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PRICOR OPERATIONS RESEARCH  
PROJECT REPORT

A SURVEY OF DRUG UTILIZATION AT THE  
VILLAGE LEVEL IN SIX REGIONS OF SOMALIA

AND

ITS IMPLICATIONS FOR THE PRIMARY  
HEALTH CARE AND ESSENTIAL DRUG  
PROGRAMS

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NORMAN S. LANE  
MEDICAL SERVICE CONSULTANTS, INC.  
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT  
MOGADISHU, SOMALIA

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## EXECUTIVE SUMMARY

(PRICOR Project No. 85/04/3600)

### I. Background:

A survey of drug utilization at the village level in six regions of Somalia was authorized by U.S. Agency for International Development (USAID) and the Ministry of Health and supported by UNICEF. The survey team consisted of four Somali nationals from the National Academy of Arts and Sciences, plus a pharmacist/principal investigator and a research technician furnished through this PRICOR project. Over a ten-week period a total of 716 households were surveyed representing a population of 4,151 persons (approximately 0.1% of the national population). The households were a randomly selected twenty-four sites in each of thirty randomly selected villages.

In addition to the household survey, a practitioner's (dispenser's) survey and a Primary Health Care drug survey were each performed at thirty sites furnishing either public or private pharmaceutical services to the target villages. Only twenty-eight PHC drug surveys were completed since two of the selected public sector sites surveyed were totally out of drugs.

From the data collected information was obtained concerning:

- 1) Household sociological and medical profiles-- including reports of drug use, source from where obtained, and cost; and source of funds required.
- 2) Dispenser reports of most common diseases and the drugs recommended for them.
- 3) An assessment of the availability of selected pharmaceuticals at the village level.

### II. Summary of Selected Findings:

Although the government is attempting to furnish PHC services to its rural population, village level expectations of pharmaceutical services is greater than the public sector has yet been able to supply. (Only 9.6% of those drugs used in the households surveyed were obtained free from public sector facilities.) None-the-less 38.5% of households surveyed reported using modern medications within the past six months. 90.4% of these drugs were reportedly obtained from the private sector. Although reports from 70% of all villages in each region indicated that 93% of public sector health

facilities were frequently short of drugs for extended periods of time, the private sector facilities surveyed all had adequate supplies to service PHC concerns and reported non-structured, but regular, replenishment of drugs at least once each month.

Of thirty-one "most common diseases" reported by dispensers, eight items accounted for 64.3% of all citations. Malaria, diarrhea and dysentery, and bronchitis alone accounted for 40.4% of all citations. The fourth through eighth items (accounting for an additional 23.9% of all citations) were: Bilharzia, gonorrhoea and syphilis, tuberculosis, pneumonia, and conjunctivitis.

Forty-seven drug items were recommended by the dispensers as treatments for the reported "most common diseases." Of these, seventeen items were mentioned at least three times each (i.e. at least 2% of all citations). These seventeen items represented a total of 71.3% of all citations given. Since these seventeen items included several antibiotics which could have been substituted for each other and several examples of multiple listings due to different dosage forms, only twelve items would be sufficient to treat the spectrum of diseases indicated.

### III. Implications and Considerations:

A summary of selected findings with options for consideration was circulated to seven decision makers in the Ministry of Health for comment and for ranking as to perceptions of need and viability.

Regarding village level expectations exceeding current public sector capabilities, 85.7% voted to encourage private sector initiatives as the most immediate way to improve the situation. Additionally 71.4% voted to improve existing public sector systems. (Votes could be cast for more than one option.)

Regarding the relatively low number of disease treatments reported at the village level, 85.7% voted to review the PHC drug lists while only 43.8% voted to keep the present drug list unchanged.

In regard to village households reported purchasing of drugs from private sector sources, 71.4% voted in favor of seeking ways to assist in ensuring that these purchases are at the lowest possible cost and in the most appropriate manner.

Six options were offered for consideration in relation to improving availability of drugs at the village level. In

terms of perceptions of need 85.7% cited three options each as having the best potential for improvement:

- (1) Improve the distribution system;
- (2) Improve inventory control at the central drug warehouse;
- (3) Improve dispenser awareness of appropriate drug use.

The same six options were ranked from "one" to "six" as "most" to "least" important. The option designated as most important was:

- (1) Seeking local production of pharmaceuticals.

In a tie for second place were:

- (2) Limiting the number of drugs to be handled; and
- (3) Improving the distribution system.

#### IV. Conclusions and Recommendations:

With the exception of Northwest and Sanaag Regions, the public sector seemed unable to deliver modern medications to the village level on a regular basis. Conversely, drugs were available through private sector facilities in generally adequate quantities at generally acceptable prices. Rural populations seemed to respond to this reality by attempting to utilize public health services for diagnosis and prescribing even when drugs were not available at these facilities. However, public health workers frequently seemed to feel neglected when not receiving expected drug deliveries.

It may be time for the Government of Somalia through its Ministry of Health to review its role in delivering primary health care services to its rural population. Consideration might be given to improving the diagnostic and prescribing capabilities of public health workers both qualitatively and quantitatively. Simultaneously, private sector initiatives could be supported that would maintain PHC Drugs in adequate quantities at the village level and make them available at acceptable cost.

Additional consideration might be given to preparing a nonverbal "Guide to PHC Drug Use" which could be used to teach rural populations to utilize PHC Drugs most appropriately. In view of the existence of a functioning Somali woman's organization that extends to the village level, it is suggested that the woman's organization network be utilized in developing this educational program.

Finally, consideration should be given to reviewing the PHC drug list with the goal of limiting the items included to those directly required for village level activity. This list would then reflect the Government's priority drug commitment to PHC and act as a guide for essential drug program priority concerns.

V. Administration Data

The project staff consisted of two expatriates and four Somali nationals as follows:

Principal Investigator:	Norman S. Lane
Research Technician:	Marian Mitchell
Survey Team:	Abib Osman Gudal
	Hassan Awad Duale
	Milgo Mohamoud Warsame
	Fosia Dibil Sigad

PRICOR and USAID/Somalia jointly participated in furnishing budgeted funds for this project. Additional support was obtained from UNICEF/Somalia who furnished Somali Shillings 98,000 for additional travel expenses and 1300 liters of deisel required for travel in the North for this project under the UNICEF Essential Drug Program Guidelines.

RESEARCH REPORT

(PRICOR Project No. 85/04/3600)

1. Background

- 1.1. For over thirty years, assistance has been provided in support of basic health services for developing nations. Experience has shown that many of these systems are inappropriate to local conditions. Exhaustive experience in a multitude of African aid programs have indicated that a lack of adequate commodity management is a critical impedence to successful development strategies.
- 1.2. In the last five years - as Primary Health Care Programs began to be implemented in several regions of Somalia - there have been occasional incidents suggesting that some preconceived notions applying to rural use of modern medicine may be in error.
  - 1.2.1. For example: It has long been accepted that one of the factors limiting drug use at the village level was insufficient disposable income. However on several occasions expatriates working in Somali Primary Health Care Programs have been requested to purchase drugs on behalf of village committees. These occurrences seemed to warrant further examination, as did several others occurring from time to time.
- 1.3. The majority of Somalia's 4.5 million inhabitants live at the village level - rural and nomadic people who constitute an estimated 85% of the country's population. One of the most important operational issues to Somali health sector personnel is how to ensure that adequate supplies of basic drugs are available to the rural population. Leaders of the health professions and decision makers in the Ministry of Health have identified the shortage of drugs in rural areas as a major constraint to Primary Health Care Program implementation.
- 1.4. As a result of primary health care experiences in a number of regions, factors contributing to a breakdown of drug delivery to rural areas have been identified. These factors included:
  - 1.4.1. Lack of sufficient quantities of basic drugs at the central level;

- 1.4.2. Non-reliability of the drug distribution system;
- 1.4.3. Ignorance of the use of specific drugs for specific conditions;
- 1.4.4. Inadequate capability to forecast drug requirements for order placement; and
- 1.4.5. Insufficient funds to purchase required drugs in quantities sufficient to achieve the best possible cost per unit.

It was found that the magnitude of these problems tended to obscure the primary health care goal of improving delivery of modern medicine to the rural population.

## 2. Study Purpose

- 2.1. After assessing the situation "in situ", and after discussing these problems with various decision makers in the Ministry of Health, it was decided to first focus on existing drug utilization at the village level. Subsequently, all other drug sector activities would be assessed from a perspective of village level requirements for improving rural availability of drugs.
- 2.2. In view of the above, the objectives of this study are two fold:
  - 2.2.1. To identify and quantify to the extent possible, the most important constraints to furnishing primary health care drugs to Somalia's rural population; and
  - 2.2.2. To develop practical and implementable strategies to overcome these constraints and to rank these options for viability according to country-specific factors.

## 3. Methodology

- 3.1. Within the general framework of the project document, discussions were held with officials of the Ministry of Health and with interested parties at USAID, UNICEF, WHO, the Refugee Health Unit, and the Expanded Program for Immunization. These discussions furnished basic data from which procedures were formulated for preparation of survey questionnaires and for selection of survey team participants (Annex 1 and 2).

Within each target region, villages were selected in consultation with Somali informants and subject to local conditions. Village level activities were in all cases initiated by introduction of the team members to the local sheikh followed by a brief explanation of the purpose of our visit and the procedures we proposed to follow (Annex 5). According to the survey plan of operation, each of the four interviewers would complete six household interviews in each village to meet a goal of 800+200 households interviewed. At the completion of our survey of thirty target villages from six regions, 716 household surveys had been successfully completed. (An additional 72 household surveys had been completed during the pretest period but were not included as part of the survey data base).

- 3.6. Thirty clinics, health posts, and drug shops were chosen for practitioner and PHC drug surveys based on indications by households surveyed that these facilities were a source for drugs utilized. All clinics and health posts included in this survey were located in target villages. However, in addition to drug shops located in target villages, several drug shops at district and regional levels were surveyed in Lower Juba and Lower Shabelle where villagers indicated district and regional towns as the prime source of drugs.

#### 4. Summary of Results: The Household Survey

- 4.1. Summaries of demographic data collected is given for background information concerning the target group of households interviewed. Of particular interest are the following statistics:
- 4.1.1. 716 Households were sampled having a total population of 4,151 or approximately 0.01% of the total population of the country.
- 4.1.2. The number of persons per household sampled ranged from 1 to 41, with the average number of persons per household equal to 5.796.
- 4.1.3. Women were reported to be "head of household" in 24.0% of all households surveyed (although from answers received there may be some confusion between "functional head of household at the time of our visit" and "actual head of household").

- 4.1.4. 46.6% of all households surveyed reported that they had radios.
- 4.1.5. A total of 16.73% of the population of targeted/households were reported to be literate in at least one language.
- 4.2. Summaries of household data are given for the target villages. Of particular interest are the following statistics:
  - 4.2.1. 64.5% of total households reported using wells as their source for water.
  - 4.2.2. 46.5% of total households surveyed reported that garbage was disposed of by "throwing away".
  - 4.2.3. Question seven concerning latrines or bathrooms was discarded after it was discovered that out of the first 239 household surveyed, only two reported having either of these facilities.
  - 4.2.4. Of those replying to a question concerning source of cash money used to purchase drugs, 42.3% indicate that it came "from the farm" and an additional 12.6% said it was obtained by "selling livestock". 22.9% of respondees said that the source of money was "from business" or "from the shop".
  - 4.2.5. 38.5% of households surveyed reported having purchased pharmaceuticals in the last six months as contrasted with 50.0% reported having purchased agricultural supplies, 31.3% reported having purchased tobacco, and 40.0% reported having spent money on "celebrations or feasts".
  - 4.2.6. 38.7% of households surveyed reported having had an illness in the family unit within the last six months.
- 4.3. Summaries of reported drug utilization data are given for the target villages. Drug use, cost, and source information was sought in several different ways through several different questions. The most pertinent statistics are offered below:

- 4.3.1. Of 716 households surveyed, 31% reported having used specific drugs (i.e. were able to identify the drugs used) within the previous six months. In those households specific drugs were reported being used by 450 different persons.
- 4.3.2. Of 716 households surveyed, 68 households (9.6%) reported receiving free drugs at PHC or MOH facilities within the previous six months. The region reporting the highest receipt of free medication was Sanaag where 25 households said they have received drugs from PHC Community Health Workers. Altogether 41 reports of free drugs came from the north and 27 reports of free drugs came from the south.
- 4.3.3. Those drugs reported more than one time to have been received free from PHC or MOH facilities were:
- | Item                   | No. Times Mentioned |
|------------------------|---------------------|
| Chloroquine Tablet     | 23                  |
| Aspirin Tablet         | 14                  |
| ORS Packet             | 2                   |
| Ferrous Sulfate Tablet | 3                   |
| Cough Syrup or Tablet  | 6                   |
| Ampicillin             | 2                   |
| Cilfotrim              | 2                   |
- 4.3.4. Although only 9.6% of drugs were reported having been free, 16.5% of respondents reported that PHC and/or MOH clinics were the source of their drugs. (This discrepancy is explained by the fact that many of those citing clinics as the drug source also indicated that they paid for the drugs received).
- 4.3.5. It is also noteworthy that 49.4% of those queried indicated that PHC or MOH clinics are their first choice of where to seek modern medicine.
- 4.3.6. An average of 68.64 Somali Shillings was reported spent on drugs in the previous months by each of the 716 households surveyed. During the same period an average of 1,644.58 Somali Shillings was expended per household on tobacco, an average of

1,319.83 was expended per household on tea, and an average of 1,477.73 was expended per household on feasts or celebrations. Also noteworthy was the average of 27,832.22 Somali Shillings reported to have been spent on food in the previous six months by each of the surveyed household.

- 4.3.7. Of 450 cited illnesses reported by householders, only seven conditions/diseases were reported at least 8% of the time. These conditions/diseases were reported as: cough, diarrhea, fever, headache, influenza, malaria, and stomach distress.
- 4.3.8. The average cost per household for drugs and treatment reported by 276 households citing a total of 343 cases of illness was 135.01 Somali Shillings. The most expensive course of treatment cited was one for "headache and stomach problems" on which a reported 5,000 Somali Shillings had been expended. The least expensive treatment cited was an expenditure of 6 Somali shillings reported to have been expended for a "sore throat".

#### Summary of Results: The Practitioner and PHC Drug Surveys

- 5.1. A "dispenser of medication" is considered to be a "practitioner". Thus the term may include PHC Community Health Workers, MOH Public Health Workers, drug shop owners or attendants, and MOH nurses or medical officers. Thirty practitioner surveys were performed at facilities that serviced the target populations (i.e. village drug shops, health posts, or clinics or selected drug shops at the district and/or regional level). The practitioner survey was designed to elicit information concerning the knowledge, attitude, and practices (KAP) of those delivering pharmaceutical services to the target populations.

Of particular note are the following statistics:

- 5.1.1. Practitioners were asked to name the "four most common diseases" encountered. Of thirty-one different diseases named, three accounted for 40% of citations:

Malaria	13.8%
Diarrhea and Dysentery	13.8%
Bronchitis	12.8%

- 5.1.2. The following is a list, by regions, of those diseases or conditions reported to be responsible for at least 10% of "most frequent diseases":

<u>Regions</u>	<u>Diseases</u>	<u>% of Regional Reports</u>
Lower Juba	Malaria	18.2%
	Bilharzia	13.6%
	Tuberculosis	13.6%
	Anemia	13.6%
Lower Shabelle	Malaria	19.9%
	Bilharzia	19.9%
Bay	Malaria	15.6%
	Bronchitis	15.6%
	Diarrhea and Dysentery	12.6%
	Togdheer	--
Sanaag	Bronchitis	26.7%
	Malaria	13.3%
	Anemia	13.3%
	Dysentery	13.3%

- 5.1.3. Practitioners were asked to recommend medications for the "most common diseases" that they cited. The most frequently mentioned drugs recommended were:

Penicillin Injection	8.4%
Chloroquine Tablet	7.1%
Aspirin Tablet	7.1%

Additionally the following were also among those mentioned more than 2% of the time:

Penicillin Tablet	4.3%
Chloroquine Injection	4.3%
Tetracycline Capsule	3.5%
Cotrimoxazole	2.9%
Bilarcil	2.1%
Fouadin Injection	2.1%

- 5.2. The twenty-eight site PHC drug survey was designed to assess actual drug presence at facilities furnishing pharmaceutical services to the selected villages. Additionally an attempt was made to ascertain adequacy of advice given to patients and the cost charged for recommended medication. (For

selection of drug list see Annex 5). The following applies:

- 5.2.1. Seventy-eight percent of all facilities surveyed had chloroquine tablets and some oral dosage form of aspirin in stock. Sixty percent had Ferrous Sulfate 250 mgm. and Tetracycline Ophthalmic Ointment. Forty-three percent had some form of Penicillin in stock. ORS packets were stocked by 40% of practitioners.
- 5.2.2. An attempt was made to assess acceptability and appropriateness of the advice reported given to patients. All advice reported given for use of chloroquine tablets, cotrimoxazole tablets, mebendazole tablets, oral penicillin, streptomycin, and tetracycline ophthalmic ointment was accepted and appropriate. Directions for use of aspirin, penicillin injection, and oral tetracyclines were found to be non acceptable 10.7% of the time.

## 6. Summary of Results: Ministry of Health Input

- 6.1. A summary of selected findings with options for consideration was circulated to seven decision makers in the Ministry of Health for comment and for ranking as to perceptions of need and viability.
- 6.2. Regarding village level expectations exceeding current public sector capabilities, 85.7% voted to encourage private sector initiatives as the most immediate way to improve the situation. Additionally 71.4% voted to improve existing public sector systems. (Votes could be cast for more than one option.)
- 6.3. Regarding the relatively low number of disease treatments reported at the village level, 85.7% voted to review the PHC drug lists while only 43.8% voted to keep the present drug list unchanged. (In some instances interviewees checked both options.
- 6.4. In regard to village households reported purchasing of drugs from private sector sources, 71.4% voted in favor of seeking ways to assist in ensuring that these purchases are at the lowest possible cost and in the most appropriate manner.
- 6.5. Six options were offered for consideration in relation to improving availability of drugs at the

village level. In terms of perceptions of need, 85.7% cited three options each as having the best potential for improvement:

- 6.5.1. Improve the distribution system;
  - 6.5.2. Improve inventory control at the central drug warehouse;
  - 6.5.3. Improve dispenser awareness of appropriate drug use.
- 6.6. The same six options were ranked from "one" to "six" as "most" to "least" important. The option designated as most important was:
- 6.6.1 Seeking local production of pharmaceuticals.
- In a tie for second place were:
- 6.6.2. Limiting the number of drugs to be handled; and
  - 6.6.3. Improving the distribution system.

## 7. Conclusions

- 7.1. Although 38.5% of the households surveyed reported the use of modern medications in the past six months, less than 10% of these drugs were obtained free through the public health sector. With the exception of Northwest and Sanagg Regions (where excessive expenditures of funds and/or unusually high numbers of expatriate staffs per target areas are coupled with particularly intense commitments to health care delivery from both Somali and expatriate staffs), the public sector seemed unable to deliver modern medications to the village level on a regular basis. Reports from 70% of all villages surveyed in each region indicated that 93% of the public sector health facilities were frequently short of drugs for extended periods of time.
- 7.2. Village level expectations of service from PHC and MOH facilities was greater than these systems were able to deliver. 49.4% of those interviewed indicated that a public health worker was their first choice for seeking modern medication and/or modern medical advice. Even though medications were often lacking at public health facilities, rural populations tended to prefer public health services for diagnosis and prescribing.

- 7.3. Conversely, drugs were available in most villages through the private sector in generally adequate quantities at generally acceptable prices. Rural populations seemed able to participate in the cash economy in response to perceptions of need.
- 7.3.1. An average of 68.64 Somali shillings per household was reported spent on drugs in the previous six months. During the same period, an average of 1,644.58 Somali shillings per household was expended on tobacco, 1,319.11 Somali shillings on tea, and 1,477.73 Somali shillings on "Feasts and Celebrations."
- 7.3.2. Of those households replying to the question concerning the source of cash money used to purchase drugs, 42.3% said that "it came from the farm" and an additional 12.6% said it came from "selling livestock". 22.9% said the money came "from business" or "from the shop". Only 5% indicated that the family source of cash was "from wages".
- 7.3.3. Although medications imported through the national pharmaceutical monopoly, ASPIMA, were found in most of the larger towns--especially those accessible by Tarmac Road--virtually all drugs available at the village level seemed to come from other sources. Private sector facilities surveyed all had adequate supplies to service PHC concerns, and reported nonstructured, but regular, replenishment of drugs at least once each month.
- 7.4. Of 450 reports of illness from households surveyed, only seven diseases were responsible for 64% of reported illnesses. These diseases were: cough, diarrhea, fever, headache, influenza, malaria, and stomach distress. Of the 58 "most common diseases" reported by dispensers, eight items accounted for 64.3% of all citations. Malaria, diarrhea and dysentery, and bronchitis alone accounted for 40.4% of citations. The fourth through eighth items (representing an additional 23.9% of citations) were: biliarzia, gonorrhoea and syphilis, tuberculosis, and conjunctivitis.
- 7.5. Forty-seven drug items were recommended by the dispensers as treatments for the reported "most common diseases". Of these, seventeen items were

mentioned at least three times (i.e. at least 2% of all citations). These seventeen items represent a total of 71.3% of all citations given. Since these seventeen items included multiple listings due to different dosage forms (example: penicillin tablets and injectibles) and some items that could be substituted for each other (example: penicillin tablets and ampicillin capsules), only twelve items would be sufficient to treat the spectrum of diseases indicated.

## 8. Recommendations

- 8.1. It may be time for the Government of Somalia through its Ministry of Health to review its role in delivering primary health care and public health services to its rural population. Since a private sector drug delivery system already functions at the village level, the Ministry of Health may wish to consider improving and expanding its village level diagnostic and prescribing capabilities. Simultaneously, private sector initiatives could be supported that would lead to maintaining PHC drugs at the village level in adequate quantities and would make them available at an acceptable cost.
- 8.2. Independent of where the drugs come, from there is a need to increase the ability of Somalia's rural population to choose the most appropriate drugs to use and to utilize them appropriately. Consideration should be given to preparing a nonverbal "Guide to PHC Drug Use" which could be used to teach rural populations the information they need to know about PHC drugs. In view of the existence of a functioning Somali woman's organization that extends to the vilalge level, it is suggested that the women's organization network be utilized in developing the required educational program.
- 8.3. Consideration should be given to reviewing the PHC drug list with the goal of limiting the items included to those directly required for village level activity. This list would then:
  - 8.3.1. Reflect the Government's priority drug commitment to PHC; and
  - 8.3.2. Act as a guide for essential drug program priority concerns.

## SURVEY RESULTS

Figure 1

## Population of Households by Regions

Region	No. Household	Av. No. / HH	Av. No. Males HH	Av. No. Females HH	Min. HH	Max. HH	Total Populatio
Lower Juba	119	6.092	3.050	3.008	2	41	725
Lower Shabelle	120	5.883	2.683	3.175	1	14	706
Bay	120	5.800	2.875	2.971	1	25	696
Togdheer	120	5.142	2.433	2.717	1	20	617
Northwest	118	6.254	3.076	3.186	1	14	738
Sanaag	119	5.622	2.655	2.983	1	30	669
Totals	716						4151

Figure 2

Head of Household

Region	Total Interviewed	No. Male	No. Female	% Male	% Female
Lower Juba	119	98	21	83.1	16.9
Lower Shabelle	120	99	21	83.2	16.8
Bay	120	100	20	84.0	16.0
N. W.	118	86	32	72.9	27.1
Togdheer	120	69	51	58.0	42.0
Sanaag	119	89	30	74.8	25.2
			Ave. %	76.0%	24.0%

Figure 3

Households Having Radios

Region	No. w/ Radio	Total Interviews	% W/ Radio
Lower Juba	32	119	27.6%
Lower Shabelle	45	120	38.5%
Bay	57	120	47.9%
N. W.	88	118	75.2%
Togdheer	47	120	39.8%
Sanaag	60	119	50.8%
		Ave. %	46.6%

Figure 4

Source of Water Reported

Region	Total No. HH	River		Well		Pond		Other	
		No.	%	No.	%	No.	%	No.	%
Lower Juba	119	28	23.5	87	73.1	4	3.4	-	-
Lower Shabelle	120	31	25.8	69	57.5	20	16.7	-	-
Bay	120	-	-	102		17	14.3	-	-
N. W.	118	-	-	48	40.7	70	59.3	-	-
Togdheer	120	-	-	66	55.0	37	30.8	17	14.5
Sanaag	119	-	-	89	74.8	23	19.3	7	5.9

Figure 5

Waste Disposal Method Reported

Region	Total No. H.H.	P E R C E N T			
		Throw-Away	Burn	Bury	Other
Lower Juba	119	39.5	48.7	-	11.8
Lower Shabelle	120	35.8	44.2	0.8	17.5
Bay	120	43.3	38.3	3.3	15.0
N. W.	118	55.1	16.1	0.8	27.9
Togdheer	120	55.0	15.8	-	29.2
Sanaag	119	50.4	16.0	-	33.6
Totals	-	46.5	29.8	1.6	22.5

Figure 6

Reported Literacy (By Region)

(6a) Lower Juba:

	No. Persons	Av./HH	% Total Sample
Persons Reporting can Read & Write	133	1.188	18.3
Somali	108	0.982	14.8
Arabic	30	0.263	4.1
Italian	3	0.027	0.4
English	4	0.034	0.6
Other(Swahili)	1	0.008	0.1

Total Regional Sample - 725

(6b) Lower Shabelle:

	No. Persons	Av./HH	% Total Sample
Persons Reporting can Read & Write	119	1.017	16.99
Somali	92	0.836	13.00
Arabic	12	0.108	1.70
Italian	0	-	-
English	0	-	-
Other(Swahili)	0	-	-

Total Regional Sample - 706

(6c) Bay:

	No. Persons	Av./HH	% Total Sample
Persons Reporting can Read & Write	128	1.153	18.4
Somali	86	0.835	12.4
Arabic	23	0.219	3.3
Italian	5	0.042	0.7
English	1	0.008	0.1
Other(Swahili)	0	-	-

Total Regional Sample - 696

## (6d) Northwest:

	No. Persons	Av./HH	% Total Sample
Persons Reporting can Read & Write	122	1.061	16.5
Somali	122	1.034	16.5
Arabic	63	0.534	8.5
Italian	-	-	-
English	27	0.229	3.7
Other(Swahili)	-	-	-

Total Regional Sample - 738

## (6e) Togdheer:

	No. Persons	Av./HH	% Total Sample
Persons Reporting can Read & Write	75	0.652	12.2
Somali	70	0.583	11.3
Arabic	33	0.275	5.3
Italian	-	-	-
English	13	0.108	2.1
Other(Swahili)	-	-	-

Total Regional Sample - 617

	No. Persons	Av./HH	% Total Sample
Persons Reporting can Read & Write	120	1.034	18.0
Somali	100	0.877	-
Arabic	34	0.298	-
Italian	-	-	-
English	11	0.096	-
Other(Swahili)	-	-	-

Total Regional Sample - 669

Figure 7

Reported Source of Money

Source of Funds by % of Those Replying							
Region	Farm	Livestock	Wages	Business or Shop	Craft or Trade	Family	Other
Lower Juba	64.2	5.5	10.1	8.3	2.8	2.8	3.6
Lower Shabelle	51.9	13.0	3.7	8.3	1.9	1.9	19.4
Bay	61.2	9.2	-	24.5	-	2.0	3.1
N.W.	38.3	3.2	1.1	38.3	4.3	4.3	10.5
Togdheer	20.8	18.8	-	20.8	7.9	18.8	7.0
Sanaag	17.5	25.8	-	37.1	1.0	13.4	4.1
Six Region Average	42.3	12.6	5.0	22.9	3.6	7.2	8.0

Expenditure Indicated by Categories in Last 6 Months

## 8(a) Lower Juba

Categories	P	E	R	C	E	N	T
	Yes	No			No Answer		
Drugs	61	38.1			0.8		
Agricultural Supplies	72.9	26.3			0.8		
Vet. Med.	33.1	66.1			0.8		
H. H. Durables	17.8	80.5			1.7		
Tobacco	34.7	61.9			3.4		
Food	99.2	-			0.8		
Tea	98.3	-			1.7		
Celebrations	47.5	50.0			2.5		

## 8(b) Lower Shabelle

Categories	P	E	R	C	E	N	T
	Yes	No			No Answer		
Drugs	41.7	58.3			-		
Agricultural Supplies	49.2	50.8			-		
Vet. Med.	28.3	71.7			-		
H. H. Durables	24.2	75.0			0.8		
Tobacco	49.2	50.8			-		
Food	100.0	-			-		
Tea	100.0	-			-		
Celebrations	51.7	48.3			-		

## 8(c) Bay

Categories	P	E	R	C	E	N	T
	Yes		No			No Answer	
Drugs	30.8		69.2			-	
Agricultural Supplies	63.3		35.8			0.8	
Vet. Med.	38.3		61.7			-	
H. H. Durables	27.5		70.8			1.7	
Tobacco	26.7		73.3			-	
Food	97.5		2.5			-	
Tea	96.7		3.3			-	
Celebrations	57.5		42.5			-	

## 8(d) Northwest

Categories	P	E	R	C	E	N	T
	Yes		No			No Answer	
Drugs	27.4		71.8			0.9	
Agricultural Supplies	50.4		49.6			-	
Vet. Med.	24.8		74.4			0.9	
H. H. Durables	16.2		82.9			0.9	
Tobacco	36.8		62.4			0.9	
Food	100.0		-			-	
Tea	99.1		0.9			-	
Celebrations	32.5		67.5			-	

## 8(e) Togdheer

Categories	P	E	R	C	E	N	T
	Yes		No		No Answer		
Drugs	20.8		79.2		-		
Agricultural Supplies	32.5		67.5		-		
Vet. Med.	20.0		78.3		1.7		
H. H. Durables	11.7		88.3		-		
Tobacco	20.0		80.0		-		
Food	99.2		0.8		-		
Tea	99.2		0.8		-		
Celebrations	18.3		80.8		0.8		

## 8(f) Sanaag

Categories	P	E	R	C	E	N	T
	Yes		No		No Answer		
Drugs	12.6		87.4		-		
Agricultural Supplies	26.1		73.9		-		
Vet. Med.	35.3		64.7		-		
H. H. Durables	11.8		87.4		0.8		
Tobacco	20.2		77.3		2.5		
Food	99.2		0.8		-		
Tea	99.2		0.8		-		
Celebrations	31.9		68.1		-		

Figure 9

Reports of Identified Drugs Used

	Lower Juba	Lower Shabelle	Bay	Northwest	Togdheer	Sanaag	Totals
Total number of persons using specific drugs	156	83	60	55	55	41	450
Total number of house- holds using specific drugs	79	55	42	41	30	29	276
Total number of house- holds interviewed	119	120	120	118	120	119	716

Reported Receipt of "No Cost" Drugs

10(a)

Source	North	South	Totals
Village Clinic	33	19	52
Village Drug Shop	6		6
Village General Shop	1		1
Outside Clinic		3	3
District Source		1	1
Regional Source	1	4	5
	41	27	68

10(b) Receipt of "No Charge" First Drugs Reported

Region	Number of Citations
Lower Juba	0
Lower Shabelle	6
Bay	14
Northwest	9
Togdheer	6
Sanaag	23
TOTAL	58

Figure 10 (Cont'd.)

Receipt of "No Charge" First Drugs Reported  
More than Once by Identity

10(c)

Six Region Total	
Item	Number of Citations
Chloroquin Tab.	23
APC Tab.	14
ORS Pkt.	2
Ferrous Sulfate Tab.	3
Cough Syrup or Tablet	6
Ampicillin Cap.	2
Cilfotrim	2
Subtotal	52

Figure 11

Reported Preferred Source for Obtaining Drugs

Region	P e r c e n t R e p o r t i n g					
	Village Drug Shop	Village Clinic	Outside Drug Shop	Outside Clinic	District Source	Regional Source
Lower Juba	36.8	7.7	1.7	5.1	21.4	26.5
Lower Shabelle	12.7	47.5	0.8	6.8	11.9	13.6
Bay	7.1	67.5	0.9	4.4	13.2	5.3
N. W.	25.7	63.7	-	5.3	2.7	1.8
Togdheer	10.2	11.9	1.7	11.0	27.1	38.1
Sanaag	5.1	52.1	5.1	13.7	0.9	23.1
Av. %	16.3	41.7	2.0	7.7	13.0	18.1

Reported Source of Drugs Obtained  
(Six Region Totals)

	No. Times Cited	% Total Reports
*Village Clinic	65	14.9
Village Drug Shop	145	
Village General Shop	41	9.4
+Outside Drug Shop	60	13.8
Outside Clinic	6	1.4
∇District Source	42	9.6
"Regional Source	52	11.9
Mogadishu Drug Shop	6	1.4
Mogadishu Hospital	6	1.4
PHC Village Clinic	1	0.2
‡Other	5	1.1
No answer	7	1.6
Total	436	100.0

- \* "Clinic" refers to PHC or MOH Facilities.
- + "Outside" refers to a source external to the target village requiring at least several hours travel time.
- ∇ "District" refers to a town having district level facilities.
- " "Regional" refers to a town having regional level facilities.
- ‡ "Other" includes drugs obtained from sources outside Somalia.

Expenditures by Region(Total Reported Spend in Last 6 Months)(13a) Lower Juba - 119 H.H. Interviewed

	Av. Exp./H.H.	Sum Total (S.S.)
Total Spent on: Rx (Q14) *	182.17	21,131.75
Rx (Q16) *	190.43	22,280.00
Agricultural Supplies	11,277.82	1,342,010.00
Vet. Med.	2,788.78	329,076.00
H. H. Durables	483.90	57,100.00
Tobacco	444.61	51,130.00
Food	16,206.60	1,734,106.00
Tea	688.80	74,390.00
Celebrations	1,570.38	185,305.00

\*"Total Spent on Drugs" was asked in two different ways rather than two separate questions.

(13b) Lower Shabelle - 120 H.H. Interviewed

	Av. Exp./H.H.	Sum Total (S.S.)
Total Spent on: Rx (Q14)	48.17	5,683.50
Rx (Q16)	48.18	5,685.00
Agricultural Supplies	3,307.50	390,285.00
Vet. Med.	910.00	108,290.00
H.H. Durables	401.95	47,430.00
Tobacco	666.98	79,370.00
Food	17,927.91	1,972,070.00
Tea	1,100.53	125,460.00
Celebrations	2,114.41	249,500.00

(13c) Bay Region - 120 H.H. Interviewed

	Av. Exp./H.H.	Sum Total (S.S.)
Total Spent on: Rx (Q14)	39.90	4,628.00
Rx (Q16)	39.90	4,628.00
Agricultural Supplies	2,409.66	281,930.00
Vet. Med.	491.71	57,530.00
H. H. Durables	519.75	62,370.00
Tobacco	634.37	75,490.00
Food	15,518.04	1,660,430.00
Tea	1,600.35	184,040.00
Celebration	1,724.96	196,645.00

(13d) Northwest Region - 118 H.H. Interviewed

	Av. Exp./H.H.	Sum Total (S.S.)
Total Spent on: Rx (Q14)	56.31	6,588.00
Rx (Q16)	56.32	6,589.00
Agricultural Supplies	7,168.69	824,400.00
Vet. Med.	380.57	43,385.00
H. H. Durables	520.60	61,430.00
Tobacco	2,266.87	260,690.00
Food	33,301.96	3,396,800.00
Tea	2,353.10	265,900.00
Celebration	1,622.22	189,800.00

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(13e) Togdheer Region - 120 H.H. Interviewed

	Av. Exp./H.H.	Sum Total (S.S.)
Total Spent on: Rx (Q14)	56.91	6,722.00
Rx (Q16)	56.32	6,702.00
Agricultural Supplies	4,025.21	479,000.00
Vet. Med.	491.60	58,500.00
H. H. Durables	296.67	35,600.00
Tobacco	1,815.04	205,100.00
Food	39,995.79	3,799,600.00
Tea	1,167.05	122,540.00
Celebrations	459.76	58,500

(13f) Sanaag Region - 119 H. H. Interviewed

	Av. Exp./H.H.	Sum Total (S.S.)
Total Spend on Rx (Q14)	28.40	3,380.00
Rx (Q16)	28.40	3,380.00
Agricultural Supplies	1,283.62	148,900.00
Vet. Med.	1,177.26	133,030.00
H. H. Durables	97.13	11,170.00
Tobacco	4,039.64	448,400.00
Food	44,043.01	4,096,000.00
Tea	1,009.09	99,900.00
Celebrations	1,374.68	152,590.00

Six Region Reported Expenditure in Somali ShillingsBy Categories in Last 6 Months726 H.H. Reporting

Items	Av. Exp./H.H.
Total Spent on: Rx (Q14)	68.64*
Rx (Q16)	69.92*
Agricultural Supplies	4,912.08
Vet. Med.	1,039.98
H. H. Durables	386.66
Tobacco	1,644.58
Food	27,832.22
Tea	1,319.82
Celebrations	1,477.73

\* Amount expended on drugs was elicited in two different questions to check on answers received.

Illness Reported by 8% or More of

Total Patients (by Age & Sex)

Age	< 1	1-5	5-15	15-50	> 50	Total
<u>Males:</u>						
Cough	1	14	9	9	5	38
Diarrhea	2	9	1	4	1	17
Fever	0	4	7	1	1	13
Headache	0	0	4	8	3	15
Malaria	0	10	24	30	7	71
Stomach distress	0	2	3	3	3	11
Influenza	3	7	0	0	0	10
(Subtotal all Reports)	7 2.9%	62 25.9%	62 25.9%	76 31.8%	32 13.4%	239 100%
<u>Female:</u>						
Cough	1	4	5	15	2	27
Diarrhea	3	6	0	2	1	12
Fever	0	1	4	4	1	10
Headache	0	1	2	23	3	29
Malaria	1	15	17	39	2	74
Stomach distress	0	4	2	2	1	9
Influenza	0	2	0	2	0	4
(Subtotal all Reports)	5 2.4%	41 19.4%	34 16.1%	116 55.0%	15 7.1%	211 100%

Figure 16

Average Per Unit Cost of Some Drugs as Reported by Householders

(By Cost in North &amp; in South)

(Drugs Obtained at "N.C." Omitted)

Item	South		North	
	Av. Per Unit Cost	No. Cases	Av. Unit Per Cost	No. Cases
Chloroquine Inj.	26.50	2	—	—
Chloroquine Syp.	199.00	5	83.33	4
Chloroquine Tab.	2.22	81	2.50	3
Cough Syrup	102.23	6	79.64	7
Cough Tablet	5.15	4	3.86	9
Vitamin Syrup	150.00	1	-	-
A.P.C. Tablet	2.77	33	3.74	29
Ephedrine Capsule	2.42	3	-	-
Epsom Salts	.60	1	-	-
Femadol Tab.	3.50	5	5.00	1
Ferrous Sulfate; Btl.	125.00	2	-	-
Ferrous Sulfate; Tab.	-	-	1.53	2
Penicillin Injection	31.25	4	40.00	3
Streptomycin Injection	13.60	5	10.00	1
Tetracycline Capsule	3.25	4	-	-
Valium Tablet	10.00	1	-	-
Ampicillin Capsule	5.00	1	7.50	-
Ampicillin Btl.	150.00	2	-	-
Fuadin Injection	25.00	1	-	-
Metrazole Tablet	8.00	1	-	-
Ambilhar Tablet	5.00	1	-	-
Antepar Syp.	10.61	2	-	-
O.R.S. "Btl."(?)	127.66	2	-	-
Vitamin Injection	-	-	41.67	1
Pen. Strep. Injection	-	-	32.50	2
Cotrimoxazole Susp.	-	-	85.20	4
		176		86

Figure 17

Diseases Cited by Practitioners(Six Region, 30 Site Sample

Practitioners were asked to name the "four most common diseases or conditions". Of thirty-one different answers ten cited accounted for 64.3% of citations. By grouping together "Diarrhea & Dysentery" and "Gonorrhoea and Syphilis", we have eight areas of concern responsible for approximately two-thirds of most common diseases reported. This list includes all diseases cited more than one time.

Disease	Percent
1. Malaria	13.8%
2. Diarrhea & Dysentery	13.8%
3. Bronchitis	12.8%
4. Bilharzia	5.5%
5. Gonorrhoea and Syphilis	5.5%
6. Tuberculosis	6.4%
7. Pneumonia	3.7%
8. Conjunctivitis	2.8%
Total	64.3%

Figure 18  
Diseases Cited by Practitioners  
(by Regions - Diseases Cited More Than 1 Time Each)

18(a)

Lower Juba		
Diseases	Number Citation	Percent
1. Malaria	4	18.2%
2. Bilharzia	3	13.6%
3. Tuberculosis	3	13.6%
4. Anemia	3	13.6%
5. Bronchitis	2	9.1%
6. Syphilis	2	9.1%
Subtotal (Cited More Than Once)	17	77.2%
Total	22	100%

18(b)

Lower Shabelle		
Diseases	Number Citation	Percent
1. Malaria	4	19%
2. Bilharzia	4	19%
3. Diarrhea	2	9.5%
4. Syphilis	2	9.5%
5. Bronchitis	2	9.5%
6. Tuberculosis	2	9.5%
Subtotal (Cited More Than Once)	18	78.5%
Total	21	100.0%

18(c)

Bay		
Diseases	Number Citation	Percent
1. Malaria	5	15.6%
2. Bronchitis	5	15.6%
3. Diarrhea and Dysentery	4	12.6%
4. Conjunctivitis	2	6.3%
5. Gonorrhoea	2	6.3%
6. Worms	2	6.3%
Subtotal	20	62.5%
Total	32	100.0%

18(d)

Northwest		
Diseases	Number Citation	Percent
1. Diarrhea	4	16%
2. Pneumonia	4	16%
3. Bronchitis	2	8%
4. Cough	2	8%
5. Dysentery	2	8%
6. Tuberculosis	2	8%
7. Fever	2	8%
Subtotal	18	72.0%
Total	25	100.0%

Figure 18 (Cont'd.)  
(by Regions - Diseases Cited More Than 1 Time Each

18(e)

Togdheer		
Diseases	Number Citation	Percent
(No practitioner data collected - Drugshops, PHC Health Posts, and MOH Clinics were closed in all five survey selected villages at time of visit.)		

18(f)

Sanaag		
Diseases	Number Citation	Percent
1. Bronchitis	4	26.7%
2. Malaria	2	13.3%
3. Anemia	2	13.3%
4. Dysentery	2	13.3%
Subtotal	10	66.6%
Total	15	100.0%

Drugs Recommended by Practitioners: Frequency

Practitioners were asked to recommend medications for most "common diseases". Forty seven different drugs items were cited of which seventeen items were mentioned at least 3 times ( $\frac{17}{47}$  at least 2% of citations). These seventeen items represented a total of 71.3% of all citations given:

Item	No. Mentions	%
Penicillin Inj.	12	8.5%
Aspirin Tab.	10	7.1%
Chloroquin Tab.	10	7.1%
Chloramohenicol Cap.	7	5.0%
Streptomycin Inj.	7	5.0%
Chloroquine Inj.	6	4.3%
Isoniazid Tab.	6	4.3%
Penicillin Tab.	6	4.3%
Sulfa Tabs.	6	4.3%
Tetracycline Cap.	5	3.5%
Cotrimoxazole Tab.	4	2.9%
Tetracycline O.O.	4	2.9%
Multivitamin	4	2.9%
Ampicillin Cap.	4	2.9%
Bilarcil	3	2.1%
O. R. S.	3	2.1%
Fuadin Inj.	3	2.1%
Subtotal (Items cited at least three times)	100	71.3%
Total (Items)	141	100%

Drugs Recommended by Practitioners: Frequency(By Pvt/Pub Sectors)

Item		No. Mentions	
		Public	Private
Acetaminophen	⊙	1	
Ampicillin Cap.	+	1	3
Ampicillin Susp.	⊙	2	6
Aspirin Tab.	+	5	5
Bilharzia Tab.	*		3
Chloramphenicol Cap.	*		7
Chloramphenicol Otic Drop	*		2
Chloroquine Injection	+	1	5
Chloroquine Tab.	+	3	7
Chloroquine Syp.	⊙	1	
Cotrimoxazole Tab.	+	3	1
Cough Syrup	T	1	2
Fouadin Injection	+	1	2
Gentian Violet Solution	⊙	1	
Ibuprophen Injection	*		2
Isoniazid Tab.	*		1
Merchurochrome	*		2
Multi Vitamins	*		4
O. R. S.	⊙	3	
Penicillin Tablet	+	5	1
Penicillin Injection	+	2	10
Piperazine Tab.	⊙	2	
Rifampicin Tab.	*		4
Sulfadiazine Tab.	+	1	
Sulfa Susp.	⊙	2	
Sulfa Tab.	+	2	1
Tetracycline Cap.	+	2	3
Tetracycline O. O.	+	2	2
Strep. Injection	*		7

+ Both sectors

⊙ Public sector only

\* Private sector recommended more than one time

Figure 21

PHC Drug SurveyCount of Facilities Surveyed Having Each Drug in Stock

Drug	Number FACILITIES	Percent of 28 Site Total
Aspirin Tablet	21	78.6
Aspirin Liquid	1	
Ampicillin Cap.	7	32.1
Ampicillin Susp.	2	
Chloroquine Tab.	21	78.6
Cotrimoxazole Tab.	3	17.8
Cotrimoxazole Susp.	2	
Ergometrine Tab.	2	21.4
Ergometrine Inj.	4	
Ferrous Sulfate	17	60.7
Isoniazid	5	21.4
TBI	1	
Mebendazole	3	10.7
Metronidazole	1	3.6
O.R.S.	11	39.3
Penicillin Tab.	2	42.9
Penicillin Inj.	10	
Piperazine Tab.	8	35.8
Piperazine Liquid	2	
Rifampicin	2	7.1
Streptomycin	9	32.2
Sulfadimidine Tab.	9	35.8
Sulfadimidine Susp.	1	
Tetracycline Cap.	14	46.4
Tetracycline O.D.	14	46.4
Thiabendazole	1	3.6

Figure 22

PHC Drug SurveyCount of Facilities of 28 Site Sample Having  
Contraceptives in Stock (By Region)

Region	Number Oral	Number Condoms
Lower Juba	1	0
Lower Shabelle	0	0
Bay	1	1
Northwest	1	0
Togdheer	0	0
Sanaag	0	1
Subtotals	3 (10.7%)	2 (7.2%)

PHC Drug Survey:Acceptable and Appropriate Directions

Drug	Total Both Sectors		Public Sector		Private Sector		Total Number Answers Given
	Yes	No	Yes	No	Yes	No	
Aspirin	17	3	6	1	11	2	20
Ampicillin	7	2	0	2	7	0	09
Chloroquine Tab.	18	0	5	0	13	0	18
Cotrimoxazole Tab.	2	0	2	0	0	0	2
Ergometrine	4	1	2	1	2	0	5
Ferrous Sulfate Tab.	13	2	3	2	10	0	15
Isoniazid Tab.	4	1	0	0	4	1	5
Mebendazole Tab.	2	0	2	0	0	0	2
O. R. S.	8	2	7	2	1	0	10
Penicillin Inj.	6	3	0	0	6	3	9
Penicillin Oral	2	0	1	0	1	0	2
Piperazine Tab.	7	1	4	0	3	1	8
Rifampicin	1	1	0	0	1	1	2
Streptomycin	8	0	0	0	8	0	8
Tetracycline Oral	10	3	2	1	8	2	13
Tetracycline O.O.	12	0	6	0	6	0	12

## ANNEX 1

THE SURVEY TEAM

The original project proposal called for a survey team consisting of two expatriates and four Somali nationals. The expatriates consisted of Norman Lane, Pharmacist and principal investigator, and Mirian Mitchell, research technician. The Somali nationals were to consist of two pharmacists from the Ministry of Health and two economists from the Ministry of Commerce. When it became obvious that trained professionals at these levels of expertise could not be released from their regular duties for 10 weeks to participate in a proposed survey, the requirements for survey team participants was reviewed to ascertain what other professionals might be appropriate to our perceived needs.

Discussions were held with concerned parties in the Ministry of Health, at USAID, and with several Somali officials who have had prior experience in survey type activity. There was general agreement that the most critical attributes for survey team participation were:

1. Prior experience in communication skills;
2. Prior experience with survey techniques;
3. Sufficient command of written and spoken English language to allow for in depth discussions concerning information being sought and the best manner in which answers could be recorded;
4. Additionally, in order to test the hypothesis that answers might be influenced by the sex of the interviewer, we requested that the team consists of two men and two women.

With assistance and advice from Dr. Kasim Aden Egal, DIR/PHC; Dr. Hussein M. Adam; DIR/SURED; and the particular efforts of Dr. Jusef Omar Ali, Dean/Natural Sciences/National Academy of Arts and Sciences, a team of four Somali nationals was selected that met the above criteria. The team consisted of:

- a. Abib Osman Gudal
- b. Hassan Awad Duale
- c. Milgo Mohamoud Warsame
- d. Fosia Dibil Sigad

Three of the four are school teachers. Two of the four are researchers associated with the National Academy. All were recommended by the National Academy of Arts and Sciences.

## ANNEX 2

THE HOUSEHOLD SURVEY SAMPLING PLAN

The household survey was designed to assess the degree of family unit participation in modern medication utilization at the village level in Somalia. The household survey used a multi-stage cluster sample design with rural villages being the final clusters. The sampling plan was designed to provide the most statistically meaningful information within the constraints of working in Somalia and within the time available for the study.

Constraints:

1. Although Somalia is one of the more ethnically homogenous countries in Africa, there are distinct regional variations in the emphasis put on herding, farming, and urban lifestyles. These variations tend to be increased by the geographic, historic, and climatic differences between the north and south parts of the country. Such considerations, along with a necessity to limit the sample size, led to a decision to attempt a geographically representative spread of clusters rather than choosing target villages at random from all the villages in Somalia.
2. Thirty target villages were surveyed in order that data could be summarized and analyzed with a 95% level of confidence that any summary statistics would not exhibit an error greater than + 10%. (This parallels methodology recommended by the WHO for the Somalia EPI program).
3. An additional restriction placed on the sampling plan was that only villages within 2 1/2 hours driving time from the regional base of operations would be considered appropriate for inclusion as possible targets. This restriction was based on a perceived need in some areas for the team to return to the regional base before nightfall. Since a survey of 24 households in each target village was estimated to take approximately 3 hours, it was decided that a total of 2 1/2 hours travel time each way was the maximum allowable under the given conditions.

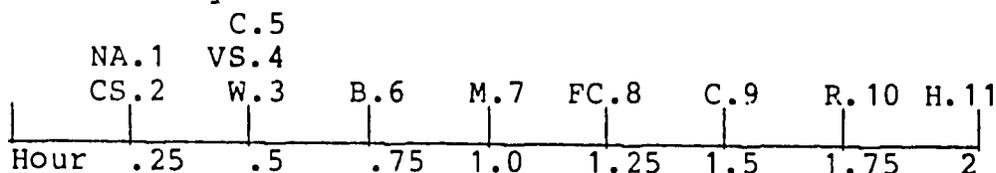
Sampling Plan:

1. The Primary Sampling Frame was the total of all 16 regions in Somalia. Of these 16 regions, 6 were chosen in a non-problemistic, judgemental manner based on:
  - a. Geographic representation;
  - b. Presence or absence of PHC activities; and
  - c. Feasibility of travel to, and within, each region.
  
2. The Secondary Sampling Frame was the total of identifiable villages reachable in each region within a 2 1/2 hour-traveltime of each regional base of operations. Five villages were selected at random in each region from among all possible target villages in the following manner:
  - a. For each Region a horizontal, straight line schematic was constructed placing the possible target villages at their reported estimated time distance from the regional base of operations. Villages that were the same time-distance from the regional base of operations were indicated vertically on the scale. Starting with the village closest in time to the base of operations as "one", the villages were numbered consecutively along the scale. Where there was more than one village at a given time distance, the villages were numbered from top to bottom. For example:

Northern Virginia Region:

<u>List of Villages</u>		<u>Time Distance from Rosslyn</u>
McLean	(7)	1 hour
Clarendon	(5)	30 minutes
Ballston	(6)	45 minutes
Virginia Square	(4)	30 minutes
North Arlington	(1)	15 minutes
Cherrydale	(9)	1 hour and 30 minutes
Westover	(3)	27 minutes
Courthouse Square	(2)	15 minutes
Falls Church	(8)	1 hour and 10 minutes
Reston	(10)	1 hour and 45 minutes
Herndon	(11)	2 hours

From Rosslyn:



- b. Target villages were then chosen using the random number table in the text Sampling for Health Professionals; P. Leug and S. Lemeshow; Lifetime Learning Publications: Belmont, CA.; 1980
3. The Tertiary Sampling Frame was the target village itself. Twenty four household units were surveyed in each village (six household units each by a total of four interviewers). The choice of households to be surveyed was based on the following sampling frame:
    - a. For villages with less than 100 reported households: the whole village was considered a target area and the P.I. dispersed the four interviewers with directions to each seek interviews in a different quadrant of the target area.
    - b. For villages with more than 100 reported households: Presurvey discussions with the local sheikh ascertained the number of administrative districts in the village (usually two to five) and a consecutive, sequential numerical value starting with "one" was given to each administrative district. The P.I. then randomly asked one of the team members for a Somali shilling banknote and read the last digit of its serial number as the indicator with which to choose the target administrative district. If the indicator digit was not appropriate to the selection process, a new banknote was called for and the process repeated. Once the target administrative district was identified, the P.I. dispersed the four interviewers with directions for each to seek interviews in a different quadrant of the target area.
    - c. During pretesting of survey instruments we found that household unit positioning at the village level seldom followed a straight line pattern (except for those buildings positioned along the access road or track). Furthermore, we found that most frequently it was not possible to survey adjacent household units due to the absence of an adult capable of answering questions. Therefore, it was decided that each interviewer would seek interviews within their assigned quadrant of the target area in a random, but non-structured, manner.

## ANNEX 3

## THE HOUSEHOLD QUESTIONNAIRE

Definition of Terms Used in Questions

1. Question 1 refers to the type of village being surveyed. The terms used being (a) "Sedentary" meaning having a predominantly permanent year round population; (b) "Nomad" meaning having a predominantly semi-nomad population; and (c) "Other" meaning a more or less equal mix of the first two choices. All villages were rural, so the category "Urban" was not functional.
2. Answers to this question were based on respondee's answer only and represents the respondee's perceptions of ages involved. 1 = infant; 1-5 = child; 5-15 = youth; 15-50 = adult; 50 = old person.
3. "Head of Household" was defined as "functional head of household at the time of the survey".
4. Answers to language competency were accepted without attempt at qualification.
5. (No definition required)
6. "River" and "Well" are definite enough, but it should be noted that both "Pond" and "Spring" could be seasonal sources.
7. (Question 7 was deleted when it was found that few, if any, households at the village level had any formal facilities for either bathing or excretion.).
8. Answers to this question were accepted without attempting to qualify the answer.
- 9-16. (No definition required)

HOUSEHOLD SURVEY

Document No. \_\_\_\_\_

Town; Region \_\_\_\_\_

Date \_\_\_\_\_

Interviewer \_\_\_\_\_

1. UNIT TYPE: a) Rural: Sedentary\_\_\_ Nomad\_\_\_ Other\_\_\_  
b) Urban: \_\_\_\_\_

2. How many people live in this household/compound?

How many males and their ages?

How many females and their ages?

	<u>Male</u>	<u>Female</u>
<1	_____	_____
1-5	_____	_____
5-15	_____	_____
15-50	_____	_____
>50	_____	_____

3. Is the head of the household male\_\_\_ or female\_\_\_?

4. How many people in the household can read\_\_\_ or write\_\_\_?  
Which languages can each read or write?

	<u>Read</u>	<u>Write</u>	
Somali	_____	_____	
Arabic	_____	_____	
Italian	_____	_____	
English	_____	_____	
Other	_____	_____	(Specify) _____

5. Does anyone in your household/compound have a radio?  
Yes\_\_\_ No\_\_\_

6. Where do you get your water from?  
River\_\_\_ Well\_\_\_ Pond\_\_\_ Latrine\_\_\_ Other\_\_\_ None\_\_\_?

7. Do you have a: Bathroom\_\_\_ Latrine\_\_\_ Other\_\_\_ None\_\_\_?

Is it:	Clean	_____	Dirty	_____
	Good Repair	_____	Poor Repair	_____
	Many Flies	_____	No Flies	_____

8. What do you do with garbage \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Household Survey - page 2

Document No. \_\_\_\_\_

9. When someone in your household/compound needed medicine, where did you get it from? \_\_\_\_\_  
 Why did you go to this source? \_\_\_\_\_  
 How much time did you have to travel to get the medicine? \_\_\_\_\_
10. a) What modern medicines have been used in your household compound in the last six months?
- |       | Patient |
|-------|---------|
| _____ | _____   |
| _____ | _____   |
| _____ | _____   |
- b) What traditional medicines have been used in your household/compound in the last six months?
- | Item(s) Used | Patient |
|--------------|---------|
| _____        | _____   |
| _____        | _____   |
| _____        | _____   |
11. What medicines do you have now?
- | Item(s) | Quantity | Condition |
|---------|----------|-----------|
| _____   | _____    | _____     |
| _____   | _____    | _____     |
| _____   | _____    | _____     |
12. Where would you seek help first if someone in your household/compound were ill? \_\_\_\_\_  
 What would you do next? \_\_\_\_\_  
 And after that? (Repeat the question as required until the step in which the drug is obtained has been reached.) \_\_\_\_\_
13. See following page.
14. How much money was spent on all medicines in your household/compound in the last six months? \_\_\_\_\_
15. Where did the money for medicines come from? \_\_\_\_\_
16. a) In the Past six months, has your household/compound spent money on:
- |                                     |         |        |       |
|-------------------------------------|---------|--------|-------|
| Drugs                               | yes ___ | no ___ | _____ |
| Agriculture Tools, etc.             | yes ___ | no ___ | _____ |
| Veterinary Medicine                 | yes ___ | no ___ | _____ |
| Furniture and other Household Items | yes ___ | no ___ | _____ |
| Tobacco                             | yes ___ | no ___ | _____ |
| Food                                | yes ___ | no ___ | _____ |
| Tea                                 | yes ___ | no ___ | _____ |
| Feasts & other Celebrations         | yes ___ | no ___ | _____ |
- b) If money has been spent on any of the above items, how much was spent? (Enter the answer in the space to the right of the item on which money was spent



## ANNEX 4

## THE PRACTITIONER SURVEY

The purpose of the Practitioner Survey was to assess (as far as possible) the efficacy of pharmaceutical practices available to villagers in the target areas. The following definitions apply:

1. "Practitioner" refers to the dispenser of medical advice or pharmaceutical items or both and may include both public or private sector facilities reported in household surveys as sources of medications.
2. Attempts were made to interview all practitioners of public sector services existing at target villages - where no interview occurred, it was because the public health worker was absent and the facility closed.
3. Randomly selected private sector drug shops at village, district, and regional levels of each region were interviewed as being representative of private sector input to drug availability for target villages.
4. Each practitioner was asked to name the four most often diagnosed diseases/injuries and to discuss the recommended treatment for each.

## PRACTITIONER SURVEY

Document Number \_\_\_\_\_  
 Town; Region \_\_\_\_\_, Date \_\_\_\_\_  
 Interviewer \_\_\_\_\_

Name of Facility \_\_\_\_\_, Respondent's Title \_\_\_\_\_  
 Type of Facility: PHCU \_\_, District Clinic \_\_, Drug Shop \_\_,  
 Other (specify) \_\_\_\_\_

Most Often Diagnosed Diseases/Injuries	Druges Used	Dosage/Administration	Other Treatment

— — —'— — —'— — —'— — —  
 — —'— —'— —'— —'— —'— — —  
 — —'— —'— —'— —'— —'— — —  
 — —'— —'— —'— —'— —'— — —

## ANNEX 5

THE P.H.C. DRUG SURVEY

A select committee of key decision makers concerned with the selection of PHC drugs was convened by the USAID Advisor to the Director/PHC for the purpose of establishing a primary list of PHC drugs to be investigated. The committee consisted of the following:

Dr. Kasim Aden Egal; Director/PHC  
Dr. Mohamoud Ibrahim; Deputy Director/PHC  
Dr. Hussein Bari; Chairman/Essential Drug Committee/MOH  
Dr. Gary Slutkin; USAID Advisor to Director/PHC  
Dr. Sandy Gove; Advisor to Director/RHU  
Dr. LAli Sheikh Omar; Chief, Pharm./PHC

An initial list of 20 drugs was offered by the P.I. for priority ranking which was modified by the committee to a much larger list from which 21 drugs were chosen for priority concern. The rationale for this change was the committee's agreement that baseline statistics on a strategic number of drugs - occurring on both the PHC and the RHU list of essential drugs for PHC - would be of more value than a mere ranking of the most widely used items. Therefore the committee prepared a list that would:

1. Assess the presence of three most commonly used T.B. drugs;
2. Assess the presence of the three most common anthelmantics;
3. Assess the presence of the key antiprotozoal agent used in Somalia;
4. Assess the presence of the most common antimicrobial agents;
5. Assess the presence of the major antimalarial in use in Somalia;
6. Assess the presence of O.R.S.

The committee felt that a list containing the above items would include those drugs most required for treatment of critical conditions in Somalia's rural areas. Additionally, the committee noted further value in establishing a baseline drug presence relating to possible future chloroquin/Fansidar resistance. Finally two family planning items were added since a large family health project is just now being formulated and this baseline data would be timely.

## PHC DRUG SURVEY

Document Number \_\_\_\_\_  
 Town; Region \_\_\_\_\_, Date \_\_\_\_\_  
 Interviewer \_\_\_\_\_

Name of Facility \_\_\_\_\_, Respondent's Title \_\_\_\_\_  
 Type of Facility: PHCU \_\_, District Clinic \_\_, Drug Shop \_\_,  
 Other (specify) \_\_\_\_\_

PHC Drug	Usable Quant.	Outdated Quantity	How Long Stock Is Adequate	Delivery Frequency	Amount Usually Dispensed	Patient Directions	Cost to Patient
1. Aspirin/Paracetamol							
2. Ampicillin							
3. Chloroquine							
4. Cotrimoxazole							
5. Ergometrine							
6. FeSO4							
7. Isoniazid							
8. Mebendazole							
9. Metronidazole							
10. O.R.S.							
11. Penicillin Tab/Syp							
12. Penicillin Injection							
13. Piperazine							
14. Rifampicin							
15. Streptomycin							
16. Sulfadimidine							
17. Tetracycline Tab/Syp							
18. Tetracycline 0.0							
19. Thibendazole							
20. Condoms							
21. Oral Contraceptive							

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## ANNEX 6

THE VILLAGESAdadley

Located 95 km. N.E. of Hargeisa in the Northwest Region; the first 60 km. (on tarmac) takes about 30 minutes, the last 35 km. overland takes more than two hours as we follow a vague track and occasional tire-print through scrub brush country and past mesas - very much like some of the Columbia Plateau Country of eastern Washington State. The village consists of 1,500 households with a total population of 10,000. Adadley is a subdistrict center with 12 small villages satellite to it. There is a private sector drug shop and PHC clinic. The village is divided into two administrative districts.

Arabsia

Located 35 km. west of Hargeisa in the Northwest Region. There are 3,000 reported households with a total population of 18,000 - but across the road is a refugee camp that functionally doubles the population figures and adds the services of a Refugee Health Unit physician and nurse to the medical services available locally. The village has PHC/MPH clinic and three drug shops. There are two administrative divisions in Arabsia.

Awdinle

Located 29 km. west of Biadoba in Bay Region, the village is reported to have 490 households and a population of 4890. There is an MCH clinic that is also designated as a PHCU. This village was the dirtiest place we visited in the three southern regions - there was a primitive laxness about basic sanitation procedures that was startling when compared with the efforts to produce clean, orderly compounds elsewhere. We were told by several villagers that they did not trust the well water and preferred water from "ponds" (i.e. puddles) as safer. When we visited the MOH clinic, we found it open and the public health nurse in attendance told us that he was expecting our visit.

### Ber

Located 30 km. east and 2 km. overland north, of Burco in Togdheer Region. A population of 2000 lives in 250 households. There is no PHC or MOH clinic, nor is there any private sector drug shop. Ber is a village about 2 km. off the main road in the middle of a flat red clay plain. The word "Ber" means garden - but although the rains have been plentiful this year, the ground was already dry and pulverized so that the constant winds carried red dust everywhere - reminding one of descriptions of the U.S. dustbowl farms of the 1930's.

### Bhoor Heybwe

Located 97 km. northeast of Biadoba in Bay Region, the last 35 km. follow an overland track northeast of Bhoor Hakaba. This village has 80-90 reported households with a total population of approximately 2,000 persons. There is one PHC clinic and one drug shop. Bhoor Heybe is the name of a pink granite mountain that sticks up out of the surrounding plain - and gives its name to the nearby village. Early in 1985 a University of Georgia team found an ancient human skeleton in a cave near the top of Bhoor Heybe. The village households consist of five or six individual huts grouped within an exterior fence with yards that are neat and swept. There is feeling of stylishness about Bhoor Heybe's courtyards - good use of controlled space - with decorative details utilized to advantage.

### Bula Gulhud

Located 34 km. northeast of Kismayo in Lower Juba Region. It consists of 400 households with a population of approximately 3,000 persons. The town is divided into three sections for administrative purposes. There is a MOH clinic but is it non-functional since "there are no drugs" and "the public health worker is absent".

### Bula Haji

Located 80 km. southwest of Kismayo in Lower Juba Region. It consists of 570 households and a total population of about 5,000 persons, but this is a nomad town and a part of its population is almost always absent. Many of the "Houses" are semi-permanent half-round huts, 8-10 feet in diameter - like handleless cups turned upside down. Bula Haji is 2 1/2 hours driving time from Kismayo toward the Kenya border - and many of the drugs we found here were of Kenyan origin.

### Bulo Meseer

Located 39 km. northeast of Kismayo in Lower Juba Region. This village consists of 50 households with a population of 300. The village headman radiated a sense of charismatic strength and he told us that in addition to being responsible for his village, he was also a traditional healer.

### Ceel Afwayne

The capital of one of Sanaag Region's three districts. It has an estimated population of 6,000 divided into about 1,000 households. There are twelve villages in district that Ceel Afwayne administers. Only two have MOH clinics - one with three nurses and Garadag (which we visited) with one nurse assigned. The permanent houses are mostly of stone faced with cement. Some have painted fronts in bright colors of geometric design.

### Cobon

Located 65 km. northeast of Kismayo in Lower Juba Region, consists of 696 households with a population of 3856. This village has written records of its households and population. The village is divided into four administrative sections. There is an M.O.H. clinic and there are two general stores that sell pharmaceuticals. The clinic was closed when we visited and we were told that "no drugs were available there". It was also said that the public health nurse "gives injections only". Two general stores have "Pharmacy sections" - i.e. a separate set of shelves with stocks of procaine penicillin injection, aspirin, chloroquine tablets and bilarcil tablets - thus effectively servicing the three reported major diseases: malaria, gonorrhoea, and bilharzia.

### Garadag

Located 83 km. southeast of Ceel Afwayne has a population of 2,000 divided into 200 households. There is an MOH clinic but it had not received any drugs "since 1984". The male nurse who would have worked in the MOH clinic also owned and operated a private sector drug shop.

### Gardoole

Located 56 km. west of Biadoba in Bay Region, the village is reported to have 1,500 households and a population of 6,000. There is one private sector drug shop and a MOH Clinic that is

also designated as a PHC unit and receives PHC drugs. The village is divided into four administrative sections. The compounds here are fairly small, but are well maintained and project a sense of neatness. At several compounds the husbands arrived as we interviewed with the women and took over the role of interviewee with interest and cooperation. The MOH clinic was open when we visited and the public health nurse was in attendance (but later we learned that he had been advised of our probable visit).

### Goa

Located only 86 km. northwest of Burco in Togdheer Region, the distance is overland following a track that constitutes the "old road to Hargeisa" and it takes 3 hours to reach Goa from Burco. The village has 140 permanent households with a standing population of about 1,000. There is a health post - but it was "closed" since "there are no drugs". Goa also has a drug shop - but it, too, was closed due to the fact that "the owner took all the drugs and followed the nomads" since he could "make more money that way."

### Goof Gaduod

Located 30 km. northeast of Biadoba in Bay Region, Goof Gaduod was reported to have a population of approximately 4,000, but we were unable to get a figure for "number of households". There is a MOH Clinic which is also designated as a PHC Health Post but it was "closed" when we visited. Several people reported that "there are no drugs at the clinic" and that "if you donk't give him money, you don't get anything".

### Gulweyn

Located 35 km. S.W. of Merca in Lower Shabelle the village, which consists of 1064 households, has a population of 11,375. Gulweyn is the largest village in Lower Shabelle which, itself, is the most populous region in Somalia. The compounds are arranged in spacious lines along more or less regular streets so that Gulweyn is really more a town than a village. Household courtyards are more formal in Gulweyn than in most places we visited. The rectangular buildings of daub-and-wattle construction with thatch roofs are arranged so that five to seven units are attached to each other so as to form a "U" shape around a courtyard whose fourth side consists of a fence with an "outside" door. There is a MOH Clinic which doubles as a PHC Health Post. It is located in an old two room "dispensary" built by the Italians before independence. We found a trained nurse in attendance and her professionalism was evident as we discussed drug dispensing and recommended dosages.

Hadumin

Located 25 km. southeast of Merca in Lower Shabelle Region, it consists of 663 households with a population of 4706 persons. This "village" along the Juba River actually consists of five small villages within a mile or so of each other. They have been grouped together for administrative purposes but still maintain their own sense of identity by naming themselves Hadumin-1, Hadumin-3, etc. We interviewed households in Hadumin-5.

Ijarra

Located 72 km. west of Hargeisa on the old road in the Northwest Region, it is 5 km. west of Taysa. The village has 113 households and a reported population of 550. There is a functioning PHC Clinic here with a Community Health Worker in attendance. Although only 5 km. away from Taysa, Ijarra presents a surprisingly different image - louder, pushier and somehow less reliable.

Janale

Located 20 km. east of Merca in Lower Shabelle Region, it has a population of 15,000 divided into three administrative sections. Janale is a sub-district town with a central "business section" encompassing shops, restaurants, small hotels, etc. Household compounds are clustered about the business center forming residential areas. The compounds seem to be organized on a more open plan with greater multi-use space than in most of the sedentary communities we visited. Many compounds were not completely walled in - thus adding to the open space feeling. Janale has a MOH Clinic but no one was present and it was reported that "there were no drugs".

Jilib Merca

Located 15 km. north of Merca in Lower Shabelle Region, it consists of 275 households with a population of 2,733. This is an old coastal village probably going back to the 16th century when Persians established trading posts in this area. Today its economic base is due to the success of a weaver's cooperative.

Kalabaydh

Located 67 km. west of Hargeisa in the Northwest Region, it reportedly has a population of 400 and 1,500 households - an

unusual proportion of persons to household until one learns that Kalabaydh was a major Qat market until two years ago when Qat chewing was made illegal. When we visited the village many more than half of the compounds were locked up and unoccupied. There is no PHC facility, but there is a MOH Clinic with its attendant public health worker. There is also a private sector drug shop.

### Kasummo

Located 60 km. northeast of Kismayo in Lower Juba Region, it consists of 550 households with a population of 7,000. Only one household had a latrine. There is a MOH Clinic but it "was closed" and reported to have "nothing in it". There were three "pharmacies" in Kasummo - but only one was open at the time we visited and the "pharmacist was not present" while the woman in charge could not answer our questions concerning drugs and drug stocks.

### Kulmiye

Located 40 km. northeast of Ceerigabo - 90 minutes driving time - in Sanaag Region it consists of 35 households with a permanent population of about 200. The village is a center for five small satellite communities - and a Community Health Worker (who doubles as a traditional birth attendant) is responsible for the whole area. The village is at the head of a fine valley surrounded by flat buttes with thorn trees on their lower slopes. Here houses are scattered about with considerable space between compounds creating an overall effect of an open landscape.

### Laleys

Located in the lowlands below Sheikh Pass 86 km. northwest of Burco in Togdheer Region, it has a population of 500 living in somewhat less than 100 households. The village rented a space for a PHC Health Post and selected a Community Health Worker who was trained at Sheikh, a two month supply of some drugs were delivered only once six months ago. Now the Health Post is nonfunctional.

### Leego

Located 40 km. from Afgoi in the Wellaweyn District of Lower Shabelle Region, it consists of 400 household having a population of 2,000. Leego is a semipermanent "nomad" town housing the families of nomad men who work in Mogadishu in

commerce or in the government. It is visibly more "rural" than most of the sedentary villages that we visited with thorn bushes defining the parameters of each compound.

### Magaalo Yer

Located 62 km. east of Burco in Togdheer Region, it has about 150 households and a standing population of 2,000. Magaalo Yer is semi-nomadic. However, the many permanent dwellings reflect the fact that this is a road side village which obtains revenue from servicing travelers.

### Misra

Located 97 km. south from Biadoba in Bay Region, it consists of a reported 500 households and a population of 5,000. The village is divided into two administrative sections. There is a Community Health Worker assigned to a PHC Health Post but "he left for Baidoa yesterday" and the Health Post was locked up. There is no other source of pharmaceuticals in Misra - the nearest source being at Dinsor which is a full day's journey.

### Sugsade

Located 51 km. northwest of Burco in Togdheer Region on the road to Berbera and then 12 km. northeast overland toward the mountains into a lovely wide valley - perhaps the finest village setting we found in Somalia. There are a reported 200 households with a permanent population of about 2,000. Although there are both a PHC Community Health Worker and a MOH Public Health Worker assigned to this village, the clinic was closed because there was "no drugs for three months".

### Taysa

Located 67 km. west of Hargeisa in the Northwest Region on the "old road", the village has 80 households and a population of approximately 800. This is a seminomadic village with a group of permanent rectangular houses clustered at the road side which are surrounded by scattered half-round nomad huts. There is a functioning PHC clinic and a CHW. Except for a few metal wheel barrows and 50 gallon drums, this could be what a trading post in New Mexico or Arizona looked like a century ago.

Yoffle

Located 38 km. west of Ceerigabo in Sanaag Region on a track that required 2 1/2 hours to cover. The population is "almost 1,000" divided into 137 households. There are four PHC Community Health Workers assigned to Yoffle whose jobs are to service smaller satellite communities - and one MOH nurse at a clinic to service Yoffle itself. When we visited, the clinic was closed "because there were no drugs". There is no private sector drug shop, but "such things as aspirin" can be purchased from the small general stores. The permanent houses are built of stone and are very much in the European Romantic tradition, so that it is not too difficult to imagine oneself to be a mid-19th century Englishman visiting the mountains of Greece.

## ANNEX 7

SCHEDULE OF SURVEY TEAM ACTIVITY

31 July - 5 August	Practice group dynamics; pretest survey instruments of three villages.
6 August - 15 August	Drive to Lower Juba Region; interview regional officials; survey five villages.
16 August - 22 August	Drive to lower Shabelle Region; interview regional officials; survey of five villages.
23 August - 27 August	Return to Mogadishu; review activities and fine tune individual participation; initiate data input to computer; service vehicle.
28 August - 2 September	Drive Bay Region; interview regional officials; survey five villages.
3 September-6 September	Return to Mogadishu; arrange supply logistics for northern half of trip.
7 September-15 September	Drive to Northwest Region; interview regional officials; arrange fuel logistics support with UNICEF; survey five villages.
16 September-23 September	Drive to Togdheer Region; interview regional officials; survey five villages.
24 September - 1 October	Drive Sanaag Region; interview regional officials; survey five villages.
2 October - 3 October	Drive Hargeisa; return borrowed equipment, etc.
4 October - 6 October	Return to Mogadishu.

## ANNEX 8

PERSONS PARTICIPATING IN DISCUSSIONS

The following persons participated in various discussions and consultations pursuant to implementation of one or more phases of the drug utilization survey:

a. Ministry of Health:

Dr. Ahmed Shariff Cabaas; Director General, Preventive Medicine

Dr. Kasim Aden Egal; Director, Primary Health Care

Dr. Mohamed Ibrahim; Deputy Director, Primary Health Care

Dr. Hussein Barre Museh; Director, Drugs and Medical Supplies

Dr. Ali Sheikh Omar; Chief Pharmacist/PHC

Dr. Cabdi Kamal Ali; Director, Refugee Health Unit

Dr. Gary Slutkin; Advisor to Dir/PHC

Mr. Noel Brown; Chief of Party, MSCI

Mr. Phillip Warren; Logistics Officer, MSCI

Dr. Sandy Gove; Advisor to Dir/RHU

Dr. Renieri Guerra; Advisor to Planning Unit

Dr. Richard Montanari; Advisor to Planning Unit

b. USAID

Mr. Louis Cohen; Mission Director

Mr. John Rose; Health Officer

Ms. Margaret Neuse; Population Officer

Ms. Maureen Brown; Family Health Consultant

Dr. Anita Bennetts; Family Health Consultant

Mr. Farah Abdouker; Liaison Officer

c. ASPIMA

Dr. Harred Farah Nuer; Director General

Dr. Abdullahi Mohamoud Siad Barre; Deputy D.G.

d. UNICEF

Dr. Grgorio Monasta; UNICEF Representative

Mr. Stewart McNab; Deputy Representative/UNICEF

Mr. Juha Klemola; Program Officer/UNICEF

Mr. Jurgen Anderson; Program Officer/UNICEF

e. WHO

Dr. A. Amini; WHO Representative

Dr. Salim K. Dallah; WHO PHC Advisor

f. National Academy of Arts and Sciences:

Dr. Jusef Omar Ali; Director/Natural Sciences  
Dept./Somali National Academy of Arts and Sciences

g. SURED

Dr. Hussein M. Adam; Director/Somali Research Unit for  
Emergencies and Rural Development

Dr. Mohamed Hassan; Assistant Director/Somali Research  
Unit for Emergencies and Rural Development

h. EPI

Mr. Bob Davis; Director/Expanded Program Immunization

i. ELU/CARE

Mr. John Marks; Deputy Team Leader

j. EIL

Dr. Stanley S. Andrews; Director/EIL/Somalia

k. Bay Region

Dr. Cabdi Rahxman; Regional PHC Coordinator/Bay Region

Mr. Abdullahi Osman Mohamed; PHC Training Center  
Principal/Bay Region

l. Lower Shabelle

Mohamoud Osman Jama; Assistant Regional Governor/Lower  
Shabelle

Dr. Cabdi Karim; Regional Medical Officer/Lower Shabelle

m. Lower Juba

Omar Mussa; Acting Regional Governor/Lower Juba

Dr. Nuer Ali; Acting Regional Medical Officer/Lower Juba

n. Northwest Region

Dr. Abdullahi Xasan Farah; Regional PHC Coordinator/NW  
Region

Nur Mohamoud Cadi; Assistant District Officer/Adadley

Mr. James Paton; Resident Program  
Officer/UNICEF/Hargeisa

Dr. Chris Bentley; Medical Officer/UNICEF/Hargeisa

Mr. Jan Haakonsen; Monitoring and Evaluation Officer/  
UNICEF/Hargeisa

Mr. Ken Williams; UNICEF Regional Advisor/Statistics

o. Togdheer Region

Col. Maxamed Geelle Cabdi; Governor/Togdheer Region

Dr. Ali Abdi Hise; Regional PHC Coordinator/Togdheer  
Region

Cabdi Eile Kalinle; Principal/PHC Training Center/Burao

p. Sannag Region:

Ibrahim Cabdi Elim; Governor/Sanaag Region

Dr. Ahmed Hashi Mohamed; Regional PHC Coordinator/Sanaag

Maxamoud Moxamed Caafi; Regional PHC Training  
Officer/Sanaag

Mr. Julian Roberston; PHC Coordinator/CAA/Sanaag

Mr. Jeremy Davies; Action Aid/Sanaag

Xaji Yusef Moxamed; Mayor/Ceel Afwayne

Xasan Xaji Moxamed; District Medical Officer/Ceel  
Afwayne

## ANNEX 9

REFERENCE DOCUMENTS

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