DOI: https://doi.org/10.36094/sc.v89.2023.Impact_of_Drought_on_Agriculture.Sahoo.238

ARTICLE

Sci. and Cult. 89 (7–8) : 238-248 (2023)

IMPACT OF DROUGHT ON AGRICULTURE: A CASE STUDY OF NUAPADA DISTRICT, ODISHA

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A huge impact of drought is observed at both micro and macro levels of an economy. Huge section of population is adversely affected due to drought in terms of their social and economic aspect of life. This study tried to study the impact of drought on the socio-economic aspects of agricultural farmers and the agricultural production in the Nuapada district of Odisha. The study is based on the primary data collected from the farmers of the 60 sample households. It was found that the drought conditions has adversely affected the agricultural production and income of the farmers to a greater extent thereby affecting their quality of life and raising the issue of sustainability.

Introduction

A large section of the world's population is vulnerable to drought, a terrible natural disaster, especially those who live in semi-arid and dry areas. In the last 40 years, the percentage of the world devastated by drought has more than doubled, and during that time, more people than any other natural disaster have been impacted worldwide. Both at the macro and micro levels, the effects of a drought are seen on the nation's total economy. It can be direct or indirect, and its type and intensity can change. The structure of the agricultural sector, management of water resources, cereal reserves, internal and external conflicts, etc., can depict the severe impact of drought. The ability to create and obtain food has a significant micro-level impact, depending on the social structure, class, village, and household resource endowments. However, certain regional features will have an impact on both the relative and absolute magnitudes of each impact. Crops, animals, and productive capital all experience losses due to droughts because they are the direct effects of a lack of water. The subsequent season's lack of high-quality seeds is a result of the lingering effect. Approximately 68% of India is at risk of drought to varying degrees. A total of 35% of the region is thought to be drought-prone (receiving precipitation between 750 mm and 1,125 mm), while another 33% is thought to be chronically drought-prone (receiving precipitation below 750 mm)[1]. Odisha is in danger of experiencing a drought since 21 out of 30 districts have experienced inadequate rainfall since the monsoon season started. Around 5633 villages, 1186 panchayats, 66 blocks, 16 urban local bodies, and nine districts in Odisha, including Baragarh, Bolangir, Deogarh, Jharsuguda, Kalahandi, Nabarangpur, Nuapada, Sambalpur, and Sundargarh, are experiencing significant crop loss as a result of the drought[2].

All aspects of our environment and communities are adversely affected by drought. Different droughts have different effects on the economy, the environment, and society. In spite of a good monsoon, droughts occur practically every year in varied intensities (moderate or severe) due to significant temporal and geographically variability in rainfall and wide fluctuations in physiographic and climatic conditions in the country. Three severe droughts, in 2002, 2004, and 2009, caused damage to the nation's numerous industries as well as its general

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economic progress since 2001. According to the idea of its utilisation, the National Commission on Agriculture divides droughts into meteorological, agricultural, and hydrological categories. Although it can be challenging to pinpoint the beginning and conclusion of a drought, the effects can be devastating, especially for the most underprivileged and underprivileged segments of society[3].

Indian agriculture still accounts for the majority of the country's GDP; however this contribution is steadily decreasing. Drought consequences could exacerbate with increased population density or intensive farming. In India, 68% of the net sown area (142.2 M hectares), on which 70% of the population depends, is drought-prone, and 50% of that area is severely drought-prone. Long-term socio-economic impacts of drought extend beyond agriculture to rural residents. The social life of rural residents is directly impacted by the hydrological drought that lowers surface water levels and causes a drinking water shortage. Agricultural drought-related crop failure (lower soil moisture) has a direct influence on rural residents' economic circumstances, including unemployment, starving of livestock, a lack of fodder, and other issues. With this background, an attempt has been made to examine the impact of drought on agriculture and life of rural communities thereby raising the issue of sustainability.

Review of Literature

A study on effects of drought on Australians who live in rural and regional areas has helped to provides input to the Productivity Commission's enquiry into government drought support[4]. There are more studies on the economic effects, but these studies like those done by the Australian Bureau of Agricultural and Resource Economics tend to estimate the effects on specific agricultural regions or industry sectors rather than the effects of drought on individuals or on those who don't work in agriculture but live in agricultural regions. Migration as adaptation has emerged as an important research and policy area in the debate over climate change and migration nexus[5]. The study based on household survey and historical narrative approach examined the climate change and migration nexus in a drought-prone region in the Eastern Indian state of Odisha. It makes a distinction between climate change and variability as a driver of migration from drought prone region. The condition of water reserves and flows has become dependent on both natural and human processes in the current human-modified world, or Anthropocene. A study[6] demonstrated the need for a new framework for defining and studying droughts in the Anthropocene. Water deficits (or droughts) are the result of a complex interaction between metrological anomalies, processes on the land surface, and human inflows, outflows, and storage modifications. Droughts have a negative influence on a significant portion of the population's livelihood and economies in the rain-fed, arid and semi-arid regions[7]. In 38 villages across seven districts in Odisha, a study describes how people are vulnerable to drought[8]. Also, the study includes important case studies from the field that support the drought scenario on the ground. The drought has had a wide range of effects on the neighbourhood. The community has become more vulnerable as a result of the agricultural loss brought on by the drought, which has also resulted in a shortage and low intake of food. People have been forced to relocate in search of work and further exploited because they lack alternatives to their current means of subsistence. The difficulty of transporting water from far-off locations has put women in more stressful situations. Two-thirds of India's land area, according to the National Remote Sensing Centre (2008), has minimal rainfall (less than 1000 mm), which is also characterised by irregular and erratic distributions. Over 68% of the net planted area of 140 million hectares is believed to be drought vulnerable, with about 50% of this area being classed as "severe," where drought frequency is nearly constant. Drought disaster immediately affects agriculture, affecting crop acreage, crop productivity and agricultural jobs.

Nuapada is the highly agricultural drought vulnerability state in Odisha which face major crop loss in every year. There is 20-40% less (scanty) rainfall in Nuapada district. There are a few researchers who have done research work on meteorological and hydrological drought state of Nuapada district but there are less studies on the social and economic impact of drought on rural communities and on agricultural production. Therefore, the study attempts to fill this gap.

Data Sources and Methodology

The study is based on the primary data collected from the households of the farmers. Data were collected from a sample 60 households which were selected based on the multi-stage sampling technique. At first, Nuapada district has been chosen purposively since the district is considered as a drought prone district. Then, out of the five blocks in the Nuapada district, Khariar block was randomly chosen. Out of the 117 villages in this particular block, 6 villages were randomly chosen for the study. 10

households from each of the villages were considered as sample households for this study. The analysis of the data is based on the statistical method like average, percentage etc.

Results and Discussion

Socio–economic status of the sample households: The socio-economic condition of the sample households is discussed below:

Gender: The gender composition of respondents of different villages is shown in table no.1.

Table 1: Gender Composition of Respondent

Village Name	Male	Female	Total
Tukla	7	3	10
Lachipur	7	3	10
Putupada	6	4	10
Bada duhel	6	4	10
Nehena	7	3	10
Chicher	6	4	10
Total	**39**	**21**	**60**

Source: Surveyed and Complied by researcher

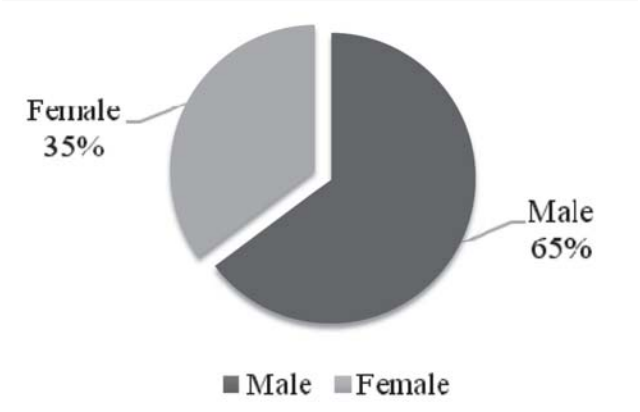


Fig. 1: Gender Status Percentage of Respondent

Source: Surveyed and Complied by researcher

From the figure, it could be observed that 65% of the respondents were male and 35% of the respondents were female.

Marital Status: In rural area marriage happen in age like 16 -25 years and it one of the important determinants of their social and economic life. The marital status has been divided into three categories i.e. Married, Un-married, and widow.

Table 2: Marital Status of Respondents

Village Name	Married	Unmarried	Widow	Total
Tukla	10	0	0	10
Lachipur	10	0	0	10
Putupada	10	0	0	10
Bada Duhel	8	0	2	10
Nehena	10	0	0	10
Chicher	9	0	1	10
Total	**57**	**0**	**3**	**60**

Source: Surveyed and Complied by researcher

The table 2 shows the marital status of respondent of various villages. It could be seen that highest number of respondents were married and no unmarried respondent was found, but there were 3 widow respondents. Therefore, it was found that there were 95% of married respondents and 5% of widow respondents.

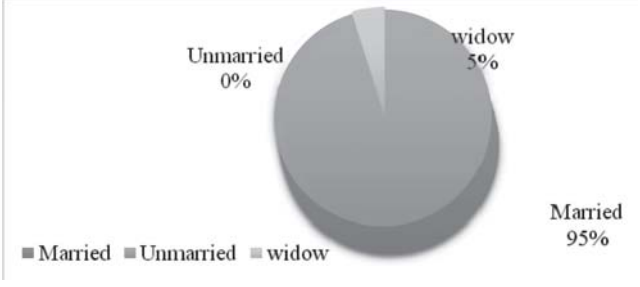


Fig. 2: Marital Status Percentage of Respondent

Source: Surveyed and Complied by researcher

Age Structure: The table 3 depicts the age structure of the respondents. There are 53% of respondent in the age group of 30 – 50 years, 45% in 50 – 70 years and 2% in 70 – 90 years.

Table 3: Age Structure of Respondents

Village name	30 – 50 years	50 – 70 years	70 – 90 years	Total
Tukla	3	7	0	10
Lachipur	4	5	1	10
Putupada	8	2	0	10
Bada dohel	7	3	0	10
Nehna	4	6	0	10
Chicher	6	4	0	10
Total	**32**	**27**	**1**	**60**

Source: Surveyed and Complied by researcher

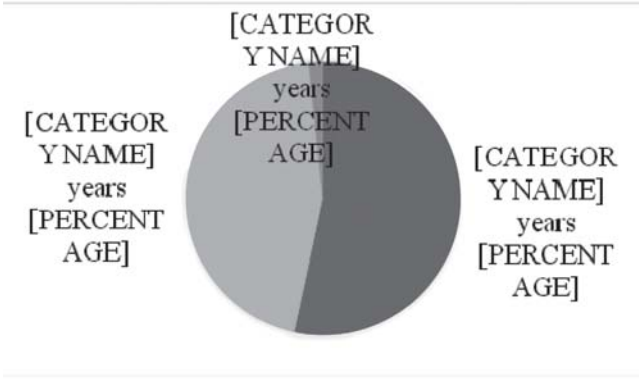


Fig. 3: Percentage of Respondent Age Structure

Source: Surveyed and Complied by researcher

The above figure show the age structure of respondent. There are 53% of respondent in the age group of 30 – 50 years, 45% in 50 – 70 years and 2% in 70 – 90 years.

Educational Status: Education is one of the determinants that helps to build the human capital. The table 4 shows the education level of all the respondents. It could be seen that 41% of respondents had completed their secondary level of education and only 10% of them had completed their graduation. The percentage of respondents found to be illiterate were 17%, whereas respondents completed their primary education constituted 20%.

Table 4: Educational Status of Respondent

Village name	Illiter-ate	Pri-mary	Secon-dary	Higher secondary	Gradua-tion	Total
Tulka	0	0	10	0	0	10
Lachipur	2	2	1	3	2	10
Putupada	2	3	1	1	3	10
Bada duhel	4	2	2	2	0	10
Nehena	0	2	7	1	0	10
Chicher	2	3	4	0	1	10
Total	**10**	**12**	**25**	**7**	**6**	**60**

Source: Surveyed and Complied by researcher

Impact of Drought on Agriculture: First of all, we are going to see what is the perception of farmer relating to drought in various sample villages. Based on primary, the perception of farmers regarding how they well know about drought, how many times they have faced the drought, have they postponed any ceremony due to drought and also what are social impact of drought on their lives. It very important to measure what is the changes in the live style of rural community due to the social impact of drought in long run. And to measure all these changes first we have to see how often drought happen in the sample area or in Nuapada district.

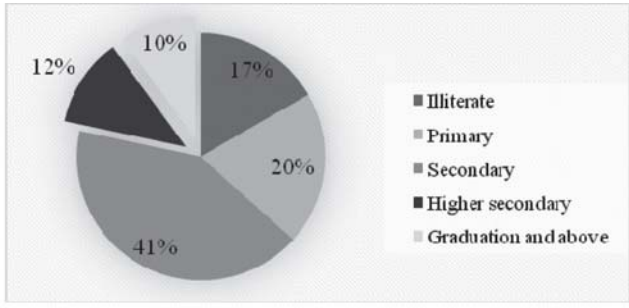


Fig. 4: Educational Status Percentage of Respondent

Source: Surveyed and Complied by researcher

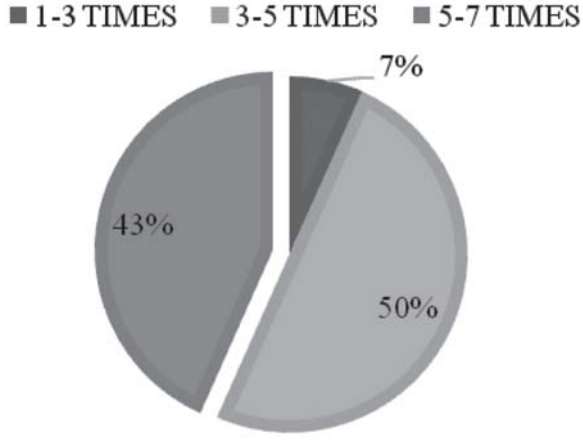


Fig. 5: Frequency of Drought Occurrence Experienced by Respondents

Source: Surveyed and Complied by researcher

The figure 5 show that in our sample of 60 household, 4 respondents i.e. 7% have experience drought 1- 3 times, 30 respondents i.e. 50% have experience drought 3-5 times and 26 respondents i.e. 43% have experience drought about 5- 7 times from their know as or birth. But drought is not frequent.

Table 5: Preparedness to Deal with Drought

Range	Number
Very High	-
High	-
Medium	33
Less	27

Source: Surveyed and Complied by researcher

The above table show how the people prepare themselves for the drought after knowing about it through radio or television. In the other word after knowing about the drought how farmer or rural people prepare themselves to fight from the drought consequences. We have measured their level of prepare to deal with drought in 4 stage i.e. very high, high, medium, less. And we have seen that there are 27 household have less preparation and 33 household have medium preparation. And no household have very high or high preparation about drought.

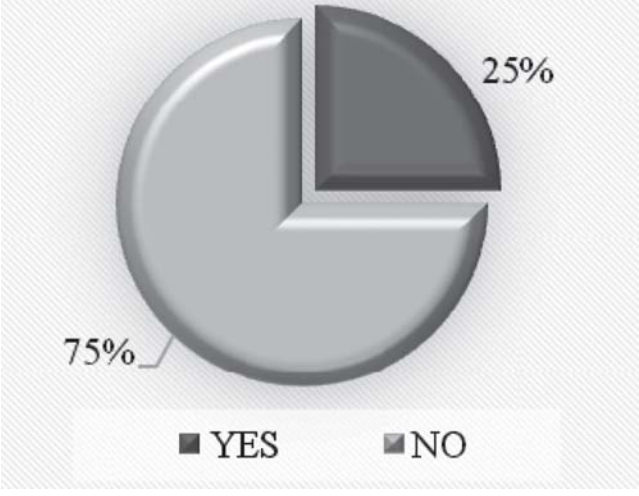


Fig. 6: Postponement of Ceremony due to Drought

Source: Surveyed and Complied by researcher

The above figure shows the due to drought 25% of household ceremony is postponed but there is no effect of drought on 75% of household ceremony.

Table 6. Perception regarding various Impact of Drought

CATEGORY	YES	NO
Drought caused food scarcity	58	2
Changes in food preference	52	8
Drought caused malnutrition	2	58
Drought affect the health	14	46
Drought caused unemployment	38	22
Drought reduce income	57	3
Drought reduced spending on festival	58	2
Drought caused migration	0	60
Drought impact on schooling of children	8	52
Drought caused conflict of water in society	44	16

Source: Surveyed and Complied by researcher

The above both tables shows the impact of drought socially in rural communities. So, from the above table, it is seen that repeated droughts had affected the supply of water for drinking, bathing, sanitation, daily household uses, irrigation, and cultivation. And there is changes that have taken place in food security concerns over the decades. Some of the elderly remembered the drought in 1980 when thousands died of starvation. Drought also have major impact on unemployment but any how less impact on spending at time of festivals. Drought reduce income of 34 household which is the highest impact of drought.

Table 7: Level of various Impact of Drought

Category	Very high	High	Medium	Less
Drought caused food scarcity	4	27	21	4
Changes in food preference	0	5	27	20
Drought caused malnutrition	0	1	0	1
Drought affect the health	1	2	4	7
Drought caused unemployment	2	26	6	5
Drought reduce income	9	34	9	5
Drought reduced spending on festival	2	8	25	23
Drought caused migration	0	0	0	0
Drought impact on schooling of children	0	0	1	7
Drought caused conflict of water in society	6	20	13	5

Source: Surveyed and Complied by researcher

Most people were aware of climate change and drought. respondent said they believed there was climate change and they noted the high uncertainty of seasons, which they said had changed drastically over the years. The above table show the impact of drought on environment. To measure the impact of environment we collected response from the respondent and we have collected their response in 4 level i.e. very high, high, medium, less.

And from the above response, it is clear that temperature increase and damage to wild life is very high with response of 39 and 36 household and other factor like water scarcity, forest degradation is high in that area with the response of 32,39,34,30 respectively.

Drought is caused due to the severe climate change and low rainfall. The low rainfall leads to the direct impact on agricultural production or paddy production. The agricultural impact of drought breaks down the income of the farmers, their willing power and social lifestyle. So, to study the impact of drought on agriculture, it is important to know about distribution of sample households according to their size of land holding.

Table 8: Impact of drought on Environment

Category	Very High	High	Medium	Less	Total
Increase in temperature	39	21	0	0	60
Reduction in forest	21	32	7	0	60
Water scarcity	9	39	12	0	60
Decline in ground level water	9	34	17	0	60
Surface water deteriorated	3	30	27	0	60
Damage to wild life	36	20	4	0	60
Total	**117**	**176**	**67**	**0**	**360**

Source: Surveyed and Complied by researcher

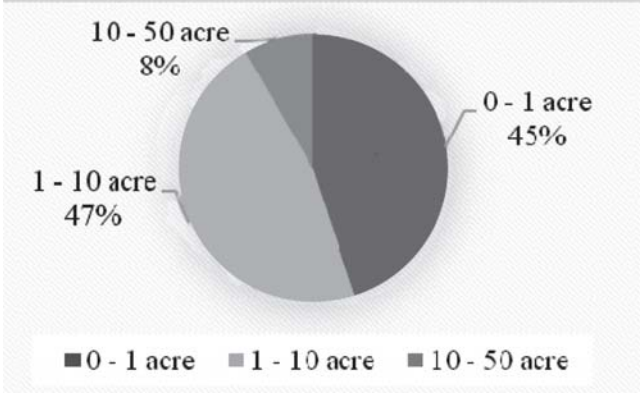


Fig. 7: Distribution According to Size of Landholding

Source: Surveyed and Complied by researcher

The figure 7 shows the percentage of household with different land holdings. We have categorised the land into 0-1-acre, 1-10 acre and 10 – 50 acres. There were 47% of households having 1-10 acrei.e.28households. There were 45% of households (i.e., 27 households) having land within 0 - 1acre and 8% of the total households were having land within 10 - 50 acres.

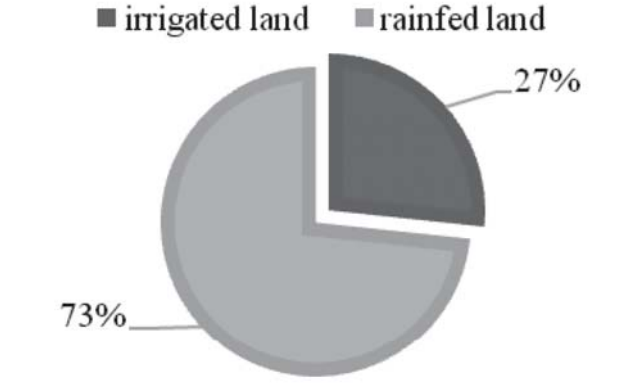


Fig. 8: Distribution of Household according to type of Land Holding

Source: Surveyed and Complied by researcher

The figure8 shows the type of land holding of farmers. We have divided the type of share into irrigated and rainfed lands. So, there were 73% of farmers who had rainfed land (44 farmers) and 27 % of farmers (16 farmers) who had irrigated land and hence, it was found that rainfed holdings were more than irrigated land type.

Table 9: Sources of Water in Normal and Drought Year

Sources of water	In normal year	In drought year
Dug well	1	0
Bore well	1	0
River	0	0
Pond	0	0
Rain	42	44
Other	16	16
Total	**60**	**60**

Source: Surveyed and Complied by researcher

The table 9 shows the sources of water for cultivation during the normal and drought year. Both in the normal year and drought year the main or major source of water for cultivation of land was rain for 42 and 44 farmers respectively. There were 16 farmers land who relied on other source of water that is irrigation canal for the irrigation purpose.

Table 10: Gross Income per Year from Paddy Production in Normal Year

Income category	Number
5000 – 10000	10
10000 – 50000	22
50000 – 1 lakh	19
1 lakh and more	9
Total	**60**

Source: Surveyed and Complied by researcher

Table10 shows the income of paddy producers. We have categorized the income into 4groupsi.e., 5000 – 10000, 10000 – 50000, 50000 – 1 lakh and 1 lakh or more rupees.

The figure 10 showed the income generated in normal year from production of paddy. There were 22 farmers i.e., 36% whose income comes under 10000 – 50000, 19 farmers i.e., 32% whose income from paddy comes under the category of 50000 – 1 lakh, 10 farmers i.e., 17% comes under the income group of 5000 – 10000 and least farmers

i.e., 15% comes under the income group of 1 lakh and more.

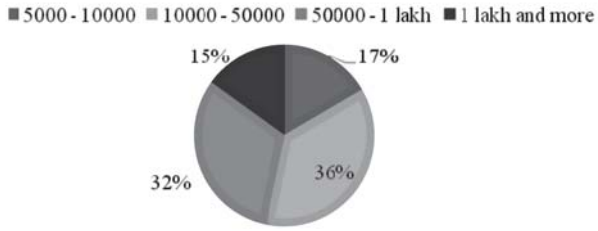


Fig. 10: Gross Income Per Year from Paddy Production in Normal Year

Source: Surveyed and Complied by researcher

Not only agriculture, its allied activities like livestock also are affected. The table 11 shows the number of livestock that is held by the various people. Its show the most of the people have cow i.e. around 23 number of people have 54 number of cows, 10 people have 49 number of hens, 4 people have 12 number of goat and 3 people have 8 number of buffalos.

Table 11: Possession of Various Livestock

Type of livestock	No. of people having livestock	No. of livestock
Cow	23	54
Hen	10	49
Goats	4	12
Buffalos	3	8
Total	**40**	**123**

Source: Surveyed and Complied by researcher

Table 12: Problem to Livestock in Drought Year

Types of Problem	Frequency
Less Production	29
Water Shortage	29
Diseases	13
Lack Market	22
Total	**93**

Source: Surveyed and Complied by researcher

From the above table and diagram, it is concluded that the major problem to livestock during drought is water shortage and less production which is in percentage of 31% both. And 14% of disease problem and 24% of lack market which is in number of 13 and 22.

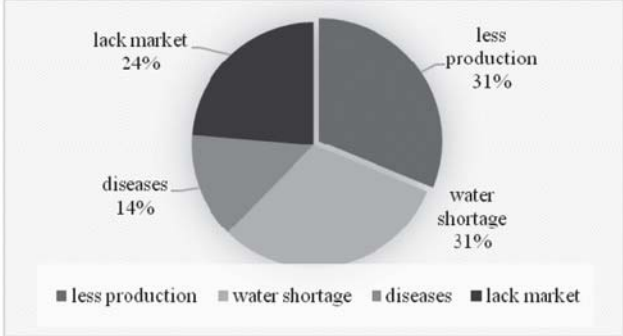


Fig. 11: Problems Related to Livestock due to Drought

Source: Surveyed and Complied by researcher

Table 13: Source of Food to Livestock in Normal and Drought Year

Source of food	In normal year	In drought year
Own farm	24	6
From others	7	25
Govt. Fodder	0	0
Cattle camp	0	0
Total	**31**	**31**

Source: Surveyed and Complied by researcher

Table 13 show the source of food for livestock in normal year and drought year. And it clearly seen that in normal year the food for livestock is comes from their own farm but in drought in year they brought from other.

Table 14: Income from Livestock in Normal Year and Drought Year

Income rang (per month)	In normal year	In drought year
5000 – 10000	16	16
10000 – 50000	9	9
50000 and more	0	0
Total	**25**	**25**

Source: Surveyed and Complied by researcher

In this table we can see the income that is come from the livestock in normal month and drought year. As there are total 40 people having livestock but only 25 people get income from the livestock. The income is divided into 3 categories but highest income per month get within 5000 – 10000 and the it is 10000 – 50000.

From the above table and figure 11, it is concluded that the major problem to livestock daring drought is water shortage and less production which is in percentage of 31% both.

Administrative Mitigation Measures

It is pertinent to examine the benefit provided by government to mitigate the impact of drought on agriculture and lives of rural population. It is necessary to measure the effective and efficient policy of govt. which may be helpful to the farmer economically during the drought year. It is one of the prominent tools through which we able to know the economic situation of farmer during and after drought. Hence many questions to respondent were asked to see their behavior towards govt. policy like irrigation facilities, water tanker facilities, crop insurance, loan subsidies and also their loan from kissan credit card**.**

Table 15: Satisfaction with Regard to Supply of Water Tanker by Government

Level	Number
Very high	0
High	21
Medium	24
Less	12
Total	**57**

Source: Surveyed and Complied by researcher

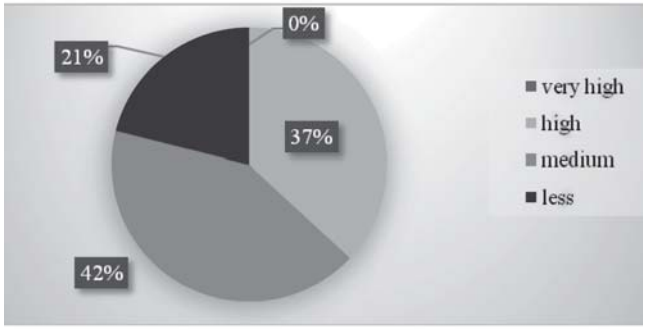


Fig. 12: Satisfied with Govt. Water Tanker Supply (In%)

Source: Surveyed and Complied by researcher

The above figure and table 5.5.1 show that in what level people satisfied with the govt. water tanker supply. In the above we also see that there are 57 household get the govt. supply out of which 37% household get high level of satisfaction which is in number of 21, 42% of household get medium level of satisfaction which is in number of 24 and 21% of household get less benefit from govt. water supply which is in number of 12. No one get very high benefit. And also, there are 3 household who are not getting tanker water supply.

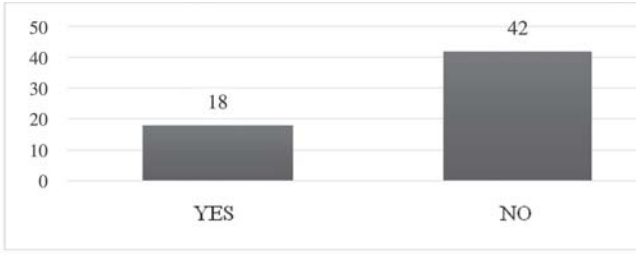


Fig. 13: Irrigation Facilities Provided by Government

Source: Surveyed and Complied by researcher

This figure shows that out of 60 household sample 18 household which 30% get the irrigation or canal facilities provided by govt. and 42 household not get the irrigation facilities which is 70%.

Table 16: No. of Respondents who have got Crop Insurance

	Yes	No
Crop Insurance	47	13

Source: Surveyed and Complied by Researcher

The table 16 shows that 47 household always get the crop insurance provided by the govt in drought year and 13 household get crop insurance but not always or every drought year.

Table 17: Percentage of Farmer provided Crop Insurance according to Different Level

Crop insurance level	Number
20 – 40%	18
40 – 60%	21
60% and above	13
Total	**52**

Source: Surveyed and Complied by researcher

The above table show that how much percentage of crop insurance get by farmer during drought year. In the previous table we have seen that 13 farmers don't get crop insurance in every year but some of them get crop insurance in any year. So, there is total 52 farmer get some percentage of crop insurance. The highest percentage of crop insurance get by farmer is within 40 – 60%. This figure 14 shows the percentage of farmer having Kisan Credit Card provided by government.

The table 18 and figure 15 show that 27 number of farmers have the Kisan Credit Card and get loan from it. As we have classified the loan amount into three i.e. 5000 – 10000,10000 – 50000, 50000 and above. We can see that 52% of farmer get loan within 10000 – 50000 which is highest category of loan taking, then 33% people get loan within 5000 – 10000 and 15% of farmer get loan within 50000 and above from the facility of Kisan Credit Card.

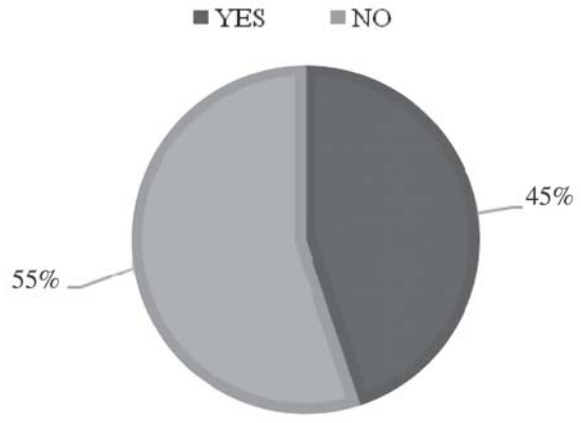


Figure 14: Availability of Kisan Credit Card

Source: Surveyed and Complied by researcher

Table 18: Amount of Loan from Kisan Credit Card

Loan amount	Number
5000 – 10000	9
10000 – 50000	14
50000 and above	3
Total	**27**

Source: Surveyed and Complied by researcher

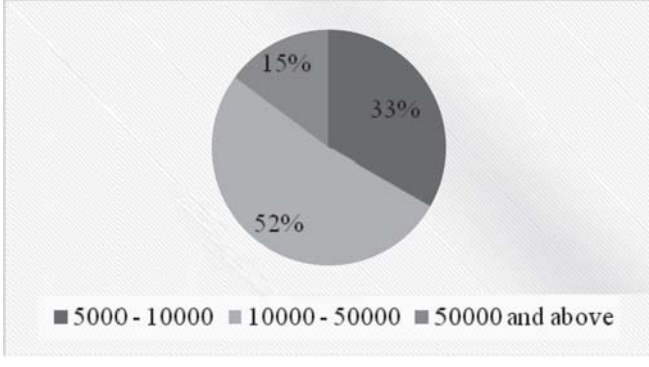


Fig. 15: Availability of Loan from Kisan Credit Card

Source: Surveyed and Complied by researcher

Table19: No. of Farmers availed Loan Subsidies

Yes	No
18	42

Source: Surveyed and Complied by researcher

Table 19 show the number farmer who got loan subsidies during drought year. Only 30% of farmer got loan subsidies (figure 16).

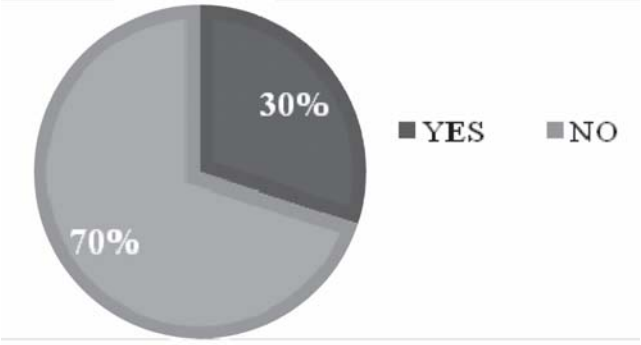


Fig. 16: Percentage of Farmers Getting Loan Subsidies

Source: Surveyed and Complied by researcher

Table 20: Loan Subsidies in Different Years

Year	Number
2014	1
2015	2
2016	5
2017	6
2018	2
2019	2
Total	**18**

Source: Surveyed and Complied by researcher

The above table 20 shows the loan subsidies get from govt. in drought by 18 farmers. It is clear from the table that not every farmer gets subsidies in a specific year or they don't get subsidies in every drought year.

Table 21: Amount of Loan Subsidies availed by Farmer

Amount of loan	Number of Farmer
1000 – 5000	4
5000 – 10000	10
10000 and more	4
Total	**18**

Source: Surveyed and Complied by researcher

Table 21 and figure 17 shows that if 18 farmers get the loan subsidies provided by govt. then how much loan subsidies actually, they get in drought year. So, 56% of farmer get loan subsidies within 5000 – 10000, and 22% of subsidies get by farmer in both category of 1000 – 5000 and 10000 or more.

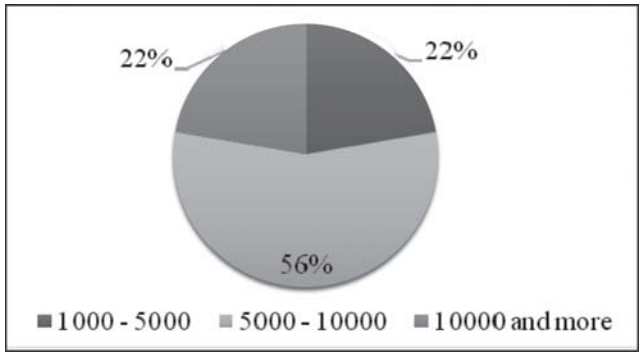


Fig. 17: Amount of Loan Subsidies availed by Farmer (in%)

Source: Surveyed and Complied by researcher

The table 22 and figure 18 show the number of farmers get the input subsidies during drought year for the need of raw material after drought. So, there is 52% of farmer who have got the input subsidies.

Table 22: Availability of Input Subsidies

Yes	No
31	29

Source: Surveyed and Complied by researcher

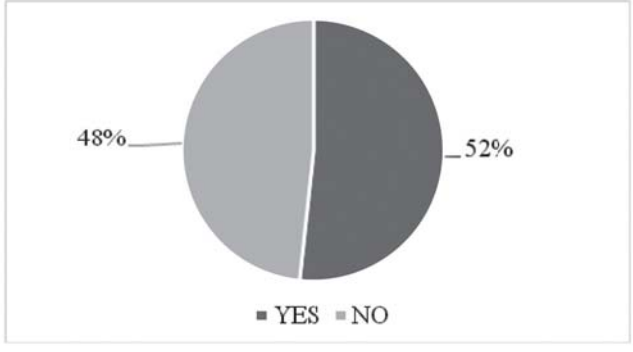


Fig. 18: Percentage of Farmer who Got Input Subsidies

Source: Surveyed and Complied by researcher

The table 23 show the input subsidies get by farmer in different category. Here we have divided the amount into 3 categories i.e. 1000 – 5000, 5000 – 10000, 10000 and more. And from the table we see that highest number of subsidies get by 17 farmers in category of 10000 and more.

Table 23: Amount of Input Subsidies availability by Farmer

Amount of Input Subsidies	Number of farmers
1000 – 5000	12
5000 – 10000	16
10000 and more	3
Total	**31**

Source: Surveyed and Complied by researcher

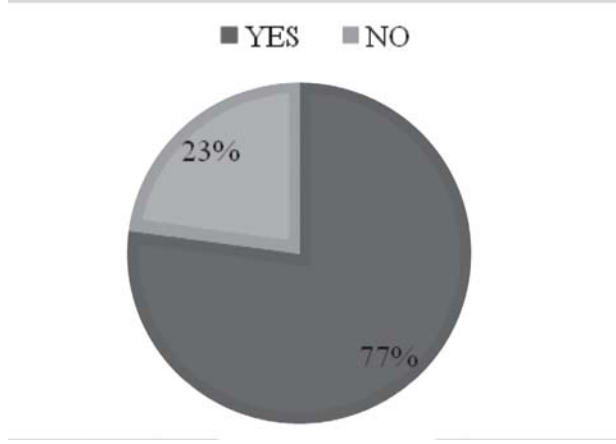


Fig. 19: Percentage of Input and Loan Subsidies Beneficiaries

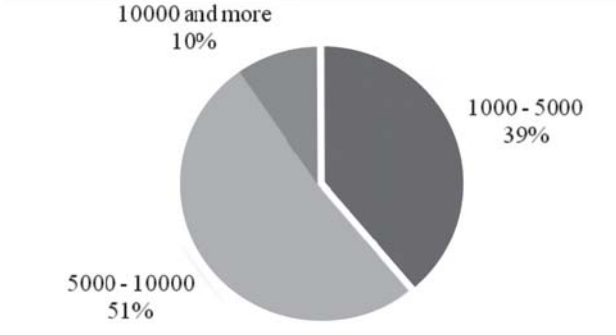
Source: Surveyed and Complied by researcher

Figure 20 shows the percentage of farmer get input subsidies in different category. The highest category of input subsidies get by farmer is between 5000 – 10000 i.e. 51%, then 1000 – 5000 i.e. 39% and 10000 or more i.e. 10%.Due to input and loan subsidies 77% people are economically beneficial during drought year (Table 24 & figure 19).

Table 24: Input and Loan Subsidies Beneficial in Drought Year

Yes	No
27	8

Source: Surveyed and Complied by researcher



Source: Surveyed and Complied by researcher

Conclusion

Drought occurs due to many climate changes. But in Nuapada district deforestation is the main cause of low rain fall. Though afforestation program is going on, it is not up to the mark and hence necessary steps are required to be taken by government for plenty of plantation. Drought has broken the economic backbone of the farmers. Government policies need to be implemented efficiently to raise the economic condition of the farmers. Due to low-income from the sale of the agricultural produce, farming is not found to be profitable. The children of farmers also migrate to the cities for better livelihood opportunities including occupation which increases the cases of child labour and hence adversely affect the rural communities of the district. ❐

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