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ASSESSING VULNERABILITY INDEX OF FARM FAMILIES

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Abstract

Vulnerability is defined as a person's or group's diminished ability to anticipate, cope with, resist, and recover from the effects of a natural or man-made hazard. The concept is dynamic and relative. Vulnerability is often associated with poverty, but it can also occur when people are isolated, insecure, and have fewer defences in the face of risk, shock, or stress. Physical vulnerability, economic vulnerability, social vulnerability, and environmental vulnerability are the different types of losses that can occur. The present study aims to assess vulnerability index of rural families with agriculture as their main occupation**.** Exploratory research was employed for the present study. A sample of 160 farm families were selected for the study and Questionnaire was developed after a thorough review of the literature, it included components like physical vulnerability, nutritional vulnerability, household vulnerability, psychological vulnerability, economic and environmental vulnerability. The study concludes that household and nutritional vulnerability was average. The psychological and physical vulnerability was also found to be average but environmental and economic vulnerability was found to be high.

Introduction

The inability to withstand the effects of a hostile environment is known as vulnerability. It is a period during which defensive measures are reduced, compromised, or absent. Vulnerability is defined as a person's or a group's diminished ability to anticipate, cope with, resist, and recover from the effects of a natural or man-made hazard. The idea is both relative and dynamic. Vulnerability is often associated with poverty, but it can also occur when people are isolated, insecure, and defenceless in the face of risk, shock, or stress. The main factors that define a household's and community's vulnerability are exposure, sensitivity, and adaptive capacity. The nature and extent to which agricultural-based livelihood systems are vulnerable to significant climate change are referred to as exposure.

According to the different types of losses, vulnerability can be defined as physical vulnerability, economic vulnerability, social vulnerability and environmental vulnerability.

- **Physical Vulnerability**: meaning the potential for physical impact on the physical environment – which can be expressed as elements-at-risk (EaR). The degree of loss to a given EaR or set of EaR resulting from the occurrence of a natural phenomenon of a given magnitude and expressed on a scale from 0 (no damage) to 1 (total damage)".
- **Economic vulnerability**: the potential impacts of hazards on economic assets and processes (i.e. business interruption, secondary effects such as increased poverty and job loss) Vulnerability of different economic sectors.
- **Social vulnerability**: the potential impacts of events on groups such as the poor, single parent households, pregnant or lactating women, the handicapped, children, and elderly; consider public awareness of risk, the ability of groups to self-cope with catastrophes, and status of institutional structures designed to help them cope.
- **Environmental vulnerability**: the potential impacts of events on the environment (flora, fauna, ecosystems, biodiversity).

The double structure of vulnerability

According to Bohle (2001), vulnerability is seen as having two sides: an internal side and an external side. The external side is related to the exposure to risks and shocks and is influenced by Political Economic approaches (e.g. social inequalities, assets control by upper classes), Human Ecology Perspectives (population dynamics and capacities to manage the environment) and the Entitlement Theory (relates vulnerability to the incapacity of people to obtain or manage assets via legitimate economic means). The internal side is called coping and relates to the capacity to anticipate, cope with, resist and recover from the impact of a hazard and is influenced by the Crisis and Conflict Theory (control of assets and resources, capacities to manage crisis situations and resolve conflicts), Action Theory Approaches (how people act and react freely or as a result of societal, economical or governmental constraints) and Models of Access to Assets (mitigation of vulnerability via access to assets).

Pelling model

In the framework for vulnerability proposed by Pelling (2003) human vulnerability is defined by: exposure, resistance and resilience. Exposure is related to the location and characteristics of the hazard; resistance is related to the economical, psychological, and physical health, as well as the capacity of individuals or communities to withstand the impact of the event and is related with livelihoods; resilience is defined as the ability to cope with or adapt to the hazard stress through preparedness and spontaneous adaptations once the event has manifested itself.

OBJECTIVE: To assess the vulnerability of farm families

METHODOLOGY

Research design: Exploratory research is defined as a research used to investigate a problem which is not clearly defined. It is conducted to have a better understanding of the existing problem, but will not provide conclusive results.

Locale of Study: Operational villages (5), Maheshwarammandal

Sample size: A total sample of 160 families were selected for the present study

Tools and Techniques: The questionnaire was developed after a thorough review of the literature, it included components like Physical vulnerability, Nutritional vulnerability,

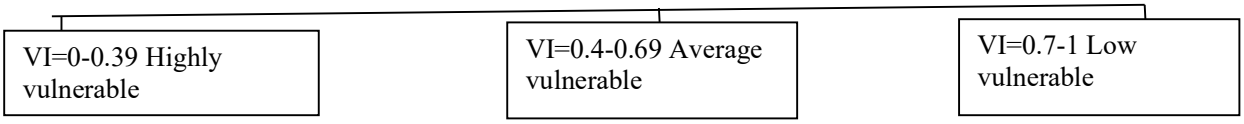
Household vulnerability, Psychological vulnerability, and Economic and environmental vulnerability. The questionnaire was coded and pretested. Natural observations and focus group discussions were also used to collect information.

Method used for calculating Vulnerability Index

$$\frac{\text{Average value of the index- Minimum value}}{\text{Maximum value- Minimum value}}$$

(source : UNDP 1990, HUMAN DEVELOPMENT INDEX)

Scale of Vulnerability



Results and Discussion

Table 1: Demographic profile of the respondents

S.no	Attributes	Options	Frequency	Percentage
1.	Age (years)	15-20	3	2%
		21-30	38	24%
		31-50	80	50%
		51 and Above	39	24%
2.	Gender	Male	0	0
		Female	160	100%
3.	Education	Illiterate	104	65%
		Primary	7	4%
		Secondary	18	11%
		High school	16	10%
		Inter	9	6%
		Degree	6	4%
		PG	0	0
		Ph d	0	0
4.	Occupation	Farming	121	76%
		Business	9	6%

		Govt /Pvt Employee	3	2%
		House wive	20	12%
		Others	7	4%
5.	Caste	OC	45	28%
		OBC	72	45%
		SC/ST	43	27%
6.	Marital Status	Married	153	96%
		Unmarried	0	0
		Divorce	0	0
		Widow	7	4%

Table 1 gives information about the demographic profile, with regard to age majority (50%) are in the age group of 31-50yrs, 24% of them belonged to age 51 and above, while another 24% in age 21-30yrs. A very less 2% of the sample belonged15-20 years0yrs. All the respondents selected were females. It was interesting to note that 65% of the respondents were illiterates, 11% attended secondary school, 10% high school, 6% completed intermediate, 4% were primary educated, while 4% were graduates. With regard to occupation three-fourths (76%) were farmers, 12% homemakers, 6% were in business, 2% were employed in government and private sectors while 4% were in different kinds of occupation. With regard to caste, 45% were OBCs, 28% of them belonged to OC and 27% were SC/ST. With regard to marital status 96% were married and 4% of them were widows.

Table 2: The Occupancy status of the respondents

S.no	Attributes	Occupancy period (In Yrs)	Frequency	Percentage
1	Living in Maheswaram	Below 10	5	3%
		10-20	12	7%
		20-30	25	16%
		30 above	118	74%
2	Living in the village	Below 10	7	4%

		10-20	24	15%
		20-30	30	19%
		30 above	99	62%
3	Living in the house	Before 1980	8	5%
		1980-2006	43	27%
		2007-11	73	46%
		After 2011	36	22%

From the above table, it could be concluded that the majority (74%) of the respondents were residing in Maheshwaram for the last 30 years, while 16% were living in this district from 20-30yrs. It was interesting to know from the study that 62% of the respondents were living in the same village for above 30yrs. The study also found that 46% of the respondents were living in the same house for more than 10yrs, 22% of the respondents were living in a house for the last 10yrs while 27% were living in houses aged more than 20yrs.

Table 3: Component-wise vulnerability index

Component	Sub component	Mean	Minimum value	Maximum value	Index	Index
Household Vulnerability	Dwelling conditions	41.93	27	56	0.5	H VI=0.5
	Assets	10.45	8	16	0.3	
	Others	9.7	3	10	0.9	
Nutritional Vulnerability	Food Habits	2.883	1	4	0.6	N VI=0.425
	Dietary diversification	4.621	1	9	0.45	
	Average food intake	9.42	5	15	0.42	
	Average nutrient intake	11.79	8	24	0.23	
Psychological Vulnerability	Anxiety	15.73	6	30	0.4	PVI=0.43
	Depression	27.6	11	55	0.37	

	stress	22.1	8	40	0.44	
Physical vulnerability		49.47	24	83	0.431	PhVI=0.431
Environmental vulnerability		10.43	8	18	0.24	EnVI=0.24
Economic vulnerability		25.7	17	59	8.7	EcVI=0.207
Overall Vulnerability Index						0.372

With regard to Household vulnerability, which includes the dwelling conditions (Stable shelter, year of construction, type of construction, location or orientation of the plot, No. Of floors and rooms, ventilation and lighting), for which the index was 0.5, which predicts the average vulnerable housing conditions. Assets components included facilities like ease access to dwelling, sanitary facilities, electricity facilities, possession of vehicles, having accessories like refrigerator, TV, Radio, AC/cooler, mobile phone etc. The index of household assets was 0.3, which means that they have low vulnerability, infers that majority of them having less assets. The other component of household include, rent payment risks, evacuation threat etc, was found to have index of .9 which means that the threats are very less. The study concludes that Household vulnerability index 0.5 indicates that vulnerability is average.

Nutritional Vulnerability Index, it has sub components of food habits, dietary diversification, average food intake, average nutrient intake. The study concludes that with regard to food habits, the index was 0.6, which refers to average vulnerability, dietary diversification index was 0.45 which again is average, but the food intake index 0.42 points to average vulnerability but the index of average nutrient intake of 0.23 shows high vulnerability risking the health of individuals. The overall nutritional vulnerability is 0.425 which was average. With regard to Psychological vulnerability sub components includes anxiety which was found to be indexed to 0.4 referring that risk of vulnerability due to anxiety as average, depression sub component index was found to be .37, which means the respondents at high risk of vulnerability and stress sub component index found to be 0.44 which was average. The overall psychological vulnerability found to be 0.43 which was average. With regard to physical vulnerability which includes, agricultural possessions, water source for agriculture purpose, types of roads, available school facility, available medical facility, community Resource available, community irrigation storage facility, commutation, recreation facilities and the index was found to be 0.43 which refers to average vulnerability. Environmental vulnerability index was 0.2, which means the respondents were at high risk of vulnerability due to, deviation in the temperatures, economic loss due to natural disaster and climatic conditions affect the farming productions. The study on economic vulnerability concludes that the economic vulnerability comprising of family income from agriculture and allied sores, possession of agriculture land and milch cattle, saving, debts, interest on loans showed a vulnerable index of 0.207, which again represents high risk vulnerability index. The overall vulnerability index of respondents in present study found to be 0.372, which indicates high risk of vulnerability.

Conclusion:

The major findings of the study points that the present respondents are at high risk vulnerability. In household component they found to have deficits in household assets. With regard to nutritional vulnerability, though found average risk of vulnerable, nutritional intake vulnerability was found to be high. With regard to psychological vulnerability, depression was found to be highly vulnerable. The economic and environmental vulnerability index was at high risk The study concludes that due to climatic conditions, the economic resources of the family whose main occupation agriculture found to be affected at very high risk of vulnerability. These conditions might have led to depression which again found to be high. The study recommends resilience building programmes, skill development for entrepreneurship and counselling as major recommendations for strengthening the community.

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