

Perception of Coastal Odisha Experienced Farmers on Seasonal Variations

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Abstract – A study conducted on the farmers of Eradanga, Chhapada and Vidyadharpur villages of Raghunathpur block of Jagatsinghpur district of coastal Odisha to assess the experienced farmers. Farmers who had more than twenty five years of farming experience were deliberately selected and interviewed. The number of respondents were twenty five. The specific objective of the study was a comparative analysis of perception regarding seasonal variations between the situation of 20 years back and present situation using frequency and percentage method. Farmers' perception relating to monsoon, off-season rainfall, winter rain, duration of winter, duration of summer, occurrence of tornadoes etc were taken into consideration. The farmers were asked to open ended questions relating to the above parameters which they experienced twenty years back and they are experiencing presently. So the change study relating to above parameters were conducted in present investigation. And farmers perceived that there is a significant change of timing and days and months relating to above parameters.

Keywords – Climate, Change, Impacts, Coastal, Odisha

I. INTRODUCTION

Climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e., decades to millions of years). Climate change occurs when long-term weather patterns are altered - for example, through human activity. Global warming is one measure of climate change, and is a rise in the average global temperature. Climate change has already begun to transform life on earth. Around the globe, seasons are shifting, temperatures are climbing and sea levels are rising. And meanwhile, our planet must still supply us – and all living things – with air, water, food and safe places to live. Climate change may rapidly alter the lands and waters we all depend upon for survival.

Harbinson, Mugara and Chawla (2006) reported based on their findings that each of their target countries has experienced unusually severe climatic conditions in recent years. Kanchan Sandhu (2011) in his climate change and health studies depicted that high quality research is needed to strengthen the awareness programmes and policies designed to influence environmental factors that affect human health. There is an urgent need to underpin the awareness programmes and nutrition campaigns at grass root level. Shankar et. al. (2010) reported that agriculture and climate are mutually dependent. According to Egbule and Agwu (2010) the impacts of climate change is a

serious threat. The study therefore points to the need for specific adaptation measures to focus on vulnerable areas and the need for specific adaptation measures to focus on vulnerable areas. Odisha's fluctuating weather conditions suggest that it is reeling under climatic chaos.

II. REASON FOR THE STUDY AND SELECTION OF STUDY AREA

Odisha is experiencing distinctive changes in climatic pattern. Atmospheric temperature is going up in the state making the summer seasons almost unbearable. Low pressure is becoming a regular phenomenon causing an unpredictable rainfall pattern across the state. Once proud to have a little over 480 kilometers long coastline, people of Odisha now see it a danger. Therefore coastal districts are more prone to climate change chaos and the experienced local peoples' perceptions can be studied for further investigation. For micro level, the study starts off from chosen districts to the block or village periphery. I have purposively selected the coastal villages like Chhapada, Vidyadharpur and Eradanga villages of Raghunathpur block of Jagatsinghpur district. This district is a nearby district of Cuttack district where I reside. This block which has been chosen for study is a neighbouring block of Erasama block which was most rudely devastated by the 1999 super cyclone and yet to revive its injuries. The days of 1998 severe sunstroke, 1999 tornado and of course the visible effects of changing climate since then have been a nightmare for the residents of this area. Hence their perceptions are worthy and indispensable for climate change study in Odisha.

III. OBJECTIVE

The specific objectives of the study are as follows.

1. To study the age, education and secondary occupation criteria of the selected respondents.
2. To find the perception of the respondents for a comparative study of 20 years back and present situation regarding seasonal variations relating to some climatic parameters of the study area.

IV. METHODOLOGY

The questionnaire method was followed with the help of interview schedule. Pretesting of questionnaire for collection of data for farmers was done by the farmers of namely Chhapada, Vidyadharpur and Eradanga villages of Odisha.

Pretesting

The interview schedule was prepared in odia language, appropriate revision and modification was done after pretesting. An interview schedule in odia language relating to farmers' perception on climate change was prepared. The data were collected by the researcher herself from the farmers in the month of May 2012. The researcher herself visited the study area with some aged farmers who have long experience on agricultural practice relating to study area and can realize the seasonal variation aspects of the region with respect to climate change.

Selection of farmers

Since the climate change is a long term phenomenon and its perceptions are very difficult for the farmers who are younger in age and have shorter period of experience in farming operations. The aged farmers have been selected who are more than 50 years of age and running their farming enterprises for more than 20 years can have a comparatively better perception on the climate change than the younger farmers. Based on the above criteria and for getting reliable information required for the present investigation, younger farmers have been excluded and the aged farmers who have long years of farming experiences and climatic variability have been selected as respondents and interviewed. In this way total 25 experienced farmers have been selected purposively from Chhapada, Vidyadharpur and Eradanga villages of Odisha (9, 9, 7 respondents respectively).

Preparation of interview schedule and selection of variables

An interview schedule in odia language relating to farmers' perception on seasonal variations was prepared. The data were collected by the researcher herself from the farmers in the month of May 2012. Data have been collected from 25 farmers in three villages. In the present investigation all the variables selected are independent variables and there is no dependent variable to find out cause and effect relationship. For selection of appropriate variables for the study the scientists of Bidhan Chandra Krishi Viswavidyalaya were consulted and available literature, books on climate change were gone through. By the following specific objectives of the study the theoretical basis for selection of variables and their imperial measures are presented.

Statistical methods

Based on the method of analysis of the data used, the findings are presented and discussed as follows. Here for a comparative analysis of situation of 20 years back and present situation was done through frequency and percentage method.

V. FINDINGS AND DISCUSSION

1. Age, Education and Secondary Occupation criteria

Sl no.	Category	Range	Frequency	Percentage
1	Age	Middle aged (40 - 60 years)	14	56
		Old aged (>60 years)	11	44
2	Education	Illiterate	5	20
		Upto primary school	4	16
		Upto high school	9	36
		Matriculate	4	16
		College level	3	12
3	Secondary Occupation	Having secondary occupation	3	12
		Not having secondary occupation	22	88

It is evident from the given table that all the farmers are within the age group of 40 to 60 year. Only 44% farmers are in the age group of 60 years rest are between age group of 40 to 60 years. None amongst them is less than 40 years as younger farmers have been excluded. Five farmers are illiterate but rest people have some educational qualification and 3 amongst them were college goers. Three amongst them possess some secondary occupation like fishing, weaving etc. But rest people occupy farming as their only occupation.

2. Comparative study of 20 years back and present situation relating to some climatic parameters

Monsoon season

Monsoon plays an important role in Indian farming and the findings are presented below.

Out of 25 experienced farmers interviewed on climate change reported that 20 years back the onset of monsoon was last week of May to middle of June. At present they are experiencing the onset of monsoon, last week of June to July.

Majority of farmers reported that the monsoon was longer in 20 years back but at present the duration is shorter. Twenty years back the end of monsoon was in the month of first week of October or last week of September. The farmers reported that at present the end of monsoon is expected to be last week or middle of September.

Rain fall Pattern

The amount of rainfall was more now-a-days rather than 20 years back, reported by about 68% farmers and another halves reported that the opposite that amount of rainfall is less now as compared to before. The distribution pattern is quite uneven now-a-days

rather than 20 years back as reported by most of the farmers. Most of the farmers reported that last May, June and July were the most rain occurring days before but now it happens to be last July to August.

So it may be concluded that the rainfall pattern has changed a lot now as compared to 20 years back relating to the above mentioned aspects. About 44% farmers reported that amount of summer rainfall was more before and now it is found to be less. Normally farmers were in view that the off-season rainfall was less in April before and nowadays also occurs in April but more frequently.

Winter season

Almost everyone told that the intensity and timing of winter cyclones are less before 20 years as compared to now a days. About seventy two percent gave the opinion that the winter season is now becoming more intense as was in 20 years back and they felt it about. Sixty percent farmers went for the choice of shorter duration winter now a days. The fog intensity is found to be more now as compared

to before as chosen by only 69% farmers and the opposite is the choice for the rest of the farmers.

Summer season

Everyone without an exception was in opinion that the summer season has been prolonged (of longer duration) as compared to before in Odisha which can be easily felt according to farmers. This question also holds the common answer of all the farmers that the summer heat has been more intense and more scorching during these days than the previous days. About eighty percent farmers told that the starting time for this season is mid of March now and it was April before but the rest told that the starting time is now April as it was also before. Only a non significant number of farmers opined that the starting time around February last week or like that.

Occurrence, intensity and frequency of tornadoes

About ninety-two percent of farmers were in view that the occurrence, intensity and frequency of tornadoes are more now as compared to twenty years back and it happens mostly in April and May.

COMPONENTS	SUB-COMPONENTS		FREQUENCY & PERCENTAGE N = 25			
			Perception for 20 years back		Perception for contemporary period	
			<i>f</i>	%	<i>f</i>	%
Monsoon	Arrival Timing	Early Arrival	19	76	6	24
		Late Arrival	6	24	19	76
	Duration of Monsoon	Longer	15	60	10	40
		Shorter	10	40	15	60
	End of Monsoon	Earlier	3	12	22	88
		Later	22	88	3	12
Rainfall	Amount of Rainfall	More	17	68	8	32
		Less	8	32	17	68
	Distribution of Rainfall	Even	17	68	8	32
		Uneven	8	32	17	68
	Intensity of Rainfall	Heavy	16	64	9	36
		Light	9	36	16	64
	Occurrence of offseason Rainfall	Frequent	7	28	18	72
		Non-frequent	18	72	7	28
	Occurrence of Summer Rain	Frequent	11	44	14	56
		Non-frequent	11	44	14	56
Frequency of Rainfall	More	13	52	12	48	
	Less	12	48	13	52	
Winter	Duration of Winter	Longer	15	60	10	40
		Shorter	10	40	15	60
	Intensity of coldness	More intense	18	72	7	28
		Less intense	7	28	18	72
	Fogging	More	9	36	16	64
		Less	16	64	9	36
	Winter cyclone	Frequent	8	32	17	68
		Non-frequent	17	68	8	32
Summer	Duration of Summer	Longer	3	12	22	88
		Shorter	22	88	3	12
	Intensity of summer heat	Intense	6	24	19	76
		Less Intense	19	76	6	24
	Starting of Summer	Earlier	5	20	20	80
		Later	20	80	5	20
	Occurrence of Summer Cyclone	More	5	20	20	80
		Less	20	80	5	20
Occurrence of Tornadoes	More	2	8	23	92	
	Less	23	92	2	8	

VI. CONCLUSION

Study was conducted on emphasizing six general parameters for seasonal variability i.e. summer, winter, monsoon, rainfall pattern and occurrence of tornadoes with variables like arrival timing, duration, intensity, frequency and occurrence of off season rainfall, summer cyclones etc. As expected there is a wide variation in arrival patterns, intensity and frequency of seasonal variables especially monsoon has becoming more irregular with late arrival and uncertain rainfall patterns. It definitely affects the agro based socio-economic culture of the coastal areas. Further winter has become milder and summer has become more severe according to them which is an opposition to the generally accepted phenomenon that coastal areas have less severe type of climatic effects due to ameliorating effect of sea. Additionally people are in great fear for cyclones in summer which for them has been a regular phenomenon in last few years with high intensity. Twenty years back though they experienced cyclones due to low pressure like 'Kala Baisakhi' it was low intensity so, they do feel much insecure presently regarding those parameters.

It is a common fact that climate and seasonality will have definite impact on social, financial, cultural aspects of life. With changing patterns of season it will tint the way of life of agrarians accordingly. So according to the study it has affected the villagers of that area making them more insecure about their life and occupation adding drudgery to them for finding secondary occupation in some cases too and even migration of rural people.

Therefore these changes though appear meager still needs attention of researchers and further studies required from all dimensions of society for sustainable development and secured future of farmers.

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REFERENCES

- [1] Agwu AE, and Egbule C L (2010) Climate change and adaptive strategies among rural households in the Niger Delta region of Nigeria International Conference For Agricultural Knowledge Management : Global Extension p.p.450
- [2] Harbinson R, Mugara R and Chawla A(2006) Whatever the weather: media attitudes to reporting climate change p.p. 16
- [3] Ravi Shankar K, Nagasree K, Prasad and Venkateswarlu (2010). Farmers' knowledge perception and adaptation measures towards climate change in South India and role of extension in climate change adaptation and mitigation International Conference On Innovative Approaches For Agricultural Knowledge Management Global Extension p.p. 454
- [4] Sandhu K, Climate Change and health Conference on Innovative Approaches For Agricultural Knowledge Management : Global Extension.p.p.470
- [5] www.wwf.org.uk,

<https://en.wikipedia.org>,
<http://www.davidsuzuki.org/issues/climate-change/science/climate-change-basics/climate-change-101-1/>