poor which is comparatively less remunerative than *Kharif* onion. Such area having good drainage system is very much suitable for the *Kharif* onion crop. Initiatives to cover more area having irrigation facilities by high yielding varieties of onion during *Late Kharif* and *Rabi season* along with creation of sufficient storage structures may lead to increase the period of availability beyond June in West Bengal.

Table 2: Round the year availability of fresh onion in India

Month	States : Onion available for consumption	Remarks
July	Tamilnadu, Karnataka, Andhra Pradesh	Early *Kharif*
August	Tamilnadu, Karnataka, Andhra Pradesh	Early *Kharif*
September	Tamilnadu, Karnataka, Andhra Pradesh, Maharashtra	Early *Kharif*
October	Maharashtra, Tamilnadu, Karnataka, Andhra Pradesh, Rajasthan, Madhya Pradesh	*Kharif*
November	Maharashtra, Tamilnadu, Karnataka, Andhra Pradesh, Rajasthan, Madhya Pradesh, Haryana, Punjab, Uttar Pradesh and Bihar.	*Kharif*
December	Maharashtra, Gujarat, Rajasthan, Madhya Pradesh, Haryana, Uttar Pradesh, Punjab,	Kharif
January	Maharashtra, Gujarat, Madhya Pradesh, Karnataka, Orissa	Late *Kharif*
February	Maharashtra, Gujarat, Madhya Pradesh	Late *Kharif*
March	Maharashtra, Madhya Pradesh,Gujarat, Tamilnadu, Karnataka, Andhra Pradesh, Orissa, West Bengal.	Late *Kharif* / *Rabi*
April	Maharashtra, Madhya Pradesh Gujarat, Tamilnadu, Karnataka, Andhra Pradesh Rajasthan, Orissa, West Bengal.	*Rabi*
May	Maharashtra, Gujarat, Rajasthan, Haryana, Punjab, Uttar Pradesh.	*Rabi*
June	Haryana, Punjab, Uttar Pradesh, Himachal, Uttarakhand.	*Rabi*

Monthly total Arrival of Onion in Different Markets of India during the period of January to December 2014

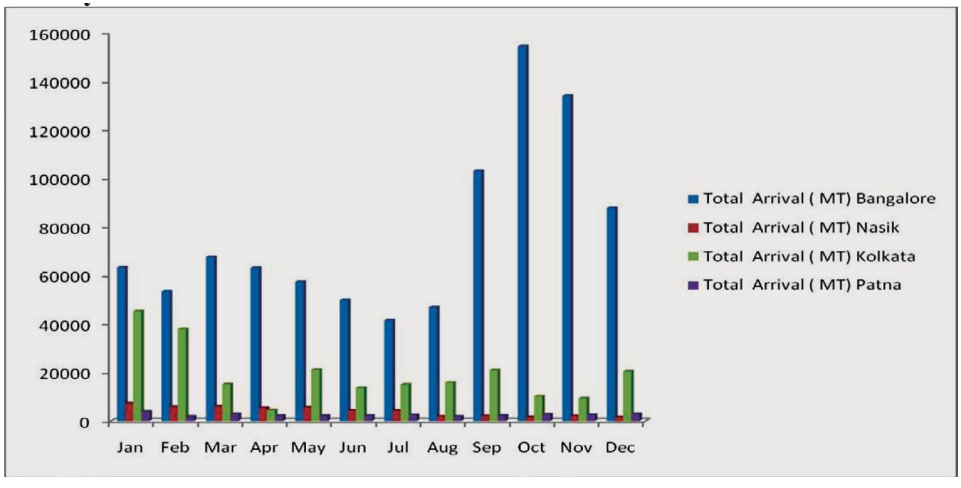


Table 3: Monthly total Arrival of Onion in Different Markets of India during the period of January to December 2014 (Total Arrival in MT)

Market	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Bangalore	63193	53344	67468	63059	57286	49775	41480	46786	102997	154265	133859	87731	921243
Nasik	7325	5845	5980	5315	5576	4275	4245	1767	2052	1620	2016	1537	47553
Kolkata	45160	37856	15072	4445	21133	13616	14992	15824	20880	10160	9328	20434	228900
Patna	3880	1795	2900	2085	2105	2155	2470	1840	2220	2720	2540	2895	29605

Source: NHB (2014).

Table 4: Monthly Average Wholesale Price of Onion in Different Markets of India during the period of January to December 2014 (Average Wholesale Price in ₹/ Quintal)

Market	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Bangalore	1118	794	747	743	1015	2038	2554	2241	1754	1643	1507	1377	1461
Nasik	1092	834	856	914	1267	1546	2067	1714	1893	1560	1636	1674	1404
Kolkata	1488	1189	1146	1110	1344	1857	2509	2418	2062	2071	2108	2330	1803
Patna	1396	1144	1149	1193	1325	1588	2190	2002	1883	1733	1924	2039	1631

Source: NHB (2014).

Monthly Average Wholesale Price of Onion in Different Markets of India during the period of January to December 2014

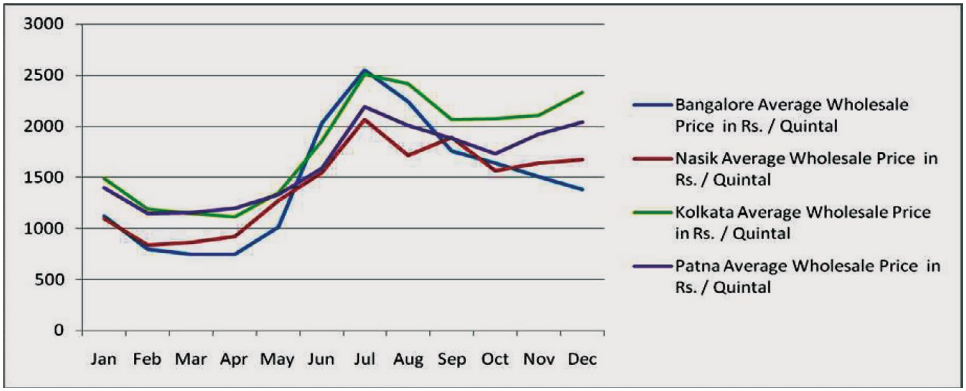


Table 5: Monthly total Arrival of Onion in Kolkata Market during the period of January to December (2010-14) (Total Arrival in MT)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2010	27058	40648	36014	20166	29728	28768	48580	52184	28896	26320	13267	11788	363417
2011	7426	18604	12024	10217	10180	15786	23408	21380	26672	26592	52960	29200	254449
2012	35328	76208	30734	10068	28218	41122	42944	30324	31516	112848	25144	26677	491131

2013	30182	28405	19517	13488	28292	21100	27536	9808	7770	7366	7672	18424	219560
2014	45160	37856	15072	4445	21133	13616	14992	15824	20880	10160	9328	20434	228900

Source: NHB (2010, 2011, 2012, 2013 and 2014).

Monthly total Arrival of Onion in Kolkata Market during the period of January to December (2010-14) (Total Arrival in MT)

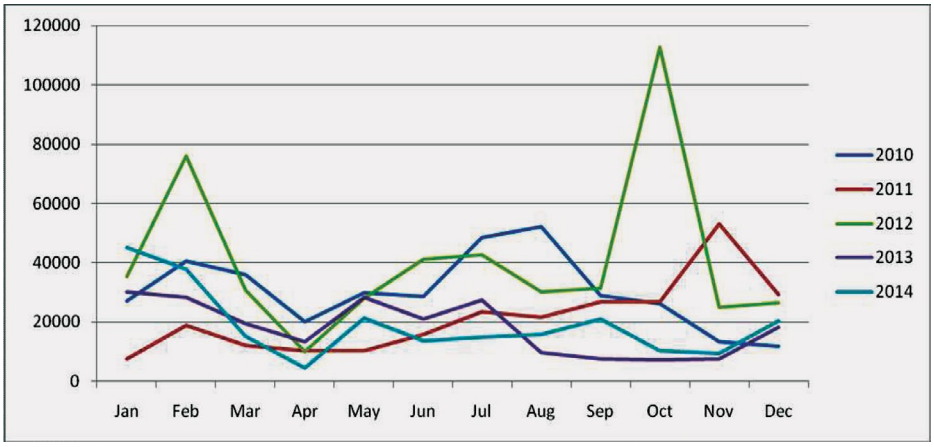
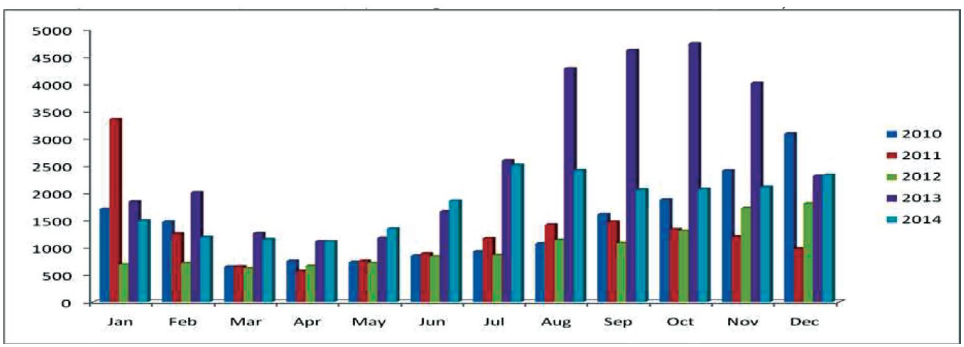


Table 6: Monthly Average Wholesale Price of Onion in Kolkata Market during the period of January to December (2010-2014) (Average Wholesale Price in ₹/Quintal)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2010	1706	1470	648	752	732	846	928	1073	1610	1875	2409	3088	1428
2011	3353	1255	649	568	751	889	1166	1418	1468	1332	1203	982	1253
2012	687	717	622	662	718	834	860	1136	1081	1306	1723	1806	1013
2013	1840	2010	1260	1111	1176	1662	2594	4284	4619	4741	4016	2315	2636
2014	1488	1189	1146	1110	1344	1857	2509	2418	2062	2071	2108	2330	1803

Source: NHB (2010, 2011, 2012, 2013 and 2014).

Monthly Average Wholesale Price of Onion in Kolkata Market during the period of January to December (2010-2014) (Average Wholesale Price in ₹/Quintal)



Strategies

- ◊ Staggered planting of onion with suitable varieties during *Kharif* and *Late Kharif* to address supply gap during September to February.
- ◊ Adequate research on proper agro techniques for all the season and identification/ development of high yielding and hybrid varieties suitable for West Bengal particularly for *Kharif* and *Late Kharif* season.
- ◊ Area expansion of *Rabi* onion with high yielding varieties suitable for storage.
- ◊ Increased Capacity for open air storage of *Rabi* onion.
- ◊ Emphasis on seed production of suitable onion varieties in West Bengal, particularly for *kharif* onion.
- ◊ Adequate training to the farmers and crop demonstration for agro-techniques particularly seedling raising during *Kharif* season.
- ◊ Encouragement of nursery business for onion seedling particularly for *Kharif* and *Late Kharif* season.
- ◊ Evaluation of raising of *kharif* onion through sets / small bulblets.
- ◊ Exploitation of *Late Kharif* season in *Terai* region of West Bengal to avoid high precipitation during rainy season.
- ◊ Planting of early *rabi* onion in November and harvesting during February – March to avoid pre-monsoon shower which cause poor sto*rabi*lity of mature bulbs.

Initiatives

Production of onion in *Kharif* and Late *Kharif* season is a new strategy to have supply of onion during November onwards in West Bengal and to minimize dependency on supply of onion from other States. Feeling its necessity, FPI& Horticulture Department, Government of West Bengal launched a scheme of cultivation of *Kharif* onion through free distribution of Agrifound Dark Red onion seed during 2013 in eight districts viz. Murshidabad, Nadia, North 24 Parganas, Hooghly, Birbhum, Bankura, Purulia and Paschim Medinipur. The Scheme was formulated to exploit the scope of *Kharif* onion in uplands of West Bengal particularly in the western Red & Laterite Zone as the average productivity of Upland Paddy in this region is very poor which is comparatively less remunerative than *Kharif* onion. Such area having good drainage system is also very much suitable for the *Kharif* onion crop.

Seeing its viability another seven districts viz., Bardhaman, Howrah, South 24 Parganas, Purba Medinipur, Malda, Uttar Dinajpur and Dakshin Dinajpur were added during 2014 and seed of 'Agrifound Dark Red' were distributed at subsidised rate.

During 2015 also, a target has been fixed to cover 700 ha under *Kharif* onion cultivation in these fifteen districts but no seed has been distributed from Government's end (Ann., 2015). It was resolved that only financial assistance will be given for *Kharif* onion

cultivation. Initiatives have been taken to involve several Farmer Producer Organizations (FPO) registered under the scheme 'National Vegetable Initiative for Urban Clusters in West Bengal' as facilitator in the process of onion seed availability to the farmers during *Kharif* season 2015. Seed is now locally available in different districts of West Bengal and farmers are procuring seeds as per their requirement.

Onion in Gangetic Alluvial Zone of West Bengal

A large area of Hooghly, Murshidabad, Burdwan, Nadia, North 24 Parganas district is being covered by different eco-diverse local cultivars emanated from the basic indigenous cultivar 'Sukhsagar' during the *Rabi* season although some few local cultivars are also available. Increasing area under *kharif* onion by shifting rainy season vegetables like cucurbits, brinjal or bhindi even upland paddy has been observed in Murshidabad district. Farmers of Nawda, Hariharpara, Berhampur blocks are selling both green onion as well as mature bulb of *kharif* onion based on market demand.

Demand of green onion

Most of the farmers of Nadia, Hooghly, Bardhaman and North 24 Parganas are showing their interest to grow onion during *kharif* season as green onion which can be harvested after 60 to 70 days of transplanting along with leaf and immature bulb. This enables them to sell green onion at dear price starting from September end onwards. According to them, demand for green onion continues up to mid November till tender onion flower stalk (*Peyaj kali*) arrives in the market. Not only the high price of green onion, scope of growing of other remunerative crops of *Rabi* season like Potato, Peas etc. in the same field after harvesting green onion by end of October, made them interested in this new strategy. Dhital *et al*. (2015) also reported that farmers of Chitwan areas of Nepal preferred selling onions in immature green stages rather keeping the plants for bulb production. Higher market price was the major influencing factor followed by shorter duration as compared to keeping the onion in the field to bulb maturity, which takes much longer time.

Kharif onion in traditional *rabi* onion areas

In Murshidabad, this off season onion cultivation has been adopted by some traditional *rabi* onion growers. They are accommodating *kharif* onion up to end of November in their field and then transplanting *rabi* onion in December. Similarly, *kharif* onion is spreading its wings in the traditional *rabi* onion areas of Nadia district.

Late Kharif onion

Some farmers of Murhidabad district are growing Agrifound Dark Red onion during late *kharif* season to avoid high precipitation during early growth stage. They are planting seedlings of 45 days old in first week of October and harvesting the bulb during January

with higher yield than *kharif* season. Increased in production in late *kharif* grown onion helps the farmers to equalize their profit though price of onion is lower during January than that of October - November. Halder *et al*. (2009) suggested for growing early- *rabi* onion in humid Gangetic Alluvial Zone of West Bengal.

Case Study I

Ananda Biswas, resident of Dahakulla Village, Nakashipara Block, Nadia is a progressive farmer who grew *kharif* onion first time during 2013. One kg seed of Agrifound Dark Red was given to him at free of cost from District Horticulture Office, Nadia. His effort was successful and made him confident to grow the crop in the next year by purchasing seed of Agrifound Dark Red at subsidized rate replacing early cauliflower, a highly remunerative crop during *kharif* season. Earlier he followed crop rotation like Elephant's Foot Yam (Pre- *Kharif*) - Early cauliflower (*Kharif*) - Pumpkin (*Rabi*). Now he introduces onion during *kharif* season shifting cauliflower to *Rabi* season. He transplanted one bigha land during first week of September, 2014 and harvested 28 quintals of bulb during end of November. He realized a net profit of ₹ 25200 by expensing ₹ 14000. But he was not being able to harvest the high price of green onion which prevails during October each year. This made him eager to get the seed by mid June so that green onion can be harvested after 70 days of transplanting and marketed as early crop to meet up great demand during month of festival i.e. October. During 2015, he purchased Agrifound Dark Red seed from FPO of Nadia district during June targeting to harvest high price of green onion.

Case Study II

Sharkat Biswas, another farmer of vill. Chenga Uttarpara, Nakasipara block of Nadia, was not dispirited to grow *kharif* onion during 2014 though he failed to raise the nursery during 2013. This year, with his rigorous efforts, he became a successful farmer starting harvesting green onion from October end to mid November and fresh bulb upto mid Dec. He sold green onion @ ₹ 20 per kg whereas fresh bulb @ ₹ 15 per kg at the local market. Mr. Biswas was very satisfied with onion during *kharif* season by replacing cucurbits which he was growing traditionally year after year in this season. Both of them emphasized on easy availability of seed of suitable varieties at local market within mid June, proper training on agro-techniques particularly seedling raising. This is in conformity with the findings of Barakade and Lokhande (2011) and Nanagouda and Rajasab (2012).

Onion in Red and Lateritic Zone

Though *Rabi* onion is in practice using local cultivars, *Kharif* onion is now gaining popularity among the farmers of Purulia, Bankura Paschim Medinipur and Birbhum districts of Red & Lateritic Zone of West Bengal. Increasing area under *kharif* onion by shifting black gram or groundnut in Purulia and rainy season vegetables mainly

cucurbits in Paschim Medinipur has been observed. They are selling both green onion as well as mature bulb based on market demand. Financial support was an important constraint for resource poor tribal farmers of these districts as cost of onion seed is high.

Case Study III

Madan Ghosh, a progressive farmer of village Talpukur, Rajnagar Block of Birbhum district tried *kharif* onion first time in the fallow land with Red and Laterite soil during 2013 after convinced by the District Horticulture Office, Birbhum and getting seeds of Agrifound Dark Red at free of cost from them. Being a successful farmer, he was looking for seed in the next year i.e. 2014 and harvested 11 quintals of onion bulb from 15 katha land during mid December at 105 days after transplanting. He sold fresh bulb @ ₹ 20 per kg to the middle man from his courtyard realizing a net profit of ₹ 13000 by expensing ₹ 9000. He also earned an additional income of ₹ 1800 by intercropping red jute as leafy vegetables with this onion. Not only the easy availability of seed of suitable varieties at local market within mid June and proper training on agro-techniques particularly seedling raising, he stressed also on creation of small irrigation source to save the crop from dry spell during *kharif* season. Availability of healthy, disease free seedlings will play the most critical factor for adoption of this new crop at Rajnagar area, he opined. Importance of quality seedlings for adoption of new techniques was also recorded by Sethy *et al.* (2010).

Agro-techniques for Onion Eultivation

Table 7: Onion varieties suitable for West Bengal

Variety	Season	Size & Shape of bulb	Colour of bulb	Maturity (Days after Transplanting)	Av. Yield (MT/Ha)	TSS (%)	Source
Agrifound Dark Red	*Kharif*, Late *Kharif*	Globular, 4-6 cm bulb diameter.	Dark Red	95-110	30	12-13	NHRDF, Nasik
Baswant 780	*Kharif*, Late *Kharif*	Globular	Crimson Red	100-110	25	12	MPKV, Rahuri, Maharashtra
N 53	Kharif	Flatish round	Red	90-100	25	11-12	Department of Agriculture, Maharashtra
Arka Pragati	Late *Kharif*, *Rabi*	Globular	Pink	100	20		IIHR, Bangalore
Pusa Red	Late *Kharif*, *Rabi*	Flat to globular	Bronze red	140-145	25	12-13	IARI, New Delhi

Phule Safed	Late *Kharif*, *Rabi*	Globular	White	120-130	25-30	13	MPKV, Rahuri, Maharashtra
Agrifound Light Red	Rabi	Globuler, 4-6 cm bulb diameter.	Light Red	110-120	30	13-14	NHRDF, Nasik
Pusa Ratnar	Rabi	Obviate to flat globular	Bronze deep red	150	32.5-35	12	IARI, New Delhi
NHRDF Red (L 28)	Rabi	Globular round	Dark Red	100-110	25-30	13-14	NHRDF, Nasik
NHRDF Red-2 (L 355)	Rabi	Globular	Light Red	100-120	30-40	13-14	NHRDF, Nasik
Hisar – 2	Rabi	Globular	Bronze Red	100-115	20-25	11.5-13	Haryana Agricultural University, Hisar
Pusa White Flat	Rabi	Flattish Round	White	130-135	20-30	12-14	IARI, New Delhi
Pusa White Round	Rabi	Roundish flat	White	130-135	30-32.5	12-14	IARI, New Delhi

Source: 1.Checklist of Commercial Varieties of Vegetables, 2012, Department of Agriculture & Cooperation, GOI, New Delhi.

2. Onion Production in India, Technical Bulletin No. 9, 2010, NHRDF, Nasik, Maharashtra.

Time of Planting: The period in between the second week of August and second week of September emerged as suitable planting time for *Kharif* onion in Gangetic plains of West Bengal (Das *et al.* 2015). Mohanta and Mandal (2014) found significant increase in growth of plants and size of bulbs when planting delayed from August to September in Red and Laterite belt of West Bengal. They obtained highest yield of Agrifound Dark Red with 30th September planting. For *late kharif / early rabi* onion, planting of 45 days old seedlings of the varieties like Agrifound Dark Red, Baswant 780, Phule Safed and N -53 in the first week of October and harvesting the bulbs during last week of February under Gangetic alluvial plains of West Bengal was suggested (Karak and Hazra, 2014).

Kharif onion production through bulblets

To avoid the risk of seedling raising during heavy rains in June -July, *kharif* onion can be successfully grown through bulblets (Singh and Gupta, 2013). These technologies were developed at National Horticultural Research and Development Foundation, Nasik.

Bulblets raised from varieties like Agrifound Dark Red, Baswant-780, N-53 and Arka Kalyan during summer season are used for planting. Seeds @ 15 g / sq.m. are sown on raised bed or in flat beds depending upon the soil by following the broadcasting method. Best time of sowing of seed for getting quality bulblets is first fortnight of January to early February depending upon the weather condition of the area. The plants are allowed in nursery bed up to April-May till there is top fall. Harvesting is done along with the tops and selected bulblets of 1.5 – 2.0 cm size are stored by hanging method till August in a well ventilated room. These bulblets are planted on raised beds or on both sides of ridges in BBF (Broad Band Furrow) system during August at 10 × 10 cm spacing for better bulb development and yield. Dipping the bulblets in fungicide carbendazim at 0.1 per cent and insecticide monocrotophos at 0.1 per cent solution before planting is recommended for better establishment. Bulblets below 1.5 cm if planted do not establish and sprout but rot. Large sized bulblets result in more doubles and bolters and increased cost of production also. These bulblets may be used for early harvest of green onion. Evaluation of raising of *kharif* onion through sets/small bulblets is necessary under West Bengal condition.

Storage

Rabi onions have more ability to store and thus widely used for domestic, export and seed bulbs purposes. In West Bengal major produce comes during the month of March–April mostly as *Rabi* crop. This *Rabi* produce is not sufficient to meet the demand beyond May-June. So, from July to October is the critical period where there is no fresh harvest of onion until *kharif* crop matures and hence, storage becomes important for steady supply.

Onion varieties with good keeping quality in storage like Agrifound Light Red, Arka Pragati, Pusa Red, NHRDF Red -2 etc. are suitable for *Rabi* season cultivation in West Bengal. 'Sukhsagar'- a local cultivar of West Bengal also have good keeping quality. Traditionally the farmers of West Bengal store 'Sukhsagar' onion for domestic use and seed bulb purposes. They store bundles of mature bulbs along with dry leaves intact, hanging from bamboo rack at ambient atmosphere inside their house. Not only domestic use, this enables them to store seed bulb also till October.

Murkute (2012) recommended 'Bhima Kiran' as the best variety for long duration storage (six months) under Maharashtra condition. He recorded lowest value in weight loss (30.35%), sprouting of bulbs (2.85%) and rotting (9.35%) after a period of six months when properly cured bulbs of 'Bhima Kiran' stored in 'Top and Bottom Ventilated Storage Structures'.

Feeling the necessity of increased capacity for open air storage of *Rabi* onion, several low cost onion storage structures of 25 MT capacities each were established mostly in the districts like Murshidabad, North 24 Parganas, Hooghly of West Bengal with the financial assistance of FPI & Horticulture Department, Government of West Bengal. A target for establishment of 114 nos. such structures have set up under Mission for

Integrated Development of Horticulture by the FPI & Horticulture Department during 2015-16 (Ann., 2015 b).

Seed Production

Onion is a biennial crop for the purpose of seed production. Normally bulbs of *rabi* crop are harvested in the month of April and stored till these bulbs are replanted during October to December for seed production. This conventional method is time consuming and requires considerable space for storing the bulbs. Seeds of Sukhsagar – the indigenous cultivar of West Bengal are being produced in this way mostly by the farmers of Hooghly and Nadia districts. Successful seed production of onion is possible through production of bulbs by transplanting the seedlings during first week of September and its subsequent replanting during last of December of the same year with the harvesting of seeds during April next year. Varieties like Agrifound Dark Red, Baswant 780 and Arka Pragati emerged as most promising for producing both early *rabi* onion bulb as well as their seeds in the Gangetic alluvial plain of West Bengal (Karak and Hazra, 2012).

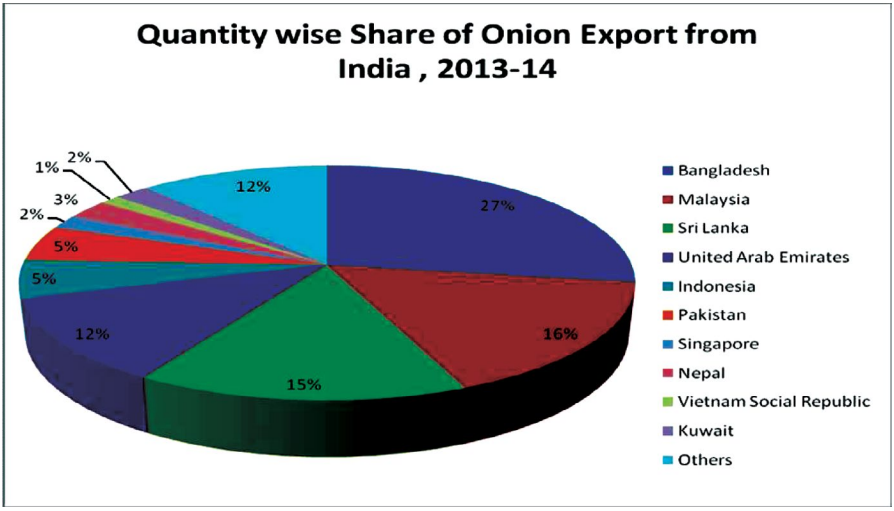
Scope of Export

Besides meeting domestic need, a sizeable quantity of onion is being exported from India. India's recent export of onion during 2013-2014 is about 14.82 lakh MT which valued of ₹ 3169.61 crores. Onion is the most vital ingredient in Indian food, and seasonal shortages can cause price increases and social unrest. India's onion exports cater mainly to the neighbouring South East Asian countries and some Middle East nations. Pakistan, Malaysia, UAE, Sri Lanka, Bangladesh and Singapore account for the major share of exports from India.

Table 7: Export Destinations of Indian Onion

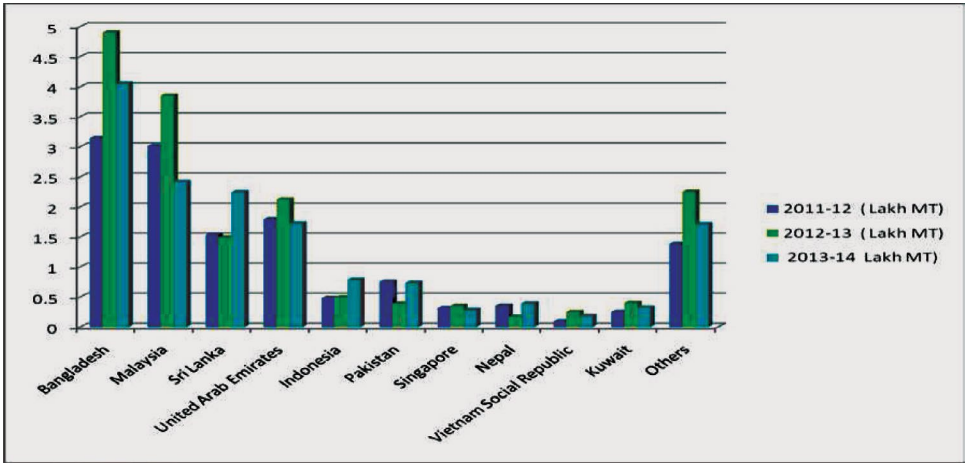
Country	2011-12		2012-13		2013-14	
	Quantity (Lakh MT)	Value (₹ in Crore)	Quantity (Lakh MT)	Value (₹ In Crore)	Quantity (Lakh MT)	Value (₹ In Crore)
Bangladesh	3.14	386.21	4.90	437.56	4.05	889.14
Malaysia	3.01	443.45	3.85	491.06	2.41	639.35
Sri Lanka	1.53	174.64	1.49	204.92	2.24	392.49
U.A.E.	1.79	221.9	2.12	238.21	1.72	329.40
Indonesia	0.48	87.32	0.49	66.94	0.78	242.50
Pakistan	0.75	104.60	0.39	48.41	0.73	96.39
Singapore	0.31	39.11	0.35	47.15	0.28	74.19
Nepal	0.35	43.46	0.17	39.60	0.39	66.14
Vietnam S.R.	0.09	14.34	0.25	30.06	0.18	63.35
Kuwait	0.25	26.71	0.40	44.85	0.32	59.19
Others	1.38	181.27	2.25	317.86	1.71	317.48
Total	13.10	1723.00	16.67	1966.63	14.82	3169.61

Source: NHB (2014).



West Bengal has a long international border and it occupies an important strategic location in the eastern part of India. Locational advantages suggest that it should play a crucial role in India's pursuit for increased trade with other Asian countries. Export data shows that Bangladesh is the most important customer of Indian onion for year after year. Not only from other onion growing States, a huge amount of onion is also exported from West Bengal to the Bangladesh at lower prices during peak harvest period. Farmers have had to sell at lower price at harvest season as sufficient storage facilities are unavailable.

Trend in Onion Export to different Countries from India (in Quantity)



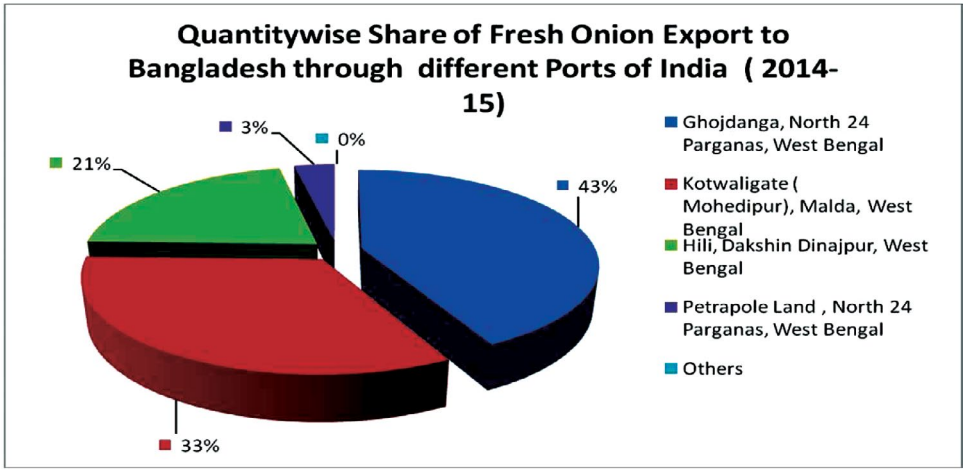
All the land ports of West Bengal almost exclusively trade with Bangladesh. Although DGCIS data indicate that small amounts of exports destined for other countries also pass through these ports, for all practical purposes these ports are Bangladesh-specific (Pal,

2013). Among the land ports, Petrapole Land, Kotwaligate (Mohedipur), Ghojadanga and Hili are the active ports for trade with Bangladesh. While Petrapole and Ghojadanga are in southern West Bengal (North 24 Parganas district), Hili and Kotwaligate Mohedipur) are at the northern part of the state (Dakshin Dinajpur and Malda districts respectively). Petrapole is the largest land port in West Bengal.

Table 8: Fresh Onion Export to Bangladesh through different ports of India

PORT	2012-13		2013-14		2014-15	
	Qty (lakh MT)	Value (₹ In Crore)	Qty (lakh MT)	Value (₹ In Crore)	Qty (lakh MT)	Value (₹ In Crore)
Ghojdanga, North 24 Parganas, West Bengal	1.92	157.33	1.68	338.56	1.94	321.97
Kotwaligate (Mohedipur), Malda, West Bengal	2.20	189.33	1.33	293.92	1.51	247.76
Hili, Dakshin Dinajpur, West Bengal	0.31	33.39	0.72	171.07	0.97	181.94
Petrapole Land, North 24 Parganas, West Bengal	0.47	57.51	0.30	81.80	0.15	27.98
Others	0.00	0.00	0.02	3.79	0.00	0.00
Total	4.90	437.56	4.05	889.14	4.57	779.65

Source: APEDA



Conclusion

In the present scenario, it may be concluded that there is huge scope for augmentation of onion production in West Bengal. Managing the crop scientifically and professionally by strengthening production and handling techniques, enhancing productivity, penetrating in foreign markets helps the farmers to increase economic returns. There is need for survey and diagnosis of lands suitable for onion and development of area specific farming

system model in cluster approach. The government may formulate an appropriate policy to invest in research and development for enhancing the yield of this crop. Popularization of *Kharif* onion in uplands of West Bengal particularly in the western Red and Lateritic Zone is one of the best options towards minimizing the deficit of onion in the State as well as dependency on supply of onion from other States and price stabilization. Adequate research on proper agro techniques for all the season and development of high yielding and hybrid varieties suitable for West Bengal particularly for *Kharif* and *Late Kharif* season is strongly needed. Attention should be given to create adequate water resources especially in the dry tracts of western region of West Bengal. There is also need for integrated research for post harvest handling, packaging, transportation, storage and quality control of onion under West Bengal condition. Farmers may be encouraged to cover more area under onion by providing the most critical input i.e. quality seed and creation of sufficient storage facilities. As onion, particularly the *kharif* onion is a high risk crop, there is a need to encourage the farmers to cover the crop under crop insurance scheme. Seed production of onion may be a profitable venture for Bengal farmers. Farmers may be encouraged to produce onion seed not only for *rabi* varieties, but also for *kharif* varieties also through seed village/ cluster programme. Though several initiatives have been started from Government's end and the Agricultural Universities in West Bengal, more efforts should be taken by various promoting agencies to achieve self reliance in onion production in West Bengal.

References

Annonymous. 2015a. Directorate of Horticulture, Govt. of West Bengal.

Annonymous, 2015b. NHM annual action plan 2015-2016, West Bengal. *http://midh.gov.in/Archive/AAP/WestBengal2015.pdf*

Annonymous. 2013. IVth Annual Workshop of All India Network Research Project on Onion and Garlic at Bidhan Chandra Krishi Vishwavidayalya (BCKV), Kalyani on 18-19 April.

Barakade, A.J. and Lokhande, T.N. 2011. A study of problems faced by onion growers in Satara district of Maharashtra. *International Referred Research Journal*, **2**(18): 80-82.

Chadha, K.L. and Pareek, O.P. (Eds.). 1993. Advances in Horticulture, Vol 1-14, Malhotra Publishing House, New Delhi.

Das, R., Thapa, U., Chattopadhyay, N. and Mandal, A.R. 2015. Performance of *kharif* onion genotypes under different dates of planting for productivity and economics in Gangetic plains of West Bengal. *Annals of Plant and Soil Research*, **17**(1): 19-23.

Dhital, M., Shakya, S.M., Sharma, M. and Dutta, J. 2015. Constraints and farmer's perception on off season green onion production in Chitwan - A Survey. *International Journal of Multidisciplinary Research and Development*, **2**(3): 663-666.

Economic Review, 2005. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2006. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2007. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2008. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2009. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2010. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2011. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2012. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2013. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Economic Review, 2014. Govt. of West Bengal, Bureau of Applied Economics and Statistics, Development and Planning Department.

Halder, A., Karak, C., Naik, A., Samanta, M. K. and Hazra, P. 2009. Identification of suitable early *rabi* onion varieties under West Bengal condition. *Journal of Crop and Weed*, **5**(1): 124-129.

Karak, C. and Hazra, P. 2014. Influence of environment on growth and bulbing of onion (*Allium cepa*) under Gangetic alluvial plains of West Bengal. *International Journal of Agricultural Sciences*, **84**(4): 492-497.

Karak, C. and Hazra. P. 2012. Floral biology of onion construed as an annual crop for seed production. *Vegetable Science*, **39**(2): 161-164.

Mohanta, S. and Mandal, J. 2014. Growth and Yield of *Kharif* Onion (*Allium cepa* L.) as Influenced by Dates of Planting and Cultivars in Red and Laterite Zone of West Bengal. *Hort Flora Research Spectrum,* **3**(4): 334-338.

Murkute, A.A. 2012. Evaluation of Onion varieties in Ambient Storage. *DOGR News* **16**(1): 2-3.

Nanagouda, P. and Rajasab, A.H. 2012. Constraints Experienced by Onion Growers from Gulbarga District of Karnataka, India. *International J. of Exten. Edu.* **8**: 48-50.

National Horticulture Board. 2010. Indian Horticulture Data base, Department of Agriculture and Cooperation, Government of India.

National Horticulture Board. 2011. Indian Horticulture Data base, Department of Agriculture and Cooperation, Government of India.

National Horticulture Board. 2012. Indian Horticulture Data base, Department of Agriculture and Cooperation, Government of India.

National Horticulture Board. 2013. Indian Horticulture Data base, Department of Agriculture and Cooperation, Government of India.

National Horticulture Board. 2014. Indian Horticulture Data base, Department of Agriculture and Cooperation, Government of India, pp. 160 – 168, 255.

Pal, P. 2013. Pattern of International Trade through West Bengal: Some Evidence from Port-Level Data, Working Paper Series, WPS No. 737/ November 2013, Indian Institute of Management, Calcutta.

Samra, J.S., Ramakrishna, Y.S., Desai, S., Subba Rao, A.V.M., Rama Rao, C.A., Reddy, Y. V.R., Rao, G.G.S.N., Victor, U.S., Vijaya Kumar, P., Lawande K.E., Srivastava K.L., Krishna Prasad, V.S.R. 2006. Impact of excess rains on yield, market availability and prices of onion. Information Bulletin - Hyderabad: Central Research Institute for Dryland Agriculture (ICAR), **7**: 22-24, 31.

Sethy, S., Sarkar, S. and Kumar, M. 2010. Constraints in Adoption of Improved Techniques of Kitchen Gardening. *Indian Research Journal Extension Education*, **10**(2): 89- 92.

Singh, R.K. and Gupta, R.P. 2013. Technique for *Kharif* onion bulb production. *http:// www.thehindu.com/sci-tech/agriculture/technique-for-kharif-onion-bulb-production/ article4877715.ece. 4th July*.

Tripathy, P., Sahoo, B.B., Priyadarshini, A., Das, S.K. and Dash, D.K. 2013. Effect of sources and levels of sulphur on growth, yield and bulb quality in onion (*Allium cepa* L.). *International Journal of Bio-resource and Stress Management*. **4**(4): 641-644.