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IMPACT OF CYCLONE FANI ON THE WELL-BEING OF THE AFFECTED COMMUNITY IN KRUSHNA PRASAD BLOCK OF PURI DISTRICT

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ABSTRACT

In the present research an attempt has been made to study the impact of cyclone Fani on the well-being of the affected community in the Krushnaprasad block of Puri district. Data has been collected from 250 respondents. The Likert scale of measurement technique was used for every statement for the environmental issues and economic aspect of the people with a 5 point scale. Each alternative item was assigned from 1(strongly agreed), 2(agreed), 3(undecided), 4(disagreed), 5(strongly disagreed) for favorable items. Scoring system subsequently was used in the research in order to identify the variables with higher and lower weighted scoring, and the pre-determined items were arranged according to priority. Each individual variable item was done accordingly by allocating numeric value against each question for example, if the respondents chose the option as the first choice they would be scored 5, second choice as 4, third choice as 3 and fourth choice as 2 and the last choice as 1 mark. SPSS software has been used for analytical process. The map of the study area has been prepared using QGIS.

KEY WORDS Anthropogenic, disaster, well-being, community, trauma

INTRODUCTION

The East coast of India experiences a number of natural calamities almost every year like drought, flood and cyclone. However, among all the natural calamities, cyclone is the most dangerous and occurs every year in the month of May-June or October-November. For this, geographical factors like temperature condition,

pressure condition and location of a place play important role. Of the various anthropogenic activities like deforestation, increase in the construction of infrastructure like concrete road, construction of houses, global warming, environmental imbalance etc are the main causes of natural calamities like cyclone."(ncrmp.gov.in [4])

There has been a close relationship between disasters and environment ever since the early time period of human civilization. Odisha is known as the disaster capital of India; because of frequent occurrence of Cyclones which are the main causes of enormous damage in the eastern part of Odisha."(wikipedia.org [1]) . The Major Cyclonic storm that hit Odisha in the last few years includes Super Cyclone 1999, Phailin 2013, Hudhud 2014, Titli 2018 and Fani2019. According to India Meteorological Department (IMD) the Extremely Severe Cyclonic storm "FANI" made landfall on the Odisha Coast on 3rd May 2019 at 8 a.m.; the wind speed was 200 km/h. The cyclone Fani is one of the strongest cyclones in the last 20 years. A Low pressure area was formed over east equatorial Indian Ocean and adjoining southeast of Bay of Bengal on 25 April 2019 intensifying into a Severe Cyclonic Storm"FANI" over south-east south-west Bay of Bengal. More than 1,50,94,321 people, 87,093000 Animals/Birds affected and 34,056000 Animals/Birds lost their lives. More than 5, 08,467 houses, 12000 Hectares of farming field crops had been damaged. More than 10 Million trees were uprooted. After the cyclone people were facing problems like lack of Mobile network, Internet, Bank, ATM, Electric Power supply, Water supply, Medical Facilities, Fuel, Shop were not opening, lack of Shelter and food.

"There had been massive loss in the field of transport, communication, and overall estimate was 12,000 Cr. (The Hindu [2]) Overall loss of public properties was approximately 5,175 Crore and expenditure towards relief and response stands at 6,767.56 Crore respectively. The overall duration of impact was about 4 hours.

During the time period, the wind intensity was high and as the study area has an island location, the high tide water and sand from the ocean enter inside the village. The drinking water source was also contaminated by the Cyclone. Within the short period of time major parts of livelihood like fishing equipment, agricultural land, coconut farm, cashew garden, hut and asbestos, road, school building etc were severely destroyed. After Fani, the economy of the area got devastated which rests on fishing, because the production of fishing was also affected.

Under this study two villages have been chosen namely Berhampur and Maensa which belongs to Berhampur Gram Panchayat of Krushna prasad Block of Puri District. The main purpose to select the study area is that the concerned two villages are Island villages which have been severely affected by the cyclone Fani and the only means of transportation available to the villagers is through boat. The cyclone Fani has broken the backbone of the economy of this region.

The current research intends to study the impact of Cyclone Fani on the wellbeing of the affected community in Krushnaprasad Block of Puri district of Odisha.

OBJECTIVES

The main objective of this study is to understand and to analyze the impacts of Cyclone Fani on the well-being of the affected community in the Krushnaprasad Block of Puri District. There are two specific objectives identified for the study:

1) To describe the existing condition of the coastal environment in the affected areas.

2) To identify the impacts of the cyclone Fani on community well-being in terms of physical infrastructure, and environmental aspects.

METHODOLOGY:-

The study was conducted on 250 people from two villages i.e. Berhampur and Maensa in Krushnaprasad Block of Puri district, Odisha. There are 20 numbers of questions designed based on five sections. These five sections are on the basis of loss of income, damages to properties, effect on daily routine life, emotional effect (Trauma) and suggestion of minimizing the impact of Cyclone Fani. Questionnaire survey and direct Observation were the main tools for conducting this study towards research purpose. The questions that were asked in the survey were administrated to the native people who have been directly affected by the Fani.

"The Likert scale of measurement technique was used for every statement for the environmental issues and economic aspect of the people with a 5 point scale. Each alternative item was assigned from 1(strongly agreed), 2(agreed), 3(undecided), 4(disagreed), 5(strongly disagreed) for favorable items. Scoring system subsequently was used in the research in order to identify the variables with higher and lower weighted scoring, and the pre-determined items were arranged according to priority. Each individual variable item was done accordingly by allocating numeric value against each question for example, if the respondents chose the option as the first choice they would be scored 5, second choice as 4, third choice as 3 and fourth choice as 2 and the last choice as 1 mark" (Asmawi et.al. 2013). SPSS software has been used for analytical process.

THE STUDY AREA

Most of the people are engaged in fishing and agricultural activities in the study area because of its geographical location. Seasonal cultivation is practised by people and main farming is paddy. Along with paddy other farming like coconut, cashew, and vegetable are also practised by the people. Farming method is

totally dependent on rainfall because of absence of canal irrigation. Parikud received less rainfall during rainy season due to its unique location. But now a days people are not practising cultivation like paddy due to irregularity of monsoon. Another aspect is every year people of this region are facing main natural calamities like cyclone.

TABLE-1 DEMOGRAPHIC ATTRIBUTES OF BERHAMPUR VILLAGE 2011

Particulars	Total	Male	Female
Total No. of houses	397		
Population	1898	992(52.26%)	906(47.74%)
Child (0-6)	193	108 (55.95%)	85(44.05%)
Schedule Caste	1534	790 (51.49%)	744 (48.51%)
Schedule Tribe	5	4 (80%)	1(20)
Literacy	93.02%	96.27%	89.52%
Total Workers	1098	685 (62.38%)	413 (37.62%)
Main Worker	639		
Marginal Worker	459	167 (36.38%)	292(63.62%)

Source: .(https://www.census2011.co.in)

As per census 2011, the population of Berhampur village is 1,898 out of which 52.26% are male and 47.74% are female. The total numbers of inhabited houses in this village is 397. Children between 0-6 age group are 193 out of which 55.95% are male and 44.05% female. People of different castes inhabited in this village include Brahmin, Washerman, Barber, Bauri and Mahajan Khatia which has been recently recognized as a schedule caste by special Act of the Parliament. In the village there are 1,534 numbers of Schedule Caste out

of which 51.49% are male and 49.51% are female. Schedule Tribe population comprises of 4 male and 1 female. This village is recognized as a literate village in this locality due to high percentage of literacy rate. There are 93.02% of people are literate out of which 96.27% are male and 89.52% are female. Total number of workers in this village is 1098 out of which 62.38% are male and 37.62% are female. The number of main workers is 639 and a marginal worker is 459.

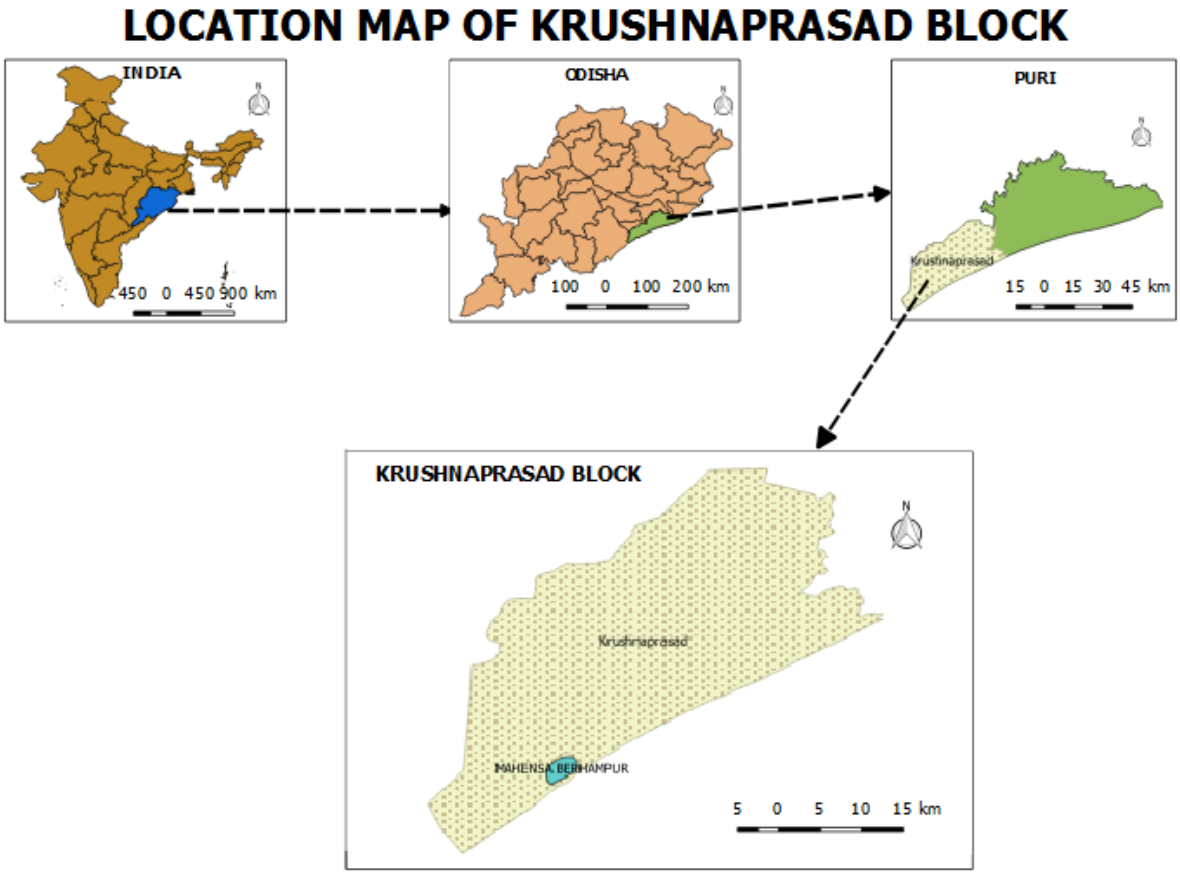
TABLE -2 DEMOGRAPHIC ATTRIBUTES OF MAENSA VILLAGE 2011

Particulars	Total	Male	Female
Total No. of houses	239		
Population	1060	555 (52.35%)	505 (47.64)
Child (0-6 years)	111	51 (45.94%)	60 (54.05)
Schedule Caste	908	476 (52.42)	432 (47,57)
Schedule Tribe	0	0	0
Literacy	93.89%	96.83%	90.56%
Total Workers	678	420 (61.94)	258 (38.05)
Main Worker	594		
Marginal Worker	84	67 (79.76%)	17 (20.23)

Source: (https://www.census2011.co)

Maensa is a medium sized village located in Krushna Prasad Block of Puri district, with total 239 numbers of inhabited households. Total population is 1060 out of which 52.35% are male and 47.64 % are female as per 2011 census. In Maensa village population of children with age group between 0-6 is 111 which constitute 10.47 % of total population of village. Average Sex Ratio of Maensa village is 910 which are lower than the state average of 979. Child Sex Ratio for Maensa as per census is 1176, higher than state average of 941. The

literacy rate compared to Odisha is high which 93.89% in this village was. In 2011, literacy rate of Maensa village was 93.89 % compared to 72.87 % of Odisha. There are 96.83 % of Male literacy and 90.56% of female literacy found in this village as per 2011 census. Overall literacy rate of Maensa is higher than Berhampur.



RESULTS AND DISCUSSION

Impact of Fani on the Well-Being of the Community from the Community Perspectives.

Table 3 shows the results of the questionnaire survey on the impact of cyclone Fani on the well-being of the community. The impacts were divided into four parts which are loss of income, damage to properties, effect on daily routine life and emotional effects.

TABLE- 3 **THE IMPACT OF FANI ON THE WELL-BEING OF THE COMMUNITY**

IMPACT	TOTAL WEIGHTED SCORE	AVERAGE SUM
1. LOSS OF INCOME		
Decrease in everyday and monthly catch of fish due to damage of fishing equipments.	1126	4.504
Livestock and agriculture production has been affected due to flooding of agricultural fields and damage of livestock sheds due to Fani	1082	4.328
There has been massive loss to fishing equipment and fishing related activities due to Fani.	1083	4.332
Various types of business were affected due to damage of infrastructure and communication services.	994	3.976

Source: field survey

TABLE- 4 **DAMAGE TO PROPERTIES**

IMPACT	TOTAL WEIGHTED SCORE	AVERAGE SUM
Maximum shelter like hut and asbestos were severely affected by Fani.	1157	4.628
Major sources of livelihood like fishing materials were totally destroyed.	1169	4.676
You had to face drinking water crisis during the post-Fani cyclone.	1098	4.392
Massive damage has been caused to electric poles, electric towers and mobile towers due to Fani.	1124	4.496

Source: field survey

TABLE- 5 **EFFECT ON DAILY ROUTINE LIFE**

IMPACT	TOTAL WEIGHTED SCORE	AVERAGE SUM
Due to severe damage to fishing materials and houses till today their economic condition has not improved.	1118	4.442
Irregularities to schooling session time due to damages to school equipment and properties.	952	3.808
Maximum numbers of fishing boats were destroyed which	1127	4.508

is the main source of livelihood.		
Major sources of food supply were affected due to damages happened to grocery shop, fishing yard and other agriculture areas (food grain go down).	995	3.98
Plantation affected (cashew and coconut) by Fani.	1155	4.62
Failure of road communication in your localities due to damage/ blockage of path.	1030	4.12

Source: field survey

TABLE: **6 EMOTIONAL EFFECTS (TRAUMA)**

IMPACT	TOTAL WEIGHTED SCORE	AVERAGE SUM
You had to pass through trauma after witnessing and experiencing the event.	1108	4.432
Serious injuries inflicted upon you and your family members due to the events.	738	2.952

Source: field survey

From the table above, it reflects the impacts faced by the affected community in the study area. For the first category, which is loss of income, most of the respondents

agreed that the major impact of the cyclone Fani was on their income. Itcaused damage to their fishing equipment which affected fishing related activities. Most of the fishing boats and fishing equipment, such as fish pots and dragnets were left or stored at the safe places. This impact has the highest weighted score in the loss of income category with the weighted score of 1126. Next, the second highest weighted score with 1083 was there with respect to massive loss to fishing equipment and fishing related activities due to Fani. Next in the livestock and agriculture production has been affected due to flooding of agricultural fields and damage of livestock sheds due to Fani with the score of 1082 and the least response was received on various types of business were affected due to damage of infrastructure and communication services with the weighted score of 932.

The second category is the damage to properties. With the highest weighted score of 1169, the respondents agreed that the cyclone Fani has affected the major sources of their livelihood like fishing materials were totally destroyed. Respondent lost their maximum fishing materials which has been indicated during data collection. The second one is maximum shelter like huts and asbestos were severely affected by Fani with the weighted score of 1157. According to the interview done with the representative of the villagers Berhampur and Maensa (2019), most of the study areas were severely damaged by cyclone Fani. The third one is massive damage has been caused to electric poles, electric towers and mobile towers due to Fani with the weighted score of 1124 and the last one is drinking water crisis during the post-fani cyclone with the weighted score of 1098.

The third category is effect on daily routine life due to cyclone Fani. This category includes severe damages to fishing materials, irregularities of schooling, destruction of fishing boat, effect on food supply, effect on plantation and failure of communication. Among the entire aspect Plantation got severely affected (Cashew and Coconut) by Fani has secured first position by respondents with the weighted score of 1155. After fishing activities, people of this region also depend on cashew plantation as a seasonal occupation and Coconut as the main production throughout the year which was severely affected by Cyclone Fani. The second one is maximum number of fishing boats were destroyed which is the main source of livelihood of the respondent with the weighted score of 1127. As we know that, most of the people depend on fishing as a main source of livelihood and due to cyclone Fani they were severely affected. Similarly the third one is due to severe damage to fishing materials and houses till today their economic condition has not improved with the category of respondents with weighted score of 1118. The fourth one is failure of road communication in the localities due to damage/ blockage of path respondent with weighted score of 1030. The entire roads in these villages are Kutcha except inside the village. The ring road of the village is kutcha and it got damaged during cyclone Fani. The fifth one is major sources of food supply were affected due to damages happened to grocery shop, fishing yard and other agriculture areas (food grain go down) respondent with weighted score of 995 and the least response was received on irregularities to schooling session time due to damages to school equipment and properties with weighted score of 952. All the class room of Primary and upper primary school were concrete roof houses except one room which was damaged but high school class rooms were made of Asbestos which was severely affected. Classes were being held in the nearby Cyclone Shelter which is situated in the High school campus.

The emotional effect caused by the cyclone Fani.

Most of the respondents in this locality agreed that because of the cyclone Fani, they experienced trauma arising out of witnessing and experiencing the event. This cyclone reminded them again about the devastation caused by the super cyclone of 1999. This has the highest weighted score of 1108 and the least numbers of responses is serious injuries inflicted upon them and their family members due to the events with weighted score of 738. This is indicated by all respondents as the least affected issue due to the level of awareness was high due to cooperation and mindset to face the situation during cyclone Fani.

Tools to Minimize the Impact of Fani on the Community Well-Being.

Table 7 indicates the tools which could be used in order to minimize the impact of Cyclone Fani according to the local community of Berhampur and Maensa. Based on the score, it shows that most of the residents agreed that by increasing the hazard and disaster awareness among the community could minimize the impact of a certain Cyclone like Fani with a score of 1189. Many researchers also agreed that by educating the public about the Cyclones, communities become informed and empowered to take actions that prepare them to face Cyclone like situation or other disaster and natural calamities. People were taught to recognize the proper warning system of an impact Cyclone and take proper action towards it before it causes maximum damage.

TABLE: -7 TOOLS TO MINIMIZE THE IMPACT ON THE COMMUNITY WELL BEING TOWARDS CYCLONE FANI

TOOLS	TOTAL WEIGHTED SCORE	AVERAGE SUM
Cyclone warning system is sufficient.	932	3.728
Planting greens and preservation of environment will reduce the impact of cyclone.	1160	4.62
Increasing hazard and disaster awareness among the community is needed.	1189	4.756
Building concrete roof houses in coastal areas will result in saving the life and property in cyclone prone regions.	1185	4.74

Source: Field Survey

The second category is Building concrete roof houses in coastal areas will result in saving the life and property in cyclone prone regions with the weighted score of 1185.The most common type of protection for property along coast is according to the level and intensity of cyclone occurred almost every year, Government must design the building in coastal belt for the safety and protection of life and property. Subsequently, the respondents respond in second highest level to building coastal structures such as concrete roof houses to every community. As a result it could minimize the impact of loss of properties every year.

The third highest tool that is agreed by the respondents to minimize the impact of Cyclone Fani is by planting more greens and preservation of the environment. This carries the score of 1160. People agree that

now a day the frequency of Cyclones has increased due to environmental imbalance caused by decrease of forest. So increasing the green belt to balance the climatic condition in the world at the same time to reduce the impact and the last one is the Cyclone warning system with the score of 932. It indicates that the level of awareness is less from government. During the cyclone Government of Odisha evacuated some lakhs of people in different parts of coastal belt in Odisha. People are getting the cyclone warning information through the mass media which act to help them to save the life and property during the time of Cyclones.

CONCLUSION

The present research is an attempt to study the impact of cyclone FANI on the wellbeing of the affected community of two island villages of the Krushnaprasad block of Puri district of Odisha. Cyclone Fani made land fall in the Puri district on 3rd May 2019. The impact of the cyclone was so severe that mostly the kutcha houses were damaged, trees were uprooted, boats and fishing equipments were damaged, agriculture was affected. Since the economy of this region survives on farming, fishing, plantation of Cashew and Coconut majority of the villagers lost their livelihood. Although due to evacuation of people and domestic animals to safe shelter by the Government saved their lives, yet the destruction caused by the Cyclone resulted in Psychological trauma to some respondents. Since the study area is prone to cyclones the respondents came up with suggestions like building concrete structures (houses), casuarinas plantation in coastal areas to minimize the impact of wind, community level pre disaster preparedness, cyclone warning, spreading awareness among the people etc.

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