

**Strengthening Emergency Response Abilities
SERA Project**

Vulnerability Profile: SUMMARY

Kucha Woreda (district)

Gamogofa Zone

Southern Nations, Nationalities and Peoples Region

2000

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A. SUMMARY of MAJOR FINDINGS

1. Introduction

An all round effort has been made to gather valuable information from various sources on selected vulnerability indicators. The main sources employed include the secondary data from institutions and primary data through the rapid rural appraisal (RRA) and the household survey. On the basis of all the data obtained, an attempt has been made to address the key questions to which the study is expected to bring an answer.

The basic reason behind assessing a set of data from different sources is to examine how they complement each other thereby filling possible gaps and to cross-check the validity and reliability of the information so that users depend on the most reliable ones. Therefore, a thorough integration of results from different sources is presumed to be valid.

This section attempts to summarize major findings sequentially so that users find them in a more organized way. The process of integration and summarizing the findings employed the following methods.

- Data that fits the construction of time series trend are used sequentially from all possible sources.
- Whenever there is a variation on the data from different sources regarding an issue, the ones assumed to be more reliable are selected and made use of
- In cases where recent data serves best, the only source referred to is the household survey.

Issues briefly discussed here include, major vulnerability indicators on population pressure & environmental problems, access to basic services, malnutrition and mortality, food insecurity and poverty, disaster and institutional responses and coping strategy. For a more detailed understanding users are advised to refer to other relevant chapters.

2. Population Pressure and Environmental Problems.

The current pace of population growth and its impact on resource remains to be one of the hot issues in national and international forums. As is true to the country at large, the study area also experiences a rapid population growth and its effect is well perceived by the community through time.

Variables selected as indicators of population pressure and environmental problems are; population growth rate, dependency ratio, trends in family size, per-capita land holding, status of grazing land, rate of soil erosion, fertility status of the land and land fragmentation.

The inter- census rate of population growth (1976-1987) in Kucha was 3.2% for rural and 8.6% for urban. The urban population has increased at a much higher rate than the regional and zonal averages as a result of rural-urban migration. Assuming the regional rate of natural population increase to Kucha , the population is expected to double itself in 26 years but since the current growth rate in Kucha is higher than the regional average,

the doubling period is shorter. Therefore, the current trend of population growth is a real challenge given the recurrent food scarcity, low agricultural productivity and poor social and economic services.

The perception of the people assessed through the community focus group discussions has also revealed the prevalence of rapid population growth in the area. Community representatives in 4 of the 6 sample PAs still look the rapid population growth as useful and this was reflected in increasing number of average family size. According to the 1976 census, the average family size at woreda level was 4.2 and it has increased to 4.5 during the 1987 census. The current survey revealed that the average family size has reached to 5.5. The size is relatively higher in woinadega.

The other characteristic of a rapid population growth is the increase in the number of dependent population. The 1976 census showed that the proportion of dependents (those under the age of 15 and 65 and over) account for 52.1% of the total population. During the 1987 census, this proportion has declined to 48.7%, bringing the overall dependency ratio to 95.1. Results of the current survey indicate that all the dependents account for 52.2%. This means every 100 person in the active age group (15-64) is expected to secure his/her means of survival and support 92 others.

The effect of rapid population growth on land is vivid in the locality too, in terms of increasing the number of persons per unit area and decrease in per capita land holding. On the basis of the 1976 census, the crude density of Kucha woreda was 53 persons per square kilometer. This has increased to 73 during the 1987 census, 87 in 1992 and estimated to reach 102 in 1997. This is actually much lower than the density in the other pilot woreda (Humbo). The main reason behind the relative low crude density is the woreda has larger area than many woredas in the zone and has sparse population. The density in mid highlands is indeed higher. In terms of agricultural density (rural population to the arable land) however, the 1992 figure was 123 km² and expected to reach 144 km² in 1997. On the other hand, the ratio of rural population to cultivated land was 389 per square kilometer in 1990.

The trend on per capita land holding further justifies the adverse effect of rapid population growth on land. The secondary data obtained from the woreda agricultural office shows that 25% of households have \leq 0.5 hectare in 1987 while this figure has increased to 46% in 1991. Results from the household survey further depicted that 51.7% of the households fall in this category. Moreover, the proportion of landless has now reached to 1.3%. According to the survey, the average land holding of the study area is 0.9 hectare and this figure is 1.1 and 0.7 hectare for lowland and mid-highland PAs respectively. In relative terms, households in lowland PAs have better holdings than those in the mid-high lands. Further increase in the size of population brings about the formation of new households who will remain landless or share the available farmland. On the other hand it was found that the size of a farmland is positively associated to the food stock status of the household.

The Regional Woody Biomass Study (1990) further indicates that the rural population support capacity of Kucha will not reach to the maximum support capacity within 25 years. Nevertheless, the situation demands an intensive agricultural promotion and natural resource management to regain the fertility of the soil and raise productivity.

Similarly, the rapid population increase has a profound effect on the physical environment. The impact is felt more in terms of the depletion of vegetation cover, soil erosion, increasing infertility of the soil and deforestation. Studies reveal the fact that Kucha woreda faces a severe challenge of soil degradation. A study conducted by the World Food Program (1991) reveals that the woreda is categorized under areas highly vulnerable to land degradation. Moreover, the Regional Woody Biomass study further shows that 1.1 millimeter depth of soil is eroded from the area every year. The attempt made to assess the perception of key informants about the degree of soil erosion in three selected periods (1950-1960, 1970-1980 and 1980 till the period of the survey) revealed that the severity has progressively increased through time. Reasons behind the progressive increase in the rate of soil erosion are well understood by the community. For instance, major perceived causes include deforestation, intensive rain, cultivation on steep slopes and the expansion of cultivated areas.

Fertility status of the cultivated land is also dependent on the rate of soil erosion in an area. The survey revealed that 61.1% of the households perceived their main plots as fertile while 24.5% and 13.9% consider it as moderately fertile and infertile respectively. The proportion of fertile land is greater in lowlands whereas that of infertile land is relatively generally higher and it is more so in kolla.

Land fragmentation is associated with problems of land management as well as the use of labor. The survey showed that 46.8% of all households have more than one plot. The proportion of households with more than 1 plot is higher in kolla.

Deforestation is local as well as national threat to environmental degradation. The rate of deforestation is perceived as steadily increasing throughout the three reference periods mentioned above. The historical trend of the severity of deforestation reveals the fact that forest cover has been severely damaged in woinadega in the past and the current status of deforestation is quite higher in kolla. According to the data from the woreda agricultural office, natural forest cover accounts for 7.5% of the total area. This is indeed high as compared to other areas of the zone and needs attention to reserve it.

Among the soil protection measures, tree planting, construction of structures such as terraces, check dams and soil bands are the most common practices. Nevertheless, the survey revealed that only 39.8% of the households have ever practiced tree planting as a soil protection measure. Agroecologically, 48.5% and 31.3% ever plant trees in kolla and woinadega respectively and 92.8% of those who ever plant trees have planted eucalyptus tree.

Lack of adequate land is by far the major reason for not planting trees, followed by unsuitability of land. Other reasons in order of importance include; ignorance, lack of seedlings, labor shortage, and absence of land. Hence, so far as soil erosion remains to be the main cause of environmental degradation, the culture of tree planting should be promoted in an intensive scale.

The other point of interest regarding environmental degradation is the issue of pasture or grazing land. Data from secondary sources indicate that the livestock population grows at a rate of 5% annually between 1988-1991. Accordingly, the extent of grazing land per livestock head has now reached 0.48 hectare or 0.73 hectare per TLU. This is actually the

ratio of gross grazing land to the total livestock population at woreda level. Since mid-highlands are densely populated, the proportion of grazing land is smaller, as compared to lowlands. Indeed, store feeding and the use of plant residuals after harvest are the most common pasture practices.

The information obtained from BOPED, (1991) puts the livestock carrying capacity status of Kucha as below the carrying capacity. Nevertheless, the household survey revealed that 78.6% of all households often face shortage of grazing land, of which nearly 57.2% face the problem throughout the year while 30.5% in dry seasons and this problem is more severe in the mid highland areas, where population density is relatively high.

The amount and distribution of rainfall greatly determines the agricultural production particularly in areas dependent upon rainfed farming system. The study area is characterized by an erratic rainfall pattern, the resultant effect of which is reflected in routine production shortfalls. The onset of the seasonal rain varies to a great extent and ceases before main crops mature. Shortage of rain is the main cause for the food shortage faced by households in the last 10 years.

Table 1. Summary of Population and Environmental Indicators.

Indicator	Rate		
	Rural	Urban	Overall
Population pressure			
• Annual growth rate (% per year)	2.23	4.11	3.2
• Population doubling rate (year)	-	-	2.6
	1976	1987	1992
• Current crude density (persons per km ²)	53	73	87
• Agricultural density	77	106	124
• Ratio of dependent population	52.1	48.7	52.2
• Proportion of female-headed HHs	-	15.1	8.3
• Average family size	4.2	4.5	5.5
Land & environment (1992)	w/dega	kolla	overall
• Landless households (%)	0.7	2.0	1.3
• Average landholding	0.71	1.10	0.90
• Households own no \leq 0.5 (ha)	59.4	42.6	51.1
• Households owning oxen %	28.0	29.7	28.8
• Proportion of households with perceived fertility status of main plot %			
• Fertile	58.0	64.3	61.1
• Moderately fertile	28.0	21.0	24.5
• Infertile	14.0	13.7	13.9
• Others	0.0	1.0	0.5
• Rate of soil erosion	1.1 mm depth/year		
• Natural forest cover (of the total area)	7.5%		
• Grazing land per livestock head	0.48 ha		
• Grazing land per TLU	0.73 ha		
Housholds facing shortage of grazing land (%)	w/dega	kolla	overall

• During dry season	21.9	39.3	30.5
• All year round	68.0	46.0	57.2
Mean annual rainfall	1600 mm		
PET	1400 mm		

3. Access to Basic Services

The satisfaction of human needs presuppose accessibility to basic social and economic services. Availability of the physical infrastructure and the functional adequacy of services are closely associated to the people's level of vulnerability to various disasters.

Indicators discussed under this sub - topic include literacy status, access to primary school, enrollment ratio, dropout/retention rate in primary level, access to health services, immunization coverage, access to potable water, coverage of the agricultural extension service and access to road and market.

It is known that education is a base for development at large. In societies where illiteracy rate predominates, it is hard to think of real improvement in the living standard. Therefore, providing basic education for citizens should be a priority task to any body who has a development vision.

According to the 1987 census, the proportion of literate population aged 10 years and over was 15.2% for kucha. This was indeed much lower as compared to the regional (SNNPR) and national averages that were 24.4% and 23.4% respectively. The sex composition of the literate population reveals that only 33% of females were literate while the rate for males was 54.4%.

Results of the current survey indicate that the rate of literate population (who can read & write) is 23% in which the rate of males and females account for 33.7% and 12.9% respectively. The rate indeed has shown a significant improvement from that of the census period (1987). The adult literacy program, one of the means through which the literacy status of the people is improved prior to the census period is now confined to just few PAs at low level.

Accessibility problem in primary schools is one aspect of educational challenges in Kucha. Only 67% of PAs have a primary school each. The physical distribution of primary schools, the student/teacher and student/classroom ratios have progressively improved in the last 10 years. Nevertheless, one of the major issues associated to the service is the problem of centrality of some primary schools and in accessibility of junior and senior high schools. Students have to travel quite long distance to join junior and senior schools and this has been one of the causes to the low enrollment rate at higher levels.

One of the critical indicators of the educational status is the rate of enrollment. The 1987 census report shows that only 8% of eligible children (Net Enrollment) were enrolled in primary schools. This means 92% of the children whose age level reached to join primary school (7-12 years) did not have the opportunity for schooling. The data obtained from secondary sources for the period of 1988-1991 depicts, that primary school enrollment has generally gone down. The rate of primary school enrolment is relatively better for males than females.

Although females represent nearly half of the entire population, gender disparity is still evident in some aspects. Female students account for only 28.7% and 21.2% in primary (1-6th grade) and junior secondary (7-8th grade) schools respectively. Their proportion in senior secondary level is 28%. Generally, the overall trend shows the low rate of female enrollment.

The other indicator of educational level is dropout/retention rate of students at various levels. Students withdraw from schools due to multitude of reasons among which the major ones are food scarcity, disease occurrences, poverty, migration and other social or economic reasons. The dropout rate at woreda level during for 4 consecutive years prior to the survey (1988-1991) indicates that the rate ranges from 32.6% to as high as 73% annually. Female dropout rate is higher in all the reference years. Furthermore, the 1991 data from primary schools of the sample PAs also show a higher rate of dropouts. The mean rate of dropout for six schools of sample PAs was 24.3%.

The perception of participants of the focus group discussions on the functional adequacy of primary schools is medium and low. Major problems surrounding the educational service include shortage of teachers, lack of furniture, shortage of shelter to teachers, in accessibility of schools and inadequacy of classrooms.

Although there is a positive change in terms of the number of facilities and health personnels, only 14.6% of the entire population has access (lives within 2 hours walk or 10 Kms radius) to the newly built health center. The ratio of a nurse to persons has been reduced from 1:109,253 in 1989 to 1:36,418 in 1991 while that of a health assistant to persons improved from 1:8,550 in 1987 to 1:6,844 in 1991. Nevertheless, since health institutions are located very sparsely, people who have no any health institution in their PAs have to walk 1:00-2:00 hours on the average to reach to the nearest service centers. Community representatives perceived that the quality and efficiency of the institutions have improved in the last 10 years.

Poor access to safe water is the other problem of the study area. According to the 1987 census, only 19.1% of the households at woreda level have access to safe water. The most recent data from the Zonal Water, Mines and Energy Department puts the figure at 24.8%. Results of the survey further, show that 39.1% households obtain safe drinking water (water from pipes, pumped and protected wells and protected springs). This indicates that there is a progressive improvement in the service.

The time taken to fetch water has a direct social & economic implication on households. A distance of above 0:30 hours walk (single trip) well indicates the existing accessibility hardship. The average walking distance to fetch water in the study area ranges between 0:25 hour (single trip) during wet season to as high as 1:20 hours in dry season. The problem of accessibility to safe water is more or less similar to both agroclimatical zones.

The agricultural extension program, the means through which agricultural promotion is expected, has been exercised since 1988 in the study area. In the new package program, the number of DAs has increased from 4 to as high as 27 in the years between 1988-1991. The DA/farmer ratio has also improved from 1:5,525 to 1:827 during the reticence period and the proportion of households involved reaching 14.3% in 1991. However, the area coverage did not go beyond 3% of the total crop producing area. Despite the recurrence

of droughts and prevalence of diseases, the livestock population is increasing. The overall ratio of livestock per agricultural household in terms of TLU was 2.13 in 1988 and this has raised to 2.53 in 1991. The ratio of health personnel to livestock head however, reveals the low level of the service. Currently, 1 veterinary doctor is expected to serve 56,545 heads whereas 1 technician is to 12,248. On the other hand, all the livestock species is of the local breed known to its low productivity.

There are 6 major weekly markets in Kucha. Although 32.76% of the population is estimated to live within one day trip (double trip) to these markets, absence of adequate modern means of transport and the seasonal over flow of rivers during rainy seasons hinders the inter PA movement of people and marketable items.

Provision of credit is also one means of improving the life of rural households. Nevertheless, only 8.7% have received credit in the last 5 years prior to the survey. In other words, nearly 81.2% have the interest to utilize credit services but failed to do so. Major reasons for not obtaining credit include; no access to the service, fear of debt, shortage of labor and lack of information.

The implementation of the agricultural extension program had a limited positive impact on the life of some households but its effect on assuring overall food security at community level is short of success. The peasant's perception on functional adequacy of the agricultural services provided is medium to high. High input price and its inadequate supply, shortage of DAs and rainfall scarcity are among major problems in the program.

Road infrastructure has not developed well in the study area and it is one of the bottlenecks in the development of rural communities. Although some of the PAs are accessible during dry seasons, feeder roads are of poor quality and paved manually. As a result, many PAs are inaccessible during rainy seasons. The crude road density of the study area is 0.1 km per km² in 1991 and only 13.4% of the population is accessible to gravel roads.

Table 2. Summary of Indicators on Social Services

Indicator (current status)		Rate			
		Male	Female	Overall	
1	Educational status	Year			
	- Proportion of illiterate population aged 10 years and over	1987	76.10	93.50	84.73
	- " " " " " " " " "	1992	66.3	87.1	77
	- Net Enrollment ratio in primary school (children aged 7-12)	1987	11.03	5.05	8.11
		1991	51.44	25.78	39.11
	- Proportion is literate population in completed grade (of all students) in 1991 in percentage				
	- primary school (1-6)		71.3	28.7	87.1
	- junior secondary (7-8)		78.8	21.2	7.1
	- senior " (9-12)		72.0	28.0	5.4
	- above 12		100	-	0.4
- Dropout rate in primary schools in 1991 (%)		24.03	24.5	24.28	
2	Health coverage		(1987)	(1991)	
	- Pop. access to health center (living within 10 kms radius) in 1991		-	14.6%	

	- Nurse/people ratio (1991)	-	1:36,418	
	- Health assistant-people ratio	1:8550	1:6844	
	- Average walking distance (single trip) to reach health institutions in 1992	1:30 hrs		
3	Water service (1992)	1987	1991	1992
	- Pop. access to safe water (%)	19.1	24.8	39.1
	- Average time needed to fetch water (single trip) in 1992			
	- dry season	1:25 hr		
	- wet season	1:20 hr		
4	Road access			
	- Pop access to gravel road (%)	13.4		
	- Road density (gravel road) km/km ²	0.1/km ²		
5	Agricultural extension service	1988	1991	
	- DA/farmer ratio	1:5,525	1:827	
	- Households involved in the program (%)	0.96	14.3	
	- Area covered by the program (of the total) in percentage	0.37	2.98	
	- HHs with access to credit within 5 years (1988-1992) in percentage	8.7		

4. Food Insecurity and Poverty

The agricultural production of the study area is below the subsistence level where the supply of local food is far behind the demand. Besides the prevailing poor yields, crop production also suffers from pre harvest loss due to various reasons. The mean rate of pre harvest loss due to crop disease, pests and weeds in the last 4 years prior to the survey (1988-1991) was estimated to be 6.4%. At a normal condition, an average person is recommended to get 2,100 kilo calories per day. However, the survey revealed that the average per capita production of the study area is extremely low and above 90 % of the population consume less than the recommended daily calorie.

Production data for three consecutive years shows that the mean production of major crops was 134 kgs (grain equivalent) per person in three years (1989-1991) and satisfied only 58.3% of the total demand. The chronic food insecurity status of Kucha is further justified by the size of population exposed to relief food aid for a number of years. Data from DPPC shows that the mean annual rate of population in need of relief food aid for 6 years (1987-1992) was 13.4% at woreda level. In 1992 alone, 26.1% of the entire population was reported to be needy for relief food aid.

Generally, 97.5% of the households have reported the incidence of chronic food insecurity in the last 10 years prior to the survey. Perceived root causes for chronic food insecurity includes shortage of rain, lack of oxen, shortage of land, pests and loss of livestock due to disease.

The transitory food insecurity status also depicts the worst feature of the problem. During the time of the survey 35.6% households were already out of any food stock. Moreover, of those having a stock, 8.8% estimated their stock to last only one to two months while, 25.3% expect it to last 2-3 months. Results of the survey further indicate that households often face a critical food shortage between the months of February to July. Moreover, the

number of meals served a day is 2 during scarcity periods while it possibly goes beyond 3 at normal times.

The status of transitory food insecurity is associated with a number of household and environmental characteristics. The multivariate analysis illustrates that sex of the household head, size of the land holding, family size, fertility of the main plot and availability of oxen have a direct correlation with sufficiency of food stocks. Female-headed households are at higher risk of food scarcity than male headed households whereas an increase in the size of land holdings relatively increases the availability of food stock. Likewise, as family size increases, the opportunity of having sufficient stock decreases. Availability of oxen and access to credit also have a slight positive correlation with food stock availability.

Poverty is closely associated with the availability of household assets and the level of annual cash earnings at household level. Results of the survey showed that 43.2% household have less than 1 TLU and 71.2% are without oxen. Similarly, 95.7% of households in the study area have annual cash earning of less than 600 birr (50 birr per month). Household's ownership of oxen and income level below 600 birr does not show significant agroecological difference. However, results of the survey revealed that more households from the mid-highlands have a TLU of >1 as compared to lowland PAs.

The perception of key informants on the wealth status of community level indicates that 33.1% are considered as very poor while 34.7% poor, bringing the category of the poor to 67.7%. There is no significant agroecological variation in the proportion of poor households. Community representatives perceive that the ratio of the wealthy has decreased while those of the poor have increased in the last 30 years.

Table 3. Summary of Food Insecurity /Poverty Indicators

Indicator		Rate		
1	Production as of demand in 3 years (%)			
	1989/90	58.3		
	1990/91	75.7		
	1991/92	42.2		
	Mean	58.7		
2	Mean annual production in kg (grain equivalent) per/person for 1989-1991	134		
3	Population obtaining less than the recommended daily calorie (2100 kcal)	90%		
4	Mean pre harvest loss, 1987-1991 (%)	6.4		
5	Food stock sufficiency during the survey until next harvest (% of respondents)			
	- Sufficient	2.7		
	- Insufficient	61.8		
	- Out of stock	35.6		
6	Months of critical food shortage	February - July		
7	Perceived wealth status(%)	w/dega	kolla	overall
	- Very poor	31.81	34.34	33.1

Indicator		Rate		
	- Poor	36.60	32.74	34.67
	- Medium	19.63	21.05	20.34
	- Wealthy	11.96	11.86	11.91
8	Income status in percentage (annual cash earning - birr)			
	< 100	69.8		
	101 - 250	14.7		
	251 - 500	8.8		
	501 - 1000	5.4		
	1001+	1.3		

5. Health, Malnutrition and Mortality

Among the health problems, malaria is by far the most common health challenge in the study area, which accounts for 30.9% of all the reported cases on the average, followed by lung cases and intestinal parasites respectively in the last 4 years (1988-1991). The incidence of malaria sickness and its area coverage has increased through time.

Improving the preventive health care raises the capacity of people to withstand such disasters as famine and epidemics and hence, it has given a prime emphasis in the Health Policy of the country. The trend of the service coverage however, is below targets and the reality deviates from the expectation. The extent of coverage for TT₂, BCG and DPT₃ has progressively declined since 1987.

Family planning practices too are very low. Only 2% of ever-married women in the reproductive age group have ever used any of the family planning methods/contraception while current users account for only 1.5%. The use of contraception indeed has many social and cultural implications. In a community where people often suffer from a routine food scarcity on one hand and preferring large family size on the other, it looks hard to achieve basic improvements in the living standard without implementing family planning programs.

Malnutrition is generally the result of a number of factors among which poverty and food scarcity is worth mentioning. The status of women and child mal-nourishment was assessed through conducting anthropometric measurements. The anthropometric measurements of children aged 3-36 months and women in the reproductive age reveals that 44.8% are stunted (short), 7.4% are wasted (thin) and 30.3% are under weight as compared to standard population. The risk of mal-nourishment is higher as age advances towards the upper limit of the reference age (3-36 months). Similarly, 66.9% of the studied women were found to be malnourished.

Malnutrition is also associated with various background characteristics of the household. The multivariate analysis illustrates that children from aged mothers as well as illiterate mothers are more prone to mal-nourishment. Similarly, children from households with large family size are likely to be malnourished than those of smaller size. Under similar conditions, children in kolla are exposed more to mal-nourishment than those of woinadega because people in woinadega depend on a variety of crops for consumption as compared to their counterparts in kolla.

Trends in mortality witness a slight improvement. The infant mortality rate, according to the special tabulations from CSA, was 143 in 1987 at woreda level whereas results of the survey depict the rate as 138 per 1000. Moreover, under five mortality was 226 in 1987 but it is 213 currently. To sum up, although infant mortality rate has slightly improved through time, it is still much higher than the regional and national averages indicating the low status attained in Kucha .

Table 4. Summary of Health, Malnutrition and Mortality Indicators.

1	Three most common diseases reported between 1987-1991 (%)	Rate		
	- Malaria	30.9		
	- Lung	11.4		
	- IP	11.3		
2	Households and individuals more vulnerable to epidemics	<ul style="list-style-type: none"> • children • elders • HHs with large family size • economically poor families • HHs with illiterate heads 		
3	Preventive health coverage (%)	(1987)	(1991)	(1991)
	- TT ₂	10.40	17.20	6.6
	- BCG	35.88	32.72	21.6
	- DPT ₃	24.84	21.20	29.5
4	Maternal care coverage (%)			
	- Women ever used any contraception method	2.0		
	- Current uses of contraception method	1.5		
	- Professionally assisted delivery	1.0		
5	Proportion of malnourished children aged 3-36 months			
	- stunted	44.8		
	- wasted	7.4		
	- under weight	30.3		
	- Proportion of malnourished mothers (%)	66.9		
	Mortality status per 1000	1987	1992	
	- infant mortality		143	138
	- child mortality		-	82
	- under 5 mortality		226	213
7	Life expectancy		44.8	46

6. Disaster, Coping Strategy and Institutional Response.

For the analysis of disaster history, coping strategy and resilience to disaster, major indicators selected are disaster proneness, major household coping mechanisms, perceptions about resilience to drought and epidemic and institutional support made to address the stress.

The survey revealed that 93.3% of the households have identified drought/shortage of rainfall and its resultant famine to be the major disaster faced by the community. The occurrence interval of droughts since 1960's ranges between 1-8 years until 1986 but

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since then it became almost a yearly phenomena. According to key informants, 1957, 1977, 1986, 1991 and 1992 are years of severe drought in which considerable proportion of the population has been assisted by external food aid for its survival. The amount of relief aid needy population since 1987 ranges between 5.5% to as high as 26.1% annually.

According to the perception of community representatives/elders, vulnerability to famine has increased through time because of the recurrence of rainfall shortage, decrease in agricultural output, loss of livestock due to diseases, increasing soil infertility, reduction in the size of per capita land holding and rapid population growth. Generally, household asset status has diminished while poverty level has increased.

The occurrence of drought in an area generally affects the whole community directly and indirectly. Nevertheless, all households are not equally vulnerable to any form of disaster. Households easily exposed to famine, as perceived by community representatives include, those having large family size, owning smaller land holding, no or smaller livestock asset, no or few active labor force, no oxen, no or small land with perennial crops and those with high dependent population. Most of these factors are further justified as a cause for transitory food security status at household level. Based on the previous experiences, community representatives expect drought/famine to occur in the future in a more severe degree.

Human and livestock epidemics are the other disasters known to the study area. The household survey indicated that malaria, diarrhea and meningitis were reported in the form of epidemics in the last 5 years. Malaria outbreak is almost a common phenomenon. According to the key informants, 1963, 1981 and 1987 are years in which the severity of human epidemic was very high.

Community elders further stated that overall vulnerability to epidemics has decreased through time during the last 30 years. This is because awareness on personal and environmental hygiene has increased and the health service has relatively improved. Moreover, people have developed a fast reporting system by means of which timely assistance is obtained before the incident gets out of hand.

Households and groups more vulnerable to epidemics than others include children and elders, households with large family size and poor families who can not afford medical costs elsewhere. The three most important perceived causes for epidemics include lack of safe drinking water, lack of health facilities and poor sanitation system. On the other hand, the most recent livestock epidemics (Trypanosomiasis outbreak) that occurred in 1990 has attacked the livestock resource severely and the disease is still the living challenge.

The incidence of pest is common to lowland PAs in different seasons of the year and it often damages crops. The pest outbreak in 1987, 1990 and 1991 especially in lowland PAs have damaged crops severely and the 1989 flood is with mentioning.

People in disaster prone areas have their own coping strategies or ways of responding to the stress. During times of famine or food scarcity, a number of mechanisms are exercised to withstand the shock and adjust the way of living accordingly. The most common strategies identified in the study area are categorized to those of consumption patterns, which include reducing the quantity and frequency of meals served a day and

eating less preferable and toxic/taboo food items. Strategies associated to consumption patterns are referred to as revisable strategies because households could easily regain their former status shortly after the stress period is over. Out migration, selling productive assets, selling personal household effects and withdrawing children from school are the extreme cases and are known as irreversible strategies.

Most households exercise nearly all strategies at the middle and severe stage of the scarcity period. This practice has an implication to people's consumption culture in that households rarely apply any measure unless the scarcity is well felt in their way of life. Such a practice is closely associated to the issue of economic use of available food stocks.

Government and non-governmental institutions are involved on activities addressing disaster. Disaster Prevention and Preparedness Committee operates at woreda level with the main objective of assessing the drought situation, screening the needy people, organizing the distribution of relief aid and executing the food for work program. In principle, the Early Warning Team, the technical arm of the Committee ought to undertake periodic assessments about the situation of crop production and livestock health and submit reports to the committee regularly. Although assessment reports are sent to upper hierarchies more or less regularly, the Committee and the team rarely meet unless disaster occurs.

On the other hand, SNV - ERSHA and Kale Hiwot Church are working within selected PAs in Kucha. As part of their integrated activities, these organizations intervene in all possible areas through food for work program, and nutritional support to mothers and children during emergency periods.

Access to credit helps a lot to raise agricultural production and diversify household income base thereby reducing vulnerability to disasters. Currently, Omo Micro Finance and the Woreda Cooperative Office are providing credit to promote crop production, livestock development and income generation. Nevertheless, only 8.7% of all households have received credit in various forms during the last five years prior to the survey. Nearly 81.2% of the studied households expressed their interest to credit but failed to obtain.

What is interesting more is the reason behind the low access to the credit. Lack of access to the service, fear of debt, shortage of labor & lack of information is the four common causes for low coverage of the credit service.

Table 5. Some Indicators on Drought/Famine

No	Indicator	Rate
1	Years of severe drought/famine	1957,1973, 1974, 1977, 1983,1986, 1989, 1990, 1991, 1992
2	Three most recent human epidemics periods	1980, 1981, 1987
3	Three most recent livestock epidemics periods	1968, 1976, 1986
4	Three most recent flood occurrence periods	1979, 1989
5	Proportion of the population in need of relief food aid (%)	
	• 1987	17.5
	• 1988	18.1

No	Indicator	Rate
	• 1989	5.5
	• 1990	10.7
	• 1991	2.4
	• 1992	26.1
	Mean (1987-1992)	13.4
6	Types of individuals or groups more vulnerable to drought/famine	<ul style="list-style-type: none"> ◆ Households with <ul style="list-style-type: none"> - female heads, - holdings of infertile farm plots - aged household heads - no or small livestock resources ◆ Households living in lowlands

B CONCLUSIONS

Vulnerability is a broad concept, the adequate explanation of which demands a thorough and an in-depth research on all relevant areas. Quite a number of risk factors play a determinant role in making individuals or groups exposed to various types of disasters. They include among others, the environmental, socio-cultural and economic variables.

An attempt has been made to assess the status of vulnerability on the basis of selected multi-sectoral indicators or risk factors of vulnerability. In so doing, data from secondary sources were found valuable to make a trend analysis whereas the rapid rural appraisal, the household survey and physical observations to the study area provided firsthand information on the magnitude of the problem.

Various findings that show the current status of the population could be briefly summarized under 4 broad categories, namely; demographic, environmental, social and economic indicators. Characteristically, they are interrelated in such a way that one has a direct or indirect impact on the other.

Demographically, a rapid population growth, high proportion of dependent population, a persistent preference to large family size and an extremely low use of family planning practice characterize the area. Moreover, the average family size has steadily increased through out the reference period and it is greater than the zonal and regional averages. Consequently, population pressure on the resource base has increased in a rapid pace.

The routine low precipitation became one of the root causes of a repeated production shortfall. The expansion of cultivated land, the resultant effect of population growth has worsened the depletion of vegetation cover thereby increasing the degree of soil erosion. On the other hand, the current status of soil and water conservation measures is minimal.

Scarcity of health institutions remains to be one of the key health problems. Health stations and the health center are not found at a reasonable distance from population concentrations. Besides this, the preventive health coverage has declined in recent years despite policy attentions. High rate of fertility, child mortality and nutritional deficiency among children are the direct indicators of the low health status and poverty level of the population. The extreme low proportion of women who receive professional assistance during delivery depicts the risk mothers bear when giving birth. Likewise, more than half

of the population does not have access to potable water and hence, the exposure to water born diseases remains high. Although the incidence of epidemics is not a critical problem as such now a days, people still suffer from preventable diseases.

The current literacy status which is extremely low as compared to the regional and zonal ratios requires an urgent attention. More over most of school aged children did not have the opportunity to attend schools. The overall enrollment ratio is still gender biased or male dominated. Many of the primary schools face shortage of furniture and textbooks on one hand and lack of teachers on the other, to such an extent of affecting the quality of the service at large.

The problem of road access is among the most crucial issues so far as vulnerability mitigation is concerned in Kucha. Many of the PAs are inaccessible in any form of modern transport. The existing roads are of poor quality.

Overall poverty has generally increased through time as a result of repeated drought occurrences. Despite efforts to promote agriculture, its output has progressively declined in recent years to a level of forcing a significant proportion of the people to look for relief food aid. Besides rainfall scarcity, shortage of oxen, livestock disease and declining soil fertility are the major bottlenecks behind low production. Furthermore, the prolonged period of food deficit has been one of the main causes to asset depletion and people's resilience to disasters has diminished through time.

Therefore, the current social and economic problems and their contribution to vulnerability have a great implication for any development interventions that could serve as a stepping ground for households, government agencies, non-governmental institutions and mass organizations. Any effort to mitigate these challenges presupposes a holistic approach in which an integrated ought to be the central point.

Recommendations

Vulnerability mitigation demands both short and long-term interventions. Short-term responses address the immediate and urgent needs of the people while the impact of long-term solutions are expected to bring positive changes through time. The magnitude of vulnerability factors apparent to Kucha calls for both types of solutions.

A number of perceived solutions were suggested by respondents through the key informants interview, community focus group discussions and the household survey that could be implemented at household, community and institutional level. Based on these suggestions and proved findings, general recommendations are forwarded below. Indeed, it is understood each recommendation presupposes a work on specific program/project to determine the nature, and validity of possible components to be included and the level of priority.

1. Since the effect of population pressure is well felt on the local resource base, introduction and/or strengthening the family planning program seems to be a prime necessity. This is possible through bringing an attitudinal change among the society by means of a continuous and integrated health education using traditional and religious institutions and administrative structures.

2. The overall environmental degradation, namely; soil erosion, deforestation and increasing soil infertility demands a long-term remedy. Community representatives have indicated that conservation works in the area have declined in recent year and need be strengthened. This could be achieved through the extension program at household and community level through provision of appropriate seedlings and necessary technical and material support. Introducing fuel saving stoves could also have an effect of reducing the rate of deforestation in the long run.
3. Road access is a prime importance to promote the life of rural communities in terms of input supply, marketing of agricultural and manufactured goods and the provision of various economic and social services. Therefore, labor based roads that connect PAs with all-weather roads and the woreda center requires an utmost attention.
4. Access to credit is conventionally believed and proved to be one of the key factors to promote agricultural production as well as diversifying household income base. Therefore, the execution of small-scale saving and credit schemes with focus on purchasing oxen and other types of livestock, engaging in petty trade and other off-farm activities etc. will contribute much to alleviate poverty.
5. Establishing and/or strengthening service cooperatives with special attention on food grain marketing has a multiple advantage in easing the local food scarcity.
6. Introduction and dissemination of improved storage facility minimizes the loss caused by pests and post harvest mismanagement and contributes much to the food saving culture of the community. This could be done as an element of the extension package program at household level.
7. Priority should be given to implement small-scale irrigation schemes because studies indicate that there are promising irrigation potentials on such rivers as Deme, Domba, Gonzame etc.
8. The use of modern agricultural inputs has witnessed improvements on productivity on individual plots. Hence, the agricultural extension service has to be strengthened so as to diversify packages and adopt short-maturing crops, livestock raising, veterinary service, forage development and small-scale income generating activities. Moreover, the overall implementation process of the program requires a critical reassessment.
9. The current consumption pattern of the society during normal periods and scarcity seasons as well, arises the need for improvements in the traditional saving culture on utilizing the available food stocks so that the most economic use is encouraged. Hence, developing a better tradition on economic use of food items and food reserving system is valuable.
10. The low access to health services and the declining rate of preventive health coverage is an alarm to local practitioners so as to give attention in accordance with the current policy. More health institutions are required in scarcity areas and effort has to be coupled to increase the quality and coverage. Health education and environmental sanitation the key means to overcome all health-related problems, has to be given more attention. Side by side, increasing the preventive health coverage and provision of potable water are also part of improving the health situation of the community and hence, have to be given attention.

11. The prevalence of disease has remained a real challenge to livestock raising. Therefore, expansion of veterinary service in quantity and quality terms is necessary.
12. The current educational coverage has to be improved so that more school-aged children are enrolled. Special attention has to be given to implement adult literacy program and to improve female enrollment in schools through raising public awareness. Furthermore, the problem of furniture, textbooks and shortage of teachers demands a due attention. Emphasis should also be given to facilitate capacity building to woreda education offices.
13. Special attention should be given to female-headed households and people living in lowlands in any intervention because they are found to be in a more disadvantageous position. Likewise, children, elders and households with large family size should be given priority during stress periods.
14. The Early Warning Team at woreda level should undertake the assessment of all farm activities in line with the cropping calendar so that disasters are detected at early stages. This is to mean that the Woreda Disaster Prevention and Preparedness Committee meets on a regular pattern and strengthen its working relationship with its hierarchies.
15. Last but not least, the database (documentation system) of all woreda level offices is so poor. Therefore, concerned government offices at all levels must give a due attention to improve the old system under use.