Livestock for Livelihood: The Changing Scenario in the 1999-Super Cyclone Affected Ersama Block of Odisha

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ABSTRACT

The study was undertaken in Ersama block of the Jagatsinghpur district of Odisha based on a sample of 163 households randomly selected from four villages- Ambiki, Baghdi, Padmapur and Ramtara with location of the villages being from farthest to closest to sea. The super cyclone of 1999 severely impacted the lives and livelihood of the people of coastal villages of Ambiki, Baghadi, Padampur and Ramtara. Being nearest to the sea, and due to many geographical disadvantages Ramtara village was worst hit. Livestock resources that were the major source of livelihood for many households in the area got severely depleted resulting in vulnerability and livelihood insecurity of the households. Before super cyclone about three-fourths of the households had dairy animals as an important source of livelihood. But in April 2017, little more than half of the households owned dairy animals and moreover, the average herd size was small resulting in low income. Similar is the case for poultry owners. But the silver lining is that even after a complete wipe out in 1999 super cyclone, there has been some revival of livestock sector in the area as evidenced by the fact that today 6-10 per cent of total household income comes from the sector. This could be attributed to support of government and non-government organizations that worked for years in the area. Therefore a special livestock development programme encompassing scientific dairy development and poultry development should be launched in potential pockets targeting the poor and women who are still struggling to wrest a living so as to create additional livelihood opportunities and improve the productivity of the sector.

Key words *livelihood, livestock, revival, super-cyclone, vulnerability, women*

Livestock provides primary source of livelihood to large number of poor households. An estimated 20.5 million people depend on livestock for their livelihood. In 2014-15, agriculture and allied sector contributed 17.4% of Gross Value Added in the economy, of which livestock contributed about 4.4%, which means livestock contributed about 25.3% of agricultural GDP (GOI 2015-16). In India 16% of income of small farm households come from livestock and the sector employs about 8.0 % of our population. Livestock in India are raised as a part of mixed farming systems. Mixed farming systems are considered environmentally most benign and sustainable because of complementarities between crop and livestock production (Birthal et al 2006). But mixed farming systems are getting weakened due to change in the process of production and consumer preferences giving way to market oriented production system. Furthermore, pressures from within the human population, agriculture and nature are triggering changes in livestock production systems in different parts of the country. On one hand there has been growth of dairy cooperatives involved in commercial milk production which adds to livelihood improvement and economic wellbeing of farmers. On the other hand, we have areas and tracts that have witnessed sudden burst of livestock economy due to outbreak of diseases and natural disasters leading to livelihood and economic shocks. One such tract that is quite vulnerable to livelihood shocks is the coastal Odisha.

Odisha's coastline is highly prone to cyclonic events. Odisha, in particular, has faced approximately a third of the cyclonic events (i.e. 106 out of 306 events) that affected four of India's east coast states (e.g. West Bengal, Odisha, Andhra Pradesh and Tamil Nadu) during the period 1891–2007. These events caused significant economic and environmental losses to the state economy. One such event that shook the entire humanity was the super cyclone of 1999. Of all the coastal districts, Jagatsinghpur district was worst affected.Ersama at 20°12'6.692" N 86°24'3.64" E was the landfall area of 1999 super cyclone with wind speed crossing 260 kmph that raged over 36 hrs causing widespread destruction of physical, human, natural capital including livestock population, inevitably resulting in increased vulnerability and the loss of livelihoods.The super cyclone of October 1999 took a toll of 9885 human lives of which 8110 were from Jagatsinghpur district alone. The aftermath of the super cyclone saw major loss of livestock in the affected area including 0.315 million cattle heads, 0.316 million other small animals and 1.88 million poultry. Even after 15 days of the super cyclone, the coastal villages of Ersama were submerged under 15-20 feet of saline water. The villages closer to the coast were more affected by the super cyclone. The present paper discusses the changes that occurred to the livestock economy of the Ersama block due to the super cyclone focusing on the following objectives.

- To examine the structural change in livestock population triggered by the super cyclone.
- To assess loss of livelihood and income following damage to the livestock sector.

- ● **Village Ambiki**
- ● **Village Baghadi**
- ● **Village Ramtara**
- ● **Village Padamapur**

MATERIALS AND METHODS

Study area and sampling methodology

The study was purposively conducted in the Ersama block [20.126692, 86.24364] of Odisha as the block was worst affected by 1999-supercyclone. For selection of locale and sample households, two Gram Panchayats (GPs) within 5km of the coastline that were most affected by super-cyclone i.e. Padamapur and Ambiki were selected based on secondary information. Then four (4) villages were randomly selected from the two GPs. While village Padamapur [20.099647, 86.450885] and Ramtara [20.115709, 86.471987] were selected from Padamapur Panchayat, Ambiki [20.147239, 86.455826] and Baghadi [20.132025, 86.460588] were selected from Ambiki Panchayat.Proportionate random sampling technique was adopted for selecting the sample households for the study. Out of 1326 households in the selected villages of Ersama block, a sample of 12 per cent respondents (i.e.160 households) were selected by using proportionate random sampling technique.

Method of enquiry and data collection:

The study utilized a combination of quantitative and qualitative research methods to understand people's livelihood pattern and the institutional context in which they evolve. Primary data at household level were collected using specifically designed and pretested interview schedules to assess the pre and post-super cyclone socio-economic, livestock and livelihood scenario. Second, the loss due to super-cyclone and changes occurred by the super-cyclone were assessed based on primary data. Primary data was collected using recall method.Data were analyzed using standard statistical tools. The process of detailed enquiry was performed from January to April in the year 2017 in Ersama Block of Jagatsighpur in Odisha district.

RESULT AND DISCUSSION

Livestock scenario

As per 19th livestock census 2012, total livestock population in the country was 512.05 million and cattle population was 190.9 million (constituting 37.28% of livestock population) and female cattle population stood at 122.98 million in 2012 (Govt. of India 2012). In 2012 livestock and poultry population in Odisha was 20.73 million and 19.8 million respectively. Coming to districts, livestock population varies widely across the districts with some inland districts such as Mayurbhanj, Keonjhar and Sundargarh having more than 1.25 million livestock population. Jagatsinghpur district which was worst affected district had 0.439 and 0.387 million livestock and poultry population respectively in 2012.

Household wise livestock population in the study area

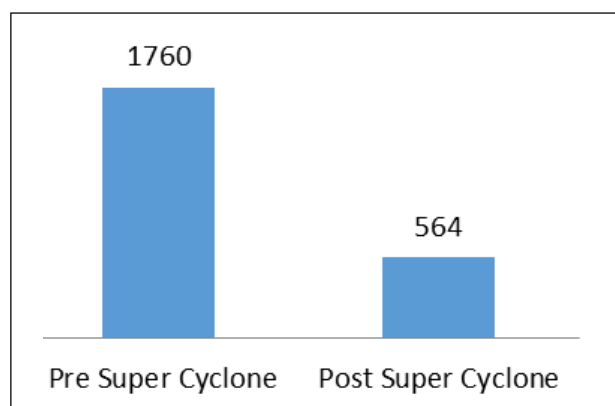Before Super Cyclone, the sample households

Fig. 1. Number of Livestock before super cyclone and after

possessed a total of 1760 number of livestock heads. But in April 2017, about 17 years after the super cyclone, only 564 number of livestock heads are available with those households. (Fig-1). Before super cyclone, average livestock per household surveyed was 10.79, which came down to just 3.46 in April 2017.Considering number of livestock owning households before super cyclone, about 90 per cent of the households had some livestock population. But at present about 63 per cent of households possess livestock. An important observation is the change in concentration of livestock numbers in households. Just before super cyclone 27 per cent of the households had 11-50 numbers of livestock. But in April 2017, only 5.5 per cent of the households had same concentration of livestock. Similarly, about 30 per cent of households had 6-10 heads

before super cyclone. But at the time of survey, only 16 per cent household had 6-10 heads of livestock (Table -1). Thus the super cyclone adversely impacted the livestock sector of the locality and many households lost livestock as a source of livelihood.

The study reveals that before super cyclone about 74 per cent of household had Cow which declined to about 52 per cent in April 2017. About 32 per cent of households had three 3) or more number of cows. But even after 17 years of super cyclone only 12.5 per cent of the households own three and more number of cows. Similarly about 42 per cent households had bullocks, but it declined to just 7 per cent households in post-Super cyclone. Today only 35 per cent of households own poultry as against 61 per cent before super cyclone. (Table-2).

Income scenario in pre-super cyclone period:

Analysis reveals that in pre super cyclone period livestock was the major contributor to household income followed by non-agriculture sources. Overall the average annual income of households was ₹ 53,215 of which livestock contributed about ₹ 22,000 and non-agriculture sources contributed about ₹ 16,000. Out of four villages average annual household income was highest in Ambiki of ₹ 61,210, followed by Baghadi with ₹ 58,221followed by Ramtara with ₹ 51,410 (Table-2).

Considering the share of contribution of each livelihood source it was found that livestock contributed to more than 40 per cent of average household income. Looking at the contribution of livestock among the villages,

Table 1.   Average annual household income in pre-super cyclone period(INR)

Livestock	Herd Size	Pre Super Cyclone		Post Super Cyclone (2017)	
		Frequency	Percentage	Frequency	Percentage
Cow	0	43	26.38	77	47.24
	= 2	68	41.72	66	40.49
	3 – 5	47	28.83	18	11.05
	> 5	5	3.07	2	1.23
Bullock	0	95	58.28	151	92.64
	= 2	53	32.51	12	7.36
	> 2	15	9.2	-	-
Poultry	0	63	38.65	106	65.03
	= 5	51	31.28	40	24.54
	6 – 15	47	28.83	16	9.81
	> 15	2	1.23	1	0.61
Duck	0	149	91.41	159	97.55
	= 5	12	7.36	4	2.45
	> 5	2	1.23	-	-
Goat	0	133	81.60	127	77.91
	= 5	17	10.42	29	17.78
	> 5	13	7.98	7	4.29

Table 2.   Structure of livestock in Pre and Post Super Cyclone period:

Source	Village				Overall
	Ambiki	Baghadi	Padmapur	Ramtara	
Livestock	53.64	41.93	38.04	25.66	41.42
Others	46.36	58.07	61.96	74.34	58.58
Total	100.0	100.0	100.0	100.0	100.0

Table 4.   Average annual household income in post-super cyclone period

Source	Village				Overall
	Ambiki	Baghdadi	Padmapur	Ramtara	
Livestock	32835.60	24409.68	15172.97	13194.19	22042.34
Others	28474.73	33811.77	24711.08	38215.35	31173.10
Total	61210.33	58221.45	39884.05	51409.54	53215.44

Table 3.   Share of different sources in pre-super cyclone income (%)

Source	Village				Overall
	Ambiki	Baghadi	Padmapur	Ramtara	
Livestock	53.64	41.93	38.04	25.66	41.42
Others	46.36	58.07	61.96	74.34	58.58
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 4.   Average annual household income in post-super cyclone period

Source	Village				Overall
	Ambiki	Baghdadi	Padampur	Ramtara	
Livestock	14221.15	16635.48	20272.97	11293.02	15281.59
%	9.5	6.41	10.57	10.63	9.06
Others	135501.73	242932.96	171584.33	94953.49	153427.19
%	90.50	93.59	89.43	89.37	90.94
Total	**149722.88**	**259568.44**	**191857.30**	**106246.51**	**168708.78**
%	100.0	100.0	100.0	100.0	100.0

(April 2017)

livestock contributed maximum of 53.6 per cent to the average household income of Ambiki village followed by 42 per cent in Baghadi (Table-3)

Scenario in post-super cyclone period:

Nearly17 years after super cyclone the income scenario of the study area stands changed to a great degree. In April 2017 as computed from survey data, the average annual income of households in the area increased to Rs.1,68,708. The villages witnessed some significant changes in the structure of income due to the impact on super cyclone and the opportunities and constraints that super cyclone created.

A comparison of income across the villages reveals that the average annual household income was highest in Baghadi (Rs. 2,59,568) followed by Padmapur (Rs. 1,91,857) followed by Ambiki (Rs.1,49,723). Incidentally in pre super

cyclone period Padmapur had the lowest average annual household income. But today Ramtara village has got the lowest average annual household income. But the picture on contribution of livestock to overall household income has completely. Its share came down drastically to about 9 per cent from 41.4 per cent earlier. Looking village wise, the contribution ranged from about 6 per cent in Baghadi to about 10 per cent in other three villages. On other hand, contribution of other sources, particularly that of fisheries and non-agriculture increased significantly due to diversification of livelihood strategies. Thus the analysis clearly reveals a distinct change in the structure of livelihoods of the households in the study area. With new avenues coming up for the people in the same area and in distant places, it seems impossible that livestock can regain its position in the context of livelihood of people of Ersama.

CONCLUSION

The super cyclone of 1999 severely impacted the lives and livelihood of the people of coastal villages of Ambiki, Baghadi, Padampur and Ramtara. Being nearest to the sea, and due to many geographical disadvantages Ramtara village was worst hit. Livestock resources that were the major source of livelihood for many households in the area got severely depleted resulting in vulnerability and livelihood insecurity of the households. Before super cyclone about three-fourths of the households had dairy animals as an important source of livelihood. But in April 2017, little more than half of the households owned dairy animals and moreover, the average herd size was small resulting in low income. Similar is the case for poultry owners. But the silver lining is that even after a complete wipe out in 1999 super cyclone, there has been some revival of livestock sector in the area as evidenced by the fact that today 6-10 per cent of total household income comes from the sector. This could be attributed to support of government and non-government organizations that worked for years in the area. But there are many poor households who are keen to move to livestock farming for their livelihood. Therefore a special livestock development programme encompassing scientific dairy development and poultry development should be launched in potential pockets targeting the poor and women who are still struggling to wrest a living so as to create additional livelihood opportunities and improve the productivity of the sector.

LITERATURE CITED

Birthal P.S, V.K.Taneja and W.Throrpe 2006. *Smallholder Livestock Production in India :Opportunities and Challenges.* Proceedings of an ICAR-ILRI international workshop held at NASC , New Delhi

GOI 2012. *19th Livestock census in India,*Ministry of Agriculture, Department of Animal Husbandry & Fisheries. New Delhi

GOI 2015. *Economic survey*, Ministry of Finance. New Delhi