

Strengthening Emergency Response Abilities
SERA Project

Vulnerability Profile: SUMMARY

Wuchalena Jido Woreda (district)
North Shewa Zone
Oromiya Region

2000

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A. SUMMARY OF MAJOR FINDINGS

1. Introduction

To identify the vulnerable households, individuals and communities, SERA project has used two main sources of information; namely, the Secondary Data Tabulation Sheet (SDTS) and the primary data that was directly collected from sampled farmers associations. The primary data has again two parts: the household and individual questionnaire and data collected using the Rapid Rural Appraisal (RRA) method. Employing this latter data source, the data has been collected from key informants and community group discussants.

The secondary data is collected from the available records of government offices concerned both at district and zonal levels. The primary data (the household and the RRA data) are directly collected from the field using survey techniques. The primary data especially the household survey is a cross-sectional data that may not clearly show levels and trends over time. The RRA data with proper care in analysis can somehow show trends and levels. However, the secondary data as it deals with the levels and trends over time can enable the analysis of levels and trends whenever it is complete. The problem of the secondary data is that, on some issues, it is not complete or available in the way the data collection sheet required. In such cases, whenever possible, adjustments are made to get the real required data. In spite of the efforts made to get complete data still on some issues like data on landholding size over time, income and employment, potable water supply and livestock disposal during stress, etc, is not collected as required.

In the previous chapters, the major issues are: who are the vulnerable groups, where the vulnerable groups found, how they are becoming vulnerable to specific disasters, when they are becoming more or less vulnerable to risk situations and why they are becoming vulnerable, and are identified and analyzed. So far, different chapters (three to seven) were written on the basis of information from different sources. Chapters three and four are written on the basis of secondary data, chapters five and six are based on the RRA data (key informant and Community Group Discussion) and chapter seven is based on the primary household data. This means that different chapters are written on the basis of analytical result of the information from different sources. In fact, on some similar issues responses are collected from different sources and analyzed independently and presented in independent chapters. This means attempt has not been made so far to integrate the facts collected by ways of critically comparing and pinpointing the most reliable data so that the reader could get a vivid impression of the findings of this vulnerability profile research.

The main purpose of this chapter is to integrate facts derived from the different data sources by triangulating from more than one sources to find the most reliable ones. With regard to the five leading research questions (what, where, when, why and how), on similar issues the given responses are analyzed and presented in different chapters. The levels and statistical trends indicated in different chapters on similar or same issues has to come to a point where the most reliable/dependable data is selected for final conclusion and recommendations. To do so, the different data information sources have to be critically compared and evaluated. Hence, in this chapter, analytical outputs from

different sources related to the same issue are compared by triangulating data/facts from different information sources. The data/facts found to be the most reliable are considered and less reliable data/facts are discarded.

2. Physical and Environmental

2.1. Population Pressure, Natural Resources and Environmental Stress

The natural resources and the overall environmental conditions found in a given area/region in one way or the other, are the reflection of the socio-cultural, economic and technological development reached by the people living in that specific area/region. As human society advances in cultural and technological development, the capacity to alter the natural resources (negatively or positively) increases and this in turn affects the natural environment. With increasing human population living over a given area, there existed the need to explore or use unused resources in the environment. To do so, the existing environment is affected either positively or negatively.

In short, to meet their needs, people interact with natural environment and this causes change of the environment and climatic condition, which in turn affect crop production, and the very existence of people in the area.

At the mid of year 2000, the total population of Wachale-Jidda is estimated to 117,340 people. Of the total area of the district, about one-third is cultivated. From 1984-1994 (inter-Censal) populations growth rate is 1.8 percent and the population growth rate increased to 2.2 percent between 1994 and 2000. Not only population growth rate, but the dependency ratio has also increased from the level of 1994 (98.3 percent) to 110.5 percent in the year 2000. This ratio is greater than the regional rural dependency ratio of 1994, which were only 103.2. Agricultural and crude density kept on increasing with increasing population pressure, landless and land short (less than 0.5 hectare) households. Landless households increased from the level of the time of *Darg* (9.8 percent) to 11.9 percent in, 2000. At the same time, the current land short households are 16.2 percent of the total surveyed households.

As population pressure increases, the demand for more land for crop production increased and as a result every piece of land suitable to grow crops is being cultivated. The expansion of additional cultivated land mostly comes from grazing lands. Hence, grazing land decreases and at present it is 6.2 livestock head per hectare. Due to this fact, river valleys, flat lands having drainage problems has been gradually converted into croplands. These conditions have increased the risk of crop failure caused by frosts and water logging.

Increasing population pressure, dependency ratio, agricultural density, landlessness and increasing environmental deterioration (soil fertility, erosion and climatic change) will definitely create stressful situations that might force people to migrate out in search of better social or economic opportunities. In this connection, about 28 percent of the households have reported to have at least one member of their household that permanently migrated out during the last 10 years. Similarly, from 15.6 percent of the households, there is at least one seasonal out-migrant in the past year.

With increasing cultivated land, grazing land, forest and woodland decreased. Not only this, cropland is encroaching to steep slopes and very fragile lands that are less

productive and this resulted in environmental degradation such as severe soil loss through erosion and climatic change. The household survey showed that 57.4 percent of the households reported to have observed severe change in soil fertility on the main plot since they started farming. Similarly, 50.3 percent of the households confirmed that there was severe change in level of erosion since they started farming.

The rate of soil erosion, especially in the midland areas drained by tributaries of Mogor and Jama rivers is very high. Though it is not easy to get how much soil is lost every year through erosion, it is undeniable that running water every year carries a tremendous amount of topsoil away.

In sum, it can be said that Wachale-Jidda is one of the districts experiencing somewhat increasing dependency ratio and agricultural density, landless and land short households, severe change in soil fertility and high level of erosion. The cumulative effect of all these factors could definitely cause production shortfalls and food insecurity.

Table 1: - Indicators of population pressure, natural resources and environmental change Wachale-Jidda, 2000.

Topic and Indicator	Source	Specific Indicator	Years			Change over time
			1984	1994	2000	
1. Population Pressure						
1.1. Dependency ratio	CSA	Rural District	-----	98.3	110.5	
1.2. Crude density	CSA	Person/km ² of district's total area		85.6	98	
1.3. Agricultural density		Person/km ² of cultivated area	262.2	283.5	316.6	
			Current level by AEZ			
2. Pressure on land			Highland	Midland	District Total	
2.1. Percent HHs own less than 0.5 ha.	HHS	Percent land owned	16.9	13.0	16.2	
2.2. Grazing land	HHS	Livestock per ha.	6.3	5.8	6.2	
3. Migration						
3.1. Permanent migration	HHS	% HH with	28.3	26.0	27.9%	
3.2. Seasonal migration	HHS	% HH with	16.3	11.8	15.6%	
4. Land degradation						
4.1. Soil erosion	HHS	% severe change in soil fertility	53.0	79.0	57.4	
4.2. Change in soil erosion	HHS	% severe change in level of erosion	45.2	76.0	50.3	

Source: CSA and Household survey of SERA Project – February/March 2000

3. Access to Services, Infrastructure and their Quality

3.1. Educational Conditions

The literacy status is a proxy indicator of level of socio-cultural development of a society. Education is a tool in behavioral change of people. It creates awareness, in depth analysis about the environment one is living in. As such, educational condition of a society has direct relation with production and/or generating income required for sustaining life. For instance, differences in educational level of households can create

differences in accepting newer innovations and adopting them for improving their livelihood. It can also influence the attachment of individuals to backward traditional beliefs and superstitions.

In line with the ideas cited above, assessing the educational conditions of society is of paramount importance to analyze the vulnerability of that society to specific disasters. Education as a liberator from backward thoughts can equip people with some means and techniques of dealing with specific risk situations and successfully overcoming the risk situations.

As analyzed from different data sources (CSA, secondary and household survey data) of the district, the educational performance of Wachale-Jidda, though increasing overtime, is at its lower stage. The literacy status rose from 17.9 percent in 1994 to 23.0 percent in 2000 for all male population 7 years and above. But that of females declined from 7.9 percent in 1994 to 7.3 percent in 2000. Male-Female literacy ratio rose from 2.3 times to 3.2 times during the years mentioned above. This clearly shows that with regard to literacy, females are in a disadvantageous position.

The enrollment of children aged 7-14 as indicated by CSA data of 1995/96 and 1999/2000 was found increasing over time. Male-female ratio of those enrolled declined from two times in 1995/96 to 1.8 times in 1999/2000. As can be seen from figures of enrollment, a significant proportion of school age children is out of school. Recently, the number of primary schools has increased to 26 but the number of children attending schools is not as high as one expects. Student- teacher ratio worsened from 16.1 percent in 1994/5 to 29.0 percent in 1998. This ratio is not high when compared with the total school age children of the district.

The number of existing primary schools may not be large enough to accommodate all the school age children of the district if every school age children are sent to school. But the problem is not only unavailability of schools in the close proximity. The possible reasons for a larger percentage of school age children remaining out of school might be related to other socio-traditional and economic factors. The economic capacity of parents and their awareness to send children to school are the prime factors for not sending children to schools. In addition, traditional inhibitions like keeping elder sons away from schools and even if somehow started learning forcing to withdraw. Female children are not traditionally allowed to go to school. These factors really affected the school attendance rate of school age children of Wachale-Jidda district in general and that of female children in particular.

On the other hand, as analyzed from the secondary and RRA data, from among those children enrolled, the dropout rate is very high. Both sources of data almost show similar results that relatively more female students are dropping out than males. More female dropouts most likely related to formal marriage arranged by parents and abduction.

According to district education office, starting from 1996 onwards, despite strong agitation of parents to send their children to schools, only about 10 percent among school age children were sent to schools. Because of fear of abduction and less initiation of parents, only insignificant number of girls is sent to schools. Even from those girls enrolled, the over whelming majority dropped out from school due to abduction and formal marriage. Besides, it was reported that in recent years, due to severity of famine

caused by both spring (*Balg*) and main rain (*Makar*) crop failure, many parents forced their children to drop out and hire them out as livestock keepers. This was the strategy they used to cope up with the famine situations.

In relation to dropping out of children from the school, in 1999/2000 academic year, it is reported that from primary school (from grade 1-8) 36, 23, 17, 23 and 11 percent are drop outs due to famine, change of residence, epidemics, child labor and death, respectively. This means that more than half of the dropouts is due to famine and epidemics.

The functional adequacy of educational institutions is also assessed using RRA techniques. It was indicated that during the last 10 years, from among those having schools in their farmers associations, 75 percent of the respondents reported that it is improving and 25 percent deteriorated.

Table 2: - Indicators of Access to Services and Infrastructure - Wachale-Jidda, 2000.

Topic and Indicator	Source	Specific Indicator	Years		
			1984	1994	2000
1.Primary Education			1984	1994	2000
	CSA	Male and Female 10+ M=Male, F=Female	----- -----	M = 17.9 F = 7.9	M = 23.0 F = 7.3
1.1. Literacy	HHS	Male and Female 7+ M=Male, F=Female B=Both	Current levels by AEZ		
			Highland	Midland	District Total
			M = 22.2 F = 7.4 B = 14.6	M = 26.7 F = 6.6 B = 17.0	M = 23.0 F = 7.3 B = 15.0
1.2. Enrollment	MOE	% Male 7-14 % Female 7-14	1995/6 M = 18.6 F = 9.2	1996/7 M = 23.8 F = 10.8	1998/9 M = 33.0 F = 8.4
1.3. Dropout	MOE	Entered grade 1 didn't complete grade 4, M/F	1995/6 44.4/60.3	1996/7 39.1/62.5	1998/9 40.0/51.3
	RRA	Entered grade 1, didn't complete grade 4, M/F	Male=49.7 Female=64.0 Total=51.1	Male=50.0 Female=50.0 Total=50.0	Male=49.8 Female=60.5 Total=50.8
1.4. Student /teacher ratio	MOE	Number of student/teacher	16:1	23:1	29.0
1.5. Student/classroom ratio	MOE	Number of students per classroom	1995/6 31:1	1997/8 48:1	1998/9 53:1
1.6. Functional adequacy	RRA	Change over time last 10 years Current Status	Improved = 3 FA Good=1	Deteriorated = 1 FA Poor = 3	
2. Agricultural Extension			Years		
			1995/6	1996/7	1998/9
2.1. HHs covered	MOA	HHs involved over total farm HHs	3.3	3.7	40.0
2.1. DA/HH ratio	MOA	No. of HHs per DA	1430:1	868:1	651:1
2.3. Use of Agriculture/ Livestock service	HHs	Received in last 5 years	Current levels by AEZ		
			Highland	Midland	District Total
			22.7	34.0	24.6
2.4. Use of credit service	HHs	Received in last 5 years	8.0	27.0	11.211.2
3. Road access			1994/5	1996/7	1998/9
3.1. Population access	SDTS	% pop. lives within 7.5			

Topic and Indicator	Source	Specific Indicator	Years		
to all weather road		km	19.2	20.7	21.0
3.2. Road density	SDTS	Pop. per kms of asphalt and gravel road.	1994	1997	1999
			2133	2283	2390
4. Basic Services	RRA	Average weighted score as % total possible	Highland	Midland	District Total
			45.7	45.0	45.5
5. Health related					
5.1. Preventive Health	MOH	% TT2 coverage for pregnant women	1994	1998	
			8.6	16.3	
	HHS	% children (12-23 month) immunized	Highland	Midland	District Total
			79.7	100.0	82.7
			DPT	-----	5.3
			BCG	-----	1.3
	MOH	Child (0-59 months)	1998	DH, 2000	
			52.5	48.0	
	HHS	Child (12-23 months)	Highland	Midland	District Total
			1.6 OR 7.5	0.0 OR 4.5	1.3 OR 7.0
5.2. Curative Health	HHS	% ill women sought medical treatment	30.0	37.3	31.3
		% ill children sought medical treatment	16.0	23.9	17.4
6. Family Planning	HHS	% ever used (women ever married (15-49)	1.2	-----	1.0
		% Current use (women currently married and not pregnant- 15-49)	0.3	-----	0.25
7. Environmental Health	HHS	% population with access to potable water	14.6	2.1	12.5
	CSA, Rural	% population with access to potable water	1994		1998/9
			19.6	-----	19.8 [@]

Source: - CSA, District Agricultural and education office, and SERA Household Survey Feb/March 2000.

[@] = Mine and Water Source Development Department

3.2. Agricultural Extension and Infrastructural Services

Agricultural extension service program is a recent phenomenon. According to the report of Agricultural Development Office of Wachale-Jidda, the number of farming households involved in extension program increased from 3.3 percent in 1995 to 40 percent in 1998. The change over time is significant and farmers covered by the program are assumed to have benefited much. It is not only agricultural extension coverage but also the number of development agents (DAs) is also found growing over time. Hence, household-DA ratio is decreasing from 1430:1 in 1995 to 651:1 in 1998.

On the other hand, the household survey revealed that only about 25 percent of farming households are found receiving agricultural production enhancing services like fertilizers, selected seed, etc. In addition, 11.2 percent of the households reported to have used credit services during the last five years. Hence, it can be said that, in Wachale-Jidda, despite shortage of convenient farmlands in expanding agricultural extension coverage due to water logging, the household covered by the program is significantly large.

3.3. Other Infrastructures

Wachale-Jidda district is one of the largest districts of the zone in terms of land area. But the road network is so poor and only about 20 percent of the population is accessible to all weather road within 7.5 kms distance. The increase in accessibility of the population is not also growing significantly to bring meaningful changes in the area. The road density is 1km/ 24.9 km² or 1km/2133 people. This shows that in Wachale-Jidda, road network is very poor.

The availability of basic services is also poorly developed and the majority of the population can not get adequate services. As the average weighted score of the basic services indicated, the population of the study area gets only 45.5 percent of the total service they should get.

4. Diseases and Nutrition

Disease prevalence rates and the nutritional status of a population are indicators of socio-economic development levels of that specific population. The availability of service facilities and access to them are factors that affect the health situation.

4.1. Diseases

As the household survey showed, there are numerous diseases prevailing in the study district. Of the several diseases the top three most prevalent diseases in Wachale-Jidda are pneumonia, intestinal parasites and diarrhea accounting for 26.5, 16.1 and 11.4 percent, respectively. Intestinal parasites and diarrhea are usually associated with unsafe drinking water. This survey showed that only 12.5 percent of the surveyed households have access to potable water. The Zonal PEDD has also estimated population of Wachale-Jidda that has access to potable drinking water to be 19.8 percent. The key informant interviews and community group discussions showed that the district has serious problem of getting safe drinking water. Hence, the household survey's result seems more realistic and reliable.

Regarding the prevalence of illness in the last two weeks, 31.3 percent of women and 17.4 percent of young children have reported to be sick. Out of the women that were sick only 9.9 percent sought medical care in the last 2 weeks. This survey clearly showed a significant proportion of interviewed women in the reproductive age are sick and only few of them got medical treatment. This is partly related to an availability of the health facilities in shorter distances from some farmers associations and secondly it might be related to superstitious thoughts that make people to go to traditional healers instead of modern treatment. But the limited number of health institutions and their capacity in terms of manpower, medicament and budget constraints were the prime factors for lesser number of sick people seeking modern treatment for illnesses.

The preventive health coverage is also very low as compared to Oromiya's figure of the 1998 Health and Nutrition Survey and Ethiopia DHS, 2000 Survey. As the household survey showed young children's (12-23 months) BCG immunization coverage was insignificant and only 1.3 percent. The figure for Oromiya according to the 1998 Health and Nutrition Survey was 52.5 percent. According to the secondary data, the immunization coverage for 1998/1999 children under five was 74.2 percent. This was inflated because of the recent polio eradication campaigns. Beside the RRA data showed

that BCG coverage for under-five children is 40.7 percent. The figures cited above came from different sources and the household is only for children 12 – 23 months. Hence, these are not comparable.

For rural communities where there are limited health institutions and the awareness of the people on seeking modern medical treatment is very low, the figure for Oromiya seems exaggerated and at the same time, the figure obtained in this survey seems to be under reported for BCG immunization coverage.

Of the ever-married women 15 – 49 who have ever used any method to delay or totally control birth was only 1.0 percent. But the figure for current use of a method was still very low and only 0.25 percent. This means that the district's contraceptive prevalence rate is very low as compared to the current regional rate that was about 7 percent.

In short, Wachale- Jidda is characterized by lower percentage of stunted and wasted children as compared to Oromiya's total, higher under five mortality, lower expectation of life at birth, much lower percentage of BCG immunization coverage and lower percentage of the population having access to potable water and lower ever-use and current use of contraception.

4.2. Nutritional Status of Children and Women

As measured by level of stunted and wasted children, the nutritional status of children are again one of the indicators of food availability and health condition of the population under consideration.

Table 3: - Indicators of Health and Nutrition of Mothers and Children as computed from Different Sources- Wachale-Jidda, 2000.

Topic and Indicator	Source	Unit of analysis	Current level by AEZ		
1. Nutritional condition			Highland	Midland	District Total
1.1. Young child malnutrition	HHS	% stunted (-2 SD/-3 SD) 6-36	43.4/17.0	48.5/18.2	44.2/17.2
	HHS	% wasted (-2 SD/-3 SD)	5.4/1.6	0.0/6.1	5.6/1.4
1.2. Women's under Nutrition	HHS	% very thin and thin women	3.0/34.2	2.8/25.0	2.9/32.7
2. Mortality	HHS, Rural	Under 5 mortality per 1000 M = Male, F = Female and B=Both	----- ----- -----	----- ----- -----	M = 256/1000 F = 139/1000 B =195/1000
	CSA, Rural	Under 5 mortality per 1000*	1994 173/1000	DH, 2000 193.8/1000	
3. Life expectancy	HHS	Life expectancy at birth	Male	Female	District Total
			41.7	54.7	
	CSA,	Life expectancy at birth	Years		
			1994	DH, 2000	SERA, 2000
			50.4 (Oromia)	52.7 (Oromia)	48.4 (W.Jidda)
4. Diseases					
4.1. Top three diseases	MOH	% top three disease	1998/99		
		1. Pneumonia	27.5	-----	-----
		2. Intestinal parasite	16.3	-----	-----
	3. URTI	12.5	-----	-----	
	HHS	% top three disease	Highland	Midland	District Total

Topic and Indicator	Source	Unit of analysis	Current level by AEZ		
		1. Measles	22.9	78.6	38.3
		2. Malaria	28.6	7.1	22.4
		3. Typhus Fever	20.0	7.1	16.3
5. Family planning	HHS	Ever use (ever married women (15-49)	1.2	-----	1.0
		Current use	0.3	-----	0.25

Source: CSA, Zonal PEDD, District health office, and SERA Household Survey Feb/March 2000.

* = The figure is for rural Oromiya

With regard to wasting of children, this survey showed a lower figure as compared to the Health and Nutrition Survey of 1998 and Ethiopia DHS, 2000 for Oromiya. This survey being purely rural and less than that of Oromiya's (both rural and urban) indicates that children of the study area are less likely to be wasted despite the prevalence of food shortages of the district. This might be related to milk and milk product supplementation and/or better health.

The household survey indicated that 32.7 percent of the women 15 – 49 covered by this survey are under nourished. Though there are no comparable figures made by other studies with regard to women's malnutrition, the percentage of malnourished women seems big enough to be considered as severe.

The level of mortality in general and under-five mortality in particular is another indicator of the Health and Nutrition condition of the population under consideration. When the 1998 health and Nutrition Survey and Ethiopia DHS, 2000 are compared it shows an increasing trend of under five mortality. The result of SERA rural survey of 2000 is almost equal with the Oromiya's figure of Ethiopia DHS, 2000. Both surveys are made during the same year and the similarity of the their figures for under five mortality might arise from the similarity of mortality situation in Oromiya.

The expectation of life at birth is a reflection of level of mortality and as such this survey showed that life expectancy at birth is 48.4 years. This figure is lower than the 1994 census and Ethiopia DHS, 2000 for Oromiya. The declining life expectancy rate is another indicator of the vulnerability of the population to the risk of death.

5. Food Insecurity and Poverty

5.1. Land

Land ownership is one of the most important indicators of the economic status of rural households. In agrarian societies like that of Wachale-Jidda, access to land is the major indicator of the capacity to produce food crops and have access to food. Mere ownership of land may not by itself show the level of food security of the household. Food security situation of a household is determined by a combination of factors like climatic conditions, size and quality of land, ownership of means of labor (oxen, working farm tools, etc.) inputs and the capacity and number of household members engaged in crop cultivation, age and sex of head are the major capacity indicators.

In Wachale-Jidda, with increasing population pressure, the agricultural density is ever increasing. This results in ever increasing land shortage and landless households. Landlessness is increasing as compared to the time before the fall of Mengistu's regime.

Hence currently, the household survey indicated that about 12 percent of surveyed rural households have no land at all. A significant number of agrarian households having no access to land would mean these households could have more chance of facing food shortage as compared to those having land. This does not mean that all households with no own land face food shortage equally. Landless households renting-in enough cultivated land may not face food shortage as those landless households not renting-in land and produce crops.

Table 4: - Indicators of Food Insecurity and Poverty. Wachale - Jidda, 2000

Topic and Indicator	Source	Specific unit of analysis	Current level by AEZ		
			Highland	Midland	District Total
1. Land owning and Utilization	HHS	Percent landless	12.2	10.0	11.9
		Ave. crop land cultivated/HH	1.05 ha.	1.01 ha	1.04 ha
	MOA	Average crop land and Grazing/HH in hectare	Before 1974	1974-1991	1997/1998
			-----	-----	2.0/1.9
	RRA	Percent landless	10.7	9.8	-----
	MOA	% very small land owned (less than 0.5 ha)	17	21.8	-----
	HHS	% very small land owned (less than 0.5 ha)	Highland	Midland	District Total
16.9			13.0	16.2	
HHS	% HHS with 2 or more parcels cultivated plots	88.3	88.9	88.4	
2. Animal ownership	HHS	% oxless	38.8	39.0	38.8
		% HH own 1 ox and below	58.2	68.0	59.9
	HHS	TLUs per capital/per HH	0.68/3.82	0.43/2.47	0.64/3.59
	MOA	TLUs per capital and per HH	1996/97	1998/99	
1.5/8.1			1.6/9.2		
3. Wealth and Assets	HHS	% < 600 Birr/HH	Current level by AEZ		
			Highland	Midland	District Total
			32.1	33.0	32.3
RRA	% Ranked very poor	32.3	30.7	32.0	
4. Income and poverty	HHS	% HH Income sufficient 3 months or less	49.6	9.0	42.8
	HHS	% HH income much too small to make ends meet	79.9	84.0	80.6
	HHS	% perceived poverty last one year before survey	44.6	41.0	44.0
5. Food production	MOA	Mean per capital crop production (in kgs)	1996	1997	1998
			1996=72.3kgs	103.3 kgs	177.1 kgs
	HHS	Mean per capital crop production (in kgs)	Current level by AEZ		
			Highland	Midland	District Total
			45.64	46.73	45.80
6. Food Insecurity	HHS	Current % under 3 months after February	81.3	69.8	77.4
	HHS	Chronic % perceived food insecure last 10 years	94.8	98.0	95.3
7. Market access	MOA RRA	% FAs within 3 hrs walking to a weekly market	All have access to it	All have access to it	All have access to it

Source: Household Survey of SERA Project and District Agricultural Development Office- February/March, 2000.

With regard to smallness of landholding (less than 0.5 ha), because of land redistribution more percentage of households have small landholding as compared to the *Hailesillasie* and current regime. Currently about 16.2 percent of the surveyed households have either no land or have very small landholding. Small landholding or land shortage means inability of households to produce the required amount of food to meet the needs of their family.

The population pressure, as mentioned earlier, has a direct relation with per capita landholding and per capita food crop production. The secondary data collected from Agricultural Development Office showed that in 1997/98 the per capita crop land were 2.0 and 1.9 hectares, respectively. This seems overestimated and the household survey showed that per capita cropland was 1.1 hectare. Since the household survey's information collected on land holding directly from each sampled farming household, it seems more realistic than the secondary data simply estimated by Development Agents (DAs).

The household survey revealed that more than 88 percent of the households in Wachale-Jidda has two or more parcels of cultivated land indicating high fragmentation of croplands. Fragmentation has disadvantages from the point of view of time loss in traveling from one parcel to the other, and in preventing crop loss caused by birds, rodents, and other agents of crop destruction. In general, more fragmented croplands create management problems and this results in unnecessary crop losses caused by lack of proper care.

During the household survey, farmer respondents are very suspicious in telling the right amount of crop they produced one year prior to the survey in anticipation of getting relief food aid. Despite all the suspicions, the enumerators have tried to get the right figure for the amount of crops they produced. Accordingly, the per capita food crop produced one year prior to the survey is found to be 50.0 kilograms. Based on the secondary data, the estimated per capita crop produced for three consecutive years prior to the survey was by far greater than that of the primary data. The possible reason for this difference might be attributed to the fact that secondary data was based on mere estimation of the crops before harvesting most probably by inexperienced DAs. The figure did not take into consideration the crop loss before and after harvesting by different agents. Thus, the household survey result since it is based on the exact amount of crops produced as reported by the households seems more or less close to the reality than the secondary data results simply based on approximations.

As mentioned, in the previous chapters, because of abundant grassland, Wachale-Jidda has large livestock population. As calculated from two sources of data (secondary and household survey), the TLU per capita and per household of the two sources are not compatible. The TLU per capita and per household that is calculated from the secondary data seems a little bit exaggerated and the one calculated from the household survey, which was smaller than the result of the secondary data seems closer to the real figure considering 10.7 percent of households with no domestic animal at all. This is 16.0 percent in midland and 9.6 percent in the highland.

Oxen ownership is one of the main indicators of economic status of farming households as it is a proxy indicator of the capacity to produce food crops and have access to food. It

was indicated in the household survey that 38.8 and 59.9 percent of households surveyed in Wachale-Jidda were oxless and ox-short, respectively. Only 40 percent of the surveyed households have enough oxen at least two to cultivate the land and produce crops. But the remaining 60 percent of households have problem of oxen and can not produce, as they desired to feed their family. This shows severe problem of oxen in cultivating the land so that each farming household uses his potential of crop production.

With regard to household wealth and assets, according to the RRA data, 32 percent of the households of Wachale-Jidda are ranked as very poor. This is similar to 32.3 percent of households having wealth/asset amounting to less than 600 Birr. The percentage of those considered very poor and having a total wealth amounting to less than 600 birr is the same though the data source is different. This clearly shows that a significant percentage of households of Wachale-Jidda are poor and very poor. High percentage of very poor households in a community is an indication of impoverishment of the majority and their limited capacity to withstand even minor risks of disaster.

Besides, only 42.8 percent of the surveyed households were reported to have annual income/production sufficient for only less or equal to three months and face food shortage for the remaining 9 months and above. In line with this, the household survey again revealed that about 81 percent of the households have too small income/production to make family's needs meet. In other words, it means that only 19 percent of the households have annual income/production sufficient to meet family's needs. Again, this confirms that according to the survey result a very large number of households in the district under consideration face food shortage.

At the time of data collection (February 2000), about 34 percent of the households do not have enough food for three months. Along with this, another indicator of food insecurity situation of the district is their experience of food shortage during the last 10 years. 44 percent of households mentioned poverty as major problem faced by households last year. Accordingly more than 95 percent of households have reported that they faced food shortage at least once in the last 10 years. These facts clearly indicate the high prevalence of food shortage in Wachale-Jidda in general and those areas that mainly depend on spring (*Balg*) rain in particular.

In short, land holding size is getting smaller and smaller as population is increasing from time to time; landless households are increasing as there was no land redistribution after the fall of *Darg*, and production per capita was decreasing due to bad weather, pests, lack of modern inputs, lack or shortage of oxen. Overall societal impoverishment was increasing due to repeated crop failure caused by different factors, and food security situation of the society was worsening from time to time due to asset depletion in coping up with repeated famine risks.

In sum, it is indicated that the landless and land-short, oxless and ox-short, female heads, households with large family size, those engaged in daily labor and highland households were more food insecure than their counterparts.

6. Disaster and Institutional Responses

6.1. Disaster Proneness

Different factors causing disasters/risks are found in Wachale-Jidda district. Some of these factors emanate from the nature of the topography of the area. The others can be taken as socio-economic and cultural factors. Water logging, the effect of absence or inadequacy of spring rain and occurrence of frost were directly or indirectly resulting from the nature of the landform of the area. Due to the prevalence of these crop production limiting factors, Wachale-Jidda district was experiencing food shortages from time to time. Famine was not a recent phenomenon in the area. It has existed long times ago and still affecting the livelihood of the people of the district. Hence, Wachale-Jidda is prone to disasters like famine, epidemics and inaccessibility to modern service facilities (education, health, transportation, etc.). Inaccessibility of social and economic services and backwardness are important contributors to the overall vulnerability of the population to these disasters.

6.1.1. Drought Risks

Drought risks as related to lack or shortage of rain or excessive rain that caused crop failure in Wachale-Jidda has existed long ago. There was no recorded information as to when the first drought was experienced. However local elders remember the most severe famine disaster of their age that occurred before 40 years. That famine was remembered as “*Bara Boqqollo*” (Year of Maize). It was a time when there was severe famine caused by excessive rain that lasted from March to September without any interruption.

Table 5. Indicators of Disaster History of Wachale-Jidda

Topic and Indicator	Source	Specific Indicator	Events		
			Before 19974	1974-1991	1991-2000
1. Drought Risk					
1.1. Drought Frequency	RRA	Average number of years b/n droughts	10 years	2 years	Every year
2. Epidemic	RRA	Average number of years b/n human and animal epidemics	Human/Animal	Human/Anima	Human/Animal
2.1. Epidemic Frequency		Epidemic Type	10/10	6/6 years	Every year
			Highland	Midland	District Total
2.2. Households' Epidemic experience in the last five years (top five)	HHS	Diarrhea Typhus Fever TB Measles Malaria	24.4 19.5 24.4 7.3 14.6	31.6 15.8 5.3 31.6 5.3	26.7 18.3 18.3 15.0 11.7
2.3. Relative severity of 3 most recent disasters					
2.3.1. Drought	RRA	Severity score (Hi=3; Med=2; low=1; max=9)	High		
2.3.2. Epidemic Human	RRA	Severity score (Hi=3; Med=2; low=1; max=9)	Medium		
2.3.3. Frost	RRA	Severity score (Hi=3; Med=2; low=1; max=9)	-		

Topic and Indicator	Source	Specific Indicator	Events			
			Years			
			1994/5	1997/8	1998/9	
3. Disaster Preparedness						
3.1. EWS	EWS	% pop. highly affected and provided food	18.6	2.1	2.7	
	RRA	Efficient functioning of district EWS	Not efficient	Not efficient	Not efficient	
4. EGS/FFW	HHs	% HHs. participated in the last 12 months	Current level by AEZ			
			Highland	Midland	District Total	
			3.3	12.3	3.9	
5. Coping strategies use of irreversible ones	HHs	% used them frequently and never in last 10 years	<u>Use frequently</u>		<u>Never use</u>	
			Sale of farm tools	----	Sale of farm tools	-----
			Sale of HH utensils	0.2	Sale of HH utensils	0.2
			Withdraw children	0.4	Withdraw children	0.4
			Migrate to find	0.5	Migrate to find	0.5

Source:- Household Survey of SERA Project and District Agricultural Development Office- February/March, 2000.

After *Bara Boqqollo* the RRA data revealed that there were famine risks every 10 years up to the time of *Darg*, and recently the occurrence of famine in Wachale-Jidda is observed to be every year. The main reasons for the occurrence of famine every year can be attributed to absence of *Balg* (spring) rain and untimely and inadequate summer rain that caused crop failure.

Except during '*Bara Boqqollo*' that occurred at the end of 1950s, all other famine situations were associated with scarce or absence of rainfall. The rainfall distribution of Fiche, the station that can represent Wachale-Jidda's rainfall condition showed that there was no major decline/decrease in the total annual rainfall amount from the average amount yearly experienced in the district. With some variations up and down by some millimeters the mean annual rainfall amount is over 1000 mm. More than the total amount, the timeliness and distribution of rain over the year is an important factor that affects crop production and productivity.

The climatic situation can be taken as one of the main causes of crop failure and food shortages in Wachale-Jidda. Besides rain, other climatic factors like temperature, potential evapotranspiration rate, humidity air pressure, wind and, etc., can also determine the level of crop production. In flat low lying plateau and river banks of highland parts of Wachale-Jidda, frost is a common crop killer causing an immense damage to crops from the months of November to February. In such places, the loss of crops by frost are unavoidable unless crop varieties that ripe before the occurrence of frost is used.

The other climatic element that causes crop destruction was hailstorm. Its frequency and intensity is not as that of frost. As frost, hailstorm does not occur in all places throughout Wachale-Jidda. It is location specific and follows a certain belt (hailstorm belts) and occurs only during some years. Out of the usual belt its occurrence is very limited. In Wachale-Jidda, drought risk in the sense of crop failure and food shortage is partly attributed to fluctuation of rainfall.

As the DPPD/EWS data indicates, from 1994/5 to 1997/8 the percentages of population highly affected by drought was found to decline over time. The percentage of the population of Wachale-Jidda highly affected by drought has dropped from 8.4 percent in

1994/5 to 18.6 percent in 1996/7 percent and 2.7 percent in 1998/9. The percentage of population of Wachale-Jidda highly affected by drought shows a declining trend over time. This could be true of only those people highly affected are considered. Including the medium and little affected population the figure may not probably show a declining trend. The levels and trends for medium and little affected population by drought if at all categorization like this exists may not look like the figure for highly affected ones. This might be the reason for big differences in the percentages of people reported to have faced food shortages in the last 10 years and the perception of households' income/production sufficiency in meeting the needs of the family.

As the households survey indicated, 95.3 percent of the households reported to have faced food shortage in the last 10 years. The figure for highland and midland agro-ecological zone of Wachale-Jidda was 94.8 and 98 percent, respectively. With regard to male and female headed households, more proportion of female headed households (99.1 percent) than male headed households (94.5 percent) said to have faced food shortages in the last 10 years. Again 81.3 percent of the surveyed households reported to have no sufficient income/production to meet the needs of the family.

On the other hand, RRA data showed that 83 percent of the respondents perceived that there could be disaster (drought) in the future. The high percentages of respondents being pessimistic emanate from the recurrent famine situations of the district continuously occurring for the last 5 years. From 1994 to 2000, there was severe drought risk caused by failure by *Balg* rain, untimely and inadequacy of summer (main) rain, occurrence of frost, hailstorm, pests and weeds. It could be because of the prevalence of severe risk situation that over 95 percent of the households reported to have faced food shortages in the last 10 years.

6.1.2. Epidemic Risk

In this survey, the prevalence of epidemic diseases by type and households affected were collected. In the secondary data, the top ten diseases and highly affected age groups by agro-ecology are explored. In the household survey the types of epidemic diseases and their prevalence rates are reported.

The RRA data showed that, in the past, human and animal epidemic have been recurring after every 10 years and the frequency of occurrence is reduced to every year recently. This does not mean that the same epidemic disease occurs every year; instead it means from among the common human epidemics at least one appears in some areas. With regard to the overall prevalence of epidemics, the responses of the household survey showed that 10 percent of the households surveyed reported to have experienced epidemics in the last five years.

6.1.3. Relative Severity of the Most Recent Disasters

The most recent disasters that occurred in Wachale-Jidda are drought, epidemic and frost that caused a significant loss to crop production and thereby caused food shortages, especially during the last five years (1994-1999).

Drought that is caused by absence of spring rain as well as inadequacy and untimely summer rain. As repeatedly mentioned, the highland parts of Wachale-Jidda is highly dependent on spring rain as excessive water during the summer rain causes significant

crop loss grown over the flat water logged areas. In other words, it is to avoid the damage that could be caused to crops by water logging that the flat plateau and poorly drained areas of the highland parts highly depending on spring rain. This means that failure of spring rain means failure of the major crops they depend on to feed their families.

The absence of spring rain five years prior to the survey was one of the factors for the prevalence of severe drought situation in Wachale-Jidda. But lack of spring rain for the midland was not as crucial as on the highland parts since midland parts depend on summer rain for crop cultivation and have no problem of water logging.

Water logging was not a recent phenomenon on the flat parts of Wachale-Jidda. It has existed since time immemorial. But its effects became more conspicuous with the ever-increasing population pressure on land and the expansion of croplands to flat water logged areas. Thus, it is unlikely to consider water logging as a disaster because it has existed in the past and continued into the future unless an appropriate corrective measure is taken to halt its effects.

Human epidemic was the second sever disaster experienced in Wachale-Jidda in recent years. The three most prevalent epidemics were diarrhea, typhus fever and TB. Along with these, unidentified animal epidemics were also reported by the community to have been occurring in recent years from 1996-1999) in different parts of Wachale-Jidda. In the years cited, human and animal epidemics occurred in Wachale-Jidda at different times in different farmers association. The time of occurrence and their severity is not similar all over the district. This might reduced the level of severity of the epidemics (human and animal) that prevailed in recent years.

In relation to disaster and preparedness for preventing or mitigation disaster data of zonal early warning system showed that the population highly affected by famine was declining from the level of 1994 over time. In 1999/2000, the total population highly affected and provided with food aid is 2.7 percent. This figure doesn't include those people somewhat affected but not considered as highly affected. But if included the total percent of population definitely exceeds 2.7 percent by far.

The early warning committee (EWC) at district level is not functioning as expected. Of the several duties to be performed by this committee, what is frequently performed is approving monthly early warning reports prepared by experts from agricultural development office. Hence, it can be concluded that the EWS is ineffective and inefficient. The committee members meet only when there is a forcing situation, i.e., to give response to a letter from higher bodies on some early warning related issues and the like.

In Wachale- Jidda, according to the household survey data only about 4 percent of the total households surveyed was reported to have participated in EGS/FFW programs. As compared to the severity of famine since 1995, the population involved in FFW was very small. This might be due to unavailability of such programs. Otherwise, the total population reported to have been involved should have been higher.

6.1.4. Crop Failure

In Wachale-Jidda, during the last five years (1994-1999), there was significant failure of crops mainly caused by absence of spring rain and untimely and inadequacy of summer

rain. Added to this, the effect of frost on the destruction of crops is significant. To a limited extent, hailstorm and pests have also caused destruction of crops thereby reducing the amount and quality of crops produced.

The level of severity of crop damage caused by frost was dependent on the climatic conditions and its severity varies from year to year. Sometimes it causes severe damage to the extent of drying even eucalyptus trees. At other times its effect is mild and causes lesser loss of crop grown in river valleys and flat basins-like landforms. The other cause of crop loss was pests and crop diseases.

Added with low socio-economic development, know how, capital, lack of credit and crop disease/pest control programs that takes immediate actions based on timely information, are the most important factors that contribute to the massive destruction of crops by these agents. The existing agricultural service facilities seem to have no capacity to mitigate the effect of pests, insects and crop diseases as it did not have adequate materials (chemicals), equipments and manpower that corresponds to the need of the farmers to save their crops from destruction. The farmers themselves do not have the know-how and the capital to purchase the required materials to at least mitigate the amount of crop loss caused by pests, insects and crop diseases.

7. Resilience and Coping Strategies

7.1. Resilience

Based on their socio-economic background, different households have different capacities to withstand shocks or disasters situations. The key informant interview indicated that about 37 percent of the respondents said that resilience to disaster has increased, 12.5 and 31.2 percent reported that it is the same and decreased, respectively during the last 30 years.

Among the several factors by which households increase their resilience the most important were labor mobility/migration, having greater wealth in general, using better coping strategies and timely acquiring food aid. Of all these factors, timely getting food aid was reported to be the single most important factor (66.7 percent of the key informants mentioned it) by which households increase their resilience.

In sum, it can be concluded that the resource-rich households are more resilient than the resource-poor households. Besides, younger ones that can go somewhere else and engage themselves in agricultural or non-agricultural activities as well as those getting some remittances from somewhere are shown to be more resilient than their counterparts.

7.2. Coping Strategies

To escape stress periods, households used diverse coping strategies. The most common and frequently mentioned coping strategies were reducing number and quantity of meals. The use of irreversible ones is mentioned by very few percent of the households surveyed. The frequent use of sale of household utensils, with drawing children from school and migrating out to find food/work is mentioned by 0.2, 0.4 and 0.5 percent, respectively.

Concerning the use of the irreversible coping strategies, about 26 percent of the households reported to sell farm tools and household utensils when the problem starts. In

addition, 9.7 percent and 20.8 percent of the respondents reported to withdraw children from schools and migrate out to find food/work when the problem starts.

When the problem becomes severe, households that reported to sale farm tools, household utensils and withdraw children from schools are in the order of 63.2, 34.5 and 80.6. From among the irreversible coping strategies, withdrawing children from school seems the last option to cope with the risk situations followed by sale of productive assets (farm tools).

B. CONCLUSIONS

In the analysis of data for the preparation of vulnerability profile attempts are made to identify specific vulnerability indicators, vulnerable groups, why and how they are vulnerable to some risks and when and where the vulnerable groups become more or less vulnerable. In addition, the coping strategies the vulnerable groups use to overcome a specific risk situation is also assessed and included in this profile.

The cause of vulnerability of households, individuals and communities are interrelated and complex. Hence, identifying the vulnerability factors and vulnerable groups is not an easy task. However, based on the available data, the identification of vulnerable groups, vulnerability factors, reasons for being vulnerable to specific risks and the like are made.

The vulnerable households, individuals and communities are identified on the basis of the food security situation, mortality of under five children, epidemic experience and the nutritional condition of mothers and children.

In general, the factors that cause households, individuals and communities to be vulnerable to specific disaster can be socio-cultural, demographic, economic, climatic and environmental conditions. In Wachale-Jidda district, the major factors that caused the vulnerability of the households and communities to food shortages during the last five years prior to the survey are climatic, physical-environmental, demographic and socio-economic.

Spring rain is very important for the production of crops in the district in general and in the flat areas usually affected by water logging during the summer rain in particular. Hence, absence or scarcity of spring rain in the last five years prior to the survey has caused significant decline of spring crops that made considerable households to depend on relief food aid. Beside lack of spring rain, due to untimeliness and scarcity of main summer rain, the district has also experienced crop failure. The effect of water logging became more harmful after the expansion of croplands to flat water logged areas due to land shortage caused by population pressure on land. The very flat topographic nature of the district made the flat areas to be susceptible to the occurrence of severe water logging.

The other climatic factor that caused the population to face food shortage was the effect of frost. Frost was the serious climatic element destroying a significant amount of crops on the river valleys and flat low lying plateau parts. Late maturing crops are highly affected in these areas due to the creation of temperature inversion at night.

Though the intensity and magnitude of crop loss due to hailstorm was not uniform all over the district, crop loss caused by this climatic factor was revealed by this survey in some localities where it usually occurs (hailstorm belts). Hence, it can be inferred that

absence or scarcity of rainfall, occurrence of frost and hailstorm are the major climatic factors creating food crop shortages and making the population to rely on relief food for some years prior to the survey. In general, water logging and the effect of frost are serious problems on the highland parts than in the midland parts. Thus, food shortage is more observed on the highlands.

The ever-increasing population is an important demographic factor, which contributed to the deterioration of the natural environment due to the need for more croplands. The increased demand for more cultivable land caused the destruction of natural vegetation cover of the district very long years ago. Currently, almost the district can be taken as the one devoid of natural forests except those found around inaccessible areas and church yards.

The deforestation of the natural vegetation had contributed to the increased erosion, especially on the lowland facing slopes and escarpments as well as on steep slopes on either side of riverbanks. The effect of loss of natural forests, woodlands and vegetative cover through deforestation indirectly contributed to the problem of food shortages thereby reducing the potential crop production capacity of soils of these areas. In addition, loss of vegetation cover is a factor in climatic change and environmental modification effects.

From the economic factors, landlessness and land-short (having less than 0.5 ha.) and oxless and ox-short (having only one ox) were identified as one of the major factors for encountering food shortages. For rural agricultural communities, land is the main object of labor over which the farmers invest their labor and property to produce crops for the needs of the family. But it was found that a significant percentage of the farming households, especially from the younger generation, have totally no own land or are land-short and this limited their food crop production capacity.

Oxen ownership is also another economic factor found limiting the crop production capacity of the resource-poor households. Oxless and ox-short households are found facing more food shortage than those not having oxen problems. These households might be those who sold their oxen to cope with the previous repeated famine situations that impoverished some households.

On the other hand, female-headed households are facing food shortages more than their counterparts. From the population group, formerly married household heads and the illiterate are also found being affected by food shortages. Large family size and households reported to have faced water logging problems on the main plot are indicated to face food shortages than households with small family size and those not facing water logging, respectively.

With regard to epidemics as a proxy indicator of vulnerability, members of resource-poor households, female headed households, the highlanders, those living in large family and the formerly married household heads are found facing epidemics in the last five years prior to the survey than their respective categories.

The other vulnerability indicator is under five children mortality. It is indicated that under five children mortality is relatively high on the highlands, among resource-poor households, female headed households and those households reported to have no or

sufficient food in their stock for the needs of their family. The chance of under five children's death is higher among households with large family size and headed with formerly married ones.

Along with mortality, disease prevalence among mothers and children is also higher among resource-poor households and all the other sectors of the community mentioned in relation to under five children mortality.

The nutritional status of mothers and children are also explored. It is found out that those children from highland agro ecology, female-headed, resource-poor households and large family size are found to be more stunted and wasted than their counterparts.

Similarly, women from resource-poor households, large family size, formerly married household heads, and the highland agro ecology are indicated to be relatively thinner. There is a direct relation between mothers' nutritional status and that of their children. Children born from thinner malnourished mothers are revealed to be more stunted and wasted than those born from well nourished mothers.

In short, food shortages, epidemics, under five children mortality and nutritional status of children and mothers are identified as proxy indicators of vulnerability of the population of Wachale-Jidda. The factors that caused these vulnerabilities are identified as rainfall scarcity or absence, occurrence of frost, hailstorm, and environmental degradation causing soil loss and decline in soil fertility and productivity. Production shortfalls caused by the climatic factors and physical environmental factors. In addition, land shortage or lack of land and oxen are among the major factors for the vulnerability of households to disasters and especially food shortages. In general, resource-poor households, the highlanders, female headed households and formerly married heads are those identified as more vulnerable to disasters.