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Socio-economic and livelihood profile of fishers in Indian Sundarbans: A descriptive study

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ABSTRACT

The Sundarban biosphere reserve and its surrounding buffer zone is a part of the largest mangrove vegetation in the world. Apart from adverse natural phenomenon, existence of underprivileged section of people is very common in Sundarbans region. Along with agriculture, fishery has been the age-old means of pursuing livelihood to inhabitants of Sundarbans. Considering the fact of ecological importance and poverty, many Government and Non-Government organizations have been undertaking different livelihood developmental interventions for fishers in Sundarbans. A profile of socio-economic and livelihood status of people, for whom those interventions are meant for, is very much useful for ensuring effective impacts on livelihood. In this context, the present study was undertaken with an objective to solicit the socio-economic and livelihood profile of fishers in Sundarbans region. A total of 300 respondents, covering of 6 blocks of 24 Parganas (South and North) districts have been considered as the sample size. Results showed that majority of respondents (67%) were middle aged, ranging between 31-60 years of age. Agriculture was mostly-preferred (78.33%) among the options of primary occupation and Fishery was the first choice among majority of respondents (76%) as secondary occupation. As part of Financial capital, 74.67 per cent respondents were found to had an annual income within Rs. 50,000 to 1 lakh which is categorized under middle income group. Human capital reflects the intermediate level of educations and high skill in agri/horti farming with an average experience of 11.08 years. Average pond size of respondents was found to be 1.37 bigha under Natural capital. All respondents had their own in-house toilet, which is indeed attention-invoking indicator under physical capital. 29.33 per cent respondents possessed fishing nets followed by hundies (15.33%). As far as the social capital was concerned, all the respondents attended training programmes followed by 60 per cent respondents undergone demonstrations and 52 per cent took part in campaigns.

Keywords: Fishers, livelihood, socio-economic, Sundarbans

The fisheries sector contributes as an important source of income and employment as it accelerates the growth of a number of subsidiary industries and also acts as a source of cheap and nutritious food. At the same time, it is an instrument of livelihood for a large section of economically backward population of the country. More than 14 million people are dependent on fisheries for their livelihood. In this context, Fishery sector occupies an important place in the socio-economic development of the country (Dey, 2016). Among different backward regions of India, Sundarbans is one of them which is inhabited by around 4.4 million people in an extremely impoverished and vulnerable state. Majority of this population lives below the poverty line, with incidence of poverty highest in the blocks close to the vast mangrove forest. Most of the households in Sundarbans pursue livelihood options that involve inefficient production methods in mono crop agriculture, fishing and aquaculture. The people and the productivity of their holdings are under increased threats due to deltaic subsidence, sea level rise and increased cyclone intensity due to climate change and erosion of embankments. Apart from the frequent occurrence of natural disasters, socioeconomic problems such as poverty, lack of educational opportunities, inadequate medical facilities, lower income levels and gender inequalities prevail in backward regions of Sundarbans. (Department of Sundarban Affairs, 2016). Under this scenario, different Government Organizations (GOs) and Non-Government Organizations (NGOs) have been intervening through Livelihood development programmes for the inhabitants of the Sundarbans to uplift their socio-economics. Preliminary study showed that almost every small villages have been covered either by any GOs or NGOs through their different livelihood developmental means. Different livelihood options are being practiced to achieve desired socio-economic status. One of the important livelihood generators is through fisheries (Ghosh *et al.*, 2014). As Sundarbans has been the nascent place for pursing livelihood though fisheries activities and majority of the inhabitants pursue fisheries activities as either their primary of secondary source of occupation, the present study has been conducted with the objective to study the Socio-economic and livelihood profile of fishers in Indian Sundarbans. The socio-economic and livelihood profile would be helpful in formulation of effective programmes for fisheries development by different GOs and NGOs as per the needs of fishers in Sundarbans.

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MATERIALS AND METHODS

Socio-economic profile is an indicator of an individual's or family's economic and social position in relation to others, based on various variables responsible for that, like income, education, occupation, family effluence, physical assets, social position, social participation, caste, socio-political influence, etc. (Reza *et al.*, 2015). Similarly, livelihood profile denotes the possession of Finical, Human, Natural, Physical and Social capitals in terms of different representative indicators. A pretested-structured interview schedule consisting of different variables related to socioeconomic profile and five capitals of livelihood was administered to the respondents to solicit their socioeconomic and livelihood profile. Out of 19 districts of West Bengal (W.B.), 24-Parganas (North) and (South) districts respectively were considered as the locale of study as these two districts are prime constituents of Indian Sundabans. Out of 19 blocks under Sundabans region, Sagar, Gosaba, Namkhana, Kakdwip and Bassanti from 24 parganas (S) and Hingalganj from 24 parganas (N) were selected for the present study. The selection was on the basis of concentration of maximum numbers of fishers cum beneficiaries of different GOs and NGOs. Lists of beneficiaries were procured form different GOs and NGOs. From the total numbers of beneficiaries, enlisted for each organizations, 20 per cent of them were randomly selected as respondents for the present study. Consequently, a total of 150 respondents each from GOs and NGOs were randomly selected. Thus, a total of 300 respondents, covering of 6 blocks of these two districts have been considered as the sample size for the present study. Descriptive statistics was applied for a meaningful comprehension of the primary data collected for the present study.

RESULTS AND DISCUSSION

Socio-economic status (SES) is a measure of an individual's or family's economic and social position in relation to others, based on various variables (Reza *et al.*, 2015). It is generally believed that fishers vary greatly amongst themselves with respect to socio-economic characteristics. At the outset, it was intended to have some ideas of the characteristics which can serve as background information for fishers. For this purpose, different independent variables were operationalized and percentage, maximum-minimum range, mean values, standard deviations and correlations relating to these variables were calculated. The glimpse of the same is presented below-

General Background information of fishers

Out of a total of 300 respondents, consisting of 150 each from GOs and NGOs, 79 per cent were male and 92.33 per cent were married. Majority of the respondents (67%) were middle aged, ranging between 31-60 years of age. These findings were in line with the findings of Khatun *et al.*, (2013). With regards to castes, 46.67 per cent of respondents belong to General caste, followed by SC (35.33%) and OBC-B (16.33%). The study reflects that majority of respondents (58.33%) belong to joint family with an average family size of 4.58 members which was in consonance with the findings of Pandey and Upadhayay (2012). 66.67 per cent respondents reported that they run their own family as head of household whereas, 33.33 per cent were under the family-headship of either their husband or father. In a same line with Roy *et al.* (2013), agriculture stood first among the options of primary occupation as 78.33 per cent respondents chose agriculture as main source of income, followed by Fishery (14.33%) and daily labour (16.67%). Whereas, fishery was the first choice among majority of respondents (76%) as a main component of secondary occupation. As far as exposure in mass media was concerned, 97.33 per cent respondents said that they have mobile phones followed by 77.67 per cent had television and 39.67% possessed radio, whereas, only 2.67 per cent respondents reported about the access in social networking sites like facebook, gmail etc. In this context, 7 per cent respondents reported that they either know or listen *Maan Ki Baat* radio programme.

Livelihood profile

Livelihood can be defined as the capabilities, the assets (natural, physical, human, financial and social capital), the activities and the accesses to these (mediated by institutions and social relations) that together determine the living gained by the individual household (Chambers and Conway, 1991). **Natural capital** refers to the natural resource bases includes land, water, forests, marine resources, air quality, erosion protection, and biodiversity that yield products utilized by human populations for their survival. **Human capital** includes education, skills, knowledge, health, nutrition, and labor power. **Physical capital** is basically infrastructure which includes roads, buildings, shelters, water supply and sanitation, energy, technology, and communications. **Financial capital** includes savings (cash as well as liquid assets), credits (formal and informal), as well as monetary inflows (state transfers and remittances). **Social capital** refers to the social networks in which people participate and from which they can derive support that contribute livelihood by increase trust, ability to work together, access to opportunities, reciprocity, informal safety net, and membership in organizations (Reza *et al.*, 2015). As livelihood consists of five capitals, variables related to each of these five capitals, namely, Financial, Human, Natural, Physical and Social capitals were studied for the

fishers cum beneficiaries of GOs and NGOs as part of constructing livelihood profile and outcomes are presented in tables 1 to 5.

As shown in table 1 majority of respondents (74.67%) were found to had an annual income within the range from Rs. 50,000 to 1 lakh, followed by 23.33 per cent had less than Rs. 50,000 and only 2 per cent reported that their annual income ranged between Rs. 1-5 lakh. Average annual income of respondents was found be Rs. 58,012. As per the classification given by National Council of Applied Economic Research (NCAER), households earning less than Rs. 40,000 per annum are classified as low income, whereas those with earnings over Rs. 1.80 lakh per annum fall in the high income category. Those earning between Rs. 45,000-1.80 lakh per annum are considered middle income households. Accordingly, the profile of respondents could be classified as middle income group (Ghosh *et al.*, 2014).

As depicted in the table, average annual income from Agriculture, Fishery, and Livestock were found to be Rs. 25140.4, Rs. 14827.4 and Rs. 4152.74 respectively. In a study, Gupta and Dey (2014) reported that 60 per cent respondents earned Rs. 20,000-30,000/- per annum from fisheries activities, which was considered as 'too low'. In this regard, it was also found from this study that respondents on an average spent 3.33, 2.9 and 1.44 hours per day (during peak season of farming) in activities related to Agriculture, Fishery, and Livestock respectively which are termed as SNA (System of National Accounts) activities as these are related to Primary production activities.

As far as expenditures were concerned, respondents had spent Rs. 2284.25/month on an average for fish farming. As part of monthly general expenditures like Food, Clothing, Medicinal, Education, Personal, Entertainment, Electricity and Fuel respondent expensed Rs. 1808.67, Rs. 434.67, Rs. 406.34, Rs. 366.33, Rs. 160.67, Rs. 37, Rs. 33.34 and Rs. 15 respectively. Similar findings were reported by Gupta

Table 1: Status of Financial Capital of fishers

A. Financial Capital						
	Items	**GOs**		**NGOs**		**Pooled**	**SD**
1.	**Annual Income**	**Frequency**	**Percentage**	**Frequency**	**Percentage**		
	Rs. 50000-1L	148	98.67	76	50.67	74.67	-
	Less than Rs. 50000	0	0	70	46.67	23.33	-
	Rs. 1-5L	2	1.33	4	2.66	2.00	-
	Items			**GOs**	**NGOs**	**Pooled**	**SD**
2.	**Average Annual Income (Rs.)**			72000	44024	58012	1500.23
	Income from Agriculture			36000	14280.8	25140.4	809.75
	Income from Fishery			14400	15254.9	14827.4	754.64
	Income from Livestock			3600	4705.47	4152.74	212.12
	Hours spent for agricultural activities			2.36	4.3	3.33	0.10
	Hours spent for fishery activities			2.61	3.19	2.9	0.08
	Hours spent for Livestock activities			0.95	1.93	1.44	0.05
3.	**Expenditure (Rs.)**			**GO**	**NGO**	**Pooled**	**SD**
	Fisheries			1986.67	2581.83	2284.25	38.67
	Food			1973.33	1644	1808.67	34.66
	Clothing			487.33	382	434.67	12.85
	Medicinal			492	320.67	406.34	10.78
	Education			487.33	245.33	366.33	17.71
	Personal			198.67	122.67	160.67	11.96
	Entertainment			0	74	37	8.64
	Electricity			0	66.67	33.34	7.21
	Fuel			0	30	15	10.39
4.	**Aspects**	**GOs**		**NGOs**		**Pooled**
		Frequency	**Percentage**	**Frequency**	**Percentage**	
	Unwillingness to continue	150	100	140	93.34	96.67
	Insufficiency of amount earned from	150	100	150	100	100
	Access to Bank accounts	150	100	140	93.34	96.67

Table 2: Status of human capital of fishers

Human Capital						
1.	**Educational Qualifications**	**GO's (n=150)**		**NGO's (n=150)**		**Pooled % (n=300)**
		Frequency	**Percentage**	**Frequency**	**Percentage**	
	Intermediate	45	30	58	38.66	34.33
	Matriculation	48	32.00	44	29.33	30.67
	Primary	39	26.00	34	22.67	24.33
	Graduate	11	7.33	10	6.67	7.00
	Diploma	6	4.00	0	0	2.00
	Illiterate	1	0.67	4	2.67	1.67
2.	**Skills acquainted with**	**Average years of experience**			**Pooled (n=300)**	**SD**
		GOs	**NGOs**			
i	Agri /Horti farming	10.31	11.84		11.08	0.25
ii	Labour skills	10.22	9.03		9.63	0.25
iii	Wild catch of Crabs/Fishes and Prawns *(Meen)*	0.87	12.43		6.65	0.43
iv	Fishing	4.53	8.32		6.42	0.26
v	Traditional & small scale business	3.72	6.36		5.04	0.17
vi	Fish culture	2.75	6.18		4.47	0.15
vii	Rain water harvesting	3.11	4.66		3.89	0.2
viii	Fishing net weaving	3.02	4.07		3.54	0.26
ix	Marketing skills	3.69	1.43		2.56	0.13
x	Fishing craft navigation	0	4.15		2.07	0.23
xi	Fish preservation	2.76	1.16		1.96	0.12
xii	Social Forestry/Mangrove Forestation	0	3.62		1.81	0.22
xiii	Craft and gear designing and construction	0	1.36		0.68	0.19
xiv	ITKs in fisheries or agriculture/conservation and management of Fisheries in Sundarbans	0	0.66		0.33	0.09
xv	Handloom /Traditional handicraft	0.12	0.1		0.11	0.03
3.	**Fish culture practices**	**GO's (n=150)**		**NGO's (n=150)**		**Pooled % (n=300)**
		Frequency	**Percentage**	**Frequency**	**Percentage**	
	Poly culture	150	100	150	100	100.00
	Integrated culture	0	0	52	34.67	17.33
	Mono culture	0	0	9	6.00	3.00
4.	**Participation in average numbers of Training Programmes**					
		GOs	**NGOs**	**Pooled**	**SD**	
	NGOs	0	2.89	1.45	0.09	
	GOs	2.44	0.11	1.28	0.08	
	Feedback on participation	**GOs**		**NGOs**		**Pooled (%)**
		Frequency	**Percentage**	**Frequency**	**Percentage**	
	Good	91	60.67	126	84	72.33
	Average	59	39.33	23	15.33	27.33
	Bad	0	0	1	0.67	0.34
5.	**Involvement in the conservation of Sundarbans**					
	Yes	41	27.33	109	72.67	50.00
	NO	62	41.33	88	58.67	50.00
6.	**Individual health status**	**GOs**		**NGOs**		**Pooled (%)**
		Frequency	**Percentage**	**Frequency**	**Percentage**	
	Average	116	77.33	83	55.33	66.33
	Good	34	22.67	66	44	33.33
	Bad	0	0	1	0.67	0.33
7.	**Family health status**					
	Average	132	88.00	114	76.00	82.00
	Good	9	6.00	32	21.33	13.67
	Bad	9	6.00	4	2.67	4.33

and Dey (2014), where they found that maximum amount (70%) of income of farmers was spent on their food alone, followed by 15 per cent of income spent on clothing and 5 per cent on education.

In response to unwillingness to continue dependence on Sundarbans for livelihood, 96.67 per cent respondents expressed their unwillingness and all of them expressed their concerns about insufficiency of amount earned through depending upon Sundarbans. The recent endeavours by both Central and State Government to ensure enrolment of maximum numbers of individual Bank accounts reflected in the results of this study too as 96.67 per cent respondents had their bank accounts.

As reported by Pelinescu (2015) and backed by a large body of literature, one of the most important factors of economic growth is human capital. Different indicators of human capital namely, education, skills, knowledge, health etc. were studied in relation to structuring livelihood profile of fishers in Sundarbans.

It is evident from the table 2 that maximum (34.33%) respondents have the educational qualification upto intermediate level as also found by Khatun *et al.*, (2013), followed by matriculation (30.67%) and primary level (24.33%), whereas, only 1.67 per cent respondents were illiterate. Skills are major constituent of human capital and in this regards, respondents replied that they were highly skilled in agri/horti farming with an average experience of 11.08 years which was *at par* with Roy *et al.* (2013). In case of wild catch of Crabs/ Fishes and Prawns (*Meen*), fishing and traditional/small scale business, respondents were having medium level of experience with an average experience between 5-10 years and in craft and gear designing and construction, Indigenous Technical Knowledge (ITKs) in fisheries/agriculture and handloom /traditional handicraft, they possessed low level of experience with less than 1 year of average experience.

Cent per cent of respondents undertook poly culture for rearing fishes in their ponds followed by integrated fish culture (17.33%) and mono culture (3%). As a part of capacity building programmes, respondents attended 1-2 numbers of trainings/workshops on an average and majority (72.33%) of them regarded these as good followed by average (27.33%) and bad (0.34%). Eventhough, training programmes were regarded as good, provision of training facilities was insufficient as reflected in the numbers of training programmes attended (Pravakar *et al.*, 2013). As depicted in table 2, half of the respondents were involved in activities related to conservation of Sundarbans. As far as the health status was concerned, majorities (66.33%) reported that their individual health status is average whereas, 82 per cent respondents marked family health status as average. As critiqued by Ghatak (2010), improved health status for a less developed country like India is a cause of concern and an empirical support is much needed, in order to come out with proper policy

Table 3: Status of natural capital of fishers

Natural Capital					***1 bigha=0.34 Acre***	
1. Pond Area	**GOs**	**NGOs**	**Pooled**	**SD**		
Average Area (Bigha)	1.85	0.89	1.37	0.08		
2. Area of Agriculture land						
Average Area (Bigha)	3.15	2.04	2.59	0.08		
Upto 1 ha	100	100	100	-		
1-2 ha	0	0	0	-		
2-4 ha	0	0	0	-		
>4ha	0	0	0	-		
3. Total land area	**GOs**		**NGOs**		**Pooled**	**SD**
	Frequency	**Percentage**	**Frequency**	**Percentage**		
Average Area	-	0.69	-	0.43	0.56	0.02
Upto 1 ha	127	84.66	143	95.34	90	-
1-2 ha	23	15.34	7	4.66	10	-
2-4 ha	0	0	0	0	0	-
>4ha	0	0	0	0	0	-
4. Livestock Population	**GOs**	**NGOs**	**Pooled**	**SD**		
Cattle	1.36	1.58	1.47	**0.04**		
Goat	1.46	1.33	1.40	**0.07**		
Poultry Bird	4.98	3.4	4.19	**0.10**		
5. Fishes dominantly cultured	**Indian Major carps** (97.50%), Others Species (2.50%)					

implication towards sustainable growth and development.

Table 3 depicts that average pond size of respondents was 1.37 bigha and average agricultural land holding was 2.59 bigha. As seen from table 3, 90 per cent of respondents had total land area upto 1 ha and only 10 per cent respondents reported to have land area with 1-2 ha. The similar findings were reported by Khatun *et al.*, (2013). As reported by respondents, average numbers of cattle, goat and poultry bird population were 1.47, 1.40 and 4.19 respectively. IMCs were preferred most (97.50%) for pond based fish culture (Ghosh and Sharma, 2014) and marketing of crabs, caught from wild sources has been a traditional practice being followed by majority of fishers in Sundarbans (Dana *et al.*, 2016).

As seen from table 4, majority of respondents had access to electricity in their houses whereas, 19 per cent had access to both electricity and solar units and rest of the 13 per cent used only solar units as source of energy.

Table 4: Status of physical capital of fishers

	Physical Capital					
		GOs		**NGOs**		**Pooled %**
1.	**Sources of Energy**	**Frequency**	**Percentage**	**Frequency**	**Percentage**	
	Electricity	150	100	54	36.00	68.00
	Electricity and Solar	0	0	57	38.00	19.00
	Solar	0	0	39	26.00	13.00
2	**Supply of drinking water**					
	Tube well	150	100	140	93.33	96.67
	Govt. water supply	0	0	10	6.67	3.33
3	**Fuel for cooking**					
	Firewood	150	100	131	87.33	93.67
	Liquid Petroleum Gas (LPG)	0	0	10	6.67	3.33
	Others	0	0	9	6.00	3.00
4	**Sanitation facilities**					
	House toilet	150	100	150	100.00	100.00
	Public toilet	0	0	0	0.00	0.00
	Open defecation	0	0	0	0.00	0.00
5	**Transportation facilities**					
	Cycle	150	100	146	97.33	98.67
	Other items	0	0	60	40.00	20.00
	Motor Cycle	25	16.67	21	14.00	15.33
6	**Fishing equipments**					
	Net	25	16.67	63	42.00	29.33
	Other items	0	0	57	38.00	19.00
	Hundies	25	16.67	21	14.00	15.33
7	**House type**					
	Pucca	119	79.33	43	28.67	54.00
	Semi-Pucca	31	20.67	68	45.33	33.00
	Kachcha	0	0	39	26.00	13.00
8	**Fishery-Agri based infrastructure**					
	Self Help Groups (SHGs)	150	100.00	150	100.00	100.00
	Fishermen Co. Societies	150	100.00	150	100.00	100.00
	Agri market	150	100.00	130	86.67	93.33
	Drying yard	150	100.00	130	86.67	93.33
	Store house	0	0.00	150	100.00	50.00
	Granary	0	0.00	150	100.00	50.00
	Fish market	67	44.67	50	33.33	39.00
	Hatcheries	0	0.00	20	13.33	6.67

Table 5: Status of social capital of fishers

	Social capital					
1.	**Social Participation**	**GOs**		**NGOs**		**Pooled %**
		Frequency	**Percentage**	**Frequency**	**Percentage**	
	SHG	150	100.00	129	86.00	93.00
	Cooperative Societies	150	100.00	90	60.00	80.00
	Others	0	0.00	30	20.00	10.00
	Degree of Social Participation					
	Often	150	100	112	74.67	87.34
	Always	0	0	38	25.34	12.67
	Never	0	0	0	0	0
2	**Participation in Extension Activities**					
	Training	150	100.00	150	100	100.00
	Demonstration	110	73.33	70	46.67	60.00
	Campaigns	98	65.33	58	38.67	52.00
	Discussion	47	31.33	86	57.33	44.33
	Others	60	40.00	68	45.33	42.67
	Exhibition	42	28.00	45	30	29.00
3	**Participation in Conservation Activities**					
	Mangroves Plantation	41	27.33	62	41.33	34.33
	Fish Species Conservation	0	0.00	42	26.67	13.34
4	**Others Participation/involvement**					
	Access to basic public services	150	100.00	120	80	90.00
	Health facilities	150	100.00	120	80	90.00
5	**Cosmopoliteness**					
	Moderate	67	44.67	80	53.33	49.00
	High	41	27.33	53	35.33	31.33
	Low	42	28.00	17	11.34	19.67

It is worthwhile to mention that cent per cent beneficiaries of GOs had the access to electricity, which reflects the success of Govt. in Rural electrification projects. As reported by respondents, 96.67 per cent of them used tube well as a source of drinking water followed by Government Water Supply (3.33%). As evident from this table, 93.67 per cent respondents used fire-woods for cooking purposes, followed by LPG (3.33%) and others sources (3%) like kerosene stoves/ coal etc. At par with the need of the hour, cent per cent of respondents ensured the existence of Open Defecation Free activities as they have their own in-house toilets and they use these. Khatun *et al.*, (2013) also reported that fish farmers availed better sanitary facilities. A total of 98.67 per cent respondents had bicycles whereas, only 15.33 per cent had Bikes.

29.33 per cent respondents possessed fishing nets followed by other equipmets (pumps/gears) (19%) and hundies (15.33%). Reza *et al.* (2015) also reported possessions of such types of fishing gears by fishers. All the respondents reported that there were primary schools in their localities and 80-94 per cent of them said that they had the access to general infrastructures like Secondary School, Public Health Centre (PHC), Dispensary, Anganwadi, Bank, Post office, Guest house, Community centre, Bus stop, Jetty, Hospital and College. Eventhough, most of respondents lived in remote and distant locations, 69.34 per cent of them had the access to fair price medicine shops. Only 36 per cent respondents had access to rail stations as many of respondents were the inhabitants of different island and riverbanks, devoid of rail routes. As seen from table 4 that, 100 per cent respondents had the access to Fishery-Agri based infrastructures like SHGs, Fishermen Co. Societies followed by 93.33 per cent each of Agri market and Drying yard, 50 per cent each of Store house, Granary, 39 per cent had access to Fish Market and 6.67 per cent to Hatcheries.

In view of social participation, it is clear from table 5 that out of 300 respondents, 93 per cent participated in various activities of SHGs followed by 80 per cent

in Cooperative societies and 10 per cent in others organizations like clubs and local associations. In this regards, majority of them replied that they 'often' participated in these organizations and only 12.67 per cent said that their degree of participation was 'always'.

It is clear from this table that all the respondents attended training programmes followed by 60 per cent of respondents undergone demonstrations and 52 per cent took part in campaigns. Exhibition was the least participated (29%) event among different extension activities. Though Sundarbans is the largest mangrove vegetation in the world, participation of respondents in conservation activities, evoked lots of concerns as less than half of respondents (34.33%) took part in Mangroves Plantation in their areas whereas, the percentage is only 13.34 for representing respondents, who involved in Conservation of Fish Species. Each of 90 per cent respondents stated that they had an access to basic public services and Health facilities. As seen from the above table, a total of 49 per cent respondents were found to be moderately cosmopolite and only 31.33 per cent were highly cosmopolite. The same result was reported by Ghosh and Sharma (2014).

Mangrove of Sundarbans represents one of the richest and most unique ecosystems in the world but on the other hand majority of the population of Sundarbans with incidence of poverty, live in the blocks, close to the vast mangrove forest. As stated by Dey (2016), statistical figures revealed that fisheries sector is growing gradually but it is irony of the situation that the recipients of the sector *i.e.* the fish farmers and their socio-economic status are not growing to that extent and this situation multiplies manifolds in Sundarbans as this region influenced by natural adversitsies round the year and people had to bear the legacy of losses caused by devastating *Aila.* Having been the World Heritage Site and Biosphere Reserve, Sundarbans is the priority region for different GOs and NGOs with international repute which are also facilitated with funding support from different agencies for socio-economic and livelihood development of people of Sundarbans. Information on Socio-economic and livelihood profile of fishers can be useful for these organizations as well as researchers, extension workers and scientists for ensuring more effective livelihood development interventions for fishers' as per their need. As fisheries sector growing rapidly, it will be interesting to also record the dynamics and changes in the fishers' profile. In this respect similar studies after certain time period are of need

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