

## Perception of Vulnerability among the Households in the Villages of Rudraprayag District (Uttarakhand): Case Studies

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**Abstract:** Vulnerability is the state that is decided by the consequence of hazards on physical, social, economic, and environmental causes that will affect the status of a private, community, or surroundings. Generally, households in a geographical area or an administrative boundary are labelled as equally vulnerable but the scenario on the ground is different. One household perceive risk differently than the other. The degree of perceived vulnerability is influenced by many factors that make individual households perceive their vulnerability differently than the other households. This paper focuses on the following aspects: location of a house, economic status, family structure, food stockpiling to assess the household level vulnerability perception in Rudraprayag District of Uttarakhand. About 442 households from 30 villages of the district were interviewed for the household level study. Vulnerability perception at household helps in understanding the possible damage disasters can cause to a household, the severity of its impact, and what are the possible measures that can be taken to reduce their vulnerability. Community participation is vital and an empowering side for enhancing effective disaster mitigation practices. This paper suggests the importance of micro-level planning at the village level for effective disaster risk reduction.

**Keywords:** Vulnerability, perception, household, village, micro-level, planning, and Rudraprayag

## INTRODUCTION

A household is an important unit of analysis for the perception of vulnerability because the household is the unit of action that links individual and society (Collins, 2015). Household's decisions (location of the house, economic activities, food stockpiling etc.) impacts their vulnerabilities which leads to variations in vulnerability they perceive. These factors which influence the differentiations are discussed in the paper in details. This study is conducted bring attention that each household perceive their vulnerability differently hence it is important to have area specific planning at village level ensuring the participation of community for effective Disaster Risk Reduction (DRR).

## OBJECTIVES

1. Identifying the possible factors influences the vulnerability of households within;
2. Making an account of vulnerability perception among households;
3. Suggesting the importance of micro-level planning with the village at household level.

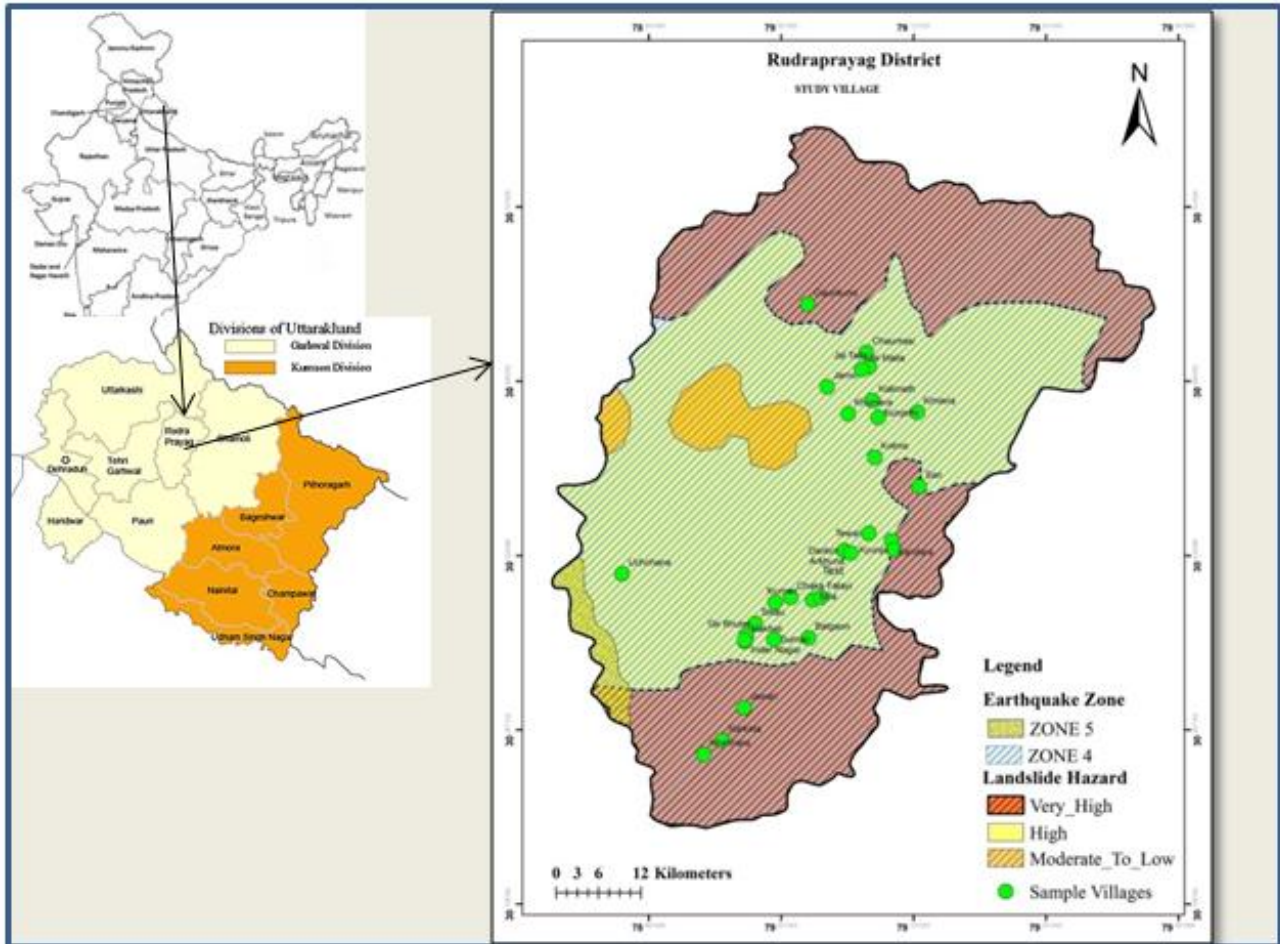
## METHODOLOGY

1. Study villages were selected with the purposive sampling and household with stratified sampling with the village.
2. Primary data was collected with the help of questionnaire at household level;
3. Secondary data for getting incites of factors influencing vulnerability and its relation to vulnerability perception of community;
4. Representation of data is done by using MS office that in MS Word & MS Excel;

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**Study Area**

This paper includes 442 households from 30 villages (10 from each Block of district i.e. Ukhimath, Agstyamuni and Jakholi block). The District of Rudraprayag has worst hit by many disasters in the history but flash flood disaster of year 2013 has shaken the lives of community very deep. The scenario from distance it seems entire district and its vulnerability as a whole but when we study region at grass-root level then it present different state. Aim of this study is identify the factors influence the vulnerability perception of community at household level and make an account of their perception.

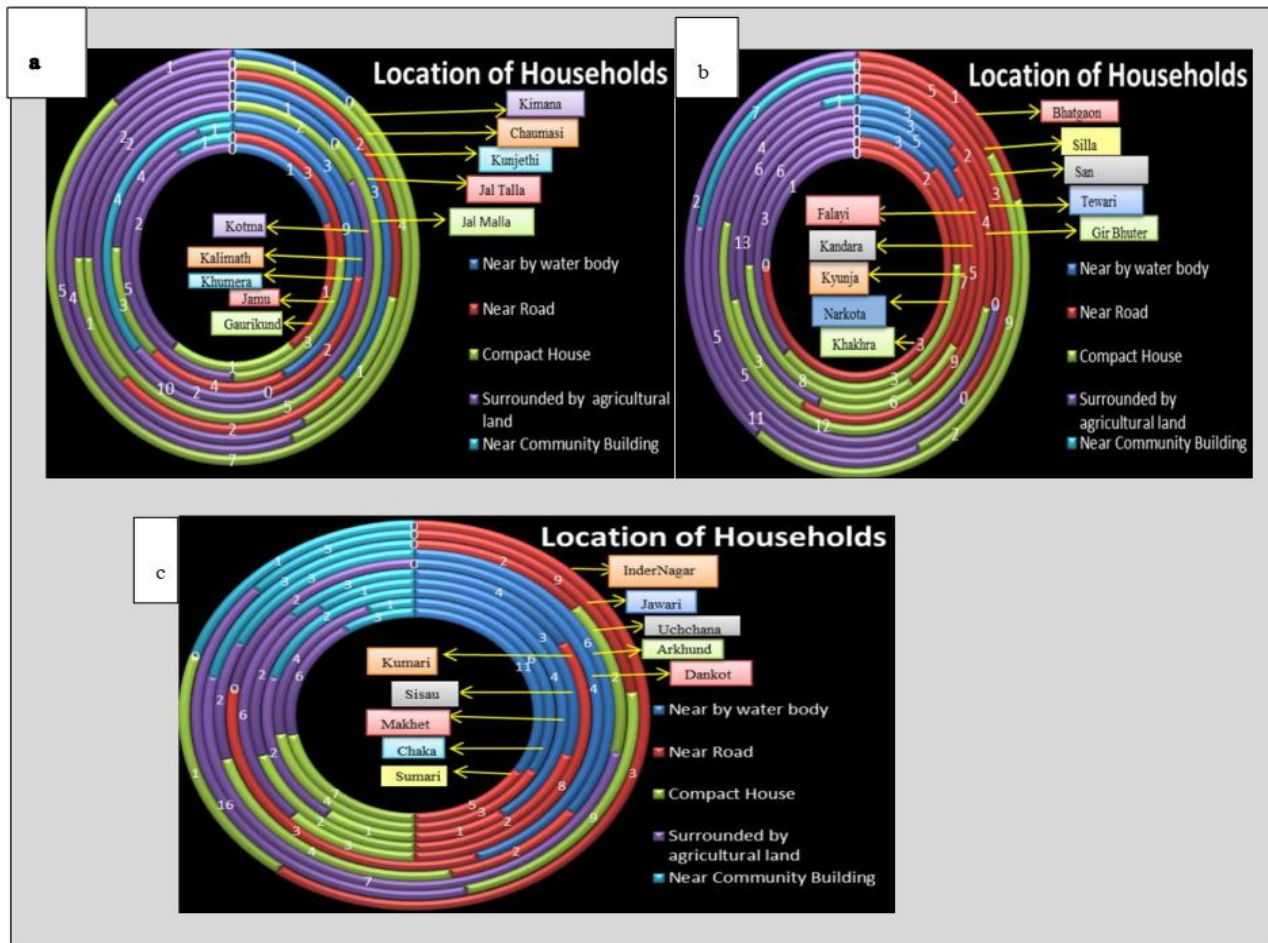


**Fig-1: Location map of study Sites in context to India, Uttarakhand and Rudraprayag District**

**RESULTS AND DISCUSSION**

**A. Location of Houses**

Many households are vulnerable because of their location which exposes them to different hazards differently which impacts their perception towards their vulnerability. Fig-2, presents the account of the location of households selected for the study. It is observed in the study area that the location of the house is influenced by the socio-economic factors in the villages.



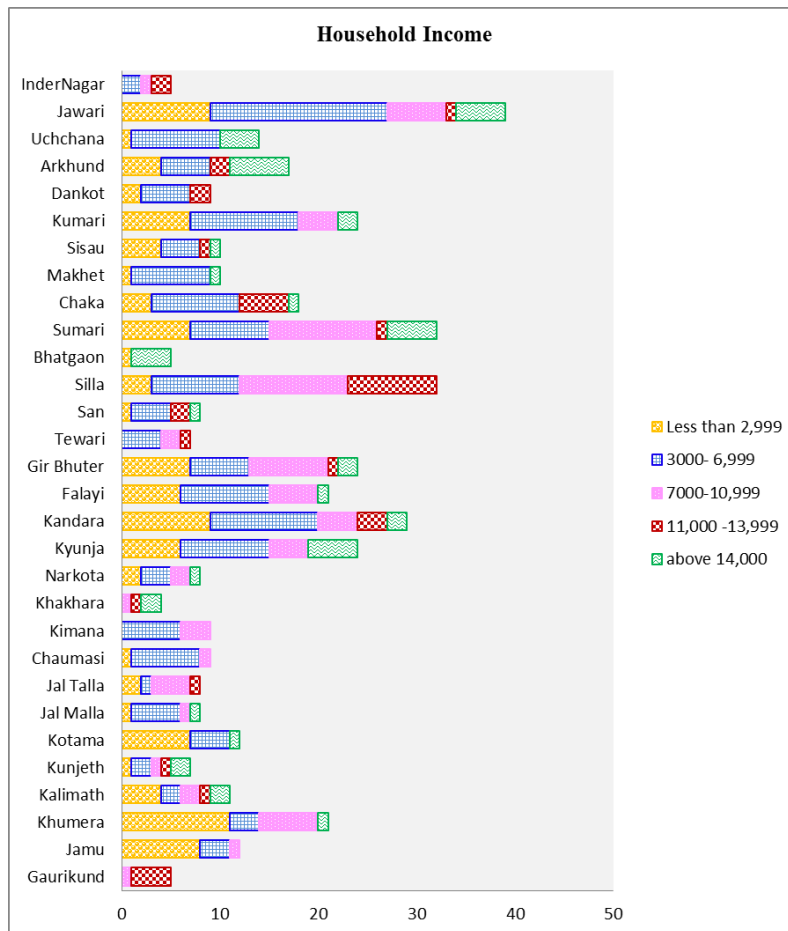
**Fig-2: (a). Location of households in Ukhimath Block, (b). Location of households in Agstyamuni Block and (c). Location of households in Jakholi Block**

In the study area, it is found that households near sinking land or water bodies are generally from schedule caste groups of the community. There are 70 houses nearby water bodies that pose the threat of flood/ flash flood hazard and its secondary hazards i.e. landslide or debris flow. Households near the road, community buildings, and compact houses are 93, 36 and 103 in number respectively; where there are no seasonal streams and are considered to be safe by village community. Houses surrounded by agricultural land are prone to the risk of landslides which are 140 in number.

**B. Economic Status:**

There are two components taken to assess the economic status at household level, i.e., family income and landholding size shown in Fig-3 & Fig-4 respectively. The community in the study area is either involved in tourism and primary activities of which tourism is income-generating sector while primary activities are more subsistence. According to studies, it is found that people who were poorer with lower incomes perceive more risk and felt more concern regarding disaster (Flynn *et al.*, 1994; Pilisuk *et al.*, 1987; Palm and Carroll, 1998). Studies show that households depend heavily on natural resources for their livelihood and those which low income suffer greater losses than households with high income (Silva and Kawasaki, 2018).

### 1. Income

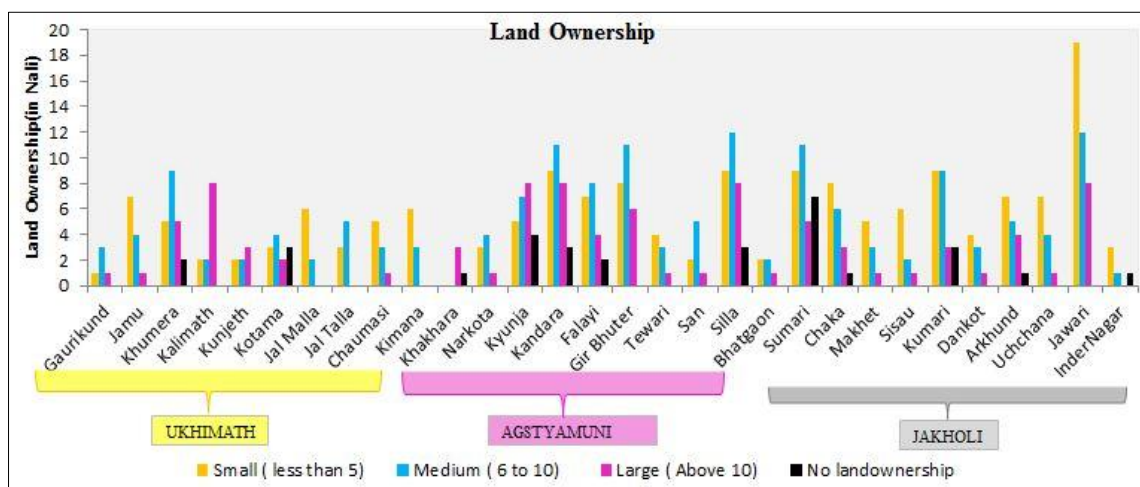


**Fig-3: Monthly income of the household.**

Fig-6.3, presents the monthly income of household of which 24% households have the earning less than INR 2,999; 38% households earns between INR 3,000- 6,900; 18% earns between INR 7000- 10,999; 9% between INR 11,000- 13,999 and 11 % earns above INR 14,000.

### 2. Land Ownership

There are 38 percent households with small landholdings, 35 percent with medium landholdings, 20 percent with large landholdings and 7 percent which do not have land ownership from the sample selected for the study.



**Fig-4: Land ownership at household level**

### C. Family Structure

As we have discussed above that how the location of household and economic status, impacts the perception of the vulnerability of the community. Family structure helps in understanding the demographic statistics of households and clubbing them with income or landownership presents an extensive vulnerability scenario of a household.

#### 1. Gender

In the study area men is considered as the prime breadwinner while women is considered as auxiliary which provided men the front seat for all the relief i.e. compensation to losses, economic assistances, jobs and trainings.

In Study area after 2013 disasters, households having female head, generally have the scenario of being widow. Female headed households have lower status as compare to male headed households in the study area. When female headed households were interviewed, very negative feedback was given about the distribution of relief material during 2013, flash flood disaster. It was found that needs and voice of female were not considered appropriately. There are 78 percent and 22 percent of households having male and female as head of the family respectively among the households chosen for survey.

#### 2. Size of Family

Households in the study are heterogeneous regarding family size. There are 21percent of households from small family size; 61percent from medium family size and 18 percent from large family size (Fig-5).

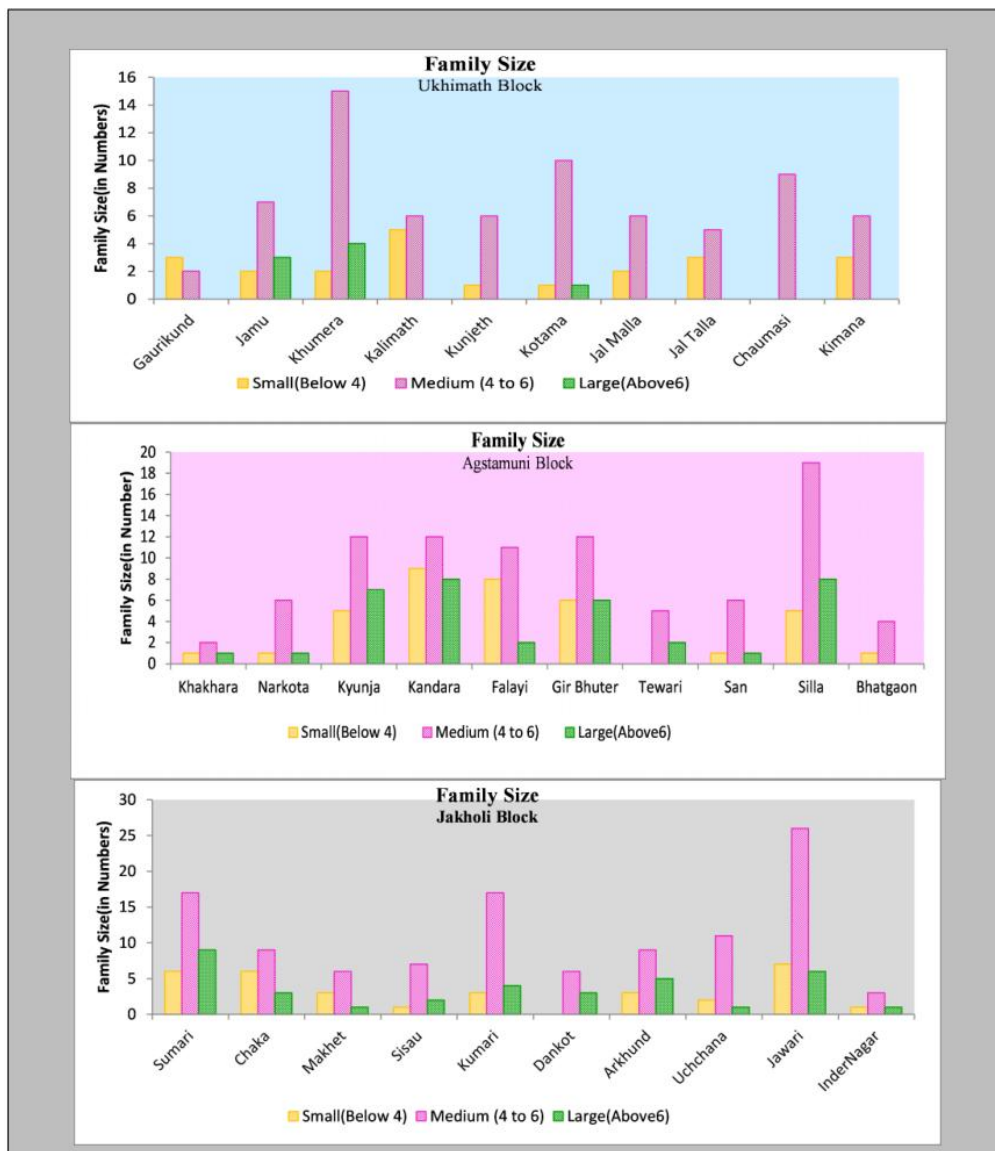


Fig-5: Size of families in study villages

Families with low income and small or no land ownership having a large number to support are more vulnerable than families having high income or landholdings.

### 3. Family Age Structure

Different age group people have different responses to hazards and a different perception towards their vulnerability. Making an account of the family age structure helps in identifying the number of people need assistance if a disaster strikes. Finds are shown in Fig-6.

There are 25 percent persons below 17 years of which 33.40 percent are in 0 to 9 years of age and 66.81 percent are in 10-17 years of age group; 69 percent in the age group between 18 to 59 years and 6 percent in year's old` group above 60 years.

Age groups below 17 and above 60 years old in the household study are considered vulnerable groups; hence 25 percent and 6 percent persons are vulnerable respectively which needs external assistance in any disastrous situations if it occurs.

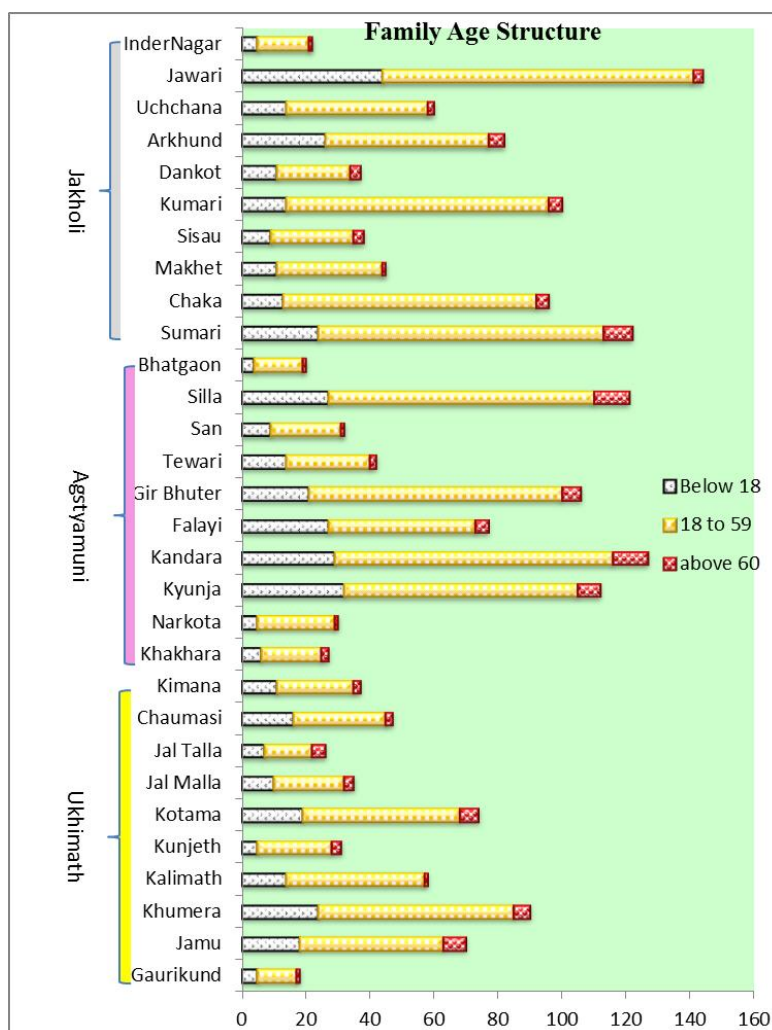
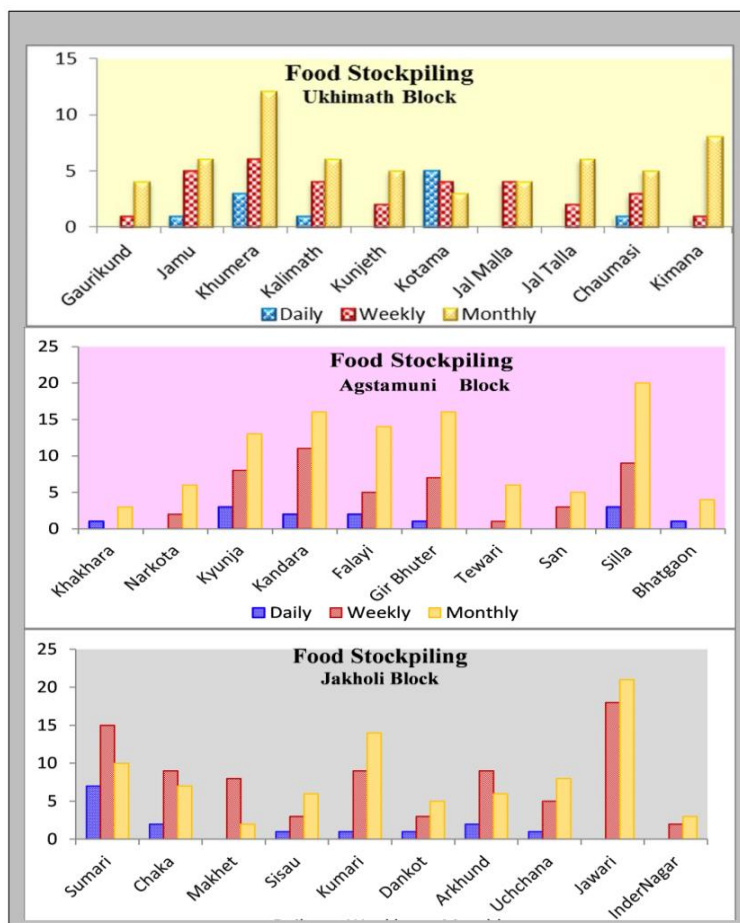


Fig-6: Family age structure at household level

### D. Food Stockpiling

Assessment of food stockpiling helps in the food security assessment is the need of today with the increasing frequency of disasters which are increasing the vulnerability of communities. The situations of disasters give the precarious food situations and hinder communities to meet up their nutritional needs. Disasters lead a community to the state of food insecurity, as it threatens the availability of food, access to food, utilization of food (in terms of nutritional concern) and the most important food stability, which controls all the three mentioned dimensions of food security. The food security assessment is the one foundation's key for enhancing the preparedness of the community and increasing their resilience to cope up with disasters.

The evidence of food insecurity in the study area has been traced from the documents and reports to assess the food security of the community at the village level after 2013, flash flood disaster. According to the Uttarakhand Floods 2013: Joint Food Security and Livelihood Assessment Report, households belonging to the Scheduled Castes (SCs) and Muslims were not able to get two times meal a day during that time and even they did not get proper compensation for their loss.



**Fig-7: Food Stockpiling details at household level**

It is shown in Fig-7 that on the basis of analysis it is seen that 9 percent households, which stock their food on daily basis. These households are indulged in labour activities which put them in difficult situation to meet the nutritional needs on day to day basis and if a disaster occurs and they lose the mode of earning or producing food then the situation becomes very critical and communities are forced to go through the situation of food insecurity.

There are 36 percent households which stock their food on weekly. On the basis of the survey, there are 9 percent of households that maintain food stocks on a daily basis; hence their vulnerability stretch period for food security is of 11 months 29 days. 36 percent of households having weekly food stockpiling have the vulnerability stretch period for 11 months 23 days and 55 percent of households having monthly food stockpiles have 11 months of vulnerability stretch period. If there are no disturbances occur to their sources of income then they will get regular supply of food and stability but if there will be any disaster through which their source of access to food gets hinder than there will be a scenario of food insecurity. Households that stock their food on a daily and weekly basis are in more urgent need of external assistance during disaster than the households which stockpile their food on a monthly basis.

## CONCLUSION & RECOMMENDATIONS

Household assesses their resource needs through the activities such as tourism (providing transports and lodging services to pilgrims), animal husbandry, agriculture, which are very subsistence in remote villages selected for study. Tourism is seasonal from May to October which may affect the income and livelihood sources of village communities in the time of disaster. Households that are bigger in size but low in income and small or no land holdings, depend on external assistance when a disaster occurs.

Judgment about the vulnerability of individuals or household is a fundamental aspect of planning which is needed to be incorporated in the Rudraprayag district for effective disaster risk reduction because the district has a years-long history of disaster. Assessment of household perception of vulnerability helps authorities for micro-level planning. The village should be divided into different vulnerability zones with the participation of the community. With the outcomes, a vulnerability map of the village should be drawn; identifying the most vulnerable households with a village. The level of community participation helps in understanding the vulnerability of households and identifying the level of capacity building needed to equip households to deal with the adverse impact of hazards.

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