

Strengthening Emergency Response Abilities

SERA Project

Vulnerability Profile: SUMMARY

Zikuala Woreda (district)

W. Hamra Zone

Amhara Region

2000

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A. SUMMARY of MAJOR FINDINGS

1. Introduction

In June 1997, the Disaster Prevention and Preparedness Commission of the Federal Democratic Republic of Ethiopia hosted a national workshop entitled “Vulnerability in Ethiopia: From Disaster to Development”. Based on the recommendations of the workshop, DPPC designed a project called “Strengthening Emergency Response Abilities” (SERA) and obtained funding from USAID. The SERA project envisages developing reliable vulnerability profiles; conducting relevant in-depth studies and special studies on root causes of vulnerability and developing response packages in cooperation with various stakeholders, and there by to contribute to the reduction of vulnerability.

To meet this challenge, the Disaster Prevention and Preparedness Commission of the Amhara National Regional State has started development of vulnerability profiles as of July 1999 and selected the most vulnerable 25 weredas for this activity. This work is part of the pilot phase of development of vulnerability profiles that has been restricted to four weredas – Sekota and Ziqualla (Waghimra zone) Ebinat and Tach Gayint (South Gonder zone). Following is short account of vulnerability profile for Ziquala wereda prepared in the pilot phase of the project.

1.1 Key concepts and method

Food security is defined as “access to enough food for a healthy life, always, and absence of undue fear of lack of food”. Vulnerability analysis stresses the fact that security is an important dimension of welfare, and that stability of access to food is as important to food security as the level of access. Vulnerability is concerned with the measurement and characterization of the probability – *likelihood* – of a fall in consumption/income below some acceptable level in the *future*. Vulnerability and poverty/food insecurity are often used interchangeably because vulnerable groups are likely to belong to the population below the poverty line.

A vulnerability map/profile used to estimate parameters of vulnerability should describe hazards, degree of defenselessness against hazards, and the difficulties faced in coping with them. The main objective of the vulnerability profile is to identify areas and population groups that are vulnerable to particular hazards/risks and the causal factors for such vulnerability.

One can measure food security at the country, region, community, household, or individual level. However, food security at its most basic involves access to food by all *individuals* and needs to be monitored at the level closest to consumption by individuals – at the household or individual level. Measuring food security at this level requires intensive household surveys. Accordingly, a household survey was the primary source of the data used in this profile.

Data from the household survey and secondary sources have gaps that make a profile based entirely on them incomplete. We also need qualitative data regarding subjective perception of members of the community. Key-informant interviews and community group discussions can identify and measure these efficiently and effectively than

information from household surveys. Finally, RRA is one more source of data when different sources serve in triangulation and thoroughness.

1.2 Methodology

Both probability and non-probability sampling techniques were used based on the nature of the instruments for primary data collection. The subjects of key-informant interviews and participants in community group discussions were selected using purposive sampling techniques.

Data for the study was generated from primary and secondary sources. Primary data was obtained from a survey, while secondary data is secured from Government and non-government organizations in the region, CSA, and NMSA.

Instruments of data collection included: a household questionnaire, community group discussion (CAD) and key informant interview forms (KINFO), and secondary data tabulation sheets (SDTS),

The SPSS format is used for data entry. Both descriptive and uni-variate statistical techniques were used throughout this study. Descriptive analysis which include means, variance, percentages and ratios were employed for examining and explaining variables.

The response rate was remarkable. Questionnaires were addressed to 401 households but one 351 is returned. Nearly 95.2 percent of the women were interviewed and data was collected for about 97 percent of the children. An interview was conducted with 54 key informants though the intention was with 60, while a discussion was also held in four peasant associations.

1.3 The Study Area

Ziqualla it is located between $12^{\circ} 28^1$ and $13^{\circ} 16^1$ north latitudes, and $38^{\circ} 20^1$ and $38^{\circ} 59^1$ east longitudes. It extends for about 86 kilometers in the north-south direction and about 70 kilometers in the east-west direction and it has a compact shape, and has an area of 3020 km².

Ziqualla is found in the western part of Wag Himra Administrative zone, and shares borders with Sekota wereda (in the east), Dehana wereda (in the south), Belessa wereda (in the southwest), Janamora wereda (in the west), and Beyeda wereda (in the northwest).

In Ziqualla about 99 percent of the population lives in rural areas and earn living from agriculture (i.e. crop cultivation and animal rearing). The cultivation of crops is the most important occupation. The major crops grown in the wereda are teff, wheat, sorghum, barley, peas, and chickpeas. Livestock rearing plays a vital role in the livelihood economy and is a prominent coping mechanism to off set impacts of disaster. In the wereda goat is the predominant animal constituting 60% of the total livestock.

The erratic seasonal rainfall, coupled with the steep slopes and the bare plains with little or no plant cover have led to low retention of ground water and high run-off, which in turn led to extensive soil erosion in the wereda. Services and infrastructures are generally poor in Ziquala.

2. Demographic Characteristics

The results of the 1994 population and housing census show that the population of Ziqualla was 48,860. About 99 percent of the population lives in rural areas. Crude population density was about 16 persons per/km² in 1994 and increased to 18 persons per/km² in 1999. During the same period, agricultural density of the wereda, increased from 124 to 135 persons per square-kilometer.

The sample survey includes 287 male-headed households (82 percent of sample) and 64 female-headed households (18 percent of sample). Total fertility rate is estimated to be 6.9. About 85.5 percent of household heads are illiterate, with higher rates of female than male.

In terms of marriages, regardless of their current marital status, 340 (96.9) percent of the household heads in the sample were married before. Widows constitute 59.4 percent of female household heads and 1.0 percent of male

Only 48 percent of household members aged 10 years and above are economically active. About 23 percent of the population in this age group is not economically active due to health-related reasons (including disability), and 15 percent were not active because they could not find jobs.

Under-five mortality for our sample is 240 per 1000 live births (247 for females and 233 for males). The infant mortality rate is 161, while child mortality is estimated to be 65 per 1000 live births. Life expectancy at birth is estimated to be 43 years (43 years for females and 44 years for males).

3. Community Livelihoods

3.1 Land size and Livestock

Though all cultivable land is cultivated, and it forms only less than one-tenth of the land in the wereda. No land is left fallow. About 27 percent of the total area is 'wasteland', and about 50 percent is covered by bush (mostly wasteland).

Data from the household survey suggests that average landholding size in Ziqualla is 1.09 hectares. Households that own no land account for about 11.4 percent of the total households in the sample, and those with less than half a hectare constitute another 11.4 percent. In addition to the continuous decline in land size, there has been increasing fragmentation of land. More than 74 percent of the sample households reported to have more than two parcels, all of which were put under cultivation during the same period.

Survey data indicates that 38.5 percent of sample households own no oxen. The oxen less proportion is higher among female headed households [84.4 %] than their counter parts [about 28.2%] and, keeping other factors constant, are highly vulnerable to food insecurity.

3.2 Crop Production

The major crops grown in the wereda are *teff*, wheat, sorghum, barely, peas and chickpeas. Sorghum is the major crop produced since the wereda is predominantly *kolla*.

Comparison of total crop production and annual food need of the sample households clearly shows the severity of food deficits. Per capita crop production in 1999 was 47.3

kilograms. Applying the recent DPPC standard of 180 kg per person per year (or 15 kg per month), per capita output covers only 26 percent of the annual requirement of a person or about three months' food requirements. A large proportion of the households are dependent on supplements of relief food for 3 to 9 months a year. Female-headed households produce crops that cover a maximum of three months' consumption compared 55.7 percent of male-headed households

3.3 Asset, Income and Wealth

Our estimate of average per capita value of assets in Ziqualla wereda was Birr 531.17. The amount of income households earned is very small: 29 percent of the households earned no income at all while those who have earned any on average earned Birr 151.93. The share of agricultural sources of income is 23 percent (Birr 35.03) and that of the non-agricultural sources is 77 percent (Birr 116.90).

Overall, key informants estimated that about 51 percent of the population in *weina-dega* AEZ and about 64 percent of the population *kolla* AEZ is either 'poor' or 'very poor'. Moreover, all participants in community group discussions agree that the share of 'poor' and 'very poor' households has been increasing during the last 30 years.

4. Preventive Health, Morbidity & Malnutrition

Only 5.8 percent received some forms of ANC service and none received two shots of tetanus toxoid injection (TT2). At the regional level it was 19 and 16 percent while it is 27 and 17 percent for Ethiopia for ANC and TT2 respectively.

Nearly all [100%] have delivered at home attended by relatives and traditional birth attendants.

About 33 percent of the children had vaccination cards, 15.9 percent are vaccinated against TB, 4.8 percent against polio, 19.0 percent against measles, and 3.2 percent against tetanus. Only 1.6 percent of the children were fully vaccinated.

Prevalence of stunting among children is very high. 58.6 percent of children were moderately/severely stunted.. Prevalence of moderate stunting was higher in *weina-dega* AEZ (73.2 percent compared to 51.3 percent in *kolla*), among male children (60.0 percent compared to 57.3 percent among female children).

The weight-for-height figures for Ziqualla show that 13 percent of children are wasted and about 3.6 percent are severely wasted. Moderate wasting was higher in *weina-dega* than in *kolla* (16.1 vis-à-vis 11.5 percent), in male than female children, and in the 12-23 months age group than any other age group.

More than half of the surveyed children are underweight while more than a quarter are severely underweight.

The prevalence of chronic under nutrition was highest for women in the age-group 20-34 years and in *kolla* AEZ.

About 40 percent (32.7 percent in *weina-dega* and 44.5 percent in *kolla* AEZ) were sick during two weeks preceding the data collection. Treatment is sought shows high dependence on traditional medicine (31 percent) next to rural clinics (51 percent).

About 43 percent of the children (44.4 percent in *weina-dega* and 42.1 percent in *kolla AEZ*) were reported ill in the two weeks prior to the survey. Fever, diarrhea, cough and vomiting are the most common symptoms. Among children reported ill, only about 13 percent were treated in a health facility.

5. Social Services and Infrastructure

5.1 Education

Between 1995/96 and 1998/99, the number of elementary schools in Ziqualla increased from 16 to 22, and enrollment ratio of children between 7 and 14 years of age increased from 11.0 percent to 33.4 percent. All the ratios [student teacher, student-classroom and student-school] are found to be very low. 81.7 percent of all students and 90.4 percent of girls drop out of school before they reach grade 4.

Illiteracy computed from our survey data was 90 percent (94.6 for females and 87.5 for males).

There is one primary school in one *kolla* kebele and two primary schools in each of the remaining three kebeles in our sample, and there is no junior secondary school in any one of them. Functional adequacy of schools is perceived to be 'medium' in all Pas except the one in *kola*

shortage of classrooms, distance of junior secondary schools are problems associated with the service.

5.2 Health

In 1994/95, there were three health stations in the wereda. In 1998/99, the number of health stations increased to 5, and two health posts were also constructed. In 1998/99, the ratio of health facility to population in the wereda was 1:10943 for health stations and 1:27357 for health posts.

The number of women who have heard of any family planning method and the number of family planning methods known by women of childbearing age is negligible.

Elders noted that people used to travel long distances in search of medical services. They are now relieved particularly in mother and child care services, which are being provided in their localities. This does not necessarily indicate their adequacy and efficiency, however. The number of institutions, according to discussants, is not adequate to start with. Lack of medical staff, the unaffordable price of drugs, shortage of drugs, lack of road transport, medical equipments particularly for delivery, location of facilities that lacked centrality are cited as constraints to the performance of health services.

Despite the physical availability of health institutions, the health status of the population is low as evidenced by high infant mortality, under-five child mortality, low maternal and child care as well as the high prevalence of diseases.

5.3 Agricultural extension, Credit & Veterinary Services

In 1995/96 the agricultural extension program incorporated 102 households and applied program activities on 0.26 percent of the total cultivated land area. The participation

declined to 39 peasants in 1998/99. Hence, agricultural extension is virtually nonexistent in Ziqualla by any standards.

Agricultural and veterinary services are available in *weina-dega* PA. Only one PA in kolla AEZ had a veterinary service center, and all have agricultural development service centers but one is not functional (PA29). The situation of agricultural service in *kolla* AEZ is worse than in *weina-dega* AEZ.

The Amhara Credit and Saving Institute (ACSI) gives credit service in the *weina-dega* sample PA only. More than 500 households, 40 percent of which are female-headed, were beneficiaries of credit services. The expansion of this service to the other PAs is the demand of most peasants.

In Ziqualla, two major weekly market centers serve different catchments. The market days for the two markets are the same (Saturday) and they are at long distances from each other to serve as alternative markets. On average peasants travel to markets that are at a distance of less than 20 kilometers.

Crop prices have been increasing, while those for cows, oxen, sheep and goats have been declining since 1995/96. Consistent with the results obtained elsewhere, the price of mules and donkeys was more stable than that of other animals.

5.4 Sanitation & Potable water supply

Only 2 housing units have roofs covered with corrugated iron sheets. About 98 percent of the housing units have no windows, 88 percent did not have a toilet. Data obtained from zonal water and mines department indicates that only 4.78 percent of rural households have access to clean potable water supply and it was 8.34 percent for both rural urban households.

5.5 Road & Communication

Ziqualla is almost devoid of any transport and communication infrastructure. Access to roads, measured in terms of road density, is too low even by Ethiopian standards. As of 1994/95, the total length of roads was about 22 kilometers – 0.41 kilometers of feeder road per 1000 persons. Telephone and postal services and electricity are not available in Ziqualla.

6. Disaster Types & History

Wag Himra has seriously suffered as the consequence of successive severe drought-induced famines. People have exhausted all their assets, and neither GO nor NGOs were able to exercise sustainable development interventions in the zone.

Ziqualla is divided into two agro-climatic zones: *kolla* and *weina-dega*, with most parts of the wereda (about 89 percent) falling in kolla AEZ. Over the period 1982 –1999, Ziqualla belonged to the top 20 percent of weredas with the highest coefficient of variation of rainfall. In addition to its frequency, drought tends to affect a large part of the population at the same time.

Human epidemics also constitute a major hazard in Ziqualla because of the low level of environmental or individual hygiene and preventive public health services, Concerning

the major diseases in the wereda, in 1998/99 malaria was at the top of the list followed by internal diseases, diarrhea, pneumonia, eye disease, skin disease, STD, fever and intestinal infection.

Crop pest/disease is an important hazard in Ziqualla.

External parasites are number one livestock disease in the wereda. About 54 percent of the animals treated were treated for external parasites, and about a tenth for infectious diseases.

7. Causes Of Vulnerability To Disasters/Risks

The rate of soil erosion in the wereda varies from a loss of less than 0.50 mm soil-depth per year in the north to a loss of 85 mm soil-depth per year in the southwest. More than 65 percent of sample households acknowledged the presence of some level of erosion.

Shortage of grazing is the most widespread problem as reported by 80 percent of the households in the study. All grazing areas belong to the peasant association, thus all households are using communal grazing grounds. The area considered as communal is in most cases wasteland, unprotected and highly affected by degradation. These overgrazed communal areas would make no significant contribution to livestock resources. Consequently, households earn little or no income from livestock and livestock products. In years of severe drought, movement of livestock to neighboring weredas in North Gonder in search of pasture is common in parts of the wereda.

Deforestation is a serious problem and it has been increasing. The depletion of firewood has currently led to the extraction of roots, which in turn critically affects the soil since it disintegrates the already fragile layers. Ziqualla has been virtually stripped of vegetation. Moreover, reforestation is very minimal.

Family size and the number of farming households are rising. There is over-utilization of land, environmental stress (deforestation and erosion), and migration in search of livelihoods in other areas. Availability and utilization of family planning services is very low.

Variable, low and declining amount rain fall.

High level of illiteracy and low school participation and high drop out rates particularly marked among girls. Illiteracy in rural Ziqualla was 97 percent for both sexes (95 percent for males and 99 percent for females).

Poor access to health services: very low level of health coverage and functional adequacy. Lack of medical staff, unfavorable price of drugs, shortage of drugs, lack of road transport, medical equipments particularly for delivery, location of facilities lacked centrality. Only 5.8 percent received some forms of ANC. Only 1.6 percent of the children were fully vaccinated.

Very poor performance of services and infrastructures. The agricultural extension is virtually nonexistent. The credit service coverage is negligible. The veterinary service is inaccessible for the majority. Road net work is at very infant level. Telephone, postal and electricity services are not totally available.

Poor asset base, rudimentary agricultural technology ,low family planning awareness are reckoned causes to vulnerability.

8. Coping Strategies

The most prevalent mechanisms for coping with food insecurity were decreasing the number of meals per day (adopted by 90.0 percent of households) and decreasing the quantity of meals (adopted by 87.4 percent of households). The other prevalent coping mechanisms were borrowing food or money, sale of livestock, eating wild food, participation in food-for work and employment-generation schemes, and fasting on some days.

Food aid is one of the important coping mechanisms used in the wereda. The wereda needed food aid every year, and the difference between good and bad harvests is reflected only in the volume of food aid needed.

B. CONCLUSIONS

The problems identified could be classified as those that are amenable to policy intervention in the short and medium term and those that are either not directly controllable or that can be influenced only in the long run. The following are recommendations that are identified and can be potentially introduced to positively affect the food security of the population in the wereda.

1. Social services

The study indicates that the woreda population has low education levels and low access to services. Literacy rate as well as school enrollment ratio is very low. The cause for low enrollment is partly the distance traveled by children coupled with the scarcity of food.

- Hence a possible solution is the introduction of school feeding program. Such a program, apart from bringing more children in to school, could also help in improving the nutritional status of children.
- Awareness creation to minimize cultural challenges that undervalue girls' education and early marriage of girls' to reducing male/female differentials in educational attainment; and
- Provision of informal education for adults to increase awareness for farm management and natural resource protection are another areas of intervention.

The study also reveals the prevalence of diseases, which is in effect closely related to the socioeconomic status. The provision of clean water and adequate sanitation are key to reducing the threat of water born diseases. Thus the following are possible areas of intervention.

- Provision of adequate and safe water supply,
- Promoting integrated health services to mothers and children and integrated approach to reducing levels of malnutrition,
- Provision of health services and education in family planning and primary health care,

- Promoting education and awareness creation against communicable diseases and HIV/AIDS.
- Capacity building – in terms of both personnel and equipment are commendable.

2. Environmental rehabilitation

Excessive erosion and resultant poor quality soil have led to declining fertility and declining crop yields, which in turn contributes to food insecurity. Fallowing has been abandoned and marginal lands were already colonized. In the due course accelerated deforestation and loss of other forms of vegetation has taken place. As the result increasing pasture and fuel wood scarcity became a related concern, which aggravate food insecurity. Conversely, reforestation and other conservation practices are minimal. Hence:

- The promotion of an integrated watershed management is a major concern to rehabilitate the natural environment of the wereda;
- Introduction of alternative energy sources;
- Awareness creation for the adjustment of livestock number according to the carrying capacity of the grazing land and improvement in pasture management and use;
- Promoting voluntary resettlements of people form the excessively degraded areas to the better fertile areas in the region; are other possible areas of intervention.

3. Increasing agricultural production

The study has shown that the wereda relies entirely on rain-fed agricultural production. Conversely scarcity of rainfall has resulted in problems of decreasing agricultural production. Hence:

- One possible area of intervention in this respect is the introduction of water conservation and water management methods such as “water harvesting” and small-scale irrigation to help reduce risk of drought and stabilize supplies. This should also incorporate the introduction of “carry and drain” fields to farmers who reside close to water sources.
- The development of community based seed banks is also another area of concern.

4. Infrastructure

As revealed in the study, a range of factors is attributed to the causes of food insecurity of the rural people. One of these contributing factors is lack of access to markets. Particularly all the rural people of Ziqualla wereda are living in highly isolated localities. The situation is much worse for those who live across the Tekezze river for they are surrounded by the river in the east and the steep escarpment of the Semen Mountains in the west. They remain isolated for nearly half of the year due to lack of a bridge to cross the river. For the people in this part of the wereda how to physically reach to markets both for purchasing various goods including agricultural inputs and for selling agricultural products especially livestock is a major challenge.

- Therefore, market access partly through increased infrastructure; particularly construction of intermediate roads (and a bridge at least for people and livestock to cross the tekezze river) could have a strong positive impact to enhancing the livelihood of the people of this area.
- The construction of rural roads is very much critical in ensuring access to this people than any other places.
- ***Credit and non-farm***

The study reveals that non-farm sources provide a significant portion of total income of the sample households. Given the constant threat of drought-led shortfalls in crop or livestock production, the provision of credit and the creation of off farm employment opportunities for diversifying income sources to adopt the hazards and shocks is a possible area of intervention.

Employment creation could take the form of FFW/CFW whereby communities become actively involved in programs that enhance the natural resource base or the area's local infrastructure.

The profile reveals that female-headed households are more vulnerable to food insecurity. They have higher dependency ratios and lower access to agricultural inputs, particularly labor, oxen and capital. Therefore particular emphasis should be given to expanding services that could give a chance to women to participate in alternative income generating schemes.

Finally, for the proper implementation and sustainability of development projects in the wereda, developing the capacity of government employees and community leaders in areas of participatory project identification, design, implementation and monitoring is a major concern.