Capacity Building for Women in Disaster Management: Lessons from Super Cyclone, Odisha

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Abstract- The most effective way to mitigate the effects of natural disasters is to be prepared for them. Women, who "are key economic actors throughout the disaster cycle of preparedness, mitigation, relief, and reconstruction", should be provided with capacity building training to reduce the impact of disasters. In this paper I attempt to put forth some of the training that has been provided to women as part of the disaster preparedness programme in the aftermath of the Super Cyclone.

Index Terms- capacity building, disaster management, super cyclone, Odisha

I. INTRODUCTION

The most effective way to mitigate the effects of natural disasters is to be prepared for them. Numerous studies have pointed out that empowering the traditionally marginalized groups who experience greater vulnerability to disasters has the potential to mitigate their overall effects (Neumayer and Plumper, 2007). Women, who "are key economic actors throughout the disaster cycle of preparedness, mitigation, relief, and reconstruction", should be provided with capacity building training to reduce the impact of disasters. In accordance with the provisions of the Disaster Management Act 2005, there is a need for well structured capacity building arrangement at different levels in the Government machinery and other stakeholders. Capacity building is an important attribute for the effective management of disasters. Since women constitute 50 per cent of the population and are the hardest hit in times of disaster, it is important to enable women to build their capacity through training to resist the threats caused by disasters. For the successful implementation of the disaster management plans at the state, district and block level, it is essential to impart training to women at different levels according to the needs, requirement and the different roles played by women in the various phases of disaster management, while at the same time having an intimate knowledge and understanding of the local reality.

II. CAPACITY - BUILDING TRAINING FOR WOMEN

In this paper I attempt to put forth some of the training that has been provided to women as part of the disaster preparedness programme in the aftermath of the 1999 Super Cyclone.

Proceeding on the conviction that women are more likely than men to respond to disaster warnings with protective actions (Drabek, 1969 cited in Fothergill 1998: 17), a number of programmes have been designed keeping women at the centre of action both for preparedness and provision of relief during the event. The study reveals that women were more patient, keen to learn, be trained and were more amenable to being taught than men. Drawing from experience of the super cyclone and tapping on women's nurturing role, by virtue of the gender-based division of labour, Action Aid and Red Cross two prominent relief agencies came up with a comprehensive programme to train women in disaster preparedness. To begin with, women are advised to keep certain items ready to meet any emergency situation. This includes storage of food such as fried rice (*mudhi* which remains edible for 15 days), puffed rice (*chuda*), parched rice, biscuits etc, which can stay for long in a jar and other essential items like candles, match sticks, kerosene, oil, medicine, needle and thread, and clothes. During the super cyclone several women could not take clothes with them and hence had to wear the same garment for several days. In some cases their sarees got caught in trees and were torn and in the absence of any replacements women had to continue to wear these torn sarees.

Women must be alert and quick to act. Once they hear the siren signaling, the advent of a cyclone they should move to higher ground, to a concrete house and not stay in their house (if they are residing in a kutcha house), but to be in a place where all the villagers have gathered. They should take the provisions and all the members of the family together, especially children and elderly members of households and if someone sees old age persons on the way, they should be escorted to safer places. Emphasis was laid on the importance of saving lives over material possessions. The elders of the researched village claimed that they have seen many cyclones but never one like the super cyclone, where people had to leave their homes and had to take shelter in concrete houses. Today the endangered population of the study area are aware of the 'do's and don'ts in the cyclone' and of the immediate responses to be made in the event of a similar instance.

Through different NGOs, training has been provided to the women and task forces have been formed to rescue people stuck in different situation in disasters, for instance, how to rescue people if the sea water level rises, and in every panchayat task forces have been formed with the help of OSDMA. The women in the field area have been trained to swim (for those women who are unable to swim it is necessary to keep with them tyre tubes, a big tin jar, rope and a drum. One can tie the rope to the drum as with its help one can save oneself and others because the drum would not drown in the water, as swimming as a skill is socially not encouraged for women), to climb trees, rescue people stuck in

trees, to make knots in ropes and how to tie ropes fast in such a way so that the knots can be removed quickly and rescue the people from drowning.

The people from coastal areas possess some indigenous knowledge which helps them to safeguard themselves against disasters. As most inhabitants of the coastal area are accustomed to swimming from a young age, several of them can swim as much as half a kilometer even in turbulent cyclonic currents. Many can carry bamboo, big wooden plates and a jar of 20 litres to cross the water. Women too traditionally possess these skills. Interestingly, today the skills are mostly confined to the aged groups, and not their children.

To overcome this lacuna, first-aid trainings are imparted to women with the emphasis that they pass the training on to their children. For example, if a person is suffers from diarrhea, they should first provide ORS to them and then send them to the doctor or if a victim gets drowned in water and has gulped water, how to remove water from the person body, or if a victim's leg or hand is broken, what are the things to be done before taking the victim to the hospital.

Through Red Cross, women have been trained how to save someone who is drowning in water during disasters even if they don't have a rope they can throw their saree or any clothes and they should not themselves go inside the water as they can be drowned. Women have also been trained to ride a boat and help in rescue operations by wearing specific clothes. Women have been given clothes with caps that are water resistant to wear during natural disasters to rescue the people who are drowned.

Olarah village, the focal point of this study, was severely affected by the super cyclone had no means of communication (i.e. TV), so the warning of the cyclone had been transmitted through the Radio. The endangered population did not take the warnings of the super cyclone seriously and had no idea that the wind speed would be so high and would be accompanied by water which resulted in severe losses to both lives and property. The affected population believed that if the warning would have specifically mentioned that the wind speed of the cyclone would be accompanied with water then they would have taken precautions and would have moved to higher areas before the occurrence of the super cyclone and would have also kept their possessions in safer places. The people thought that water of the super cyclone would only rise till their waists, but the water level was so high that even coconut trees were submerged in it.

The level of preparedness can play a crucial role in diminishing the impact of any disaster on a community. But for a community to be prepared for any type of disaster, it is imperative that the community realizes that they are at risk. In the pre-disaster phase and during the super cyclone the people in the researched village had no awareness of the risk they faced, but after the training provided by Red Cross, the people have become more aware and today whenever there is a warning about a disaster the threatened population start storing food items. The vulnerable population of the village is aware that before the cyclone they have to be alert and prepared. To ensure that everyone is made aware of the approaching cyclone, information is relayed through a Public Announcement System or mike by telling the *mukia* to bring together all the women along with their children. It is important to bring the endangered population together to one place to understand that the cyclone is coming and to be prepared.

Ensuring that people congregate at one location is important as it becomes easier to tell them to go to higher land and people should be ready along with their family and children to face the cyclone. When the weather forecast informs that cyclone is coming, youth should form groups and take people to higher land before the onset of the cyclone, specifically those who live in low lying areas should be informed by making mike announcement in those areas. Effort should also be made to move animals to higher ground and to see if the houses i.e. the pucca houses are strong enough to withstand the cyclone, keep medicines, food, agricultural land documents and, drinking water in a proper place. Water will be polluted after the cyclone so it is important to dig water pumps instead of wells.

Today vehicles are available in the researched village (which was not the case during the super cyclone) which can be used to take people to safer places like cyclone shelters and take older people who cannot walk in their arms to safer places. Some roads and vehicles cannot reach all places; the youth are trained to go to places where roads do not exist and take the people to safety.

The formation of the SHG facilitated (adaptive) livelihood strategies that helped to minimize the vulnerability among women. Through the SHG women are trained to earn their living through different income generating activities like growing food in their kitchen gardens and rearing of poultry, cows, goats and pigs for home consumption and the market. The money women save are kept in the SHG and loan is taken from the group. In this way the SHGs are helping to strengthen the livelihood security of women. Before the cyclone many women were members of the SHG and had formed groups of 24 members through Red Cross. But, these groups broke off after the super cyclone as the number was too high to be manageable instead small groups of 12 members was formed.

The group leaders of the SHG have been constantly encouraging the members to do different kinds of work as the women in higher lands such as Erasama, Goda and Jaba are engaged in many kinds of activities like making toys and other articles for fairs and melas, which are generally supplied by women SHGs of upper land areas. The women of the lower land areas, although they are in a group (i.e. SHG,) do their work individually and according to their convenience. It is because their husbands have migrated to cities for work, the women are living alone with their children and all the responsibility of the household and children falls on them. There are no employment opportunities in the village whereas in higher land villages, both the husband and wife are present in the house allowing women the opportunity to leave their house and to work as a group. The women of the SHG are taken to different places outside the village to understand how fish cultivation is carried out in Bhubaneswar. Unfortunately the women of the researched village could not avail the opportunity provided, with their husband away in the city, they are saddled with the household responsibility.

The women who worked as anganwadi workers were trained to educate the village women about health issues and campaign on health issues. The anganwadi women made slogans on health issues (e.g. on breast feeding, use of ORS in case of diarrhea, to drink boiled water) and campaigned it along with the village women and organized meeting and discussed it with other women. The women and men were taught to sign their names instead of using fingerprints by the anganwadi workers. In the post

cyclone period, anganwadi workers also organize programmes for disaster preparedness. The anganwadi that played an important role in the training of the women in the researched village in the post disaster is Integrated Child Development Scheme (ICDS). Women were told to leave their kutcha houses and move to a pucca house after hearing the cyclone warning or of the low pressure created in the Bay of the Bengal from Radio and TV. Women were made aware about the importance of trees and encouraged to plant more trees (like mangrove) and not to cut them as this is one of the major cause of disasters. There are many people who are cutting the trees for profit and because of their poverty. The anganwadi workers through their awareness programme meetings educate the people not to cut trees for their survival, as it will lead to more disasters and cause damage and destruction in the long term.

Training has also been provided to unite the educated youth to persuade the people to move to higher places, for e.g. if the youths agree to save the possessions (like dry food, kerosene, clothes, important documents) of the affected people then they can be easily persuaded to move to a safer place. If such support is provided to the people then they will leave their houses and come to the cyclone shelter. A *trust worthy person* of the village should persuade the people to move to a safer place before the disaster. Close observation reveals that people in the villages trust the anganwadi worker, and their advice usually heeded by the villagers.

Several basic life-saving techniques are imparted by the anganwadi workers to the villagers, for instance how to deal with the incidence of fever, vomiting, and diarrhea etc. Women are taught simple home-remedies to save the lives of people. What precautions should be taken for infants during disasters: for example, if an infant is placed in the arms of the mother then it can get the warmth through the mother's body heat and won't be affected by cold and can survive for two hours without food. Another example is that if any person collapses in the cyclone the survivors can provide mouth-to-mouth respiration or put a cotton cloth by making a ball and placed inside the mouth of the collapsed person who can thereby be saved.

Today, even if there is rain people go to concrete houses. The respondents believed that if government could have provided them with concrete houses they would have been saved. Even after several years of the super cyclone many of the respondents are still living in thatched houses.

In Olarah village there is no cyclone shelter and only the school building which is two-storied structure created by the Paradeep Trust serves as the cyclone shelter. In this panchayat as a whole there are four to five cyclone shelters. This includes the Red Cross building which serves as a cyclone shelter in times of disaster. The government and NGOs have made some pucca houses under the IAY for individual families, after the cyclone. However concrete housing has not been found to reduce social vulnerability (Ray, 2006).

III. CONCLUSION

Community preparedness can be very useful in reducing the adverse impacts of disasters to a considerable extent. The capacity building trainings should incorporate skill upgradation in the use of the latest know-how for effective response and sustainable recovery in disaster situations. Women are pivotal to a society's

social fabric and hence it is important to understand their capacity for resilience which is critical for risk prevention and response efforts. Most of the studies on gender and disaster management report that women are not included in the formal disaster preparedness trainings (Nehnevajsa, 1989 cited in Fothergill 1998, p.16). Women should be engaged effectively in disaster management, as there is a huge disconnect between their work and equitable integration into all stages of decision-making processes, policies and programs. If women are continued to be excluded from effective engagement at such levels, gender inequities will be persistent, and countries will not recover from the impacts that disasters engender.

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Endnotes

This paper is an outcome of my fieldwork undertaken in the super cyclone affected coastal village of Olarah in Erasama Block in Jagatsinghpur district, Odisha, as part of my doctoral research in Jawaharlal Nehru University, New Delhi.

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LIST OF PUBLICATIONS

PAPERS IN REFERRED JOURNALS

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- Paper Published (AS FIRST AUTHOR) in the International Journal of Scientific and Research Publications, Titled "Understanding the Corona Virus Pandemic: From a Sociological Perspective", Vol.10, Issue 6, June , 2020. (ISSN 2250-3153).

- Paper Published (AS FIRST AUTHOR) in the International Journal of Scientific and Research Publications, Titled "The Role of Social Networks in Disaster Information and Management", Vol.9, Issue 9, September, 2019. (ISSN 2250-3153).

- Paper Published (AS FIRST AUTHOR) In The International Journal of Constructed Environment, Titled "The Problems Induced by the Constructed Environment: A Case of the September 2011 Floods in Orissa, India", VOL.2, ISSUE 3, 2012, PP. 211-218. (ISSN: 2152 -7857).

- Paper Published (AS FIRST AUTHOR) In The International Journal of Disaster Advances, Titled "Disaster and Media: A Critical Analysis", VOL. 1, NO. 2, April 2008, PP.41-46. Referred journal

PAPERS PRESENTED IN CONFERENCE/SEMINARS/ INVITED LECTURE

- Paper titled "Escalation of Domestic Violence against Women in Built Environment: A Case of Recent Corona Virus Pandemic, India" accepted in the 10th International Conference on the Constructed Environment, held on 2 -3 November 2020, University of California Berkeley, Clark Kerr Campus, Berkeley, USA.

- 23-24th September, 2019, Presented Paper Titled "Perennial Flooding in Assam: A Critical Analysis of the Government Policies", in the National Conference 'River of the People, River Against the People: Conceptualizing Livelihood and Society of Assam through the Brahmaputra', organized by the Centre for North East Studies and Policy Research, Jamia Millia Islamia University, New Delhi.

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The Problems Induced by the Constructed
Environment: A Case of the September 2011
Floods in Orissa, India

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The Problems Induced by the Constructed Environment: A Case of the September 2011 Floods in Orissa, India

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Abstract: Disasters, be it natural, human-made or technological, are social events, which reflect human decisions about the organization of social life in the physical environment. By taking the case of the recent September 2011 flood in Orissa, I attempt to analyze this aspect in this paper.

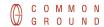Keywords: Orissa, Disasters, Human Agency, Flood

> They know not to whom
> to go for succor,
> Calling Once to God, the
> poor man's sole help,
> They die unprotesting[1]- Rabindra Nath Tagore.

Introduction

THE NUMBER AND intensity of disasters throughout the world is rising, and likewise the number of people suffering from disasters is also increasing. The question is what is a disaster? The U.N. has defined a disaster as "a serious disruption of the functioning of a society, causing widespread human, material or environmental losses, which exceed the ability of the affected society to cope using its own resources"[2]. From this definition, one can infer that not every earthquake, flood, cyclone, landslide, fire, drought, epidemic, industrial accident or riot etc constitutes a disaster. For instance, one earthquake may cause heavy death and destruction where buildings are weak, whereas another earthquake of the same intensity may cause no damage because the buildings are developed in accordance to the building codes to withstand tremors. Similarly, if settlements were not located in flood plains, disasters would not result from floods; floods occur mostly downstream due to deforestation and in areas where silting has occurred as a result of erosion. According to the definition, an event becomes a disaster only when the losses exceed a society's capacity to cope and external aid is required.

Approximately 90 percent of all natural disasters and 95 percent of all disaster related deaths in the world occur in the developing countries. India is one of the world's major theatres of disasters, which includes natural and human-made. India supports one-sixth of

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COMMON GROUND

the world's population on just two percent of its landmass. India's unique geo-climatic and topographic conditions have made it vulnerable to more than thirty kinds of disasters (High Powered Committee Report of the Government of India, 1999). In the report provided by the High Powered Committee, it is estimated that nearly 59 percent of India's land area is vulnerable to earthquakes of moderate to high hazard, 12 percent is flood prone, about 8 percent is vulnerable to cyclones, 2 percent to landslides, 68 percent is drought prone, and there is a long coastline exposed to tsunamis and storm surges.

India is comprised of 35 states and union territories, and among these, 27 are disaster prone. There are many states in India that are affected by multiple disasters. One such state is Orissa, which is the focus of this study. Orissa's geographical location on the east coast of India, and its proximity to the Bay of Bengal, which covers the entire eastern boundary of the state, makes floods, cyclones and droughts a regular feature in the history of Orissa.

The frequent occurrence of floods is a major problem for the state of Orissa, and the socio-economic condition of the people is dependent on the interplay of various natural forces. The damage caused by floods not only affects humans and livestock but also cultivated areas. Orissa suffers from floods almost every year. Recently there were catastrophic floods in 1997, 1999, 2001, 2003, 2006, 2007, 2008 (Samal, 2005; Ray-Bennett, 2008; Government of Orissa, 2003), and the most recent 2011 floods. Mahatma Gandhi once said, "Flood is a permanent disease in Orissa"[3].

The State has four main seasons. The most important is the rainy season, which covers the period from 15th June till 15th October. The South-West monsoon begins by the middle of June, bringing rainfall to 75 to 90 percent of the State. It is the result of eight to ten depressions in the Bay of Bengal. The average annual normal rainfall is 1,482.20 mm with the maximum precipitation during the months of June to September with nearly 1,137 mm of rainfall. This high precipitation during the monsoon causes floods that affect people, agricultural land, livestock and property. The state has three major rivers: the Mahanadi, Brahmani and Baitarani rivers. Other important rivers include the Subarnarekha and Budhabalang rivers. These rivers, along with their branches and tributaries, form the river setting of drainage and channels. These natural channels cannot hold the large volume of water that passes through them during the monsoon period, and as a result heavy and widespread inundation takes place. Thus, floods have become endemic in the State.

The basic argument in this paper is that disasters be it natural, human-made or technological are primarily social events which reflect human decisions about the organization of social life in the physical environment. This research analyzes the case of the September 2011 flood in Orissa. The methodology undertaken for writing this paper is principally from secondary sources, but also includes primary sources like government reports. Secondary sources include newspaper clippings, books, journals, and articles. Reports were taken from the government of Orissa's Revenue Department's Special Relief Commission (SRC) on the present status of the flood and from the Orissa State Disaster Mitigation Authority (OSDMA).

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[3] Das, S.N. (1979), *Unabimsa Satabdir*, Orissa, pp.50.

Cause of the Devastating Flood

The devastating flood that wrecked havoc on more than half of Orissa in the first week of September due to high floods in Mahanadi River and its tributaries, affected 19 districts of Orissa, inundated 4897 villages, and impacted 3,443,989 people, with human casualty up to 41 and 10 people missing (Government of Orissa, Special Relief Commission Report, 2011). The question is: was the disaster caused by nature or was it socially constructed?

There was a drought situation in many parts of Orissa preceding the flood due to lack of rainfall in the months of July and August. The people of Orissa were praying to the rain God Indra to save their crops from perishing because of paucity of rainfall. In September there was heavy rainfall both in the upper and lower catchment areas of Mahanadi River in Orissa and Chhattisgarh. Earlier, both the states had stored water in their reservoirs for irrigation purposes, and had not anticipated the continuous and heavy rainfall in September.

When the Hirakud dam was built in Orissa there was no reservoir in Chhattisgarh. However, in the following decades, a number of reservoirs were built upstream along the Mahanadi's River in Chhattisgarh. The upstream reservoirs were meant for irrigation purposes. The authorities fill these reservoirs when rain comes, and when they are full the excess water is released. The government of Orissa is aware of this process.

When the water level in the Hirakud dam reached 628 ft against the reservoir's capacity of 630 ft, the state government of Orissa, out of pressure from Chhattisgarh government (who recorded that 400mm of rainfall had inundated vast areas of Chhattisgarh districts including Jangir-Champa, Raigad and Mahasamund) opened 56 of the 64 sluice gates in order to release water from the reservoir with little time for warning to the people. The government also opened the gates to reduce the pressure on the dam, and thereby ensured dam safety. As a result of these actions, hundreds of thousands of people suffered because the water destroyed their standing crops (323,705 hectares of crops were affected in 19 districts) and flattened their houses (116,706 houses were damaged in 19 districts) (Government of Orissa, Special Relief Commission Report, 2011) (see Table No.1). To date the government has not taken any preparedness measures, and has included no flood control initiative despite the potential for this event to repeat itself.

Table No. 1

State - Orissa
Abstract of Status Report on Floods -2011
[As on 21.09.2011 (3.30 PM)]

Sl.	Name of the districts	Blocks Affected (Nos.)	GPs Affected (Nos.)	Villages Affected (Nos.)	ULB Affected (Nos.)	Wards Affected (Nos.)	Population Affected (Nos.)	Human Casulaty	Livestock casualty	Crop area affected (in hect.)	Person evacuated	Villages marooned as on date	House Damaged	Free Kitchen / Relief Camp Centre opened (Nos.) as on date	Beneficiary covered (Nos.) as on date	Cattle camp opened	Rice in qntl.	Chuda in qntl.	Gur in qntl.	Cattle feed in MT	Polythene sheets available	Polythene sheets distributed	Boat Deployed
1	Angul	2	12	49	1	3	15249		5	31250	12900		275			4	660.7	30.0	1.5	32.4	2250	1566	26
2	Balasore	6	49	252	1	13	239253			14833	691		34				2.0	19.5	0.1		13395	294	
3	Baragarh	6	165	507			75000		88	10276	9250		2022				99.0	8.5	0.8	45.0	8850	564	10
4	Bhadrak	4	39	173			28000	2		11247			30				30.0	30.0	3.0		13703	240	23
5	Boudh	3	22	122	1	8	57000		11	6809	49000		1779			1	3186.9	133.0	6.7	58.0	4980	1500	26
6	Cuttack	14	169	508	3	38	526923	1	171	43633	32839		14880			26	24591.7	1709.3	334.4	346.0	28321	14840	151
7	Deogarh	3	44	123	1	11	25000			130			1350								1800	141	
8	Dhenkanal	1	4	8			5018	2	12	1030			16				44.7				3128		
9	Jajpur	9	142	499			491114	13	7	40299	21350	11	8221				27740.5	157.7	14.3	552.1	10125	5956	148
10	Jagatsinghpur	7	16	126			87661		4	8402	7774		5585			27	2379.7	679.9	218.1	214.5	31755	6832	92
11	Jharsuguda	1	4	9	1	1	11679			1788	2999		357			3	82.5	39.5	8.7	30.0	4200	547	
12	Kendrapada	9	116	473	2	11	507145	14	400	36636	43315	78	27000	63	37777	50	24382.0	4237.4	423.7	426.9	62148	58440	456
13	Khurda	6	48	236	1	2	161559	1		22064	1367		525				4254.7	384.5	36.9	82.0	10875	1045	28
14	Mayurbhanj	1	6	24	1	2	6887	3			918		148				5.0	29.2	3.3		9608	348	1
15	Nayagarh	3	15	110			73117		4	7746	11204		446			20	2578.2	514.5	44.9	82.6	6000	1260	24
16	Nuapada	2	28	322	1	1	17300			9			3464								2700	450	
17	Puri	10	121	701	2	7	625897	2	962	76994	31388	109	38345				23812.1	6995.7	519.0	339.0	21054	17373	222
18	Sambalpur	9	27	515	3	46	440000	3		3392	21138		6491			14	440.0	500.0	107.0	16.5	5365	2440	8
19	Subarnapur	6	40	140	3	20	50187		3	7167	34187		5738	10	4044		847.9	328.6	47.4	42.5	15045	7420	50
	TOTAL	102	1067	4897	21	163	3443989	41	1667	323705	280320	198	116706	73	41821	145	115138	15797	1770	2267	255302	121256	1265

The Role of Human Agency in Instigating the Flood

Orissa is historically prone to floods, and the recurrence of flood disaster has had a crippling effect on the economy of the state. When the British conquered Orissa in 1803, the main problem was not internal disturbance or conflict or the apprehension of any foreign onset, but how to control the floods across the state and ensure the supply of water in the rivers[4]. Hence, this is not a new phenomenon for the people or the administration.

Prior to recent floods, the state marked a paradigm shift in its approach to disaster management after the traumatic experience of the 1999 super cyclone in Orissa. Instead of adopting a relief centric, response oriented approach, the government of Orissa undertook a proactive and multi-hazard approach to disaster management by emphasizing planning, preparedness and prevention combined with relief, restoration and rehabilitation.

One such initiative undertaken by the government of Orissa was the creation of the Orissa State Disaster Mitigation Authority (OSDMA). It is an autonomous organization registered under the Societies Registration Act, 1860. The main objectives of this organization are as follows:

1. Act as a nodal agency for disaster reconstruction works,
2. Coordinate with the line departments involved in reconstruction,
3. Coordinate with bilateral and multi-lateral aid agencies,
4. Coordinate with UN agencies, International, National, and State-level NGOs',
5. Promote disaster preparedness at all levels of the State, and
6. Network with similar and relevant organizations for disaster management.

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[4] Bhatta, B. (1997), *Natural Calamities in Orissa in the Nineteenth Century*, (New Delhi: Commonwealth Publishers).

Another step taken by the State for disaster management is the Government in Revenue Department made Resolution dated 4th March 2005[5], which approved the State Disaster Management Policy and formulated the broad principles and strategies of disaster management.

Despite the changes to disaster management, the 2011 floods still produced a disaster. So what fell short in this flood? More people were affected in this flood because their houses were constructed in low-lying areas. The fringe areas of the capital city of Orissa (i.e. Bhubaneswar) bore the brunt of the flood as waters from the Daya and Kuakhai rivers entered the city. It is understood that permission was given by the government of Orissa for construction in low-lying areas.

Another important reason for the disaster is the lack of a proper drainage system in the state. In the rainy season there is drainage congestion. The environment of the state is in the process of being destroyed with many trees being cut down to built roads and though canals are being constructed but without keeping space for ventilation. Because of this, the natural flow of water is not occurring, and this has increased the flooding severity across the state. For example, the water from Hirakud will reach Cuttack in just two days, but the water to get into the sea from Cuttack will take eight to ten days even though the distance is less compared to the distance from Hirakud to Cuttack.

The impact of the 2011 flood water was felt by the affected people even a week after the flood had receded in other areas because the water receded much more slowly in the worst affected areas of Jagatsinghpur and Kendrapada districts of Orissa. One of the reasons for this is the deposition of heavy sand on the bed of the Mahanadi River. One needs to analyze why there is heavy sedimentation at the Mahanadi River mouth in Paradip. In 1996, the Paradip port authorities had promised to dredge the fishing harbor near Paradip port. But the port authorities failed to dredge the river mouth and sea bed near the fishing harbor which is causing the slow release of flood water. In addition to this, Essar Steel Orissa Ltd (ESOL) has been illegally dredging the Mahanadi River near Paradip port in violation of the Coastal Regulation Zone and the Forest Conservation Act, 1980. The flood victims are living in unhygienic conditions with the threat of being exposed to many vector-borne diseases. The biggest public health problem facing the flood victims is the threat of snake bite since most parts of the state are still under flood water.

In Orissa the basic thing that governs disaster activities is the Orissa Relief Code (ORC). It is outdated and focuses primarily on post disaster relief modalities rather than handling emergencies and tackling people's pre-existing vulnerabilities (Das, 2002; Samal, Meher and Panigrahi, 2003). However the ORC is still the main disaster policy document in the State, and it is used to specify when and how the administration should respond during a natural calamity (Samal, 2003; Currie, 2001).

The ORC is not designed for disasters like the recent devastating flood. For example, it mentions that in the case of flooding, if a house is completely washed away the maximum aid per family is Rs 3500. But it is technically impossible to build a house with this small amount. Unfortunately, the State government works according to the ORC and rarely deviates from it. This reduces the ability of the victims to recover after a disaster and makes them even more vulnerable. The result is that people will make thatched houses again or they will live in unsafe conditions in fragile physical environments (e.g. hundreds of evacuees of the

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[5] Orissa State Disaster Mitigation Authority (OSDMA) (2005), *State Disaster Management Policy.*

flood have taken shelter in the national highway and are under the constant threat of being crushed under speeding vehicles), thereby further increasing the risk of people to future disasters

Conclusion

The role of human actions and choices in creating disasters is evident by the 2011 flood in Orissa. There is rarely a year in Orissa when it is not affected by a disaster, but still no effort has been made to understand or deal with the root causes of disasters and why some people are more vulnerable and others are not.

Warning is an important component of disaster management. It is often ignored during disasters but it can be helpful for saving the lives of people. It allows people to respond to the warning and make decisions about evacuation based on the kind of information they receive. It is important not just to detect, monitor and forecast but to also make a vulnerability analysis which means measuring the threat level to different sub-groups within a population (i.e. the elderly, pregnant women, children, handicapped and diseased people), and warning should be made accordingly. There is no recognition of and no support provided to identify the capacities of the recipients though it is essential for long-term development. For example, women have certain indigenous knowledge for disaster preparedness. They prepare the households and protect the household things during disasters. A key element for reducing the vulnerability to disasters is to integrate disaster management efforts into the overall development policy; this is mentioned in the State Disaster Management Policy, but it is not put into practice as shown by actions taken during the 2011 flood.

The state should formulate proper guidelines to regulate the flow of water and evenly distribute water between the rivers, which could reduce the damage caused by floods. Former Prime Minister of India Atal Bihari Vajpayee proposed to link all of the rivers of India so that damage caused by floods could be controlled and the problem of water scarcity could be solved. But this did not materialize due to the change of government from Bharatiya Janata Party (BJP) to Congress; if this were to be put into practice, it would surely be a step toward long-term development.

Seeing the rising trend in losses caused by disasters, it is essential that the short-term relief assistance meets both the immediate needs of the disaster victims and, at the same time, undertakes long-term development goals.

Acknowledgment

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The Role of Social Networks in Disaster Information and Management

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Abstract- Globally there is an increase in the social and economic impacts of different kinds of disasters. But the vulnerability to disasters can be reduced if any individuals or family has links through diverse social networks. As disaster vulnerability is socially constructed. In this paper I will attempt to analyze how social networks help in providing disaster related information to its potential victims and even help in managing disasters in an effective manner.

Index Terms- Social Networks, Disasters Management, warning

I. INTRODUCTION

Natural hazards be it earthquake, floods, cyclones, landslides, drought, tsunami etc, have now become a world-wide phenomenon. Although the increasing frequency and intensity of disasters is felt globally but the developed and developing countries suffer more from the magnitude and impact of natural disasters. Nearly 90 per cent of natural disasters and 95 per cent of disaster related deaths world wide occur in developing countries. It is estimated that by the year 2025, 80 per cent of the world's population will live in developing countries, and up to 60 per cent of them will be highly vulnerable to different kinds of disasters[1].

The continent of Asia, because of its geographical location is particularly vulnerable to different types of disasters. And within Asia it is India which suffers heavily from natural disasters of every shade and description, on account of its size, population and vulnerability. India supports one-sixth of the world's population on just 2% of its landmass. According to one estimate[2], nearly 59% of India's land area is prone to earthquakes of moderate to high hazard, nearly 12% is flood prone, about 8% is cyclone prone, 2% is landslide prone and a long coastline is exposed to tsunamis and storm surges. Drought is regarded as disaster in slow motion, affect as much as 68% of India's land area. Out of the 35 states and union territories, as many as 27 are disaster prone. If we include the perceived threats due to other disasters such as chemical and terrorist attacks, then every square inch of India is vulnerable, calling for immediate attention and sustained effort.

Although the occurrence of different kinds of disasters cannot be prevented altogether, but their impact can be reduced substantially by undertaking various preparedness and mitigation programmes. As nowadays there are a lot of investments in the field of disaster management and the government of India has taken several steps to reduce the impact of natural disasters. Disaster management occupies an important place in the country's policy framework. Today there is a paradigm shift in understanding disasters from simply analyzing the causal relations and explanation of events and occurrences to preparedness, planning and the risk assessment of a potential threat. In spite of these, there is an increase in the social and economic impacts of different kinds of disasters. Why we have not been able to reduce the long-term disaster risks? One of the reasons for this is the negligence of a crucial aspect, which is not much researched in disaster studies, i.e. the role social networks play in disaster management, which I will attempt to, analyze in this paper.

II. SOCIAL NETWORKS AND DISASTER MANAGEMENT

Natural disasters occur in all countries of the world. The coping capacity to natural calamities of developed countries is better than developing countries. People cope with increasing hazards if they have the alternative support of social networks in times of crisis. The vulnerability to disasters can be reduced if any individual or family has links through diverse social networks. As disaster vulnerability is socially constructed, i.e. it arises out of the social and economic circumstances of everyday living. So what are social networks? Social networks are part of a basic motivational imperative for 'safety' (Kadushin, 2002). It is actually the need for physical and emotional safety which enhances individuals' motives and feelings of dependency, trust and support, and provides the fundamental basis for social cohesion, which is an important characteristic in social networks. This is even true in case of disaster based social networks. There are different types of social networks, i.e., family, relatives, neighbours, or the network link through community - based services, etc.

In the immediate aftermath of a disaster, the government, civil society organizations and people are unprepared to meet the challenges of the disaster in terms of relief and rehabilitation. In a post-disaster situation it is difficult to reach the affected people and carry out the initial relief operations, if the disaster is big in

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[1] This paper is a revised version of what I had presented in the 2nd India Disaster Management Congress, Vigyan Bhavan, New Delhi, 4th -6th November, 2009,

[2] For more details see the article, Bhandari, R.K. (2006), "Disaster Management in India: A New Awakening", *Disaster and Development,* Vol.1, No.1, pp.1-26.

scale, as it was the case of the 1999 super cyclone in Orissa. In case of the 1999 super cyclone in Orissa due to the impassable roads with floods, water-logging and obstruction by broken trees, the relief activities were delayed, although aid started pouring in from charitable institutions, corporate houses, international, national and local non-government organizations.

During the super cyclone in Orissa many people came from far-flung areas to meet their family members in the affected areas, although it took them more time to reach the destination than the usual time, but still they continued their long and arduous search. It is because disasters are basically "family crisis", emotional bonds, expressive and instrumental functions of networks, as well as family contacts are crucial for response and recovery (Morrow, 1997). The family unit, in a disaster acts like "an octopus extending its tentacles outward to connect with other social units" (Morrow, 1997 Fothergill, 2004).

In fact in the 1999 Orissa super cyclone, it was the relatives (a type of social network) who were the first to reach the affected people of the Orissa and provided them help in terms of cash and kind. Even many affected people of the super cyclone shifted their family to a relation's house which was not affected by the disaster, as they were prepared to help. It is this forged type of interdependence that helped to mitigate the stress and uncertainty associated with the disaster. In a crisis situation like the 1999 Orissa super cyclone it was their social networks who embraced their own, stood up and were counted in both presence and presents.

During disasters in Orissa although there are cases of caste based prejudices and discrimination, but during the 1999 super cyclone the relatively affluent general caste people with a pucca structure who were neighbours (a type of social network) to the Harijan people provided them shelter during the super cyclone. It is actually the pre-existing norms, practices and relationships which helped the affected people to cope with the disaster. Social networks were found to be a significant resource during and in the immediate post-impact phase of the disaster.

In 26th December 2004, there was a massive earthquake in the Indian Ocean which triggered off tsunami waves resulting in a colossal loss of lives and affecting millions of people in 11 countries. It even left a trail of destruction in India. Although in India it was the fishing sector which was severely affected, but within this sector it was women, children, dalits and tribal people (the most vulnerable groups), who were the worst impactees of the disaster, but were the most neglected in official responses (Walls, 2005; Choo, 2005; KrishnaKumar, 2005). These vulnerable groups have a differential timeframe in their recovery.

The response to the tsunami in terms providing relief and rehabilitation was overwhelming, but due to the focus on the worst affected community i.e. the fisher communities, many dalit and tribal communities who were seriously affected by the tsunami, were overlooked or actively discriminated in the official response. It was the strength of the network of local NGO response which helped these vulnerable groups to cope with the disaster. It was the network of 12 local NGOs[3] i.e. the East Coast Development Forum (ECDF) and within it two NGO networks that focused on

the dalits and tribals, i.e. the Irulas' Tribal Women's Welfare Society (ITTWS) and the Social Awareness Society for Youth (SASY), joined the East Coast Fishers Forum (ECFF) which helped in forming the ECDF (SASY, 2005a, 2005b). It is ITTWS and SASY who understood the needs and priorities of the dalits and tribals, and The People's Rural Education Movement (PREM) an NGO from Orissa which formed the common link within the diverse membership of the ECDF.

The NGO of Orissa i.e. PREM played an important role in forming networks as it had gained practical disaster management skills from its work in the 1999 super cyclone of Orissa (Das, 2005). It is through its activities in the 1999 Orissa super cyclone that PREM had developed effective approaches to relief and accountability systems, which were applied to the tsunami relief operations with minimal adjustment. It was the support given by the NGO PREM which along with the strength of the local NGO networks, helped to develop strong links with the local fisher communities, and a long record of trust and credibility, which enabled these NGOs to manage successfully the delivery of emergency relief and rehabilitation programmes, taking into account the needs of vulnerable groups, i.e. the dalits and tribals. This shows how network linkages through community – based services can help people to mitigate disaster vulnerability and can enhance people's coping strategies. Thus social networks are reservoirs for the development of a disaster affected community.

III.   SOCIAL NETWORKS AND DISASTER WARNING

The ever increasing complexity of disasters requires that we undertake various preparedness and mitigation strategies to reduce the adverse societal and economic impact. One of the preparedness measures is to provide accurate disaster warning to the disaster affected area. Social networks can play a very significant role in disseminating the warning message which would eventually help in managing disasters. For example – during the 1999 Orissa super cyclone the Indian Meteorological Department (IMD), the government agency provided warning about the impending cyclone from the radio, television and even from the loudspeaker by the government authorities. But the people of Orissa did not take the warning issued by the government seriously and even did not evacuate as was suggested in the warning and there are a number of reasons for it. It is because the affected people did not find any difference from this warning with the earlier warnings of the past which was given twelve days before the cyclone and had affected only two districts of Orissa i.e. Ganjam and Gajapati. Even the warning information lacked credibility and specificity. So many people were in doubt and they stayed at home and the others who wanted to leave had no options as there were no adequate cyclone shelters. As a result of which the 29th October, 1999 super cyclone of Orissa claimed 9800 lives.

But on the other hand the warning information from the informal sources in the Orissa super cyclone such as the news from relatives, neighbours, and from the market places played a major role as people believed in it because of the trust on these networks.

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[3] For more details see the article, Kilby, P. (2008), "The Strength of Networks: The Local NGO Response to the Tsunami in India", Vol.32, No.1, pp.120-130.

Even during the 2005 Hurricane Katrina in United States although the government warning was issued, but people did not give importance to it because of which many lives were lost. But when this information was passed from the informal sources of some trusted African American women-centered networks in New Orleans it carried more authority. It is because of the networks of these women that they were able to evacuate a number of individuals from the disaster. This shows how women played a major role in moving their networks to safety during the crisis situation.

But the process of transmitting information is highly structured and hierarchical. For example – the warning systems transmit the information from men to men and the technically preferred medium used to disseminate warning is the radio although the men might support this, but women with their household duties and responsibilities do not have a fixed time to listen to the radio so they might remain unaware of the warning.

Even the people who receive warnings of risk go through different stages that shape their risk perceptions and behaviour. The different stages include: hear, confirm, understand, believe, personalize, and respond. Although the sequence might not be the same for every person, and every stage can be affected by the characteristics of the people who hear the warnings such as age, gender, level of education etc., even by the nature of the information they hear, for instance, how frequently it is repeated, and who it is from. Here it is important that the disaster related information is given to the person (who can act as an anchor or gatekeeper) who because of their position or ability can decide what information is relevant and worthy to pass along to other members of their network (Kirschenbaum, 2003).

IV. CONCLUSION

When one contrasts the basis of social organization in post-industrial societies, as opposed to pre-industrial societies, one finds that kin relationships have reduced greatly in importance (Parsons, 1942; 1943; Stephens, 1963). Disasters it appeared are like funerals, weddings, were people reestablish what were assumed to be highly tenuous relations. Even in highly individuated communities relations become highly important to families in disaster (Hill and Hansen, 1962:210).

Disasters occur in specific geographic locations and usually affect populations in proximity to its epicenter. The response to a disaster is not confined to its geographical proximity and this helps the affected people to cope with the consequences of the disaster. It is social networks which provide the social strength to the disaster affected people to cope with the disruptive effects of the disaster, even if they are physically dispersed it provides them social capital to cope with the losses of the disaster. The role of social networks in disaster management shows that they touch people even if they are not directly or physically involved in the actual disaster.

Moreover since the warning system in India mainly focuses on detection, monitoring and forecasting, but has ignored the other crucial aspects of the warning system i.e. the vulnerability analysis or measuring the threat level to different sub-groups within a population and warn accordingly. So here the importance of social networks comes as they not only transfer disaster related information to vulnerable groups but also help them to evacuate by using the resources already embedded in their daily lives. Social networks not only delineate the boundaries of a disaster but also act as a means for transferring disaster related information. It is important to include the role of social networks at the policy level as this would empower people to make them less vulnerable in the face of natural hazards and this would act as a disaster preparedness measure which would eventually help to manage disasters in an effective way.

But still there are many aspects about the role of social networks in disaster management which is not much researched i.e. how gender, caste, ethnic groups through their social networks can play to an important role in disaster management? And what would be the long-term impact of the social networks in mitigating / preventing disaster risks? These are some of the questions which I am posing as there is scarce research on these issues but understanding and analyzing these aspects can surely help us to solve some of the problems of disaster management.

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Understanding the Corona Virus Pandemic: From a Sociological Perspective

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Abstract- The present corona virus pandemic that the world is facing today is the biggest crisis after the Second World War. It possesses a serious threat to all aspects of development, having wider social, physical, psychological, economic and political implications. So in this paper I attempt to analyze how we as sociologists would contribute to the understanding of this outbreak and help in reducing its impact and contribute in the policy level.

Index Terms- Corona Virus, Pandemic, Risk Society, Sociological Perspective

I. INTRODUCTION

Pandemics can be petrifying. They are mass murderers as they ruin families, dismantle towns, and leave a generation blemished and panic stricken. Pandemics are not like anything else that people confront, as it can throw certainty out of the window. The World Health Organization (WHO) defines 'pandemic as a worldwide spread of a new disease'. The present corona virus pandemic is the biggest crisis after the Second World War. The number of people affected by the corona virus pandemic is increasing each day globally and in India, infecting close to 4.5 million[1] people worldwide and in India the number has crossed 70,000, still likely to increase. A pandemic like this presents a serious threat to all aspects of development, having wider social, physical, psychological, economical and political implications. So in this paper I attempt to analyze and question myself how we as sociologists would contribute to the understanding of this outbreak termed as a notified disaster by the Indian Government and help in reducing its impact and contribute in the policy level.

II. THE CORONA VIRUS PANDEMIC: FROM A SOCIOLOGICAL PERSPECTIVE

A disaster sociologist would study the human aspects i.e. the human adaptation, behaviour, perception and response, of this corona virus outbreak rather than just the physical damage it is causing. The study of human aspects of this pandemic is crucial because of the finely developed ability of human beings to put themselves at risk (Hewitt, 1983). One of the immediate responses in such a large-scale outbreak could be mass panic, widespread disorganization and hysteria. Panic occurs during disasters when an immediate risk is perceived to be present in which the at-risk population apprehends that his escape routes are blocked and he feels highly isolated (Demerath and Wallace, 1957; Killian, 1954: 68; Quarantelli, 1954, 1957). For instance – when the government of India enforced lockdown as a measure to contain the virus, it created panic among the people as they rushed in large numbers to markets to gather essential commodities with the fear that they might face scarcity of resources, but reversing the containment strategy of the government, they risked not only their own lives but of the community as a whole.

Risk society is part of our everyday life. Risk society incorporates a specific perspective on the way in which we experience risks to health. Ulrich Beck in his book *Risk Society: Toward a New Modernity, 1992*, defines risk as 'a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself'. With the increasing complex and technological driven society come new risks which can no longer be directly experienced in a sensory manner (touched, seen or smelt). Beck relates this risk society to a wide-ranging change which he calls 'reflexive modernization', in which progress can turn into self-destruction and one kind of modernization undercuts and changes another. For instance – the present corona virus outbreak is the result of how humans interacted with the natural world. The pressure of population growth and the dearth of 'modernization' of the economy and other institutions drive human subjugation of an unforgiving nature. Human health is closely linked to how we treat the natural world. As human beings we eat, trade body parts of wild animals, engage in deforestation which is greatly decreasing the biological barriers that kept the viruses prevailing in animals from affecting humans.

The risk society created by the corona virus pandemic leads to a vulnerable society. It showed how the society created conditions in which people faced the crisis differently. It means some groups were more prone to the damage, loss and sufferings than others. Sociologically speaking there were variations in impact on the basis of class, caste, occupation, ethnicity, gender, age, disability, health status, immigration status (both legal and illegal) etc.

Are the patterns of cleavages reestablished or changed due to the coronavirus outbreak? Class is a major form of social stratification in India. The deadly outbreak has pointed out the

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[1] This information on the number of people infected by coronavirus is obtained from
https://www.worldometers.info/coronavirus/country/india/

fatal gap between the haves and have-not. When the government of India announced the national lockdown and social distancing as a potent measure to contain the virus, it pointed out the workforce inequality as only the white-collar workers could keep their jobs and work from home, but the blue-collar workers (for e.g. people engaged in delivering groceries, pharmaceutical staff, daily wage earners, petty shop owners, service providers like barbers, maids etc) who were mostly engaged in 'essential' jobs did not have the option of working from home, but lived with the fear of being rendered jobless. These blue-collar workers were at constant risk of the virus due to their position in society, this revealed a lot of the deeper structural problems with the way we structure our social life. According to an estimate provided by the International Labour Organization (ILO), only 22 percent of India's workforce comes under the category of salaried employment and 78 percent of India's workforce has no guaranteed salary, lack decent working conditions and social security, hence bore the heavier burden of the pandemic and its recovery than the relatively better-off.

The risks involved in disasters are connected with the vulnerability created for many people through their normal existence. The differential impact of the coronavirus outbreak can be understood by a basic structural phenomenon unique to India i.e. the caste system. Due to the coronavirus outbreak the lower castes in India fear that it will strengthen the inequality among the lower caste and upper caste. There were numerous instances of caste based discrimination faced by the Yanadi community in Vijaywada, Andra Pradesh, who live in small pockets on the outskirts of the village which was considerably far off from the essential services of the village like health care centres, schools, banks etc. The people from these communities were not allowed to purchase essential items like medicine, food from the market, by the higher caste community members. The families of these communities are mostly engaged as waste pickers and drain cleaners for centuries, but with the spread of the disease they are at considerable risk of catching the virus, as they are not given enough equipment to protect themselves against the disease. With the repeated instructions on social isolation and social distancing there is a distress among the lower caste they would face more stigmatization from the higher caste communities, as they already being called by the name of the disease i.e.'corona'. This exposes them to another form of risk i.e. discrimination.

Although the government of India has announced a stimulus relief package for the sanitation workers but to claim the government aid, the sanitation workers need to have a government Id or employment ID card. But there are many sanitation workers belonging mostly to the lower caste, who work as informal labourers and so do not possess employment ID or the government ID. It is because either the information did not reach them or the enrollment camps to get IDs have never been set up in their villages and in some cases they were asked to pay huge bribes to make these IDs done, which was not possible for them to pay. There are also some instances in which the lower castes did not have a bank account to access the government aid and those who had a bank account, do not know how to operate it because either it is controlled by the ration card shopkeeper or upper caste landlord. This clearly points out that the process of relief can see the exclusion of several groups from the lower castes if the relief packages are centralized and linked to government IDs.

Crisis always have had adverse impacts on the lives of women and the corona virus pandemic is no exception. Women were traditionally considered as care givers and nurturers; hence one of immediate impacts of the corona virus outbreak is the increased care-giving responsibilities on women. They had to take care of the children, elderly, and disabled and at the same time perform household duties. As a result of which women are found to be more stressed than men during the lockdown. It is because even today gender equality remains a concern in many families (both in rural and urban areas) due to the absence of self-corrective measures to correct gender responsibilities. The increased workload on women would have an impact on the labour force participation especially for the women working in the informal sector, for e.g. women engaged in providing tiffin service, selling fish and vegetables, construction etc. With the economy sinking even in the formal sectors women are likely to face lay off than men as they are not considered as bread winners of the family and are considered as 'less productive' than men. With the economic constraints in poorer households in matters of resource allocation relating to food, health and education, priority would be given to men and boys in availing resources instead of women and girls. There are numerous instances when the women themselves eat less food, at times even starved and gave more food to the men and the other members of the family. This could have serious implications on the health of women and girls.

The lockdown imposed as a preventive measure to contain the corona virus pandemic has magnified the plight of the single women including younger, older, middle aged, widows etc., as they are responsible for their own safety, mental health and financial stability. Without any lack of support for these women due to the social stigma attached to single women there is an increase in the level of anxiety and fear of being unsafe amongst them.

Another issue which is of concern in this pandemic is the escalation of violence against women in the country during the lockdown period. In the chaos resulting from the crisis and the disruption caused to social and family protection, vulnerability of all women increases in terms of personal security. And what is important to note is that the violence which a woman encounters at home, the perpetrator is none other than the husband or close relatives. The consequences of violence against women are seen to affect all aspects of the everyday life of the women, especially her health (Watts and Zimmerman, 2002; UNIFEM, 2003; WHO, 2001; WHO, 2005).

Another category of population who are more vulnerable in the pandemic is the elderly. The elderly populations above 60 years of age are at more risk of getting infected by the virus and even death. The impact of social distancing and lockdown has been particularly tougher for the older adults as it has led to isolation and loneliness which is having a negative impact on their mental health as they more confused and are losing orientation of their surroundings. This is having an impact on their immunity.

People's exposure to the virus also differed if they were disabled as they had certain special needs. The lockdown has increased the problems of the people with disabilities, for instance of the deaf and mute as they found it difficult to access the food and everyday requirements as neither the police nor the response teams from the government understand sign language. The people with disabilities also found it difficult to get caregivers and helpers

during the pandemic as there was no one to attend to their special needs as a consequence of which neither they could get access to medicines nor could make medical visits.

There is another category of population who is worst affected in the pandemic is the transgenders. These people for their daily sustenance depend on begging, ritual functions and sex work, which can only be met through social contact. This puts them at a higher risk of contracting the virus than the general public.

In the corona virus outbreak migrants were most vulnerable as they not only lost their employment and wages; with it they also lost their access to housing. This prompted a painful and chaotic process of mass return of migrants from urban to rural areas of origin, which threaten to worsen the already precarious rural livelihoods; this made them more vulnerable to exploitation and abuse. For e.g. in a distressful incident in Uttar Pradesh the migrants who were returning home were sprayed with a chemical disinfectant by a team who were on sanitizing duty at Bareily bus stop.

This shows how even a pandemic situation vulnerability of people differed in varying ways and with differing magnitude on the basis of caste, class, age, gender, disability, migrant status. It showed how the social systems operate to engender by making the impact of a pandemic more severe on some vulnerable groups and individuals.

III. CONCLUSION

The study revealed how pandemics can be identified within the broader patterns of society. It explored the connections between the risks different categories of population face and the reasons for their vulnerability to crisis. This analysis from a sociological perspective may provide a more effective way of formulating policies that can help to reduce and mitigate the effects of pandemics, while at the same time bettering the living conditions and opportunities of people more inclusively.

In risk society the unknown and unintended consequences come to a dominant force in society as it is evident in the corona virus outbreak. For instance - when the government of India imposed the strictest lockdown in response to the pandemic, it was unknown and one of the unintended consequences of the lockdown was that the unemployment rate tripled in India. Since risks are an incidental problem of modernization in undesirable abundance, it can be eliminated by proper preparedness and response plan, which is also applicable in the present corona virus pandemic. In circumstances where human actions are causing harm to the people on a global scale "precautionary measures" are needed. Since the government of India spends just 1.28 percent of its GDP on public health expenditure as per 2017-18 data, we could hardly get around establishing a truly effective pandemic preparedness system. To prevent the pandemic from disrupting the daily life of the people and wiping out towns and killing people, it is crucial to invest in preparedness and not panic. There should be a separate provision for pandemic funding in the budget of the government of India.

Another approach to be prepared for unforeseen circumstances arising out of pandemics is to have a health disaster mitigation training centre which can prepare doctors, nurses and paramedical professionals with state-of-the-art training for immediate deployment during future health exigencies.

Since the enormity of the problem demands a decentralized approach, a new provision was introduced by the government of Odisha, i.e. a community based monitoring strategy to contain the spread of the novel corona virus by delegating the sarpanches the "collector's power" so that they can plan, coordinate and take steps within their jurisdiction. This can pave the way for other states to introduce new strategies for the involvement of panchayati raj institutions which are people's institutions at the grassroots level; this can go a long way for effective pandemic management.

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