

Strengthening Emergency Response Abilities

SERA Project

Vulnerability Profile: SUMMARY

Ahferom Woreda (district)

Central Zone

Tigray Region

2000

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Disaster Prevention and Preparedness Commission (DPPC)
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A. SUMMARY of MAJOR FINDINGS

Population=152,675

Agro-ecology zone= *includes the three common agro-ecologies that varies from 1300mm-2700mm*

1. Introduction

Vulnerability refers to the full ranges of factors that place people at risk of becoming affected by disaster. It is the propensity of people to experience substantial damages and disruption as the result of hazard (e.g. drought, epidemics) and difficulty (e.g. through lack of resources) to cope with and recover from them. In simple terms vulnerability has two factors external exposure to disaster (Shocks, stress and risks) and the lack of means to cope with out suffering damaging lose.

The provision of food aid and emergency medical care although saved many lives, failed to address the causes of vulnerability. For this reason an approach to integrate relief with development was launched with NDDPM in 1993. To find a lastly and sustainable solution to the recurrent problems of food insecurity and epidemics there needs an accurate and timely information for an effective intervention.

On this basis and the workshop, in June 1997, conducted at Ghion on "Vulnerability in Ethiopia from Disaster to Development" evaluated the existing information are generated form small scale studied and are inadequate in terms of coverage and diversity, therefore to implements effective plans and programs and to target the vulnerable groups, a multidisciplinary approach on the factors contributing to vulnerability be studied to strengthen the capability of a community to cope up with disasters was forwarded, thus this project came to effect as Strengthening Emergency Response Ability (SERA) project which is funded by USAID.

The main objectives of SERA project are:

- To develop vulnerability profile of wereda
- To conduct relevant research on the root causes of vulnerability; and
- To strengthen response mechanisms and development interventions through incorporation of the above results.

In this workshop the vulnerability profile of Ahferom wereda (one of the pilot weredas) is presented with the following objectives of the profile

- The VP can serve as information guide to policy makers, planners, Development & relief practitioners about the magnitude, nature of the problem and factors contributing to make people vulnerable to disasters.
- The VP is believed to be useful to understand the underlying and associated causes of the vulnerability to disaster.
- It also helps as guide medium and long term direction for targeting high risk group and identifies the causes and conditions in the wereda.

1.1 Functional classification of vulnerable groups

Under this Wereda Profile an attempt is made to answer who are vulnerable groups to specific hazards? Where do they live and when do they face the hazards frequently? The

Magnitude of the problem and the nature of the coping strategy people practiced, and the factors that are associated with their vulnerability have been assessed.

2. Methodology

2.1 Data collection methods and instruments used.

Primary and Secondary sources were used to collect data/information on the following:

- Demographic and socio cultural
- Physical and climatic
- Economic and agriculture
- Institutional and programs
- Health and Nutrition
- Disaster history and institutional responses.

Household questionnaire, Women questionnaire and through RRA (key informant interview and community “Awaki” discussion were the instruments used to collect primary data.

The household questionnaire was intended to detect the household’s perception and subjective opinion of the situation of hazards and risk of vulnerability from household heads.

The women questionnaire was designed to interview women, of age group 15-49 to assess fertility, child mortality, nutritional status of mothers and children , Last two week disease prevalence, Maternal and child care taking all the children under five years of age. Within the household, anthropometrics measurement for children (weight and height) and MUAC for eligible mothers was also taken.

RRA method was applied to obtain information from key informants and the community knowledgeable groups. The key informant questioner includes major topics such as community infrastructure, service and facilities, community livelihood structure and wealth ranking, population and environment relationship food production and access to food, perception to disaster and how they react to it, and the local capacities, resilience and coping strategy. It also includes gender, health and cultural issues.

In the community questionnaire five major issues were discussed; community social services (Availability, accessibility utilization and their functional adequacy), population change, resources utilization and environmental stress, community live hood and food security Finally Disaster history over the last three decades and their perception, lastly the community elderly were asked on their perception to local capacities and suggested solutions to address to their perceived problems.

Secondary data sources were also used, though data collected on land use, agriculture, and metrological data were not easily available, adequate, and lacking reliability. The secondary data collected were mainly intended to see the level and trend in some selected indicators.

2.2 Sampling design, training, fieldwork and coverage.

Out of 16 drought-prone weredas declared as most food insecure, four pilot study weredas (two weredas from central and the other two from eastern zone) were purposely selected from the draught-prone weredas, of which Ahferom Wereda is the one.

Stratified Random sampling technique was used with the help of PAs and the 1994 CSA Map. The wereda was stratified in to the three major agro-ecologies and proportional number of PAs from each stratum was selected by lottery method.

Out of each PAs randomly selected 130 households from the household list prepared ahead) was again randomly selected by lottery method. Thus a total of 779 Households were interviewed for the household questionnaire and 694 women with in the households for the women questionnaire similarly for the RRA, 90 key informants and 40 knowledgeable person selected based on the criteria set a head was interviewed. Each key informant interviewed for an average of 30 Minutes and the group of 5-7 knowledgeable group discussion for 2:00-2:30 hrs.

After training of trainers workshop arranged at federal level a total of enumerators and supervisors were trained at regional level for 16 days. The RRA team has also been trained for 9 days. To keep the data quality, supervision was done daily by supervisors at the site and by the project research assistants at the wereda center daily.

2.3 Data management and analysis

Data editing and coding of HH questionnaire was done at regional level by and research assistants and enumerators show better performance and had experience in editing and coding in other surveys and after three days training by the project staff. 15 data entry clerk did data entry-using SPSS for diversion 4.0, which took more than 6 weeks, at regional level. They were trained for 15 days by using the survey questionnaire. For convenience the HH questionnaire was divided in to six files and 1360 variables and similarly the women questionnaire in to three files and 597 variables.

After data clearing and merging analysis was done using SPSS for windows version 10.0 numerous internal consistency check have been done.

Despite the commitment of those involved in the process of the VP development, problem of logistic, less participation of VWG members over ambitious questionnaires, poor documentation at wereda level (which affects the secondary data), hug questionnaire of RRA instruments were some among the limitations.

3. Major findings

3.1 Climatic risk, draught and epidemics

The common disasters that affect the community are famine, epidemics and war. Malaria is very common in the lowlands and lower midland of the Wereda. Though not as severe as drought, hailstorm is also causing some hazard. The people living at the border were also affected by the war. According to the community perception, the trends of vulnerability to famine and epidemics are generally improving.

3.2 Population pressure, Natural resources and environmental resources.

Population of the wereda is growing quickly, it is doubling almost every quarter of a century this has a negative effect in land holding and other natural resources, man to

land ratio has increased significantly . The finding of this Survey regarding population-environment relationship is summarized as follows:

- Crude population density increased by 1.07 in less than 5 years.
- Dependency ratio increased from 95.7 to 115.7 in less than 5 years.
- Proportion of landless increased from almost zero during land redistribution to about 13.6% in less than 10 years.
- Mean Family size 4.5(5.2 for MHH and 3.5 for FHH)
- 49.8% of the male HHs and 10.8 % FHHs are illiterate
- There is a tendency of decrease in the proportion of out migrants.

The age structure in the wereda has changed significantly in five years time such as the proportion of young age group (15-49 years of age) increased from 44.5 % in 1987 E.C to 46.1 % in this survey, in other woredas active age group decreased from 51.1 to 46.1%.

As a result of population pressure, land holding size has decreased and cultivation on un recommended area has increased that (according to the HHs perception on their main plot) currently 7.9% of households cultivating in top hill and upper slope, 16.4% of the of those cultivating in the middle slope and 38.3% in plain have infertile main plot.

Among the key informant interviewed for the trends on the major environmental stress such as soil erosion, deforestation , flood , pasture problem .All the key informant aid the problem of all except pasture problem has improved (this is not high or very high) at present nearly over one third said pasture problem is still very high than any time.

3.2 Access to basic services, infrastructure and their quality

The availability and accessibility of the basic service has increased substantially in the last 10 years.

- Gross enrollment of students in creased from 34.1% to 65.3% (1988-1991 e.c.) and number of school from 29 to 33 & Students drop out (grade 1-4 for the year 1988-1991) was 43.2 percent for boys and 47.8% for girls. Student Teacher ratio rose from 47 to 56 in the same years.
- Agricultural extension coverage for crops from 22.3 to 47.3% (1988-1991) and almost none for livestock extension, which grow from 1.7 to 4.3 percent. The ratio of extension agent to households is very high (1:2014) indicating the work load of the DA
- Health service coverage has grown quickly. The proportion of children (12-23 Mo) fully immunized is 31.2 percent, ANC 35.9 %, TT2 35.9 % and family planning 7.2 %, during the survey year.
- Potable water supply is 8.3% rural and 44.6% urban.
- The above increased in quantity (availability) however have to be accompanied with due emphasis to the quality of the service, the functional adequacy of the service is strongly commented by the inhabitants.

3.3 Community live hood, food insecurity and poverty

- The food gap analysis shows that 100% of the sampled population have food shortage regardless of the length of time, 85.1% of which have food deficit over nine months, 94.2% between 6-9 months
- Average production computed for three years (1988-1990) also revealed that the wereda cover 21.38 % of their annual food requirement.
- Food deficit over 9 months is 85.2% in Weyana Dega while it is 84.6% in Dega zone, showing no significant difference.
- The proportion of HHs participated in Non- form and off-farm activities during survey year is 52.6% and 8.1% percent, with mean in come 356 and 785 Birr, respectively.
- The factors found to have contribution to low crop production beside the natural calamities are shortage of crop land and grazing land, lack of ox (en), land degradation, post harvest loses
- Based on the self assessed income the poverty multivariate analysis shows that the determinant factors identified to have significant relationship for the welfare of the household are the land holding size, livestock ownership, Participation in non-farm activity, family size, literacy status, improved seed, credit and presence of out migrant in the household.
- Among the felt problems such as shortage of rainfall, labor constraints, food insecurity and epidemic experience found to have negatively contributing to the welfare of the HH.
- Although unexpected Age, of HH head, gender difference and marital status don't significantly explain the variation in the living standard of the study area.

3.4 Illness, malnutrition and child mortality

- Health service utilization (antenatal & post natal) was assessed, Antenatal check up and safe delivery reduce maternal death and improves child survival, however less than half of the pregnant women in sample HHs received antenatal check and only 35 % had received TT2
- Two weeks disease prevalence was seen in 46.2% of the eligible mothers and in 56 % of the children.
- Malnutrition rate of children in the wereda is 59.2% for stunting 11 % for wasting is and 52.0% under weight which is higher than the national and regional average.
- The child and infant mortality rate as computed from the HH survey is 96and -46 which makes the under five mortality 137, which has reduced by 47 from the CSA (1987 E.C) report. The most important predictors from the multivalent rate analysis are condition of child during delivery and the vaccination status. The model also supports that sex of HHH, marital status and wealth of the HHs has contribution positively or negatively to child mortality.

3.5 Resilience and Households coping strategies

About 15 coping strategies were identified. These are grouped in to reversible and irreversible type of strategy based on the severity and convenience. Coping strategies that

helps to pass seasonal stress and are relatively easier to reverse are categorized as Reversible and the others that are likely to deplete the household's resource assets are irreversible.

Accordingly:

- 47.2 % of the sample HHs Exhausted the reversible coping strategy
- 49.8 % have practiced reversible strategy with at least one of the Irreversible coping strategies over the last 10 years.
- The following specific coping strategy has been used frequently over the last 10 years. Reducing number of meals (50.1%); reducing quantity of meals (57.4%); eating less preferred food (33.5%); borrowing cash/food (19.5%); participation in EGS/FFW (19.5 %); selling livestock (18.9%); seeking jobs inside PA (10.8%); etc.
- 49.8% the HHs have either shifted to or used at least one of the irreversible coping strategies with the Reversible ones.
- Only less 0.3 % has never used any of the coping strategy in the last 10 years.

4. Functional classification of Vulnerability

4.1 Who are vulnerable households?

The most vulnerable households are households having low agricultural production with high annual deficit of food (94.2% with deficit of over 6 months and 85.1% with deficit of over 9 months).

Those households having higher percent of food gap are generally characterized by:

1. Small land holding size

- 69.3% HHs have land size less than 0.5 hectare 86.6% FHHs and 55.2% MHHs
- Agro-ecologically 67.8% in Weinadega and 79.2% in Dega own below 0.5 hectare. 40.67% of Weinadega and 23% of Dega have infertile main plot.

2. Own livestock and particularly oxen

- The average TLU /HH is 2.06.
- 15 % own no livestock.
- 64.6% own TLU < 3
- 57% MHH and 31 % FHH own more than 5 TLU
- Livestock possession is higher in Weinadega than dega.
- Family size determines the living condition including the quality of food intake. The mean family size of the wereda is 4.5(5.2 for MHH and 3.5 for FHH). Generally there is a trend of increasing income with the increase in family size ,the bivariate analysis indicates that the middle family size are relatively better in food deficit as compared to the larger and smaller size.

3. Illiterate

- 49.8% or MHH and 10.8 % FHH are literate.

4. Un-diversified income

- 8.1% and 52.6 % have participated in off-farm and Non-farm activities with income of 785 and 356 Birr respectively.

- HHs With any of their member out migrated have better income

5. Labour constraints

- 21 % of the MHH and 60.1% of the FHH have had labour constraints

4.3 Who are the most Vulnerable Individuals?

The **most vulnerable individuals** are individuals those who are malnourished

- Maternal malnutrition:- 44.3% of the eligible mothers are malnourished.
- Child malnutrition: 59.2% are stunted, 11.0% Wasted and 52.0 % are under weighted. The percent of stunted which is good indicator of chronic malnutrition is quite high as compared to regional and national average.

Children with high risk to mortality

The under-five mortality rate according to this survey is 137 of which infant mortality accounts 96 and child mortality rate is 46

Children with high risk to mortality are with the following household backgrounds:

- Children of MHH are by times more at risk than the FHHs
- Children born to mothers who had no access to or do not utilize the PAD
- Children from crowded and unhygienic HHs.
- Children of younger mothers

B. CONCLUSIONS

Under this vulnerability profile effort has been made to collect data relevant to vulnerability issues from as many sources as possible in this attempt to identify the vulnerability indicators, vulnerable groups and where they live. Data collected from household survey, secondary sources, the community focal group discussion and key informants have been analyzed.

Vulnerability is a broadest concept that is caused by multi and interrelated factors. Natural and man made hazards causes vulnerability of a community, households or an individual when there is inability to with stand or cope up with the problem. Therefore in this first attempt the interrelated factors behind the vulnerability of community to different hazards regarding Ahferom wereda are briefly summarized as follows.

Population pressure is among the major factors contribute to vulnerability there is rapid population growth, large family size (with high rate of dependency) as a result of such pressure the land holding size and grazing land is becoming scarce, hand holding is not only small but very large proportion have their main plot depleted . In addition Poor land management unpredictable rainfall, together large proportion of less households contributed for inefficient and very low production in the area.

House hold food security in the wereda is attained in the wereda when on the average every household either produce or purchase the amount sufficient to meet the family annual food requirements. Based on the assumption of 2100 Kcal /day/head each household with the average of 4.2 family-size is supposed to produce or purchase 11.9 Quintal, the average production per household from their farm land is 2.27 Quintal which is far from their annual demand.

Crop production in the wereda is very low that 85.9 percent of the households from survey had food deficit greater than 9 months during the survey year. Besides the small land size , high level of soil erosion (although there is improvement), high infertile and slope, such households are characterized by small or no ownership of livestock (particularly oxen), lower share of income from Non-farm or off-farm activities. The community local group discussion also characterize the poor as oxless, landless or small land holding, female headed household, with non diversified income , but both from the bivariate and multivariate analysis of households income in this survey indicate that sex of the households head is not a factor, these may have two possible reasons ,one the family size of the Male Headed Households is by two person higher than Female headed households and /or the male head households may not tell their exact income.

The health coverage in the wereda has been greatly improved in the last decade. Immunization coverage is not low. Fully immunized children are about one third of the children however although improved the disease burden in the wereda is still high that two week disease prevalence was seen in one third of mothers and one quarter of children .

As an out come the severe level of food deficit and high level of disease burden the current level chronic malnutrition (stunting) is 59% and under five mortality is 137. The level of stunting is highest in this wereda than the regional and national average. Mortality rate seemed improved when compared with 1987 census report; this could be due to the improvement of health service in general and the high immunization coverage in particular.

Overall poverty in the wereda is very high. There is high dependency on farming, low crop production, others source of income is by large from the FFW /EGS program which is very low to fill the gap. From the bivariate and poverty multivariate analysis, the following are found to have contribution for the welfare of the households:

- Land holding size;
- Live stock ownership particularly an ox;
- presence of any out-migrant from member f the household;
- use of improved seed;
- family size; and
- Other felt problems, such as rainfall.