Original article

Dabat rural health Project, North West Ethiopia: Report of the baseline survey

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Abstract

The Dabat Rural Health Project was established with the objective of establishing a surveillance system of health and health related characteristics of the population at a district level, and providing a study base and sampling frame for community based research. After a base line survey, a two monthly data collection of vital events and major socio–demographic variables has been going since 1997.

Several researchers from GCMS have already used the base population for community based studies on a wide variety of topics. Based on preliminary findings, community based interventions such as provision of safe water supply and waste disposal facilities have been implemented.

This paper mainly deals with the base line survey which was conducted in Dabat district, North Gondar Administrative Zone, in November 1996. The objective of the survey was to provide baseline data on demographic, health and related characteristics of the population of Dabat-district.

Dabat district has an area of 128000 hectares. Altitude ranges from about 1000 metres to over 2500 metres above sea level. The district has 3 urban and 40 rural kebeles (Social Administrative Units). After stratification by urban-rural residence and climatic zones, 9 rural and 1 urban kebeles were selected for the baseline survey. Three kebeles from each climatic zone (Dega, Woina Dega and Kolla) were selected. All households in the selected kebeles were included in the study. Structured questionnaire were to collect data. Eighteen enumerators who completed grade 12 administered the questionnaire. Three coordinators supervised the activities of enumerators. The research team at the GCMS was responsible for the conduct of the survey including data processing, analysis and communication of results. In the survey the total number of people residing in 9 rural and 1 urban kebeles was found to be 24810. There were 5076 households with an average of 4.89 people living in each household. In the rural areas less than 1% of households had latrine facilities but in the urban area 28.6 % had latrine facilities. A total of 1690 (6.8%) individuals reported that they were sick in the last 15 days preceding the survey. The CBR and CDR were 34.4/1000 and 11.7/1000 population, respectively. The mean age at first marriage was reported to be 16.2 years. Based on perceived morbidity reports, measles was prevalent (24.2 per 1000 last children) in all climatic zones. Malaria appeared to be the major problem in the kolla climatic zone, reportedly affecting about 115.3 per 1000 children . Uvelectomy and tonsillectomy are largely practiced in all climatic zones. Ninety six children under five years died in the year preceding the survey. The major manifestations in these children were fast breathing (72.9 %), grunting (70.8 %), fever (65.6 %), vomiting (58.3 %), wasting (56.3 %), and diarrhea (46.9 %). A more detailed findings is presented in the Results section and main findings are discussed.

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1. Introduction

The health status indicators of the population of Ethiopia are among the worst in the world. Infant and maternal mortality rates are estimated to be 111-139/1000 and 500-1000/ 100000 live births respectively (1,2,3,4). Life expectancy at birth is about 47 years. The per capita annual income is estimated at about $100. Poor economic status couples with high fertility rates. On the average an Ethiopian woman delivers 6.7-7.7 children in her repro-ductive years (5,6,7). The majority of the population do not have access to sanitary facilities and safe and adequate water supply. As in many developing/under developed countries most illnesses are not attended by health professionals. The health service coverage is only about 47% (3). In addition social, cultural and economic barriers limit the utilisation of available services.

Appropriate planning and management of health programmes is fundamental to the improvement of health conditions. Among other things, it requires adequate, reliable and timely data on demographic characteristics, occur-rence of major health problems and their association with underlying factors. Getting reliable and accurate health and demographic data in Ethiopia is a difficult task. Major planning and policy decisions are commonly based on information obtained from health institution reports, few studies (usually cross sectional) or estimates from other countries. These sources have serious limitations because only few people have access to health services. Records and reports can at best reveal the tip of the iceberg. Secondly reports from health institutions are sometimes incomplete and errors are not uncommon.

Thus, community based health related information becomes necessary for planning and management of health programmes at different places in the country.

The experience gained from the Butajira Rural Health Project (BRHP) encouraged people to think of similar projects in other parts of the country. The BRHP has established a base population, sampling frame and infrastructure for problem oriented community based longitudinal studies for researchers in the medical faculty of Addis Ababa University and elsewhere (8). At present a number of projects are utilizing the Study Base's potential. The potential for research training has been maximally exploited in which about 10 PhD and over 20 masters candidate have undertaken their projects. A number of research projects have been affiliated to the base in the last several years. The Study base has generated continuos data on Fertility *(Birth)* Mortality *(Death)*, Population dynamics *(Migration and marriage)*. In addition a number of community based interventions have been undertaken (9).

In the international arena, the critical and strong contribution of longitudinal data from demographic surveillance sites for research has been widely recognized and currently there is a rapidly growing interest in demo-graphic surveillance because of the increased demand for information as a basis for reassessment of priorities, making evidence-based planning and decision-making. Demographic Surveillance Sites (DSS) have proven trackrecords in pro-viding high quality population based information often operating in highly disadvantaged environments (10, INDEPTH Binka F. Paper presented at Business Planning Workshop, Elmina, Ghana, March 2001). They also provide unparalleled applied training opportunities for health and other professionals, with a particular emphasis on strengthening national capacities to seek, interpret and apply available information in the essential effort of evidence based policy, practice and resource allocations.

After a series of consultations with people who are familiar with similar projects, the Dabat Rural Health Project was established in 1996. Initially the baseline survey was conducted in this district and data on socio-demographic characteristics, health and health related problems, perceived causes of morbidity and mortality were collected.

The general objective of the survey was to provide baseline data on demographic, health and related characteristics of the population of a district and the specific objectives were:
1. To describe the sociodemographic charcte-ristics of the population of a selected district.
2. To estimate basic health status and related indicators for the district.

3. To provide/use data for planning and mana-gement of health activities.

4. To provide baseline population and sam-pling frame for health and related research in the district.

Chairman of the coordinating committee of DRHP supervising field work.

2. Population and methods

2.1 Study design
A cross sectional survey of health and health related characteristics of the population of Dabat district was conducted in November 1996. After the baseline survey, surveillance of health and health related characteristics has continued. Data are collected on vital events and major socio-demographic characteristics of the study population on two monthly basis.

2.2 Study area
The following criteria were used to select the study area.

1. Population size: neither too big, nor too small; the order of 100,000-300,000.
2. Existence of the three climatic zones ie. Dega (highland), Woyina Dega (Mid highland) and Kolla (lowland).
3. Reasonable distance from the GCMS.
4. Reasonable number of accessible farmers associations.
5. Diversity of disease patterns.
6. Area (potential area) of training of students by the GCMS.
7. Acceptability by district population of research activities in the area
8. Non existence of similar endeavours
9. Presence of a health centre/hospital in the district

Based on the above criteria, Dabat district was selected.

Dabat district has an area of 128000 hectares and had on estimated population of about 102832 population. Altitude ranges from about 1000 metres to over 2500 metres above sea level. Similar to the rest of the districts in North Gondar the economy is based on agriculture. The main types of crops produced are barely, wheat, sorghum, lentils, beans, and peas. The district had 3 urban and 40 rural kebeles. There are one secondary, two junior secondary and 32 elementary schools with a total student enrolment of 7734 in the year 1994/95. The main town of the district Dabat is about 75 kms away from the capital of the administrative zone, Gondar. It has electricity, telephone, bank and postal services. An all weather road runs from Gondar town through Dabat town and extends to some towns of Tigray and Eritrea.

2.3 Selection of the study population

The total population of the district was estimated to be 102832. This was an extrapolated figure by the health centre from the 1984 census. However, some health authorities and government officials believed that the population was grossly under estimated. The sex ratio was estimated to be 97.4 males to 100 females. About 88% of the district population are Orthodox Christian and the rest 12% Muslims.

About 10503 people (10.2%) lived in urban and 92329 (89.8%) in rural areas.

After stratification by urban-rural residence and climatic zones, nine rural and one urban kebeles were selected using probability sampling proportionate to size. Seven kebeles from kolla and one kebele from Dega zones were excluded because of inaccessibility (no all or dry whether road and more than six hours of walking distance). All households in the selected kebeles were included in the study.

This selection of the study population ended in a fair representative sample of the population in terms of urban rural ratio and distribution in climatic zones.

2.4 Operational definitions

1. Kebele - The smallest administrative unit in an urban or rural areas.
2. Urban areas - Areas where the population is greater than 4000 people where there are facilities like schools, and health institutions. The majority of the population are not farmers.
3. Rural areas - Areas where the population may be less than 4000 people. The majority of the people are farmers.
4. Kolla climatic zone Place with an elevation below 1500 meters above see level.

5. Woina Dega climatic zone - Place with an elevation between 1500 and 2500 meters above see level.

6. Dega climatic zone - Place with an elevation of above 2500 meters above see level.

2.5 Data collection

Structured questionnaire were prepared on socio-demographic characteristics of the study population, environmental conditions, major health problems of mothers and children, perceived causes of morbidity, use of health services and causes of childhood mortality. Eighteen students who completed grade 12 were hired to administer the questionnaire. As much as possible, the enumerators were selected from the respective selected Kebeles. The local health and community leaders assisted in the recruitment of selection of data collectors. Three coordinators (one physician, one nurse and one sanitarian) were selected from Dabat district health office and Dabat health centre to supervise the activities of enumerators. The coordinators took annual leaves to work on full time basis during the base line data collection. The study area was divided in to three groups and each one of the coordinators was assigned to a group of study kebeles. The coordinators were in the field during the whole period of data collection witnessing interviews as they went on, conducting reinterviews in randomly selected houses to ensure reliability of responses and checking filled questionnaire for completeness and consistency. They were also responsible for smooth flow of logistics and information.

The houses in all the study villages were numbered using old x-ray films and nonwashable markers. Household members were strictly informed to take care of the house numbers so that they are not damaged.

The research team at the GCMS (or some of its members) made supervisory visits during data collection. The team organised the activities of enumerators and supervisors, reviewed questionnaires and made decisions in the field on different aspects of the data collection process. The team was also responsible for processing of the data and communication of results.

A training manual was prepared and the team of investigators trained the enumerators and the coordinators on general techniques of interviewing and on how to administer and collect information on the different sections of the questionnaire, and checking the quality of data at field level.

Meeting of data collectiors and project coordinating committe Members

2. 6 Data entry and analysis

Data was entered and analysed using the statistical package EPI INFO version 6.

Computation were be made on:

1. Frequency distribution of socio-demographic variables.
2. Basic health status (demographic) indicators: crude birth rate, crude death rate, infant mortality and child mortality rates.
3. Perceived causes of mortality
4. Perceived causes of morbidity.
5. Utilisation of health services.

2.7 Ethical considerations

The objectives of the study and the procedures were discussed with concerned government officials and community leaders and written consent was obtained. Oral consent was also obtained from every individual study subject. Education and advice was given when health problems were identified. The research team tried to make arrangements with the local health authorities to deal with some of the common health problems of the community. The study was approved by the Research and Publications Committee of the GCMS.

3. Results

In this issue only a general highlight of the results of the baseline survey are reported.

3.1 Demographic and socio-economic chara-cteristics

The socio demographic and economic characteristics of the study population are shown in tables 1–3 and figures 1–2.
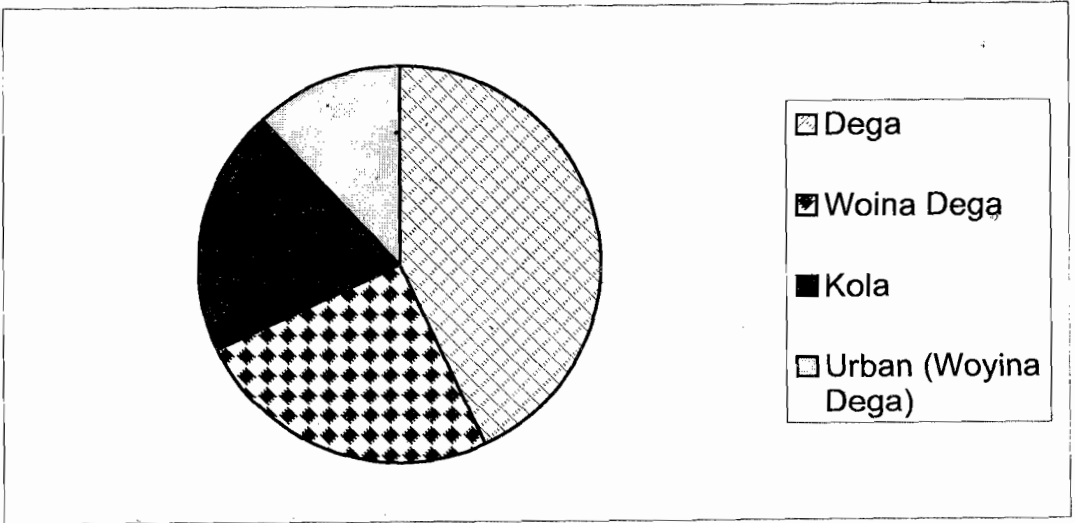
Figure 1: **Distribution of the study population by climatic zone, Dabat District 1996**

Table 1: **distribution of the study population & households by climatic zone and urban and rural residence, Dabat District 1996.**

Climatic zone	Name of kebele	Number of households	Population	
			No	%
Dega (Rural)	Benker	777	3839	15.47
	Dekua	740	3749	15.11
	Tensaye	672	3165	12.76
	Sub Total	2189	10753	43.34
Woina Deba (Rural)	Abogedam	167	848	3.42
	Chinchaye	238	1159	4.67
	Meskele Eyesus	839	4190	16.89
	Sub Total	1245	6197	24.98
Kola (Rural)	Fana	353	1744	7.03
	Diradira	356	1749	7.05
	Zanko	266	1399	5.64
	Sub Total	975	4892	19.72
Urban area (Woyina Dega)	Dabat Kebele 02	667	2968	11.96
Grand Total		5076	24810	100

Table 2: **Distribution of study population by selected socio-demographic variables, Dabat District, 1996 (n=24810)**

Educational status	Pupulation	
	No	%
Can't read and write	14953	60.27
can read and write (no formal schooling)	1195	4.82
Primary school	2057	8.3
Secondary school	774	3.1
Above grade 12	99	0.40
Children below 7 years of age	5730	23.09
Occupation		
Farmer (subsistence)	5812	23.43
Trade (sales - service)	153	0.62
Housewife	4357	17.56
Government employee	239	0.96
Weaver	51	0.12
Daily laborer	156	0.63
Tella (local beer) seller	83	0.33
Commercial sex worker	129	0.52
Student	2302	9.28
Pension	33	0.13
Jobless	934	3.77
Disabled	77	0.31
Elderly people	427	1.72
Cowherd/shepherd	2877	11.60
Others	1450	5.84
Below 7 year of age	5730	3.09
Marital status		
Single	5524	22.27
Married	8296	33.44
Divorced	999	4.03
Widowed	733	2.95
Children ≤ 10 years of age	9258	37.31

Table 2 continued

Religion	Pupulation	
	No	%
Orthodox Christian	24153	97.35
Muslim	656	2.65
Protestant	1	0.00
Ethnic group		
Amhara	24662	99.40
Tigray	125	0.51
Kimant	12	0.05
Oromo	3	0.01
Other	8	0.03

A total of 24810 people residing in nine rural kebeles and one urban center of Dabat district were included in this study. There were 5076 households with an average of 4.89 people living in each household. The median age was found to be 15.3 years. There were 12604 (50.8%) males and 12206 (49.2%) females giving a sex ratio (M to F) of 103.3%.

Among the people whose ages were greater or equal to 7 years, about 78% could not read and write. The occupation of most of the study population (23.4%) was subsistence farming and nearly all were Amhara, the dominant religion being Orthodox Christianity.

The Dega, Woina dega and Kola climatic zones of the study area comprised a population of 10,753 (43.3%), 6197 (33%) and 4892 (19.7%) respectively. The demographic and socio-economic characteristics of Dabat town (kebele 02) were depicted

Table 3: **Distribution of housseholds by climatic zones and economic characteristics, Dabat District, Norvember 1996.**

Characteristics		Dega (n = 2189)	W/dega (n = 1245)	Kola (N = 975)	Urban (n = 667)	Total (n = 5076)	
						No	%
Yearly income (Eth. Birr)	< 250	274	247	156	52	729	14.4
	250-499	517	393	271	85	1266	24.9
	500-749	460	277	218	85	1040	20.5
	750-999	327	134	122	40	623	12.3
	1000-1499	334	126	143	110	713	14.0
	1500-1999	145	49	40	59	293	5.8
	2000-2999	89	17	15	53	174	3.4
	3000-4999	43	2	10	183	238	4.3
	Average yearly income per household	865.00	608.00	712.85	2226.50	951.64	
	average daily income per head	0.48	0.34	0.39	1.37	0.53	
Ownership of farm land (hectare)	0 (none)	41	44	105	624	814	16.0
	.01-49	218	77	7	3	305	6.0
	.50-99	687	439	164	21	1311	25.8
	1.00-1.49	639	423	247	10	1319	26.0
	1.50-2.49	481	207	344	6	1038	20.5
	2.50-3.49	101	34	78	2	215	4.2
	3.50-4.49	17	13	24	0	54	1.1
	4.50-9.00	5	8	6	1	20	0.4
Availability of radio in the housheold	Yes	95	25	44	261	425	8.4
	No	2094	1220	931	406	4651	91.6
	%	4.3	2.0	4.5	39.1	8.4	
Ownership of one or more oxen	Yes	1519	942	875	21	3357	66.1
	No	670	303	100	646	1719	33.9
	%	69.4	75.7	89.7	3.1	66	

NB a) "n" indicates the number of housheolds in each climatic zone
   b) the percentages (%) show the poportion of having radio and domestic animals
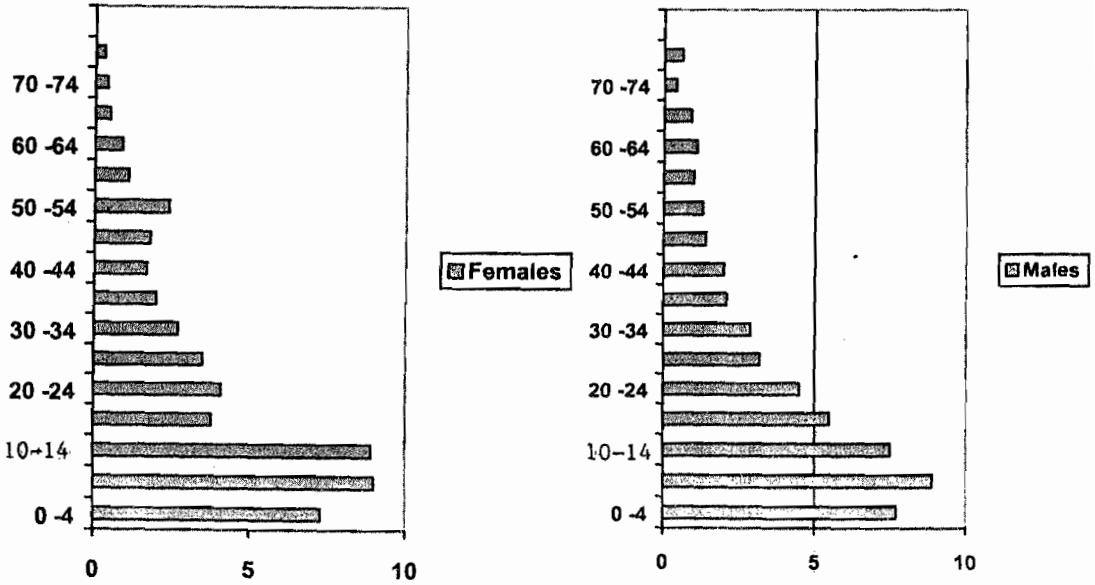   * some households reported two or more staple crops.

Figure 2: Population pyramid depicting the age and sex distribution of the study population, Dabat District, 1996.

separately for the sake of comparison with the rural kebeles and the total population of the kebele was 2968 (12.0%).

About 16% of the households did not have farmland and the yearly income of 3658 (72%) households was reported to be less than 1000 Ethiopian Birr. It was also reported that only 425 (8.4%) of the households had radios and the majority of them (61%) were from Dabat town. Furthermore, about 66.1% of the households were reported to have had domestic animals and most of the domestic animals were cows, sheep and oxen. As can be seen from table 3, the yearly income of a household in the general population was about 951.64 Ethiopian Birr giving average daily income per head of about 0.53 Ethiopian Birr. In general, the income of the population in the urban area was roughly 3 times higher than the income of the rural areas.

3.2 Environmental health

Table 4 indicates the housing conditions in the study area. The type of roof of most of the houses was thatched (74.7%). The type of wall that most of the houses (98%) were constructed of was wood and mud (91.1%). Almost all houses of the study area had earthen floor.

Most of the households (92.3%) reported that they were troubled by the presence of rodents in their houses and almost all (99%) were mice and rats. Similarly, 96.7% of the households reported that they were suffering from some kind of household insects and jigger fleas were observed to be highly prevalent in the kola areas. In the urban area was the presence of household insects was relatively lower than that of the rural areas.

Table 4: **Distribution of households by housing characteristics, Dabat district, 1996.**

		Dega (n=2189)	W/dega (n≈1245)	Kola (n=975)	Urban (n=667)	Total (n=5076) No	Total (n=5076) %
Type of roof	Corrugated iron	434	145	12	648	1239	24.4
	Grass	1730	1087	958	16	3791	74.7
	Others	25	13	5	3	46	0.9
Type of wall	Wood and mud	2146	1155	713	612	4626	91.1
	Stone and mud	15	69	182	5	271	5.4
	Others	28	21	80	50	179	3.5
Existing (availability) of windows	Yes	97	31	19	430	577	11.4
	No	2092	1214	956	237	4499	88.6
Cooking in the living room	Yes	2087	1206	936	268	4497	88.6
	No	102	39	39	399	579	11.4
Type of light	Electricity	0	0	0	524	524	10.3
	Kuraz	1413	503	49	136	2101	41.4
	Wood & dried Animal dung	771	740	926	7	2444	48.2
	Others	5	2	0	0	7	0.1
Number of rooms	1	2148	1228	965	449	4790	94.4
	2	34	10	5	135	184	3.6
	3+	7	7	5	83	102	2.0
House shared with animals*	Yes	1703	757	593	75	3128	80.8
	No	142	249	264	89	744	19.2

* applies only for house holds with domestic animals

Table 5 shows the source and consumption of drinking water and the distance between the source of water and the dwelling houses of the population. About 79% of the households used unprotected springs and rivers as their source of drinking water and 263 (6%) of the rural households had to go 4 to 10 Kms (round trip) to fetch drinking water. The average water consumption per household per day was calculated as 32.3 liters, which is equivalent to average daily per capita water consumption of 6.6 liters.

Table 6 shows the distribution of households by availability of latrine facilities and their experience in disposing of household refuse. In rural areas the population of house-holds having latrine facilities was much less than 1%. The proportion of households with latrine facilities in the urban areas

DRHP coordinating committee members on, field supervisor

Table 5: **Distribution of the households by water supply and climatice zone, Dabat District, November 1996.**

		Dega n = 2189	W/dega n ≈ 1245	Kola n = 975	Urban n = 667	Total (n = 5076)	
						No	%
Source of drinking water	Pipe	186	81	4	532	803	15.8
	Protected spring	182	5	15	2	204	4.0
	Unprotected spring	1224	807	205	105	2341	46.1
	Unprotected well	7	11	12	1	31	0.6
	River	589	317	739	27	1672	33.0
	Other	1	24	0	0	25	0.5
Distance between water source & house (kms)	0	1	0	0	35	35	0.7
	0.1-0.9	1541	647	610	587	3385	66.7
	1-1.9	515	494	339	44	1392	27.4
	2-2.9	95	62	23	0	180	3.6
	3-3.9	30	16	1	0	47	0.9
	4-4.9	8	2	2	0	12	0.2
	5 +	0	24	0	0	24	0.5
Place where drinking water is fetched (for urban dwellers)	Compound				37		5.5
	Neighbor				21		3.2
	Government				398		59.7
	Private				81		12.1
	Other				130		19.5

Table 6: Distribution of the households by climatic zone and sanitation characteristics, Dabat District, November 1996.

		Dega n=2189	W/dega n=1245	Kola n=975	Urban n=667	Total (N=5076) No	Total (N=5076) %
Availability of latrine in the household ·	yes	14	5	4	191	214	4.2
	No	2175	1240	971	476	4862	95.8
	%	0.6	0.4	0.4	28.6	4.2	
type of latrine (n=214)	Water carriage	0	0	0	1	1	0.5
	Pit latrine (with superstructure)	2	0	2	118	122	57.0
	Pit latrine (without superstructure)	12	5	2	72	91	42.5
Refuse disposal site	Pit	5	7	1	65	78	1.5
	Selected site	44	4	5	15	68	1.3
	Open field	1379	627	182	563	2751	54.2
	Used as fertilizer	753	785	785	22	2165	42.7
	Others	8	2	2	2	14	0.3

of Dabat was noted to be 28.6%. Almost all latrines (99.5%) reported were pit latrines.

3.3 Morbidity and Mortality

In this cross- sectional survey a total of 1690 (6.8%) individuals reported that they were sick in the previous 15 days preceding the survey. The proportions of sick people in the Dega, W/dega and Kola areas were 4.2% (448 out of 10753) 4.7% (289 out of 6197) and 17% (833 out of 4892) respectively. On the other hand, the population of sick people in the urban center of Dabat town was found to be 4% (120 out of 2968) and this figure was much less than the combined proportion of the 3 rural climatic zones (7.2%, 1570 out of 21842). As shown in table 7, the Kola climatic zone was the area with the greatest number (proportion)

of sick people. The five most dominant symptoms of disease observed were fever (79.8%), headache (69.1%), abdominal pain (57.8%), cough (52.8%) and eye problems (42.5%). It was also reported that only 469 (27.8%) of the patients were taken to the health institutions. The least number of patients (12.7%) that visited health institutions was from the kola area.

As indicated in table 8, the three most important reasons of patients for not visiting the health institutions were health institutions far from patient's house (27.1%), lack of money to visit the health institutions (25.7%) and assumption of patient to get cured of his disease with out taking modern treatment (16.7%). Although it was reported by 73.2% (table 8) of the

Table 7: **Perceived two weeks morbidity, Dabat District, 1996**

			Dega	W/dega	Kola	Urban	Tota No.	%
Total no of persons with various symptoms of disease (n = 1690)	Cough	Yes	207	151	473	62	893	52.8
		No	241	138	360	58	797	47.2
	Fever	Yes	342	220	698	89	1349	79.8
		No	106	69	135	31	341	20.2
	Diarrhea	Yes	145	71	305	28	549	32.5
		No	303	218	528	92	1141	67.5
	Vomiting	Yes	146	105	366	31	648	38.3
		No	302	184	467	89	1142	61.7
	Eye problems	Yes	174	112	392	40	718	42.5
		No	274	177	441	80	972	57.5
	Headache	Yes	280	186	615	86	1167	69.1
		No	168	103	218	34	523	30.9
	Abdominal pain	Yes	237	159	540	40	976	57.8
		No	211	130	293	80	714	42.2
	Accident	Yes	10	6	20	3	39	2.3
		No	438	283	813	117	1651	97.7
	Other symptoms	Yes	63	72	196	34	365	21.6
		No	385	217	637	86	1325	78.4
	Patient taken to HI	Yes	206	92	106	65	469	27.8
		No	242	197	272	55	1221	72.2
		%	46.0	31.8	12.7	54.2	27.8	

households that they would take their family member to the health institutions when she/he gets sick, the action taken regarding the sick people was quite different. Only 27.8% (469 out of 1690) of the patients were taken to the health institutions.

Two hundred fifty seven (5.1%) of the house-holds reported that at least one member of their family died in the last one year preceding the survey. Overall, a total of 290 individuals died and the crude death rate was 11.7 per 1000 population. The crude death rates for the Dega, W/dega and Kola climatic zones were 9.3/1000 (100 out of 10753), 17.4/1000 (108 out of 6197) and 23.2/1000 (69 out of 2968) respectively. The crude death rate for

the urban center was 4.4/1000 (13 out of 2968). The infant mortality rates of the above climatic zones were also calculated and the highest death rate (81.2 per thousand, that is, 16 out of 197) was seen in the kola area followed by the W/Dega (66.7 per thousand, that is, 11 out of 217) and the Dega (41/1000, 14 out of 342) climatic zones. The least infant mortality rate (20.6 per thousand, 2 out of 97) was observed in the urban center of Dabat in the last one year preceding this cross-sectional survey. The IMR was found to be 50.4/1000 live births in that same year. The age specific death rates were higher for very young children and elderly people.

The relatives of the deceased people also reported that about half of them were taken to health institutions before they died. The most important reasons cited by the relatives for not visiting health institutions were fast course of disease in the final days of illness and lack of money.

3.4 Maternal and child health

3.4.1 Maternal health

A total of 4486 women aged 15 to 49 were observed in this study. As shown in table 10, the mean age of the women at first marriage was 16.1 years. The mean age at first marriage was noted to be relatively higher for the women of the urban center. The mean ages of women at 1st delivery were about the same for the Dega and W/dega climatic zones. The lowest and highest mean ages at 1st delivery were observed in the kola and urban areas of Dabat respectively. The difference

Table 8: Reasons of the sick people in the last 15 days for not visiting the health institutions, Dabat District, November 1996

Reason	Dega (n=242)	W/dega (n=197)	Kola (N=727)	Urban (N=55)	Total (n=1221)	
					No	%
Assuming that the patient will be relieved of his disease without treatment	58	64	81	13	216	16.7
Patient was taken to traditional healers	4	4	8	6	22	1.7
patient bought drugs from drug shops	14	7	35	5	61	4.7
Patient did not have money to visit HI	88	55	165	24	332	25.7
Patient was assisted at home privately	8	8	3	1	20	1.6
Health institution far from patients house	15	37	296	1	349	27.1
Shortage of time to visit the HI	14	24	114	3	155	12.0
Others	50	34	48	3	135	10.5
Total number of reasons reported	251	233	750	56	1290	100.0

NB: 1) some of the patients reported two reasons for not visiting the health institutios
     2) "n" represents the number of patients in each climatic zone

Table 9: **Age at first marriage and age at first delivery among women in the study area, Dabat District, November 1996**

		Dega (n=1833)	W/dega (n=1065)	Kola (n=887)	Urban (n=701)	Total (n=4486)	
						No	%
Age at first marriage (in years)	10-14	347	234	256	67	904	20.2
	15-19	1013	521	509	291	2334	52.0
	20-24	159	94	46	103	402	9.0
	25-29	14	5	3	13	35	0.8
	30+	1	1	3	1	6	0.1
	Don't know	79	75	2	4	160	3.6
	NA*	220	135	68	222	645	14.3
	Mean age*	16.2	15.9	15.6	17.2	16.1	
Age at 1st delivery (in years)	11-14	35	22	40	17	114	3.2
	15-19	1110	637	628	295	2670	75.8
	20-24	264	131	92	117	604	17.2
	25+	23	21	10	22	46	2.2
	don't know	34	21	1	0	56	1.6
	mean age	17.8	17.7	17.2	18.5	17.7	

NA: not applicable

in the average age at 1st delivery between these two groups of women (kola and urban) was about 15.6 months. At least one dose of tetanus toxoid was given only to 26% of the women of reproductive age group.

Fifty six (1.4%) women admitted that they had contracted sexually transmitted diseases (STDs). The number of women who had acquired STDs was higher in the urban center.

There were a total of 853 live births in the year preceding the survey making the crude birth rate 34.4/1000 population. Out of the total 834 women who gave births in the year, 19 (2.3%)

had twins. The average time interval between the last two children (for those women who had two or more children) was more or less uniform across all study areas. The average time interval obtained was about 3 years. Among the 3520 responding women who had given births, about 76% of them were assisted by their relatives (neighbors) and untrained TBAs when they delivered their last children. Only 7.6% of the deliveries were attended by trained TBAs and health workers.

Out of 3520 interviewed, 2289 (65%) women reported that they would like to have more children in the future.

Table 10:Women aged 15 to 49 in the study area classified by climatic zone and ANC follow - up, Dabat District, November 1996

		Dega (n = 1693)	W/dega (n = 980)	Kola (n = 856)	Urban (n = 538)	Total (n = 4067)	
						No	%
Knowledge of ANC	Yes	366	119	39	308	832	20.5
	No	1327	861	817	230	3235	79.5
	%	21.6	21.1	4.6	57.2		
ANC follow up during the last pregnancy	Yes	235	109	29	228	601	14.8
	No	1231	723	742	223	2919	71.8
	NA	227	148	85	87	547	13.4
Reason for not attending ANC clinic* (n ⇒ 2919)	Health institution far from home	41	52	179	0	272	9.1
	Not able to cover the expenses	52	24	28	12	116	3.9
	Lack of knowledge about ANC	797	542	446	78	1863	62.4
	Poor hospitality (treatment) of health workers	9	3	9	8	29	1.0
	The woman thought that she was healthy	239	87	96	100	524	17.5
	Others	110	29	20	23	182	6.1
Total number of reasons reported		1248	737	778	223	2986	100.0

* Sixty one women reported two ro more reasons for not following ANC

Among women who had experience of sexual intercourse, 452 (11.1%) reported that they had abortions. Furthermore, this study revealed that 50 (11.1%) of the above women had three or more abortions. The majority of the abortions (about 98%) were reported to be spontaneous abortions.

Only 832 (20.5%) of the women had some knowledge about ANC and about 72% (601 out of 832) of them had attended ANC clinics during their last pregnancies (Table 10).

One hundred eighty nine (4.6% of the women who had experience of sexual intercourse) had used contraceptives in the past and slightly greater than half of them (i.e., about 52%) were noted to be current contraceptives users. These current contraceptive users accounted only for 2.4% (99 out of 4067) of the total eligible women (Table 11).

3.4.2 Child health
Two thousand two hundred fifty mothers (80.2 %) gave butter to their

Table 11: **Women aged 15 to 49 years in the study area classified by climatice zone and contraceptive use, Dabat District, November 1996.**

		Dega (n = 1693)	W/dega (n = 980)	Kola (n = 856)	Urban (n = 538)	Total (n = 4067)	
						No	%
Ever use of contraceptive	Yes	28	14	8	139	189	4.6
	No	1665	966	848	399	3878	95.4
	%	1.7	1.4	0.9	25.8	4.6	
Type of contraceptive used* (n = 189)	Pills	21	9	6	114	150	79.4
	Condom	2	0	0	4	6	3.2
	Injectables	6	4	0	33	43	22.8
	Others	1	1	2	3	7	3.7
Current use of contraceptive	Yes	13	11	8	67	99	2.4
	No	1680	969	848	471	3968	97.6
	% using contraceptives	0.8	1.1	0.9	12.5	2.4	
Reasons for not using contraceptives (n = 3968)	Couldn't get contraceptives	82	28	37	21	168	4.2
	Fear of side effects	41	33	21	73	168	4.2
	For religions or cultureal reasons	8	14	6	10	38	1.0
	Lack of knwledge about contraceptives	176	109	123	15	423	10.7
	No sexual intercourse	67	66	43	111	287	7.2
	Husband's negative attitude	28	6	2	2	38	1.0
	Desire of more children	1202	677	589	234	2702	68.1
	Others	76	36	27	5	144	3.6

* seventeen women reported that they have used two types of contraceptives

Table 12: **Time the last child was started with additional food by climatic zone, Dabat district, November 1996**

Time child started with additional food (in months)	Climatic zone				
	Dega N = 720 No (%)	Woina Dega N = 382 No (%)	Kolla N = 475 No (%)	Dabat town N = 218 No (%)	Total N = 1795 No (%)
< 4	15(2.1)	9(2.4)	13(2.7)	19(8.7)	56(3.1)
4-6	41(5.7)	41(10.7)	15(3.2)	37(17.0)	134(7.5)
6-12	175(24.3)	144(37.7)	205(4.2)	90(41.3)	614(34.2)
After 12 months	484(67.2)	182(47.6)	242(50.9)	71(32.6)	979(54.5)
Don't know	5(0.7)	6(1.6)	0(0.0)	1(0.5	12(0.7)

last new born as the first feed at the time of delivery and only 2.6 % of the mothers gave breast milk. Two thousand seven hundred eighty five mothers (99.3 %) breastfed their last child. Most (58.3 %) initiated breast-feeding after 24 hours after birth. Six hundred eighty four mothers (24.6 %) breastfed their children for more than 2 years. The majority of the mothers (54.5 %) initiated the weaning food after 12 months of age (Table 12).

Eight hundred thirty two mothers (29.4%) reported that their last children were vaccin nated. Of those who reported their child was vacci-nated, for 300 (36.1 %) the vacci-nation card was available. From the review of the vaccination cards only 177 (59.0 %) of the children who were vaccinated with BCG received measles vaccine.

Only 542 mothers (19.3 %) mentioned that vaccination is important to prevent disease. About 4% answered that vac-cination cures disease, whereas 8% of the respondents answered vaccination both prevents and cures disease. One thousand seven hundred fifty seven mothers (62.7 %) didn't know the importance of vaccines.

The most important reasons for not getting children vaccinated were lack of knowledge, vaccination sites were distant, lack of faith in vaccination and fear of side effects of vacci-nation (Table 13).

The majority of the mothers (54.5 %) reported that the amount of fluid given to the child is not changed when the child has diarrhea but 235 mothers (8.4 %) stop giving fluid totally when the child has diarrhea. Eight hundred twenty mothers (29.3 %) knew ORS sachets. One thousand five mothers (91.2 %) mentioned that ORS is used when one has vomiting and diarrhea. Large proportion of mothers (80.9 %) believed that ORS stops diarrhea.

Based on the perceived causes of morbidity in the last one year, measles was prevalent (24.2/1000 children) in all climatic zones. Malaria was the

Table 13: **Reasons for non - immunization of children, Dabat distric, November 1996.**

Reason	Climatic zone				
	Dega N = 755 No (%)	Woina Dega N = 535 No (%)	Kolla N = 601 No (%)	Dabat town N = 75 No (%)	Total N = 1966 No (%)
No knowledge about vaccination	366(48.5)	371(69.3)	353(58.7)	22(29.3)	1112(56.6)
No information the vaccination is in the area	14(1.9)	23(4.3)	8(1.3)	1(1.3)	46(2.3)
a lot of time to get vaccinated (queues)	6(0.8)	0(0.0)	4(0.7)	1(1.3)	11(0.6)
Vaccination given in distant places	17(2.3)	16(3.0)	85(14.1)	2(2.7)	120(6.1)
Fear that vaccines result in health problem	77(10.2)	12(2.2)	5(0.8)	4(5.3)	98(5.0)
Busy/no time	42(5.6)	21(3.9)	12(2.0)	13(17.3)	88(4.5)
Health professionals do not give proper service	4(0.5)	5(0.9)	4(0.7)	0(0.0)	13(0.7)
Mother was sick	16(2.1)	5(0.9)	18(3.0)	2(2.7)	4(2.1)
Other reasons	65(8.6)	28(5.2)	33(5.5)	15(20.0)	141(7.2)
Lack of faith in vaccines	120(15.9)	41(7.7)	16(2.7)	15(20.0)	192(9.8)
More that one reason	28(3.7)	13(2.4)	63(10.5)	0(0.0)	104(5.3)

Table 14: **Traditional malpractice done on the last child by climatic zone, Dabat district, November 1996.**

Traditional Malpractice	Climatic zone				
	Dega No (%of total laxt child)	Woina Dega No (% of total last child)	Kolla No (% of total last child)	Dabat town No (% of total last child)	Total No (% of total last child)
Uvelectomy	1115(96.09)	620(92.95)	600(91.05)	234(84.48)	2609(93.01)
Tonsilectomy	690(57.40)	350(52.47)	353(53.57)	68(24.55)	1461(52.09)
Female circumcision	0(0.0)	0(0.0)	0(0.0)	2(1.23)	2(0.11)
Milk teeth extraction	771(64.14)	354(53.07)	210(31.87)	160(57.76)	1495(53.30)
Application of heat on eye brow or other parts of the body	75(6.24)	34(5.10)	39(5.92)	6(2.17)	154(5.49)
Venousection	43(3.58)	21(3.15)	47(7.13)	4(1.44)	115(4.10)
Eye brow incision	476(39.60)	216(32.38)	284(43.10)	52(18.77)	1028(36.65)

major problem in the kolla climatic zone, which affected about 115.3/1000 children.

Uvelectomy and tonsillectomy are largely practiced in all climatic zones but female circumcision is not practiced in the rural areas (Table 14). Ninety six children under five years died in the last one year. The major manifestations in these children were fast breathing (72.9 %), grunting (70.8 %), fever (65.6 %), vomiting (58.3 %), wasting (56.3 %), and diarrhea (46.9 %).

4. Discussion

The study is the first of its kind that attempted to investigate the demographic and health situation of a rural community and to serve as the basis for the establishment of an epidemiological field laboratory in the Amhara region.

The age and sex distribution of this cross-sectional survey clearly shows the feature of a developing country. The population pyramid has a broad base and a narrow apex indicating high birth rate and high death rate at young ages. About half of the population (49.4%) is in the economically dependent age group of below 15 years. The few irregularities in the shape might be due to the difficulties in knowing the exact ages of people in the area.

Unlike to the findings of the butajira Health program, the sex ration (M to F) in the rural communities of our study areas was 1.07 indicating a higher population of males (10). On the other hand, the sex ratio in the urban center of Dabat was 78.3% and this depicts that the population in the urban area of Dabat is largely dominated by females. This is so perhaps because females of the surrounding rural areas may move to the nearby urban centers for reasons such as marriage breakdown and in search of jobs.

The high proportion of persons who could not read and write is in agreement with the findings of other similar studies in this country that the majority of the rural population is illiterate (10,11,12) and has important implication in the provision of health services, health education and the general health status of the population. Out of the total 4409 households of the rural areas, 190 (4.3%) did not have any land to plough and 1592 (36.1%) had less than a hectare. This clearly shows that there is scarcity of land to plough. Given the present uncontrolled population growth, this problem is expected to get worse and might lead to the mass migration of people (mainly women) from the rural areas to the already congested towns thereby increasing the rate of unemployment.

Although the possibility of under estimation (under reporting) cannot be ruled out, this finding of very low yearly income coupled with other proxy indicators (housing, very small

plots of land,water supply etc) may suggest that the standard of living of the study area is very poor.

Most of the people in the study area live in houses that predispose to harsh environmental conditions and communicable diseases. The source of drinking water for the majority of the households (79.1%) is unprotected spring and river water and this is generally compatible with the findings of other related studies in the region (10,11). The availability of latrine facilities in the different rural climatic zones was much less than 1%. Thus the population the district is highly exposed to different kinds of water related diseases and intestinal parasitosis (11).

Over the two weeks period preceding the survey, 1690 (6.8%) of the people claimed that they were sick and only 469 (27.8%) of them visited health institutions for their health problems. A similar study conducted in 1998 in the Amhara region revealed that the proportion of sick people in two weeks time prior to the survey was 5.4% and 44.8% of them had visited the nearby health institutions (12). The latter study was conducted in accessible areas not more than 15 Kms from the district towns and that could be the reason why more sick people have visited health institutions. Distance, Poverty and ignorance appear to be the major reasons for not visiting health institutions in the study area. This implies that a wide range of multi-

dimensional strategies will be needed to alleviate the problem.

The kola climatic zone of our study area was the most affected one as there were 833 (17%) people sick in the last 15 days preceding the survey. The main symptoms of disease observed in this study area were fever (83.8%, 698 out of 833) and headache (73.8%, 615 out of 833). The fact that the survey was done during the peak malaria transmission period (November 96) together with the above two important symptoms of malaria might suggest that malaria could be the most prevalent disease in the kola area at the time of the survey.

The high mortality experience of our study population was also observed to be in line with the prevalence of disease, the living condition, and poor health services in the study area. The infant mortality rate is lower than the national average. Underestimation is a possibility as people may not want to discuss about deceased infants.

Both the crude and infant mortality rates were highest in the kola climatic zones. Symptoms of morbidity and mortality are suggestive of high prevalence of parasitic and infectious diseases (including malaria) in this area. In addition, the kola area included in our study was very far from the health institutions and the sick people were not able to visit the health institutions easily. The crude birth and death rates obtained in this

study were 34.4 and 11.7 per thousand population and these findings were compatible with the results of a similar study conducted in the Amhara region in 1998 (12). Accordingly, the rate of natural increase per year was calculated as 2.3%. This rate is slightly less than the rate estimated for the country. The natural rate of increase of the country estimated for the period 1995-2000 was 2.6% (11).

The mean ages of women at 1st marriage and at 1st delivery were 16.1 and 17.7 years respectively. Thus the women in the study are highly exposed to early pregnancy and child birth and its health, social and economic consequences.

Knowledge and utilization of antenatal care services is extremely poor. More than 90% of the deliveries in the study area are nor attended by trained attendants. Thus a significant number of women are exposed to complications during pregnancy and childbirth that are easily preventable by availability and utilization of maternity services.

The contraceptive prevalence rate obtained in this study was much less than that of the country as a whole. The contraceptive preva-lence rate of this country indicated by the 1998 Ministry of Health report was 11% (11). The most important reason reported by women of our study areas for the failure of using contraceptives was the desire of having more children. This implies that concerted actions

have to be taken to improve the demand for contraceptives in addition to improving access and quality of family planning services.

Breast feeding is encouraging in the study area. However, there are certain feeding practices that need to be improved. These include giving butter to newborns, late initiation of breast feeding after birth, and late initiation of weaning. Creating community awareness and provision of education and advice to mothers is an important step to improve the situation.

It appears that the immunization coverage is low, although it was difficult to calculate the exact coverage based on the information collected. The defaulter rate also seems very high since only 59% of last children who started the vaccination received measles among those who could produce vaccination cards.

The most important reasons for not getting children vaccinated were lack of knowledge, vaccination sites were distant, lack of faith in vaccination and fear of side effects of vaccination. These reasons imply that a lot of effort is needed in educating the community and improving the provision of EPI services.

A fairly large proportion of mothers (24.2%) decreased the amount of fluid given to the child when she/he has diarrhea. This is a dangerous practice since the most important cause of

death in children with diarrhea is dehydration. In addition, knowledge of ORS and its mechanisms of action appears to be poor among mothers in the study area.

Based on perceived morbidity, measles was highly prevalent in all climatic zones. This might be associated with low EPI coverage and high defaulter rate even among those who started vaccination.

Although it is also based on perceived morbidity, malaria appears the most prevalent disease in the Kolla climatic zone (115.3/1000 children). Measures to prevent and treat malaria should be undertaken, with greater emphasis to kolla areas and among children in this climatic zone.

Among the traditional malpractices, uvelectomy and tonsillectomy were the most prevalent 93.0% and 52.1%, respectively. The fact that these traditional malpractices are prevalent predisposes children to acquiring HIV infection in addition to other complications of these practices.

About 66% of under five children who died had fever. Especially large proportion of children (77.8%) in the kolla area were having fever. Even though fever is a manifestation of many diseases, the most probable diagnosis could be malaria.

Fast breathing and grunting were also reported by mothers or caretakers of 72.9% and 70.8% of under five children who died, respectively. As these signs are the major manifestation of pneumonia (13.14), pneumonia was perhaps a major killer of children in the study area. Diarrhea was reported among 46.9% of children who died. Similar to our finding, a study in Butajira (14) revealed ARI, diarrhea and malaria to be the three commonest probable causes of death in children. In Dabat district malnutrition may also be considered as a major killer since 56.3% were reported to be very thin and 28.1% were said to have leg swelling (edema).

5. Conclusion

This base line survey demonstrated that the population of Dabat district is "young" population with high birth and death rates. Extreme poverty and illiteracy are highly prevalent. Morbidity and mortality are high among vulnerable groups (mothers and children). The low land dwellers are more affected than the highland (Dega) and mid high land (Woynia Dega) dwellers.

Environmental hygiene, water supply and housing conditions are extremely poor, predisposing the population to a wide range of infectious and communicable diseases. Poor awareness of health problems, their prevention and available health services is very common. Health service utilization is very low.

It is encouraging to note that interventions have been started at an early phase of the life of the project.

The health and demographic surveillance in the district is expected to provide with information for planning and management of health services by identifying health related problems. Information should be communicated to health decision makers in a usable manner and continuos evaluation of the utilization of product of the surveillance system should be under-taken. Specific research projects should aim at detailed investigations of the most important health and related problems and interventions should form part and parcel of the DRHP activities.

It is important that the surveillance data is updated by periodic surveys. It is high time now to plan for the second census.

The project should be linked to relevant sectors and community organizations for appropriate and sustainable interventions. Networking with similar DSS in the country and abroad and sharing experiences will undoubtedly enhance the development of the project.

6. Acknowledgement

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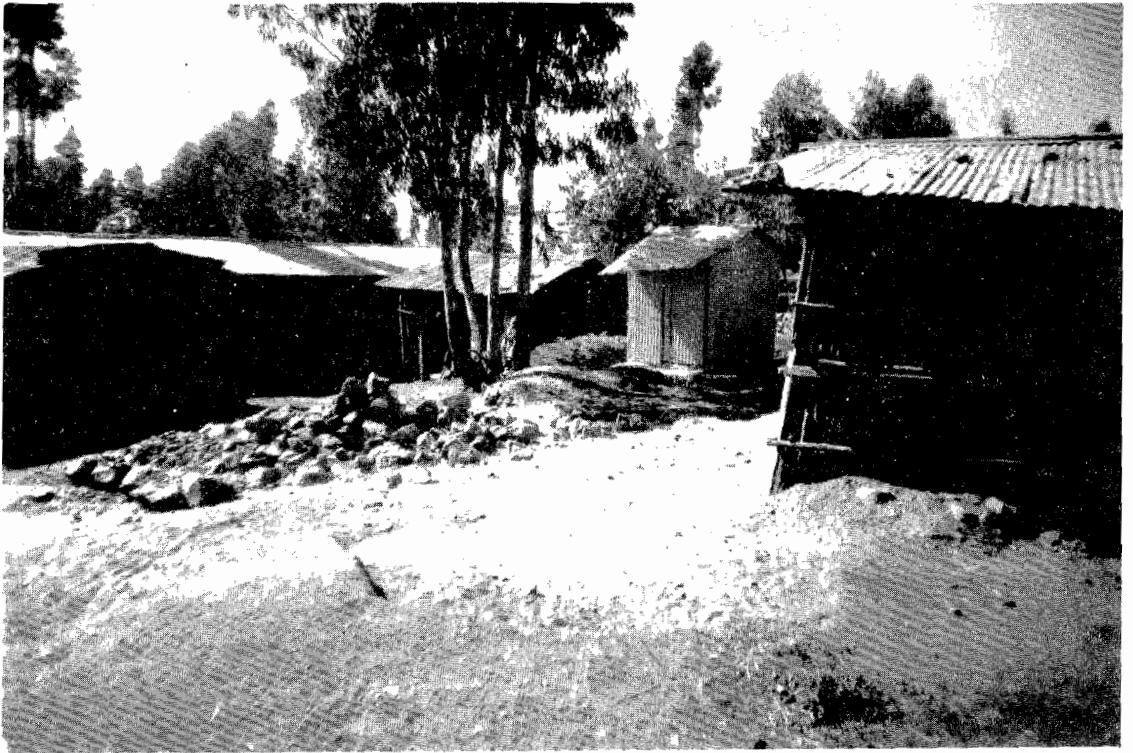
VIP constructed by DRHP in kebele 02 of Dabat town

Dekua Village, one of the springs protected by DRHP