

Strengthening Emergency Response Abilities

**SERA Project**

**Vulnerability Profile: SUMMARY**

**Tach Gayint Woreda (district)**  
South Gonder 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 goal of SERA project is 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 initially selected the most vulnerable 25 weredas, of which four weredas—Sekota, Ziqualla, Ebinat and Tach Gayint- from two Zones of the region were included in the pilot phase of the project. Following is the results of the study for Tach Gayint wereda conducted during the pilot phase.

#### **1.1 Sampling**

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.

Sample households for household and individual survey were selected based on multi-stage, stratified sampling technique. Households were stratified by agro-ecological zone of the kebeles they live in to enhance the precision of our estimates. The sampling frame of the household survey is made up of a list of households in each sample kebele and its sub-unit got.

Four kebeles and about four hundred households were included in the sample from Tach Gayint wereda. A total of 60 key informants, 15 from each kebele, were selected and four community groups were formed for focus group discussions.

The response rate for the household survey was almost 100 percent. About 95.4 percent of the women and 94.8 percent of the children in the surveyed households were available for anthropometric measurement.

#### **1.2 The study area**

Tach Gayint is located between  $11^{\circ}23^1$  and  $11^{\circ}44^1$  north latitudes, and  $38^{\circ}20^1$  and  $38^{\circ}44^1$  east longitudes. It extends for about 40 kilometers in the north-south direction and about 44 kilometers in the east-west direction and has a semi- compact shape and an area of 995  $\text{km}^2$ . Tach Gayint is found in the Abbay drainage basin. Most of the areas of the Wereda are above 2000 meters above sea level.

The topography of the Wereda consists of gorges and rugged terrain (54 %), mountains (23 %), and plain land (22%), and it is divided into three agro- climatic zones: Woina Dega (63%), Kolla (23.7%), and Dega (13%).

More than 90 percent of its population lives in rural areas engaged in predominantly subsistence agricultural production. Agriculture is predominantly rain fed. Irrigation has not yet received much attention despite potential land and water resources. Above all, a significant portion of the land is degraded of natural and human factors and most households produce hardly sufficient for their own consumption. The situation is further aggravated by natural calamities. Of all the calamities, drought and the resulting food shortage are the major challenging problems causing misery among the population, however.

## **2. Demographic Characteristics**

The population of Tach Gayint in 1994 was 84,158 which in 1999 has increased to 93,703 growing at an average rate of 2.2 percent per annum. About 1.5 percent of the population (in 1994) was migrants. Given the average growth rate remains the same, the population will double itself in about 32 years.

Tach Gayint, in 1999, makes about 7 and 4.9 percent of the zonal area and population, respectively. Crude population density was about 85 persons per/km<sup>2</sup> in 1994. Agricultural density, which was 1.47 persons per hectare of cultivated land in 1994 increased to 1.54 in 1999. Cultivated land per household was 0.7 hectare. Family size and the number of farming households are rising. Dependency ratio in our sample is 96.7

The sample survey includes 275 male-headed households (71.4 percent of sample) and 110 female-headed households (28.6 percent of sample). About 96 percent of the members of sample households are non-migrants at least in terms of lifetime migration status. Average household size is 4.3. Total fertility rate is estimated to be 7.5.

Under-five mortality for our sample is 290 per 1000 live births (214 for females and 369 for males). Infant mortality was 194 (for both sexes) and child mortality is estimated to be 119 (152 male and 88 for female children). Life expectancy at birth is estimated to be 40 years (40 years for females and 39 years for males).

## **3. Community Livelihoods and Food Security**

### **3.1 Land size and Livestock**

More than 90 percent of its population lives in rural areas engaged in predominantly subsistence agricultural production. Agriculture is predominantly rain fed. Irrigation has not yet received much attention despite potential land and water resources.

More than half of the land in the wereda is cultivated. Almost all cultivated land is under annual crops and no land is under fallow since peasants have abandoned fallowing due to shortage of land. About 14 percent of the total area is 'wasteland', and about 6 percent is covered by bush.

The survey result indicates that 35 percent of the households are landless, and those with less than half a hectare constitute 31 percent. According to key informants and group discussion results, the small holder proportion among the population instead of declining has currently increased

The average size of landholding is 0.78 hectares. Data obtained from RRA suggest that the proportion of landless households has remained roughly constant. In addition to the continuous decline in land size, there has been increasing fragmentation of land. More than 70 percent of the sample households reported to have more than two parcels, all of which were put under cultivation during the same period.

Households without ox made up 51.9 percent of sample households. The oxen less proportion is high among households in Woina Dega, and almost nine of the ten female-headed households [85%] are oxen less as opposed to four out of ten among male-head households [38.5%]. On average, a household has 0.70 oxen, 0.55 cows, 0.53 equines, and 1.98 goats and sheep.

### 3.2 Crop Production

The major crops grown in the wereda are teff, wheat, sorghum, peas and beans and haricot bean. The survey result also indicates that cereals are the most dominant crops grown in the area accounting for about 71 percent in 1999.

Comparison of total crop production and annual food need of the sample households clearly shows the severity of food deficits. Average production per household was 364 kgs in 1999, while per capita crop production was 84 kilograms, which is very low compared to the recent DPPC standard of 180 kg per person per year.

Assuming whatever produced during Meher 1999 is available for household consumption it could sustain the population only for six months. As far as food stock is concerned, more than half of the households [60%] considered their stock as insufficient for the remaining period of the year, while 38 percent were out of stock during the survey. Only 17 percent of the households in kola, and 11 and about 10 percent in Dega and Woina Dega, respectively, seem to support their families in terms of food for about a year. Households in Kolla seem more likely to be in a better position so far as food security is concerned.

### 3.3 Income and Wealth

As per survey results, only 11.7 percent of the households reported to have been engaged in non-farm activities, and 68.3 percent in off-farm activities in the twelve months period preceding the survey. The amount of income households earned is very small: the average income obtained was about Birr 93 for both off-farm and non-farm activities. Food-for-work is the single most dominant off-farm activity in which about 90 percent of the households had involved.

Of the total households of the wereda, as viewed by discussion groups, about 36 percent are ranked as very poor, which would be 64 percent including the poor. About 45 percent of the population in Dega, 47 percent in weina-dega, and 41 percent in Kolla is either 'poor' or 'very poor'. Moreover, almost all discussion participants agree that the proportion of the wealthy among the population has declined significantly, while the share of 'poor' and 'very poor' households has been increasing during the last 30 years.

#### **4. Preventive Health, Malnutrition and Morbidity**

Available evidence suggests that diseases like polio, though preventable, are common particularly among children either because of inadequate food intake, improper feeding practices or lack of access to health services.

Among children aged 2-36 months, 38.9 and 37.8 percent have got respectively 3 doses of DPT and polio vaccines, 59.4 percent were vaccinated against measles and 70.8 percent against BCG, while 16.1 percent were fully vaccinated.

Antenatal care in general and Tetanus Toxoid injection in particular is reckoned to be important to the health of pregnant women and their children. The survey result indicates that about 29 percent of the women aged 15-49 reported to have received antenatal care, and only 11 percent have received TT2 injection.

Nearly all [97%] have delivered at home attended by relatives and traditional birth attendants. Only 2.6 percent have delivered at a health facility, which was nearly similar to the zonal figure [3%] and half of the regional average [5.5%] during the same period.

The results show that nearly 65 percent of children were moderately/severely stunted; the weight-for-height figures show that 12.2 percent of children are wasted or severely wasted. And, about 57 percent of the surveyed children are underweight and about a quarter are severely underweight. However, results of the survey show that breastfeeding is a universal practice.

Ten percent of women are stunted. The prevalence of chronic under nutrition was higher among women in the age-group 15-19 years and in weina-dega AEZ. The mean MUAC for women in the sample, 21.8 centimeters, is below the cut-off point. About 32 percent of the women in the sample have MAUC 22.5 centimeters below the cut-off point. Adolescents (15-19 year ages) had higher percentages of moderate/severely malnourished women than other age groups.

Available data indicates that skin disease, malnutrition and pneumonia were the three top reported diseases in the wereda in 1995, 1997 and 1999. The three diseases accounted for 50.2 percent in 1995, 48.8 percent in 1997 and 49.5 percent in 1999. Almost all the diseases are common in kola. Skin diseases, pneumonia and malnutrition affect the most children under 15 and women, while diarrhea is found to be prevalent among children less than five years of age.

The survey, on the other hand, indicates that 40 percent among women aged 15-49 and 64 percent among children under-five were ill two weeks prior to the survey. Head ache, fever, cough and difficulty breathing were cited as major causes of illness among women, while fever, diarrhea and vomiting among children under-five. The prevalence of diarrhea appears higher among children aged 12-23 months. Of all women reported to be ill about 43 percent have either sought advice or treated in health facilities, while the corresponding figure for children was only 12 percent.

## **5. Social Services and Infrastructures**

### **5.1 Education**

Tach Gayint, in 1999 had a total of 26 educational institutions, of which the only secondary school and one primary are found in Arib Gebeya town, the wereda capital, while the remaining are located in rural areas. All the wereda population except some in the southern and western parts of the wereda has physical access to schools with in five kms walking distance.

Enrollment among children aged 7-14 was 15 percent in 1996, which in 1999 has increased to 33.4 percent. Enrollment as well as drop out was higher among girls than boys all through the periods. The 1994 census estimated that the gross enrolment rate of the wereda was 19.3 percent, with higher rate for males (26.1 percent) compared to females (12.3 percent).

Illiteracy computed from our survey data was 85.8 percent (81.8 percent for males and 89.7 percent for females). Among household heads, on the other hand, about 88.6 percent are illiterate, with higher proportion among females [98.2 %] than male [84.7%]

All the ratios [student to institution, class room and teacher] between 1996 and 1999 are low as compared to the standard provided by the Ministry of Education. As per the results of group discussions, the provision of educational service in terms of physical availability has shown improvement through time, and people are very much happy about it.

The performance of the education sector is however presumed to be unsatisfactory. Low school participation and high drop out rates particularly marked among girls and under utilized institutions, to cite few, are major symptoms in this respect. The low economical status of the community, un suitable location of schools, shortage of teachers, books and other facilities are some of the major constraints, which need to be addressed.

Adult literacy program in 1993 was conducted in 130 centers, the number of which has decreased to 21 in 1999. In light of the decisive role non-formal education plays in the lives of the rural community; the program needs to be strengthened in the future.

### **5.2 Health**

In 1999, there were eight health institutions, of which one is a health center, located at Arib Gebeya while the remaining 6 health stations and one health post are found in different areas of the wereda.

There was one health station for 13,386 population in 1999, and one nurse for every 46,000 and one health assistant for a population of 6,737. The overall health coverage of the wereda was 74 percent in 1999.

Elders noted that people used to travel long distances in search of medical services. They are now relived 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 for 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 and Veterinary Services

The agricultural extension program has started in 1996 during which 1.9 and 0.22 percent of the wereda households and land, respectively, were incorporated. Then after the area coverage has increased to 2 percent in 1999, while households involved increased to 26 percent.

Rural credit in the wereda was first introduced in 1997 by UNDP. Then FHI and ACSI started operation in 1998 and about 25 percent of the wereda households were the beneficiaries in 1999. Among households about 36 percent reported to have got credit services in the last five years, which was particularly used to purchase modern agricultural inputs.

In 1996 there were only two veterinary programs during which 27 percent of the households were beneficiaries. The program in 1999 has increased to 12, while the beneficiaries took 89 percent of the households during the same period

In the whole wereda there are seven weekly and complementary markets. Their geographical distribution is somewhat uneven. All peasant associations are within three hours return walking distance to weekly market. A total of 65 percent of the people have access to a weekly market in their locality.

The market service, which would be vital in providing information on marketing, is not so far considered as part of the extension program. Most of the pre-harvest prices are higher than the post harvest prices. The prices of cattle and goats have been declining since 1995/6., however.

### 5.4 Sanitation and Potable Water Supply

Only 3 percent of housing units have corrugated iron sheets for their roofs. More than 86 percent of the housing units have no windows and 98 percent no toilet, and only 16 percent of the sample households get water from protected sources. The 1994 population and housing census, on the other hand, indicate that 21 percent of the wereda population had access to clean water.

Discussion participants have also emphasized the need to improve the supply of potable water as they have been suffering from water related diseases. Existing water wells are reported to be inadequate, inaccessible and susceptible to contamination particularly during the rainy season.

### 5.5 Road and Communication

Tach Gayint is almost devoid of transport and communication infrastructure. The wereda has 19 Kms all weather road and another recently constructed un-surfaced feeder road

with a total length of 48 Kms. Excluding the un-surfaced road, it has a road density of 2Kms/100Km<sup>2</sup>. Telephone and postal services are available only in Arib Gebeya,, the Wereda Capital. The telephone is of manual type, and limited to inter-urban calls. Electricity is not available in Tach Gayint.

## **6. Disaster Type and History**

Gayint Wereda has been suffering from frequent and severe disasters for many years now. Drought, epidemics, pests and flood are reportedly the major disastrous events. Drought, which was usually followed by excessive food shortages and epidemic, has been the most serious disaster responsible for the loss of human and animal populations.

Drought is said to have occurred on the average every 2 to 3 years particularly after 1966. The degree of drought severity is reported to be different from year to year and place to place. It is more severe in Dega and Woina Dega areas as compared to Kolla. The low severity of drought, according to discussants is related to resources differentials, that is, people in kola areas have relatively more livestock resources, which could be sold to buy food grains and in a way offset the crises for a limited period of time. The types of households who are most affected by drought include: those without oxen and livestock, with large family size; those who did not have grain and/or cash reserves, which live in Dega as well as female headed households. The elderly, the handicapped, children and nursing mothers are often the ones hard hit the most during such moments.

Crop pest/disease is an important hazard in Tach Gayint. According to elders pest attacks has always been severe during the period of drought. Insects and pests were also cited as one of the major contributors to food shortages households faced in the last ten years. Interview results also indicate that pest attack is higher in kola areas. Lack of pest resistant seeds and the ever-increasing price of insecticide are termed responsible for the overall severity of pest attack.

Severe human and animal epidemics have also occurred repeatedly. Human epidemics constitute a major hazard in Tach Gayint because of the low level of environmental or individual hygiene and preventive public health services.

Epidemics both human and animal appear to be severe in kola areas as compared to those in Dega and Woina Dega. Usually the most affected are very poor families, the illiterate, malnourished children and mothers as well as the elderly.

Information on veterinary services suggests that infectious livestock diseases are widespread. Lack of adequate health infrastructures, lack of medical equipment and medical personnel, shortage of drugs and inaccessibility are some of the factors that further worsened the situation.

Floods are also common among those who live near riverbanks, at bottoms of mountains and on rugged terrain.

The war fought in this part of the country had also intensified the suffering of the community.

Households' resilience to drought and epidemics has declined since the last 30 years. The decline is further attributed to asset depletion, population increase, animal epidemics,

pests, declines in farm size and farm output, unfavorable land for agriculture and lack of opportunities for non-farm activities. The overall vulnerability of the society to famine has therefore increased instead of declining.

## **7. Causes of Vulnerability to Disasters/Risks**

Rapid population growth combined with backward technologies result in undue pressure on natural resources and lead to chronic vulnerability. Participants of community group discussion asserted that family size and the number of farming households is rising. Population increase is also identified as a major factor behind over utilization of land, environmental stress and migration in search of livelihoods in other areas.

The rate of soil erosion in the wereda varies from 31 tons per hectare of land per year to 200 per hectare per year. There was severe soil erosion in all AEZs since the 1970s. Most household heads agree that the quality of soil is deteriorating.

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. Tach Gayint has been virtually stripped of vegetation. Moreover, reforestation is very minimal. The survey result indicates that more than 70 percent of the households use dung as fuel for cooking

Shortage of grazing is the most widespread problem reported. Most land used for grazing belongs to the peasant association or are communally owned. The survey result also indicates that communal areas are located on highland slopes and valleys, which are the main grazing areas in the wereda. Repeated use of highland slopes and valleys for grazing is much likely to increase the degradation of the already depleted land. The area considered as communal is in most cases wasteland, unprotected and highly affected by degradation.

Ever-increasing population size, increasing environmental degradation, low and erratic rainfall, high level of illiteracy/little knowledge, entirely rain-fed subsistence agriculture, depletion of resources/asset base of the society are considered as the root causes of vulnerability to different disasters. Others include: rudimentary agricultural technology, low reproductive health care & low family planning awareness and utilization/KAP; inadequate infrastructure and social services [in-terms of quality, quantity and coverage] and increasing environmental degradation.

## **8. Coping Strategies**

Climatic variation in rain fed agriculture is not only common but also induces a number of undesirable consequences in the income and nutritional pattern of households. Therefore households adopt a variety of coping strategies to offset the effects of production shortfalls and other hardships.

Nearly all households have reported having adopted at least one coping mechanism. The most prevalent mechanisms for coping with food insecurity were decreasing the number of meals per day (frequently adopted by 82.7 percent of households) and decreasing the quantity of meals (adopted by 82.9 percent of households).

Most households seem to reduce the number of meals and quantity of food when the problem of food shortage starts, while some people have used them as mechanisms only when the problem becomes severe.

Other strategies in order of the frequency being used include: participation in food-for-work program, sale of livestock, and not eating food during some days, eating unwanted food and wild fruits, sale of agricultural tools and migration. Looking for jobs and borrowing money are in-fact used by few households as a way out to food shortages. However, it appears that many households do not seem to entertain particularly loan to fight back their problems. Due to a general depletion of resources, the proportion of the wealthy among the population has declined, and so it is very difficult to find someone to borrow money from.

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. Generally, food aid takes the form of food-for-work programs.

## **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 can be potentially introduced to positively affect the food security of the population in the wereda.

### **1. Social services**

Rural people particularly children always suffer from diseases like diarrhea and other waterborne diseases simply because of lack of access or the non availability of potable water supply, among other things. Making more water points available in appropriate locations is an important step in this respect. It would also reduce the time needed to fetch water and can benefit women.

The provision of health care significantly reduces not only the susceptibility of the poor to diseases but also the economic and health cost of illness and injury.

The study indicates that school enrolment ratio is low and that the cause is partly the distance traveled by children and a possible solution is the introduction of a school-feeding program. Such a program could also help in improving the nutritional status of children.

Improving road transport, marketing and distribution facilities are also some areas of major concern that largely require the attention of government.

Reducing population growth is important among others to mitigate the causes of vulnerability and for alleviating poverty as well. It is therefore important that great attention needs to be drawn to the provision of reproductive health care services.

## **2. Improve Agricultural Production and Productivity**

Crop diversification, selecting the appropriate variety of crops [i.e., drought and diseases resistant, early maturing and high yielding], improving the method of cultivation and promote traditional pest management are areas of critical concern.

There are rivers and small streams in the Wereda that could be put into maximum use without even using modern irrigation systems. Great attention should be drawn in this respect so as to assist the peasantry to increase production and further improve food security.

An improvement in the livestock sector is important in light of the vital role it plays in the lives of rural communities. Proper grazing practices, forage production, adequate and timely supply of drugs at affordable price or free of charge, and the introduction of hybrid cattle are some of the areas that need due attention if the present state of livestock rearing is to be changed for the better.

Appropriate extension services have to be expanded and peasants should be exposed to alternative produce. There is a need for a particular emphasis on market extension services and further development of infrastructure.

Credit institutions that are well adapted to local situations and further tuned to the interests of the community are necessary. Furthermore the price of agricultural inputs is often beyond the reach of the poor, and this explains the need for subsidizing agricultural inputs till peasants become self sufficient.

## **3. Environmental rehabilitation**

Degraded wasteland could be rehabilitated if enclosed for sometime without human and animal intervention. Resettlement programs would pave the way for such interventions on the one hand and ease population pressure on the other.

The integration of conservation with farming activities is probably an important step to protect the environment and further improve the productivity of land. The question of sustainability is equally important as well.

## **4. Promote income diversification and Employment Generating Opportunities**

In areas like Tach Gayint the poor has only his labor as the main source of income, which is largely dependent on the availability of employment opportunities. It is therefore important to make the poor have access to income generating activities so that they could augment their household income and further widen their coping mechanisms.

As a whole, to address the underlying causes which make rural people vulnerable to a number of hazards strategies need to focus on eliminating poverty through rehabilitation and expansion of essential services such as primary education, adult literacy programs, preventive health care, clean water supply; improved access to land, credit, markets, and protection against drought through the introduction of irrigation [traditional and modern] as well as creating more wage employment for the poor and landless. Due regard also

needs to be given in this respect to women household heads in particular and to all women in general.