

## CORRIGENDUM

The following items in the report *IOM Georgia Winter Operations Planning Report, 8 October to 8 November 1993*, are incomplete or inaccurate. Please note these additions or corrections.

Add to FOREWORD: The conclusions of this report refer to the situation at the time of completion of the mission on 8 November, 1993. Updates on the situation can be obtained from the Government of Georgia, IOM/Georgia, and donor and non-governmental organizations working in Georgia. A follow-up IOM mission to conduct two emergency preparedness workshops took place 23 January to 4 February, 1994. GOG representatives participating in the workshops amended or added three critical recommendations to those listed in the executive summary of the report:

1. Based on WFP CLAU study of the Caucasus regional rail network completed at the end of 1993, provide approximately US\$4 million to rehabilitate the Georgian railway.
2. Provide all-road vehicles or trucks for transport of humanitarian aid and other commodities. Improve and strengthen capacity for vehicle maintenance and increase availability of fuels.
3. Strengthen communications systems and provide updated equipment including telephones, fax machines and computers.

The GOG representatives attending the workshops prioritized the five most critical recommendations. Some related recommendations have been combined and some have been reworded.

1. **Energy:** The provision of power to electric substations supplying railroads, wheat mills, bakeries and hospitals should be given highest priority. For the three month winter period, 15,500 MT of mazout and 4,800 MT of diesel are needed for bread ovens in case the natural gas supply is lost.
2. **Monitoring:** GOG and NGO agencies assisting vulnerable groups should monitor the nutritional status of their target populations as well as the general population to prepare for increase in food assistance needs, and provide public service announcements to publicize the available options and procedures for obtaining relief.
3. **Information and communication systems:** Data management experts should assist the GOG to develop an effective data base for management and coordination of information related to humanitarian assistance and the health system and to provide on-the-job training for staff who will continue to use it. Systems for communications should be strengthened with updated equipment including telephones, fax machines and computers.
4. **Needs assessments:** An appropriate agency should be identified to perform needs assessments of vulnerable groups and to coordinate needs assessments of operating agencies to ensure coverage of all persons in need.
5. **Food supply:** The GOG should convene and coordinate a working group, with assistance of WFP, including donors and NGOs to collect and share information concerning wheat stocks, wheat pipeline (lead times for ordering and shipment) and schedules for delivery. Contingency plans should be made to increase the bread ration or increase the caloric density of the bread by adding supplements to the dough. Possible assistance measures to prevent nutritional deficiencies include setting up soup kitchens to serve vulnerable groups, subsidization or distribution of vegetables, animal products, or other supplementary foods, or provision of vitamin and mineral supplements.

Pages 6 and 7: All references to tons or tonnes should read "MT"

reasons were cited for the delay: vaccinations are not routinely given during the summer months; high fuel costs and fuel shortages; lack of transport vehicles; and security problems in many areas of the republic. REACH is currently conducting a seminar for the MOH on vaccination policy and vaccine distribution.

#### **Cold Chain**

Cold chain capacity and reliability also appear to be problems. Polyclinics visited in Tbilisi, Telavi, and Borjomi each had one small refrigerator and no backup in the event of power outages. Power is expected to be limited to a few hours per day in Tbilisi.

A total of US\$ 692,700 was budgeted for cold chain equipment under the USA/GOJapan Joint Immunization Initiative and US\$ 641,285 has been used to purchase priority items. REACH has immunization and cold chain workshops scheduled for November and December, 1993.

#### **3.3.8 Water and Sanitation**

The republic San/Epi station in Tbilisi reports that Georgia has 1300 registered water sources. Of these 140 are categorized as central sources (cities), 127 are for smaller towns, and the remainder are village or other rural sources. Many of these potable water systems are old and in poor repair, and many of the rural systems are not chlorinated. The mission was not able to visit each of the water systems but the following systems provide representative examples of the systems in the Georgia.

##### **Tbilisi (pop 1,263,000)**

Tbilisi has two major sources of water, a large reservoir 40 km northwest of the city and the Aragvy River which flows through the city. The water engineers indicated that the system has adequate capacity and enough redundancy and supplies (liquid chlorine is purchased from Armenia) to operate through the winter. Approximately 20% of the distribution system is very old resulting in frequent breaks, water loss, and probable contamination.

The chief engineer of the regional sewage treatment system (includes Tbilisi) indicated that although the plant is currently able to handle the volume of sewage it receives (70% of maximum capacity), it is equipped to provide only "essential purification." The discharge water is still far below acceptable levels of fecal contamination.

##### **Kutaisi (pop 250,000)**

The city water engineer indicated that Kutaisi's water system was one of the worst in the republic. A recommendation had been made two years earlier to replace the portion of the system supplying the central part of the city where 40% of the population reside. As many as 20,000 displaced persons are also now located in this area. The system is currently in need of coagulant (240 MT for the remainder of 1993, and 2000 MT for 1994) as well as chlorine, replacement pumps and spare parts.

#### **Water Testing**

Water testing is supposed to be done by the district or city San/Epi stations on a regular basis. The water quality surveillance system appears to operate normally in the large population centers, but due to shortages in testing supplies (reagents, bacteriology materials, chlorine test kits), and fuel for transportation to water sources, the system is breaking down in the rural areas. MOH data show that of the approximately 10,000 annual bacteriologic tests performed of Tbilisi's potable water, only 0.2% - 0.3% fail to meet WHO water quality standards. The

3. Georgia has an over abundance of health care providers. However, due to inadequate training, many appear to lack appropriate diagnostic and treatment skills and the best trained are leaving clinical practice due to extremely low (token) salaries. An organization should be identified and funded to develop and implement a training program for primary health care physicians and mid level health care providers. This should include the training of a cadre of local trainers using accepted diagnosis and treatment protocols. Consideration should also be given to providing health care professionals with financial incentives. The goals of an incentives program would be to encourage health care professionals to continue providing health care and to motivate them to change inappropriate medical care practices.

#### **4.3.2 Public Utilities**

##### **Critical Recommendations**

1. District heat will not be provided to homes and public buildings in Tbilisi and other urban areas of Georgia this winter. Cold stress from chronic exposure to cold temperatures will undoubtedly contribute to morbidity and mortality this winter, especially among the vulnerable groups. Programs should be funded to provide these groups with alternate forms of home heating (i.e., wood, coal, and kerosene stoves).

2. Many of Georgia's potable water systems are very old, prone to leakage and contamination, over burdened with the addition of displaced persons, and have insufficient supplies of coagulant, chlorine, and spare parts to effectively operate during the next 12 months. An organization should be identified and funded to assist the GOG to inventory the essential spare parts and supply needs of Georgia's potable water systems. Priority should be given to Kutaisi and smaller population centers that are receiving large numbers of displaced persons. Funding sources should be found to meet these needs.

#### **4.3.3 Laboratories**

1. With few exceptions, Georgia's medical (hospital and clinic) and public health laboratories (including the central laboratory) rely on old often unreliable equipment and are in urgent need of critical supplies. These shortages seriously reduce their ability to accurately diagnose disease and safeguard public health. The MOH should be assisted to inventory the essential laboratory equipment and supply needs of the republic and donors/funding sources should be sought to meet these needs.

#### **4.3.4 Medicines/Medical Supplies**

##### **Critical Recommendation**

1. Georgia produces no medicines or medical supplies and is entirely dependent upon outside assistance. While some medications and supplies are available from the evolving private pharmacy system, prices are well beyond the means of the vulnerable groups. Essential drugs and medical supplies remain in short supply and it is unclear whether the current level of humanitarian aid will be able to meet the ongoing needs. Donors should be encouraged to continue their donations but they should coordinate the content and timing of these donations with the needs outstanding.

2. The Institute of Vaccine and Sera which previously produced vaccines and diagnostic test materials (sera) for use in laboratories, appears to have potential for re-starting production of these materials. An assessment should be made of this institute's capacity and prospects for producing diagnostic sera and vaccine. There will be an ongoing need for these products, so the development of an indigenous source is desirable.

3. The vaccine supply needs of Georgia have been met for 1992-93 (delivered, or committed) and UNICEF has promised to provide the needs for 1994-95. However, to date only a fraction of current stocks have been distributed. Georgia's cold chain capacity and reliability are also problematic, but

International Organization for Migration  
United States Agency for International Development

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**IOM Georgia Winter Operations Planning Report  
8 October to 8 November 1993**

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## ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BTU	British Thermal Unit
CIS	Commonwealth of Independent States
CLAU	Caucasus Logistics Advisory Team
COR	GOG State Committee on Refugees
EEC	European Economic Community
FSU	Former Soviet Union
GOG	Government of Georgia
GSCGP	GOG State Corporation for Grain Products
HAC	GOG Humanitarian Assistance Commission
HPP	Hydro power plant
IDP	Internally Displaced Persons
IFRC	International Federation of Red Cross/Red Crescent Societies
LPG	Liquified petroleum gas
MOH	Ministry of Health
MOLSA	Ministry of Labor and Social Affairs
PEM	Protein-energy malnutrition
PHC	Primary Health Care
REACH	Resources for Child Health
ROG	Republic of Georgia
RRA	Rapid Rural Appraisal
San/Epi	Sanitation & Epidemiology
SCFER	GOG State Committee on Foreign Economic Relations
TPP	Thermal power plant
USDA	United States Department of Agriculture
WFP	World Food Program
WHO	World Health Organization

## FOREWORD

The International Organization for Migration requested InterWorks, on behalf of the United States Agency for International Development, to conduct an emergency mission to the Republic of Georgia. The terms of reference for the IOM/USAID mission, as established by IOM, InterWorks and USAID before the departure of the team, called for the team to assess the preparedness of the Republic for a potential 1993-94 winter emergency. The mission was conducted from 8 October to 8 November 1993.

The conclusions of this report refer to the situation at the time of completion of the mission on 8 November 1993. Updates on the situation can be obtained from the Government of Georgia, IOM/Georgia, and donor and non-governmental organizations working in Georgia. A follow-up IOM mission to conduct two emergency preparedness workshops took place 23 January to 4 February 1994. GOG representatives participating in the workshops amended or added three critical recommendations to those listed in the executive summary of the report:

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3. Communications systems should be strengthened and updated equipment including telephones, fax machines and computers should be supplied.

The GOG representatives attending the workshops prioritized the five most critical recommendations. Some related recommendations have been combined and some have been reworded.

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## **Part 1 - Introduction and Terms of Reference**

When Georgia left the USSR four years ago, its population had one of the highest standards of living among any of the republics of the Soviet Union. Today people wait in line all night for bread, meat is a luxury affordable only to an elite, and Georgia is in the midst of a crisis which threatens the subsistence of much of its population. This crisis is the result of a complex network of events and conditions.

### **1.1 Current Social and Economic Conditions**

#### **1.1.1 Conflict**

Incessant armed conflict has plagued Georgia since the dissolution of the Soviet Union. Ethnic conflict in the separatist states of South Ossetia and Abkhazia, and now civil war in western Georgia have kept the government constantly distracted and unable to focus on most of the pressing economic issues.

#### **1.1.2 Industry, Agriculture and Economic Activity**

There are enormous pressures which accompany the Government of Georgia's (GOG) attempt to reorganize the country. The re-organization needed for the transformation to democracy and a market-based economy would require many years under the best of conditions. After four years of independence this work has hardly begun in Georgia. Without support from the GOG, commercial and economic readjustment lurches ahead on its own where possible, but continues to be crippled by a number of problems.

Disruption of rail lines through Abkhazia and from the ports has slowed the movement of all goods into the country, particularly into the major industrial and trade towns. Crime on the roads has seriously curtailed movement of most truck transport in the country, with a corresponding sharp decline in internal trade, export, and import of raw materials for production. The problems of transport are compounded by the difficulty and cost of obtaining fuel which is imported from Russia and Azerbaijan. Fuel is expensive and adds to the cost of all items, including the price of food products brought to market.

Production is also impeded by the difficulty which the industrial sector has had in adjusting to the dissolution of the command economy. Industrial managers have found it difficult to keep plants supplied with the materials for production or to profitably sell the few products that they can produce. This is often because managers are used to having the plans and arrangements for their industries handed to them, and they are unaccustomed to finding their own sources of raw goods and their own markets. Both markets and sources in the other countries of the former Soviet Union (FSU) are also reduced by the pervasive economic problems and reduced buying power.

Agricultural production has been sustained at a low level by the Georgia internal market, but growth is minimal due to several factors. The GOG has not been able to provide its traditional support for agriculture due to the drain of resources and administrative attention caused by the conflict. Even if resources were available, the traditional command economy activities of the ministry of Agriculture no longer seem applicable and, in most instances, the government agricultural officials are unsure of what their new role should be in a market economy. Fertilizers, pesticides and the inputs which were normally imported from other parts of the FSU are now unavailable. Confusion over land ownership and other privatization issues has inhibited personal investment in property, reducing production levels. The low level of economic activity at all levels has reduced buying power, prices, and incentives for the farmer.

### **1.1.3 Currency and Buying Power**

The difficulties outlined above occur within a system which is also in the midst of a profound currency crisis. In 1993 the Government of Georgia began the transition from the ruble to its own currency. The first step was the introduction of the *coupon*, an intermediate currency meant to provide a transition from the ruble to a permanent Georgian currency. The coupon was introduced in April 1993, and in July all ruble bank accounts were converted to coupons on a one-to-one exchange. Since then the coupon has been allowed to float freely and, at the time of writing, was exchanged at the rate of 30 coupons to the Russian ruble. During the one month mission in October/November 1993, the coupon fluctuated from 16 to 35 to the ruble.

All Georgians who have fixed salaries paid in coupons have found their buying power for essential food needs rapidly undermined. Since the introduction of the coupon, salaries of all government and state sector employees have remained the same. The head of a government Ministry may make the equivalent of 4,500 rubles per month. While this was a reasonable salary one year ago it is now the equivalent of US \$4 per month. The common government pension for the aged or a low level state sector salary is the equivalent of US \$0.40. Since market food prices are rising with inflation, and are roughly equivalent to prices in most American and European cities, there is rapidly demising access to food for most Georgians. (See Annex 6 for retail food prices in October.)

### **1.1.4 Employment Levels, Alternative Incomes and Support**

Historically the Soviet command economy maintained employment levels at close to 100%. Even as the economy privatized, most industries have attempted to maintain employment levels in their factories. But, with no raw materials for production and no income from product sales, many factories have closed, with a corresponding loss of jobs. For state service jobs, and those in factories and agricultural concerns still controlled by the state, employment levels are maintained, usually through state subsidization.

It is impossible to acquire reliable statistics for employment. The historical mechanisms which existed through the state system are now inoperable. The state, which is the only source of such statistics, controls a much reduced percentage of the economy and they have not yet developed new mechanisms for measuring employment in the private sector. Whatever the rate of employment, salaries remain at levels fixed in April 1993, are paid in coupons, and are almost meaningless. Many of those who are employed by the state also work in the private sector. In the parallel private sector employers have attempted to keep salaries abreast of inflation. However, rising costs and decreasing disposable incomes have also reduced private economic activity and forced the reduction of jobs available in that sector. With broad reductions in buying power, Georgians are finding several ways to augment real incomes and maintain their access to essential commodities. Evidence of distress sales are found in local shops, outdoor markets, and the personal accounts heard in many of the homes visited by mission team members.

Georgian society remains exceptionally close-knit. Support for friends and family in need is universal. Often this extends to those beyond the circle of family and friends, as was the case in the flight of those displaced in the Abkhazian conflict. The displaced who fled through Svaneti and Mengrelia survived only because rural families supported them with food, clothing, and shelter, often imperiling their own survival by reducing winter stores to untenable levels. The sense among Georgians that they have an obligation to care for their own is exceptional in the mission's experience.

Because family ties are traditionally close and because Georgian's are only recently urbanized, many urban Georgians are able to rely on food and support from rural extended family. In cities, gardens are common and there is a strong tradition of preserving produce, particularly fruit.

## **1.2 Energy**

Georgia faces a devastating energy crisis this winter. Natural gas will not be supplied west of Tbilisi due to the lack of supply. District heating will not be provided to most of the country. Electricity supplies will continue to decline, resulting in increased blackouts. The shortage of oil products and high retail prices are expected to continue through the coming year.

Electrical power is dependent on foreign sources of natural gas and mazout or on systems now out of the control of the GOG. Precious financial reserves have been drained by the wars and are unavailable for the purchase of foreign fuel for power production. This has forced cutbacks in the fuels needed to run power plants, reduced the capacity of functioning industries, and further reduced employment and production of local goods.

## **1.3 Vulnerable Groups**

The GOG has continued the Soviet system's practice of identifying and supporting groups who are without family support, incapable of providing for themselves, or those with special needs. Groups targeted by the GOG are

- pensioners (retired persons) - particularly those pensioners living alone (PLAs)
- disabled
- single female headed households
- families with many children (more than 4)
- children under the age of five
- unemployed
- orphans
- pregnant and lactating women

(See Annex 5 for a detailed estimate of vulnerable groups.)

These groups have traditionally received assistance from the state, either in the form of pensions or in support from the institution which cares for them. With the reduction of GOG resources and the devaluation of the coupon, assistance has been minimal and often meaningless. The mission found instances where state support was insufficient to maintain acceptable levels of care for these groups. In many cases, an institution or individual was jointly supported by local government, private groups, churches, or individuals.

### **1.3.1 Internally Displaced Persons**

With the influx of displaced persons from conflicts in Ossetia and Abkhazia, the GOG created a new class of assistance, internally displaced persons (IDPs). People in this classification are registered, assisted in finding shelter (if necessary), and given a monthly pension (9600 coupons as of 1 November 1993). IDPs who do not live with friends and relatives are housed in hotels and sanatoria. The registered IDPs who had fled conflicts before 25 September 1993 were typically settled and reasonably cared for in the hotels and sanatoria. The mission found that those hotels and sanatoria visited which housed displaced from the period before the September conflict in Abkhazia were reasonably well run and supplied by the GOG. But the GOG resources have been unable to keep up with the sudden and continued influx from the recent conflict of late September and October. Systems for assisting these IDPs have yet to be installed. IDPs in this category are sporadically cared for and report considerable nutritional stress.

The mission found that there was almost no reliable or organized information on the conditions of the internally displaced population. To provide some baseline for analysis, the mission conducted a pilot survey of the condition of 1075 IDP families (4762 persons), supervised by Dr. Lynn Quenomoen of the Centers for Disease Control (CDC). Assistance in the survey was provided by an American/Georgian non-governmental organization A Call To Serve (ACTS). The results of the survey are in Annex 13, and discussed in section 3.3 and Annex 13 of this report.

### **1.3.2 Further Population Movements**

At the time of the completion of the IOM mission in Georgia, movements of internally displaced continued in two areas: (1) Mengrelia in the area south and east of Zugdidi where Zviadist forces reinforced with Abkhazian and Chechen troops had begun an offensive, and (2) in the areas along the border of Abkhazia and Svaneti. In that area villages previously untouched by the conflict in Abkhazia were coming under attack by forces seeking to complete the exclusion of ethnic Georgians from Abkhazia and/or seeking to create new opportunities for looting.

There is no way to predict with any precision how future conflict will develop, or the resultant numbers and needs of displaced. Since 1990 the conflicts in Ossetia, Abkhazia, and the war between the GOG and deposed president Gamsakhurdia have resulted in significant population movement in Georgia. In each case, the issues which spawned the conflict remain unresolved, and further displacement of civilians seems likely.

## **1.4 Internal Capacities**

At the time of writing this report, the GOG continued to be preoccupied with fighting a civil war with the forces of the deposed former president. Many of the essential steps to recovery will not be taken until some stability is achieved and the GOG is able to turn its attention and scarce resources to the rebuilding of the domestic economy.

It was clear that Georgia has been unable to meet its needs for the coming year with internal resources. It was also clear that there were significant human and material internal resources within Georgia, although these will not be sufficient to supply the essential needs of the country through next year. Outside assistance will be necessary and is already being provided. **However, it is equally important that attention and funding be provided to support internal management capacities. Allowing them to atrophy now would move Georgia even further away from recovery and increase the scope of assistance which will be required from the international community.**

## **1.5 IOM Assessment Mission Terms of Reference**

This assessment has been guided by six goals:

1. To identify critical management issues for the improvement of emergency management capabilities in Georgia in light of the possible winter crisis now developing.
2. To identify the essential requirements of the population for the coming winter, spring, and summer, and particularly the requirements of those groups which will find themselves unable to gain access to the resources needed to maintain minimum needs.
3. To identify the internal resources which can be tapped to provide the essential needs of the population.

4. To point out those sectors where support for internal capacities for self-assistance will be successful in helping to build a foundation for future recovery and to identify the specific types of support and activities needed.
5. To identify the type and extent of material and logistical assistance which must be brought in from the outside and to produce schedules for meeting the essential needs where possible.
6. To identify mechanisms for maintaining adequate health in all groups, including the most vulnerable.

In addressing the issues above, the assessment team was also guided by the work done by the IOM mission in Armenia in July and August 1993 and published in their report. Working from the detailed list of critical activities provided in that report, the team investigated the following:

- power generation and distribution
- water supply
- public sanitation
- acquisition of grain, milling, and baking of bread
- supplies of other essential commodities, such as sugar and cooking oil
- agricultural inputs, including fuel, fertilizer, seeds, and equipment needs
- road transport for food and grain
- logistics concerns in Georgia's two ports, and in rail transport
- private and public food storage and preservation
- public health laboratory services
- operation of hospitals and medical centers
- pharmaceutical distribution
- supply of energy for domestic heating and cooking
- vulnerable populations
- alternative fuels

## 1.6 Critical interventions

In order to consolidate the following analysis, all of the above have been reduced to discussion of the three factors which most influence the survival of the population: maintaining adequate nutritional levels, providing minimum energy supplies in critical sectors, and maintaining minimum medical needs. Successful response to these three factors, in light of the developing winter emergency, is dependent on the ability of all involved to bring adequate management skills to the problems at hand.

The mission divided its analysis into discussions of these factors, with recommendations for assistance in each sector. At the time of writing winter was beginning in Georgia and there was a need for an immediate response by the GOG and the international community. This report contains a large number of recommendations, all of which respond to emergency needs. Nevertheless, the mission understood that the timetable required a discrete focus of the donors resources. In Part 4, all recommendations were classified as *Critical* or *Secondary*, with reference to their relative importance in meeting the most essential needs. Critical recommendations can then be reduced to address the following essential requirements:

- A. To provide the minimal requirements for public health, four things must occur:

1. The acquisition of essential commodities, primarily wheat and flour for bread, must continue at the rate of at least 2,000 MT per day for Georgia (exclusive of Armenia needs).
2. Some combination of trucks, trains, and shipping/ports logistics must be maintained to provide delivery of these commodities. The pipeline for sources of energy (diesel for trucks, power for trains) must be maintained at a level sufficient for this transport.
3. There must be sufficient natural gas or mazout for power to operate mills and bakeries.
4. There must be sufficient natural gas or mazout for power to operate mills and bakeries.

B. While most of the population will *survive* if the needs in A are met, the population will be at a marginal level of public health if further critical action is not taken. In order to address needs beyond survival, interventions should be made on four other levels:

1. In order to assure efficient use of the scarce resources, mechanisms must be developed for accurately determining the actual needs and presenting requests to which the international community will respond.
2. The most essential needs in terms of medicines and special nutritional needs (infants, pregnant and lactating mothers, the ill) must be met.
3. Diesel, mazout, and/or natural gas for power must be provided for operation of key hospitals.
4. To assure that problems associated with severe hypothermia are not widespread, there should be either:
  - a. provision of sufficient natural gas for cooking and heating in homes, and/or
  - b. provision of sufficient mazout for power generation for home cooking and minimal home heating.

To address these issues, the following recommendations have been highlighted from the *critical recommendations* in this mission report, Part 4.

1. The expected resources and needs in the energy sector were not yet clear. In order to efficiently address needs, the most urgent requirement is for a team of consultants to perform a two to three week intensive analysis of GOG resources and needs in certain key areas and to assist the GOG in developing a resource allocation plan. The mission must have the full support of the GOG at the highest level. Pursuant to this analysis, a plan should be developed for resource allocation and donor support. Fuel in certain key areas should be stockpiled. Fuel needs in some areas are clear however, and supply should be immediately initiated as in 2. - 4. below.
2. Provision of 65,000 MT of mazout for storage at the Tbilisi Thermal Power Plant (TPP). As much as 15,000 MT of this mazout should be made available to bakeries in case natural gas supplies fail.

3. **Provision of 5,800 MT of diesel for bread ovens and hospital generators.**
4. **Provision of management assistance and 10 MT OMT oil (turbine lubricant) for installation of the more efficient #10 turbine at the TPP.**
5. **Provision of management assistance teams in the Humanitarian Assistance Commission, the Committee on Refugees, and the Ministry of Health to provide immediate assessment of needs, develop appeals, and develop reliable management systems to monitor and direct assistance from the international community. Provision of a liaison/management advisor in the State Committee on Foreign Economic Affairs to help with the coordination of food pipeline issues.**
6. **Support for existing UN/NGO coordination teams in the food, non-food, and medical areas. Involvement of the appropriate GOG organizations in these coordination teams.**
7. **Continued funding for WFP logistical support programs. This will include additional managerial and infrastructure support for the Georgian rail system as well as initiation of trucking and rail transport as alternatives to the Georgian rail system.**
8. **Immediate use of alternative transport systems (e.g. Russian ports and rail-lines) to stockpile wheat.**

In almost every instance the key requirements for maintaining minimum nutritional and public health standards are dependent on maintaining adequate energy supplies in crucial areas: heat and light for hospitals, fuel for truck transport, electricity for rail transport of food, fuel for cooking, energy supplies for mills and bakeries, and home heating. While it cannot be said that energy is the single most important factor affecting the Georgian population, if the energy supply fails in key sectors, provision of food and medical care will be impossible.

## **Part 2 - Executive Summary**

### **2.1 Energy Situation**

#### **The Effect of War**

The political crisis in western Georgia is making management of its energy infrastructure more difficult throughout Georgia. The majority of the winter hydropower capacity is in Western Georgia, including the largest facility, the Inguri hydropower plant (HPP). These facilities, located in Abkhazia, are not currently under the control of the Government of Georgia (GOG).

#### **Lack of Hard Currency**

The GOG does not have enough tradable currency reserves (rubles or hard currency) or barter goods to pay for energy imports. Utility tariffs are far less than the costs incurred to provide the services, thus utilities have huge financial losses.

According to the Natural Gas Department, Georgia owes Turkministan \$US 80 - 100 million for imported natural gas and owes 7 nations approximately \$US 15 million in hard currency for transit fees. According to the Oil Products Department, Georgia owes Russia and Azerbaijan \$US 5 million for oil products. According to SAKENERGO (the electric utility), Georgia owes Azerbaijan, Turkey and Russia \$US 37 million for imported electricity. **The natural gas contract with Turkministan expires on 1 January 1994. Because of the GOG's inability to pay for natural gas imports, shipments could be significantly reduced on January 1.**

#### **Electricity Production**

Last winter the natural gas fired Tbilisi thermal power plant (TPP) provided 34% of the electricity produced in the country, hydropower plants (HPPs) 50%, imports 12%, and other smaller TPPs 4%. In November 1993 the regulated hydroelectric sites' potential to produce power was 15% less than the year before due to lower reservoir volumes.

#### **Vulnerabilities and Deficits**

High voltage transmission lines connect eastern and western Georgia. These lines also connect Georgia with Russia, Turkey, Armenia, and Azerbaijan. All of these lines are vulnerable to sabotage.

#### **Secondary Effects of Loss of Electrical Power**

Loss of power to water supply pumps results in the loss of water pressure in water systems and the potential contamination of drinking water from sewage lines leading to serious public health threats.

Electricity is needed to mill wheat into flour and to bake bread. As the food crisis worsens and bread becomes a larger share of the daily diet, this will become a major problem.

All railroads are electrified and all locomotives, except three diesel fueled locomotives, are electric powered. Thus when power is lost, logistical ability to move food and fuel via the rail system is severely constrained.

### **District Heating**

District heating will not be provided to most of the country this winter. As a result residential electricity and natural gas demand increased as residents used electric-resistance space heaters and their stoves for space and water heating. Portions of the electric distribution system could burn out with further increases in the use of electric heating and cooking appliances.

### **Oil Products**

Generators at hospitals and bakeries have not been properly maintained and their fuel storage tanks are empty. Mazout and diesel are needed at bakeries in western Georgia to replace the lost supply of natural gas.

A large fraction of the gasoline and diesel is privately imported and very expensive. The GOG has no control over this supply.

## **2.2 Energy Recommendations**

### **Fuel**

The Tbilisi TPP needs 50,000 - 100,000 MT of additional mazout to generate power when natural gas supplies are unable to meet the power demands of essential services. This quantity of fuel would allow the plant to operate for 16 to 33 days.

For the three month winter period, 15,500 MT of mazout and 4,800 MT of diesel are needed for bread ovens in the case that natural gas supply is lost.

For the three month winter period, 1,000 MT of diesel are needed for diesel generators at hospitals (generators operating 4 hours/day at full capacity).

### **Management**

A special inter-energy department committee should be formed to allocate limited natural gas and electricity supplies during energy shortages. Technical assistance should be provided to assist the GOG in developing a comprehensive winter energy emergency management strategy.

Random blackouts should be avoided. Instead output from hydropower facilities with reservoirs should be controlled to supply the residential sector with power in the morning and the evening. If widespread distribution system damage begins to occur, power should only be supplied to critical facilities.

Only the Tbilisi cogeneration plant and most efficient turbines (#9 and #10) at the Tbilisi TPP should be operated.

### **Priorities**

The provision of power to electric substations supplying railroads, wheat mills, bakeries and hospitals should be given the highest priority.

Natural gas for residential cooking should have priority over non-priority power generation. Buildings with electric stoves should be supplied with power or alternative fuels (coal, wood or kerosene) and stoves.

### **Education**

It is recommended that rational energy use behavior be encouraged through a media campaign covering energy conservation, residential building weatherization, and power distribution system load management.

## **2.3 Food Situation**

### **Stocks**

Stocks of wheat for bread production are estimated to be low at the time of writing. Stocks at Batumi port on 1 November were 47,200 MT.

Grain production in 1993 fell short of FAO and GOG projections (450,000 MT) by an estimated 150,000 MT. At least 60,000 MT were lost to severe hail storms and late harvesting due to fuel shortages. Harvests of potatoes and other vegetables were less than in 1992.

Farmers face a number of disincentives including low produce prices, currency which is useless for purchase of imports, poor produce marketing systems, transport problems, lack of fertilizers and lack of other crop and livestock production inputs. Farms, particularly those which are distant from markets, have reportedly reduced their harvests due to high transport costs. The farmland planted with winter wheat (72,000 ha) in 1993 for harvest in 1994 is estimated to be only half of the area planted in 1992.

### **Bread Production**

The daily minimum required amount of wheat to produce average consumption standard of 400 grams of bread per person for 5.2 million (former population of 5.4 million minus .2 million in autonomous Abkhazia) is approximately 2,080 MT, however, vulnerable group daily needs may exceed 400 grams.

There is a relatively high probability of major disruption of the grain supply for bread due to damages in the transport infrastructure by warring factions and saboteurs, or from logistical bottlenecks. (See Logistics)

### **Donor Commitments**

Although the GOG now has donor commitments for credits and in-kind donations to supply an estimated 500,000 - 600,000 MT of wheat and flour, only shipments of 168,000 MT of wheat from USAID, scheduled to arrive in mid-February, could be confirmed.

### **Food Stress**

The following present indicators denote food stress: unprecedented begging by elderly and children, dependence on bread for extremely high percentages of the diet (90-100%), and commitment of 100% of income to food. Lines for bread are long and sales of household assets are evident.

### **Vulnerable Groups**

The groups most vulnerable to experiencing food shortages in Georgia include but are not limited to Internally Displaced People (IDPs), pensioners (the elderly, disabled, orphans and other institutionalized persons, single female headed households, families with many children), young children, pregnant and lactating women, and the unemployed. These groups comprise 40% of

the population. The number of rapidly growing destitute persons is unknown. Persons dependent on government pensions can purchase less than one tenth of the basic food basket.

The IDPs who have recently fled from Abkhazia and Mengrelia (255,254), in addition to those who have left South Ossetia (28,401) typically have few resources. Movement of IDPs is still occurring.

#### **Planning Data**

Baseline information with which to assess changes or trends in nutritional status, household food security and other socio-economic indicators is minimal or lacking on a regional and countrywide basis.

#### **Fuel for Cooking**

Most urban sectors rely on natural gas to cook while wood is extensively used in rural areas. Due to the anticipated lack of natural gas, all of Western Georgia will not be supplied this winter. If bakeries are unable to operate, flour is dispensed to the public for home bread baking. To assure access to adequate calories, alternate sources of fuel as well as cooking stoves are needed for areas lacking natural gas, rural areas unable to secure wood and for IDP shelters. (See Energy)

## **2.4 Food Recommendations**

#### **Analysis**

The IOM mission was not able to obtain adequate information to ascertain the wheat currently available within Georgia, the wheat that is ordered and en route, the monthly bread requirements of Georgia, nor the logistical capability within Georgia to distribute food to the vulnerable populations. However, very plausible scenarios and partial information indicate a strong likelihood that there will be bread shortages which will especially affect the vulnerable populations. Therefore it is extremely urgent that reliable data be obtained to enable a clear analysis of how much wheat may need to be imported, on what schedule and by what logistical means bread will reach the vulnerable populations. With the assistance of WFP, the GOG should immediately convene and coordinate a working group including donors and NGOs to collect and share information concerning wheat stocks, wheat pipeline (lead times required for ordering and shipment) and schedules for deliveries.

#### **Import Requirements**

As soon as possible, a reserve of at least 64,000 MT (one month's minimum supply) of wheat, at least 10% in flour form, should be accumulated in secure government stores.

#### **Planning**

Contingency plans should be made to increase the bread ration or its availability to vulnerable groups and/or to increase the caloric density of the bread by adding oil or other supplements to the dough.

Immediate consideration should be given to proposals to provide food supplies to the Mestia area throughout the winter. This area cannot be reached by road after accumulation of winter snows and has a local population of 17,000 as well as a population of approximately 5,000 IDPs.

GOG and NGO agencies assisting vulnerable groups should monitor the nutritional status of their target populations as well as the general population to prepare for increase in food assistance needs, and provide public service announcements to publicize the available options and procedures for obtaining relief.

Possible assistance measures to prevent nutritional deficiencies include setting up soup kitchens to serve urban vulnerable groups, subsidization or distribution of vegetables, animal products, or other supplementary foods, and provision of vitamin and mineral supplements.

## **2.5 Public Health Situation**

### **Health Status**

Key health indicators (i.e., mortality rates, rates of anemia, vaccination coverage rates) and health survey results show a decline in the overall health status of Georgians over the past two years, especially among the more vulnerable groups. Although the most recent complete data (1992) show no increases in the rates of infectious diseases or of acute malnutrition, current conditions substantially increase the likelihood that these problems will develop.

### **Existing Health Resources**

Georgia's resources include a large cadre of health care professionals (many of whom are inadequately trained) and an overabundance of health facilities. However, due to the GOG's inability to finance this socialized health care system, health care professionals receive only token salaries and facilities go unmaintained. Without outside aid Georgia will also be unable to maintain its national health information system, or to operate critical national health programs (for example, tuberculosis, HIV/AIDS).

Georgia produces no medications, vaccines, medical supplies, laboratory supplies, or medical equipment and is totally dependent upon outside assistance for these materials.

### **Humanitarian Assistance System**

There are serious weaknesses in the humanitarian assistance process which result in the mismatching of needs and supplies. These problems are due to a lack of coordination between donors, relief agencies, and the Ministry of Health (MOH), to weaknesses in the inventory control and distribution systems, and to resource shortages (i.e. computers, data management expertise, transportation, fuel).

There is also a lack of prioritization in the distribution strategy for medicine and medical supplies. Most of these materials have thus far gone to Tbilisi hospitals, little has gone to hospitals outside of Tbilisi, and very little has gone to outpatient facilities.

### **Vulnerable Groups**

Georgia has a large population of vulnerable people and as the civil conflicts and economic crisis continue, more people are likely to fall in this category.

### **Public Utilities**

Many of Georgia's potable water systems are old, poorly maintained, and prone to leakage and contamination. Many are also overburdened with the addition of displaced persons and have insufficient supplies of coagulant, chlorine, and spare parts to effectively operate during the next 12 months.

District heat will not be provided to homes and public buildings in Tbilisi and other urban areas this winter. As a result, cold stress will undoubtedly contribute to morbidity and mortality this winter, especially among the vulnerable groups.

## **2.6 Public Health Recommendations**

### **Health Status Monitoring**

In order to monitor nutritional status and to detect and control outbreaks of infectious diseases with epidemic potential, active surveillance should be initiated in sentinel locations (i.e., areas with concentrations of displaced persons or other vulnerable groups.)

### **Development of Existing Health Resources**

An organization should be identified and funded to develop and implement a training program for primary health care providers and consideration should be given to providing these health care workers with financial incentives.

An organization should be identified and funded to assist the MOH develop the capacity and improve the quality of its health information system.

Donors/funding sources should be sought to support important public health programs such as tuberculosis and HIV/AIDS control.

Donors should be encouraged to continue to provide medicine and medical supplies. The content and timing of these donations should be coordinated with the needs outstanding.

The MOH should be assisted to inventory the essential laboratory equipment and supply needs of the Republic and donors/funding sources should be sought to meet these needs.

### **Development of the Humanitarian Aid System**

An organization must be immediately identified and funded to assist in the coordination of humanitarian relief in order to assure that needs are identified and communicated to donors and that donations reach appropriate recipients. Assistance must include the development of effective inventory control and distribution systems for all drugs, vaccines, laboratory materials, and medical supplies.

The MOH should develop a strategy that assures that medications and medical supply distribution reaches primary health care clinics and polyclinics.

### **Assistance to Vulnerable Groups**

The GOG and relief agencies must urgently focus resources on the displaced persons in Kutaisi and other secure towns in western Georgia.

An organization should be immediately identified and funded to assist the Georgian Humanitarian Assistance Commission in the registration and tracking of displaced persons.

An organization should be identified to perform or to assist an appropriate Georgian agency to perform needs assessments of the vulnerable populations.

### **Rehabilitation of Public Utilities**

An organization should be identified and funded to assist the GOG to inventory the essential spare parts and supply needs of Georgia's potable water systems. Funding sources should be found to meet these needs.

## **2.7 Logistics**

### **Critical Activities**

The most crucial logistics activities for winter relief are (1) delivery of grain to mills and bakeries, (2) delivery of fuel to bakeries, and (3) assurance of a sufficient supply of mazout at the thermal power stations to provide power for railroads and grain mills.

### **Port Capacities**

The port of Batumi has the potential to function well, with a discharge capacity of 5,000 to 10,000 MT per day under ideal conditions. Actual capacity in recent weeks has been 1000 - 3000 MT per day. The port of Poti was occupied by Zviadist troops in October, but the infrastructure appears to be undamaged. The port is not operating now and its capacities are not clear. Presumed capacity of Poti is larger than Batumi. The WFP regional coordinator estimates that, with WFP support, and steady, adequate supplies of power, fuel and equipment, discharge for both ports combined could reach an average of 10,000 MT per day. However, in view of probable energy cuts and fuel shortages during the winter, this capacity is not likely to be attained.

### **Railway Vulnerability**

Rail shipments have been diverted by criminal groups. The GOG responded by creating a rail police force, but this force has not been effective. Armenia, Georgia, and Azerbaijan recently signed an agreement to provide joint security for the rail line but this has not yet been implemented.

All rail transport is carried by electric engines which are vulnerable to power failure by plant shutdown or by plant or transmission line sabotage.

The relief effort for Armenia is nearly entirely dependent on the Georgian ports, rail, and road systems. The vulnerability of these systems threatens the Armenia winter survival plans as well as those of Georgia. Although the large scale transport by truck has not been effectively organized in Georgia, the Government of Armenia organizes convoys of Armenian trucks to transport relief commodities from Batumi to Armenia.

### **Trucking**

Some NGOs successfully truck relief commodities on a small scale from Turkey, using Turkish trucking. However, petrol and diesel supplies have been erratic. Petrol prices are very high. Diesel prices have been relatively low, but are expected to rise.

## **2.8 Logistics Recommendations**

### **Management and Coordination.**

The WFP logistic support program must receive the full support of the GOG and the donor community.

### **Security**

With security of the rails still unclear, the UN should immediately begin plans for a Humanitarian Corridor to protect the rails. The plan could be implemented should GOG plans fail to be effective.

### **Fuel Stockpile**

Pursuant to the emergency energy allocation plan as recommended in this mission report, the GOG should secure enough reserve mazout to assure a continuous power supply to rail-lines in case other sources of power generation are cut off or fail.

### **Rail Alternatives**

The rail-lines remain vulnerable to power cut off and sabotage by Zviadist forces. Alternatives to the Georgia rail system should be developed immediately:

- An NGO should immediately be funded to develop a pilot program for large scale truck transport from the ports.
- Other port and rail options should be developed. Shipment by rail from Russian ports should begin as soon as possible.

## **2.9 Emergency Management**

### **Management Structure**

The GOG emergency and relief operations are divided among a number of ministries, commissions, government corporations, and committees. Effectiveness and access to resources vary from organization to organization. There is no person or organization who performs an overall coordinating function for all operations. After many interviews with the various GOG officials who direct these organizations, the mission was not able to identify any comprehensive plan for delivery of relief and assistance in the current emergency.

The Ministry of Health (MOH), the Humanitarian Assistance Commission (HAC), the Committee on Refugees (COR), and the Ministry of Labor and Social Affairs (MOLSA) are the four organizations who are most directly involved in the provision of assistance to the internally displaced and other vulnerable groups.

The Humanitarian Assistance Commission was created to coordinate all foreign medical and direct humanitarian assistance to the GOG. The HAC works out of a small one room office and has no other resources of its own. The mission found that the HAC director and staff were struggling in good faith to come to grips with their task, but that the HAC lacked resources and usually only reacted to requests and emergencies. The HAC has provided some coordination of needs and supplies of the relief commodities brought in by the international community, and has been able to provide sporadic tangible support (trucks, fuel, warehouses) for international NGOs.

All direct bulk food assistance to the GOG (grain, flour, sugar, and other commodities) is coordinated through the State Committee on Foreign Economic Affairs (SCFEA). The great majority of this assistance is in wheat and flour which is provided for the subsidized bread ration. Wheat is received, milled, and distributed to bakeries by the GOG State Corporation for Grain Products.

Much of the assistance appears to be distributed on an ad hoc basis, responding to only the most pressing needs as they become emergencies.

The Ministry of Labor and Social Welfare has responsibility for the care of elderly, disabled, and other welfare categories. This ministry appears to have been allocated very few GOG resources and little assistance is provided by or coordinated through this ministry. The vulnerable groups traditionally assisted through the MOLSA are now being served by international NGOs, primarily the International Federation of Red Cross Societies in collaboration with the Georgia Red Cross and the Salvation Army.

#### **Information Management**

There is a nascent data base for vulnerable groups, but this system has not kept up with needs and is not managed effectively. The COR has two computers and a registration system. There are plans for computerized systems in the HAC and MOH. There are no clear plans for coordination between the systems or effective use of the data.

The GOG requests for assistance via the SCFEA do not provide the informational support which donors expect. Management of United States Department of Agriculture (USDA) monetized grain programs has not proceeded as expected by USDA.

## **2.10 Emergency Management Recommendations**

#### **Information Management/Coordination**

A permanent representative of the international community, working with an English speaking counterpart in the HAC, could facilitate requests for information in both directions and assist the HAC in developing requests which can more effectively utilize the various donor mechanisms for assistance.

An effective data base is needed immediately. To help develop and support this a team of experienced emergency data management experts should be offered to the GOG to conduct a mission intended to develop the needed data, the data management system, and to provide on-the-job training for staff of the HAC, COR and the MOH who will continue to use it.

Food and medicine groups under WFP, WHO or other appropriate leadership should inventory stocks, estimate needs and make immediate appeals to donors.

#### **Distribution Management**

Free distribution to target vulnerable populations, including displaced persons, elderly who are alone, invalids, and the other vulnerable groups which have already been identified by the GOG is recommended. **In addition, it is important to include the destitute, particularly the urban destitute, in the targeted vulnerable groups.** Any attempt to mount a welfare assessment and registration system based on western models will overburden existing organizational resources in Georgia.

## **PART 3 - General Findings**

### **3.1 Energy**

The Republic of Georgia potentially faces a devastating energy crisis this winter. During the late 1980s, Georgia relied on imports for 80 - 85% of its energy demand. The combined effects of fuel prices approaching world market levels, steep declines in gross national product and rapid devaluation of the Georgian currency, have made it impossible to maintain energy imports on such a scale.

Last winter Georgia's district heating and hot water was limited, and there were power and natural gas supply interruptions. This winter the crisis will magnify if (1) natural gas supplies are further reduced, (2) the conflict in western Georgia results in the decreased availability of electricity or 3) electricity imports from Russia and Turkey decline.

#### **3.1.1 Natural Gas**

##### **Imports**

- Natural gas imports for the first nine months of 1993 are 37% less than the same period in 1992.
- Turkministan is currently Georgia's only source of natural gas. According to the Natural Gas Department, the GOG owes Turkministan US\$ 80 - 100 million for imported natural gas.
- The current delivery contract with Turkministan is for 3.61 billion m<sup>3</sup> for the year ending January 1, 1994. According to the GOG, 2.34 billion m<sup>3</sup> were delivered as of October 20, 1993.
- It is likely that Turkministan will reduce natural gas "sales" when the current contract expires.
- Currently natural gas is purchased from Turkministan at world price (US\$ 80/1000 m<sup>3</sup>).
- Natural gas destined for Georgia crosses Turkministan, Uzbekistan, Kazakhstan, Russia, Dagestan, Chechenia and Azerbaijan. According to the Natural Gas Department, the GOG owes approximately US\$ 15 million in hard currency for natural gas transit fees. The GOG's inability to pay this debt could result in one of the countries revoking the right of transit.
- Current transit fees, for the use of the 2,935 km pipeline from Turkministan to Georgia, are US\$ 8.80/1000 m<sup>3</sup>.

##### **Storage**

Georgia does not have the facilities to store natural gas.

##### **Transmission**

- If the natural gas supply to Georgia is reduced, it is probable that Armenia's supply will be effected.
- Due to the anticipated shortage of natural gas, the Natural Gas Department plans to close the natural gas line west of Tbilisi this winter.
- Some cities in western Georgia and rural areas depended on largely liquefied propane gas (LPG). Now they depend primarily on wood.

##### **Consumption**

Compared with the last normal year (i.e. 1989), consumption of natural gas by the residential sector has increased by approximately 200%, while all other end users have reduced consumption

by 50 to 85% (see table in Annex 1). The increase in residential consumption reflects the use of natural gas in stoves for water and space heating.

### **3.1.2 Oil and Oil Products**

#### **Domestic Production**

- For the first nine months of 1993, Georgia produced 44,000 MT of crude oil. 140,000 MT of crude oil were produced in 1992.
- According to the Oil Department, the 1993 production decline is principally caused by problems transporting the crude oil to the Batumi refinery, following the disruption of the crude oil pipeline.

#### **Imports**

- In 1992, Georgia received 680,000 MT of gasoline, diesel and mazout through official CIS channels. In the first nine months of 1993, Georgia received 135,000 MT through official CIS channels.
- Azerbaijan and Russia are the major suppliers of oil and oil products. According to the Chairman of the Oil Products Department, the GOG owes Azerbaijan US\$ 5 million, US\$ 2.5 million of which covers purchases of the last 9 months.
- Oil and oil products can be imported into the country either by rail from Azerbaijan or Russia, and off loaded at the Batumi port or by truck.

#### **Storage**

- A little over 4,000 MT of mazout is presently stored at the Tbilisi thermal power plant (TPP) and 46,000 MT by the Tbilisi district heating utility.
- Fuel storage at hospitals, bakeries, etc. are empty.
- As the average weekly salary will purchase about one liter of gasoline or two liters of diesel, fuels in unprotected storage tanks are quickly stolen.
- Official oil product deliveries for 1993 have been far below previous years. As fuel arrives in country it is rapidly used. Thus, almost all storage tanks are empty.

#### **Refining**

- For the first nine months of 1993, 44,000 MT of domestically produced crude oil were refined at the Batumi refinery.
- The Batumi refinery processed 250,000 MT for Armenia this year. Armenia pays the refining cost by giving Georgia 30% of the refined products.
- The Batumi refinery currently has a 2,500,000 MT/year capacity.
- According to the Oil Department, the refinery requires low sulfur crude oil (0.6% sulfur maximum).

#### **Distribution**

- A 420 km 5,000,000 MT/year capacity crude oil pipeline connects the oil production areas, all near Tbilisi, with the Batumi refinery.
- In March of 1993 the pipeline was badly damaged by saboteurs. Domestically produced crude is now transported to Batumi by rail.
- Due to the high viscosity of mazout, transportation can be difficult during the winter unless it is heated
- Due to its high viscosity, M-40 grade mazout, which becomes gel-like in cold temperatures, can not be off loaded during the winter at the Batumi Port.

- It is widely suspected that oil and gas prices are kept artificially high through monopolized control of the private oil products sector. The GOG's Department of Oil Products has no control over this supply.

### Prices

Prices for oil products purchased by the GOG are shown in Table 1.

**Table 1. Wholesale prices for oil products, as paid by the GOG in the Fall of 1993**  
(Source: Oil Products Department)

Fuel	Price US\$/MT	Source
Gasoline	190 - 200	commercial
Diesel	145 - 175	Baku
Mazout	35 - 42	Russia
Aviation Kerosene	Baku	
Motor & Diesel Oil		Baku

- The retail price of fuels supplied by the private sector are extremely high. Gasoline on the streets of Tbilisi costs US\$ 0.6 to 0.8/liter, while diesel costs US\$ 0.3 to 0.4/liter. Prices are higher in rural areas.
- High prices of oil products force up prices in dependent sectors of the economy (e.g. farming and food distribution).

### Consumption

The consumption of fuels purchased by the GOG has plunged dramatically over the last 3 years (see table in Annex 2).

#### 3.1.3 Coal

##### Domestic Production

- Georgia had several coal mines but only one is currently operating. Currently only a small proportion of the country's important energy infrastructure, 78 space heat boilers, is designed to burn coal.
- The only operating coal mine, located in Tkibuli, is the underground Mindeli mine.
- The Mindeli mine had an output of 120,000 MT in 1992 and 900,000 MT in 1991. The production decline is the result of shortages of materials, machinery and replacement parts. Due to these shortages, mine safety is decreasing.
- For the first nine months of this year the Mindeli mine produced approximately 50,000 MT. Following two fires, daily production has dropped from about 500 MT/day to 200 MT/day.
- The Mindeli mine is connected to the regional power grid. Thus when the grid loses power the mine loses power, shutting off ventilation and water pumps.

##### Cost

The Mindeli mine's Chief Engineer estimates that the cost of the Tkibuli coal is US\$ 6.25/MT. Currently, the coal is used locally for industrial use and exported for US\$ 8/MT.

#### 3.1.4 Biomass

- Much of Georgia is forested. Some rural areas traditionally use wood as an energy source for cooking and space heating.

- Given the shortage of heating and cooking fuels, wood utilization will probably increase this winter.
- Wood is expensive due to the cost of transport.

### 3.1.5 Electricity

#### Imported Electricity

- Imported electricity has steadily declined over the last 4 years. Winter period imports have fallen from 2049 million kWh in 1989 to 835 million kWh in 1992 (see Annex 3).
- According to SAKENERGO (Georgia's electric utility) the GOG owes Azerbaijan, Turkey and Russia US\$ 37 million for imported electricity.

#### Generation - Overview

- Georgia is dependent on three sources of electric power; thermal power plants, hydropower and imports.
- Over the past four winters, domestic power generation has declined 23% (from 7,328 to 5,685 million kWh), with the largest reductions at the Tbilisi TPP (down 35%) and other TPPs (down 57%).
- Hydropower generation is dependent on precipitation, which has been about normal this year. This winter the HPP are expected to supply 3,100 million kWh.
- Imported power, over the same four winter period dropped 72% (from 2,049 to 585 million kWh).

#### Tbilisi Thermal Power Plant

- Tbilisi TPP has 10 blocks with a (1,700 MW capacity), with boilers able to burn natural gas or mazout. Currently, the 300MW block #10 is in the final stages of construction, blocks #1 and #2 are not operating and three blocks can only operate at partial load.
- Blocks #1-8 are in poor condition.
- The efficiency of all operating units at the Tbilisi TPP have dropped from 29% to 26% over the last four years<sup>1</sup>. Similar units in Russia have efficiencies of 30% - 35%.
- Efficiency of the facility dropped sharply in 1992 after salts precipitated in and damaged three turbines. These turbines, including the three year old 300MW #9, can only be operated at partial loads. Turbine #9 can only operate at 230-240 MW.
- Currently 4,000 MT of mazout are in storage for winter use at the Tbilisi TPP. During normal operations 289,000 MT of mazout were stored. Last winter 150,000 MT were in storage.
- Mazout is used whenever the natural gas supply is unable to meet demand or is cut off.
- The mazout currently in storage is sufficient to operate the plant on idle<sup>2</sup> for approximately 10 days.

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<sup>1</sup> From October 1, 1992 through March 31, 1993 the Tbilisi TPP generated 2170 million kWh from 735 million m<sup>3</sup> natural gas, at an efficiency of approximately 26%. If the efficiency had been 29%, as it was in 1989, 660 million m<sup>3</sup> natural gas would have been consumed. The difference, 75 million m<sup>3</sup> at the current price of approximately US\$ 90/1000 m<sup>3</sup> is worth US\$ 6,750,000.

<sup>2</sup> When its power plant is in the idle mode, fuel is used only to keep the power plant warm, no power is generated. If a power plant shuts down, it can be very difficult to bring back online.

### Other Thermal Power Plants

- The Tkvarcheli TPP, located in Abkhazia, was bombed during the summer. The Head of the Technical Department at SAKENERGO estimates that US\$ 60 - 80 million is needed for repairs. One boiler is completely destroyed and a live mine is in the other boiler.
- A small cogeneration power plant is located in Tbilisi. Four other power plants are located at industrial sites to meet specific industrial needs (e.g. at the Rustavi metal works and the Batumi refinery).

### Hydroelectric Power Plants

- Annual output of hydropower plants (HPP) meets approximately 45% of Georgia's normal winter demand
- Two types of HPPs are operated in Georgia, seasonal or run of the river facilities, and regulated or facilities with reservoirs.
- HPPs with dams supply the about 2/3 of the winter hydroelectric power.
- HPP's output drops sharply during the winter, especially during the months of January and February when river flow rates are low.
- Water volumes of hydroelectric reservoirs are significantly less than last fall. As of October, 17 1993 their potential output is 15% less than it was on the same date in 1992.
- SAKENERGO has reduced reservoir volumes faster than planned this fall to meet demand.
- Currently 75% of the seasonal power and 85% of regulated hydropower stations are in western Georgia. This includes the largest, the Inguri HPP, with a capacity of 1640 MW.
- The Inguri HPP is currently being operated by the Abkhazian government.

### Estimated Electricity Generation

Table 2. Estimated electricity generation and fuel costs

(Source: The Head of Technical Department of SAKENERGO and Chief Energy Advisor to the Cabinet of Ministers)

	US\$/kWh as estimated	US\$/kWh as estimated using
Source	by the GOG	current fuel prices
Hydroelectric power	.00016	
Thermal power		
from natural gas	.02	0.032 <sup>2</sup>
from mazout		0.015 <sup>3</sup>
Purchased from FSU	.04	
Purchased from Turkey <sup>1</sup>	.00025	

#### Comments

1. Turkey supplies electricity to Georgia during the winter. Georgia pays for this power by providing hydroelectric generated power during the summer at a ratio of 1 to 1.6. Thus the cost is 1.6 times the cost of hydropower.
2. Using a price for natural gas of US\$ 88.9/1000 CM (US\$ 80 price of natural gas and US\$ 8.9 for transit fees) and a power plant efficiency of 25%.
3. Using mazout at US\$ 42/MT, a heat content of mazout of 9630 kcal/kg, and a power plant efficiency of 25%.

### **Transmission**

- Three high voltage transmission lines of 500, 220 and 110 Kv connect Georgia with Russia, a major source of imported electricity. Two of the lines pass through Abkhazia. One high voltage transmission corridor connects Eastern and Western Georgia. All high voltage power lines are vulnerable to sabotage.
- Power supply decision making authority is extremely centralized. Regional authorities have little control over the distribution of their power supplies. This reduces their ability to respond to energy shortages through rationing.

### **Consumption**

Based on SAKENERGO's forecasts for winter power supply, shortages are very likely. Their analysis indicates that electricity supplies will be unable to meet 18% - 39% of residential demand.

#### **3.1.6 District Heating**

##### **General**

- The climate of Georgia is variable. Most of the population is in temperate valleys and coastal areas. The mild portions of Georgia have received little district heat and occasional district hot water for the last two years. (See Annex 4 for the climatic conditions of Georgia)
- District heating systems are designed to supply both space heating and domestic hot water to the residential, commercial, and portions of the industrial sectors.
- District heat is based on stand alone boiler houses, not cogeneration power plants as is typical in the former Soviet Union. The boilers burn primarily natural gas and mazout.
- In Georgia, 78 cities have district heating systems. Together these systems include 558 boiler houses of variable capacity, of which 313 burn natural gas, 167 use natural gas and 78 burn coal.
- Some severe weather high altitude cities have apartment blocks and hospitals with heating boilers. They have been operating the last two winters but at very low levels. Five mountain cities, (Akhaltzikhe, Akhalkalaki, Borjomi, Ninotsminda, and Mestia) will require space heating to guard against hypothermia of the population. No fuels are currently in storage for winter 1993/94 use.
- Over most of the country, boiler houses and distribution systems have not been properly maintained for the last four years. Their use at this time would result in an expensive and extremely inefficient use of fuel.
- The thermal characteristics of buildings are very poor. Most buildings built over the last three decades do not have any insulation materials. The Soviet standard for Georgia was to use single pane windows.

##### **Storage**

According to the Tbilisi district heating system's director, 46,000 MT of mazout are in storage for the Tbilisi district heating system. Other district heating systems have significant storage capacity, but the tanks are empty.

##### **Operation**

- In a normal year 1.5 billion m<sup>3</sup> natural gas, 83,000 MT of mazout and 8,000 MT of coal are consumed by all district heating systems.
- For the last two winters, most of Georgia was without district heating. As a result residential electricity and natural gas demand has increased as residents use electric-resistance space heaters and their stoves for space and water heating.

### **3.1.7 Payment for Services and Fuel Imports**

#### **Utility Services**

- Natural gas, district heat and electricity tariffs are far less than the costs incurred by the utilities to provide the services.
- During the last two years most residents have not paid their electric, natural gas or when operating district heating bills. As a result all three services are heavily subsidized by the GOG.

#### **Imports**

- Georgia's currency is the coupon. The coupon is not accepted in payment for imported goods.
- The GOG does not have enough tradable currency reserves (rubles or hard currency) to pay for energy imports, transmission fees, replacement parts, etc.
- Due to the current economic crisis Georgia has been unable to produce goods on the scale needed to barter for fuel and electricity imports.

### **3.1.8 Implications of the Winter Energy Shortage on Critical Needs**

The GOG has made insufficient preparations for the winter energy emergency. Preparations are required as soon as possible to insure that the essential needs of the population are met. It is already too late to meet some essential needs, such as providing dedicated electric cables to flour mills. Georgia's critical services and the current situation at each service are outlined below.

#### **Electricity**

If power is supplied for only a portion of each day, many critical services within the country will break down. Power distribution in Georgia does not differentiate between critical end users (e.g. hospitals and water pumps) and non critical end users (e.g. commercial establishments). Thus if blackouts are necessary all end users, critical and non critical, are cut off. There is no short term method of remedying this situation, other than permanently disconnecting all but critical end users from substations.

#### **Generators**

Diesel generators currently located at some critical services (e.g. hospitals and bakeries) were not designed for long term use. They are only meant to supply power during brief blackouts. The high cost of diesel fuel inhibits the use of generators. Many of the generators have not been properly maintained and their fuel storage tanks are empty. Filling the storage tanks will not solve the problem as the fuel will be quickly stolen.

#### **Dedicated Cables**

The only method of providing continual power to essential end users is by running dedicated cables, but there is not enough time to install dedicated cables this winter. Dedicated cables run from sources of continuous supply to the essential end user, bypassing the switches at substations. Thus when a district's power is shut off the critical service has power. If dedicated cables are installed and the power shortage is severe it is likely that residents will attempt to tie into the dedicated cables. Running dedicated cables is material intensive and time consuming. Georgia does not have the necessary cables nor the time to provide dedicated cables to essential services this winter.

### 3.1.9 Vulnerability of the Electric Distribution System

If electricity is provided in rotating blackouts then electric appliance use will be concentrated during the periods power is supplied. If power is supplied for several hours per day and no natural gas is available then electric cooking and space heating appliances will be used. These appliances consume relatively large amounts of energy. This increased demand will in some cases overload and burn out the distribution system. This situation occurred in Yerevan, Armenia, during the last two winters and has caused millions of dollars in damage to its electric distribution system and building wiring.

Although it is not a widespread problem yet in Georgia, sporadic cases of overload were noted last winter. The Tbilisi hospital #2 used electric resistance heaters last winter and burnt out building wiring. No wire, power outlets, etc. are available to repair the hospital's wiring.

#### District Heating

District heat and hot water systems rely on electric pumps to provide hot water to end users. Because of the design of power supply to the district heating system, pumps at critical end users such as schools, kindergartens and hospitals, can not operate during blackouts.

#### Residential Cooking and Baking

Most of the urban and some rural portions of the country were supplied with natural gas for cooking. Liquefied propane gas (LPG) was the common cooking fuel in rural areas. LPG has not been available for two years. Some urban apartment blocks have electric cooking stoves.

If natural gas and LPG is not provided then much of the residential sector will be unable to cook, boil (sterilize) water in cases when the water supply is contaminated, bake bread when bakeries are unable to operate, and have the minimal space heating provided by cooking stoves.

Without the ability to cook, alternative fuels such as wood, kerosene, and coal will be collected or purchased, and stoves purchased or made from available materials. An estimate of the fuel needs of cooking, baking and limited heating is presented in Table 3.

**Table 3. Estimated fuel requirement to meet basic cooking, baking and heating needs for a family of four.**

(Source: "Energy Assessment for Georgia, Draft Summary" Bechtel, June/July, 1993, and Georgia Natural Gas Department)

	55MJ/day <sup>1</sup>	113MJ/day <sup>2</sup>	
Fuel	consumption	consumption	units
Natural Gas <sup>3</sup>	1.56	3.2	m <sup>3</sup>
Kerosene	1.5	3	liters
Coal <sup>4</sup>	3	6	kg
Wood <sup>5</sup>	6.5	13.5	kg

#### Comments

1. Georgia natural gas department assumes that to provide the cooking, baking, water heating and space heating (of 1 m<sup>3</sup>) for one person 12 m<sup>3</sup> natural gas for one month (or 55 MJ/family day) are required.
2. A study done by Bechtel in Armenia recommended that 3 liter of kerosene is required for the cooking and heating one room for a family of four per day (or 113 MJ/family day).
3. Of heat content 8000 kcal/m<sup>3</sup>
4. Of heat content 4400 kcal/kg
5. Of heat content 2000 kcal/kg

In rural areas with wood supplies, residents have already made the switch to wood-fired cooking (and heating). Wood gathering in urban areas could quickly result in degradation of their forests and the destruction of wooden infrastructure (doors, fences, etc.).

The government of Japan will supply Georgia with US\$ 1 million worth of kerosene. At a cost of US\$ 0.2/liter this equates to 5 million liters of kerosene. This quantity will supply 18,500 families with 3 liters of kerosene for each of 90 days. It is not known if there is a supply of the necessary kerosene stoves.

#### **IDP Cooking and Baking**

The IDP population of approximately 255,000 from Abkhazia has been placed in schools, hotels, sanatoria, the homes of extended family, etc. In schools, hotels and sanatoria, the necessary cooking, baking and heating infrastructure is often lacking. Both stoves and fuel supplies are needed in IDP housing. Currently the International Rescue Committee has a program underway to provide urban refugee shelters with locally produced multi-fuel (i.e. wood, coal and diesel burning) cooking, baking and heating stoves.

#### **Water Systems**

Every city has its own water supply system. The loss of electricity results in the loss of water pressure in water and sewage systems as pumps shut off. Loss of water pressure can result in the contamination of potable water as contaminated water seeps through pipe fractures. Georgia's water supply system is very leaky. Water pressure drops rapidly during blackouts.

#### **Hospitals: Electricity and Heat**

All hospital have power lines running to two substations, thus if one substation is shut off, the other substation can still supply power. But if the entire district loses power so will the hospital. During periods of power shortage, these districts can be provided with continuous power.

Most hospitals providing emergency and intensive care have generators able to meet a very minimum demand. According the data provided by Ministry of Health, 100 diesel generators are installed in the nations 102 operating hospitals. The generators have a total capacity 6390 KW. It is estimated that for each hour of use at full capacity, the generators consume 2 MT of diesel fuel<sup>3</sup>. Many hospital operating rooms have battery banks which are used to maintain power to the operating room during power interruptions. An estimated 500 batteries need to be replaced.

Hospitals located in large cities, such as Tbilisi and Rustavi, are often supplied heat from city-wide district systems. District heat has not been provided for two years in most of Georgia. If it were, the heat supply would not be reliable because it depends on electric pumps. About half of the hospitals have their own mazout/natural gas or coal/natural gas fired boiler houses. There are 52 hospital heat supply boiler houses in Georgia. Last winter, boilers were operated very irregularly due to fuel supply limitations. This winter almost no fuel is in storage for winter use.

The total installed capacity of hospital boiler houses burning gas and/or mazout is about 160 Gcal/h. Operating at full capacity they require 20 MT mazout/hour or 25,000 m<sup>3</sup> natural

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<sup>3</sup> Calculation: 6390 KW x 1 hour x 1/.3 efficiency x 3.6 MJ/kWh x 1 liter diesel/39 MJ x MT diesel/1,010 liters = 2 MTs diesel/hour

gas/hour<sup>4</sup>. Over the four month winter period the Ministry of Health estimates they require 36,000 MT of mazout or 43 million m<sup>3</sup> of natural gas. The total installed capacity of hospital boiler houses burning coal or natural gas is about 33 Gcal/h. Operating at full capacity they require 5,200 m<sup>3</sup> natural gas/hour or 10 MT coal/hour<sup>5</sup>. The Ministry of Health estimates that they require 20,000 MT of coal or 10 million m<sup>3</sup> natural gas for 4 months of operation. The condition of the hospital boiler house visited by the IOM team was very poor.

The installed volume of diesel fuel and mazout tanks for hospital generators and boilers is 5000 m<sup>3</sup>. Reports from GOG and hospital staff indicates that no diesel or mazout fuel is in storage.

### **Grain Milling**

Electricity is needed to mill wheat into flour. Mills do not have their own substations, dedicated cables or generators. Fourteen mills are located in Georgia with a capacity of 4,000 MT wheat/day. To meet the daily demand, 2,000 - 3,500 MT of wheat must be milled each day<sup>6</sup>. To mill one MT of flour, 100 - 120 kWh are required, depending on the type of wheat. The mills draw peak loads of 2000 KW. Generator purchase cost are prohibitively expensive. A generator able to meet the 2000 KW requirement would cost US\$ 1 - 2 million. Milling is done in six stages, each using 17 - 21 KW electric motors. Milling capacity has typically exceeded demand, although this may not be the case in some regions. If power is lost for more than 3 - 12 hours/day, milling will not meet the demand for flour.

### **Bakeries**

Large bakeries operate 24 hours/day, 7 days/week. They consume primarily electricity and natural gas. The bakeries can not bake bread without continuous supplies of electricity. Power is used for yeast preparation, dough preparation, oven conveyor belts, etc. About 45% of the baking ovens are electric, 35% can use natural gas or mazout and 20% consume natural gas or diesel.

The Georgian State Corporation for Grain Products (GSCGP) operates 58 large bakeries providing about 48% of the nation's bread. 90% of their bakeries have diesel generators which are intended to be used during blackouts to finish baking bread already in the ovens. The diesel fuel is too expensive for longer term use. They have the capacity to store 2,000 MT of fuel at 58 sites. Currently all storage tanks are empty.

The demand for natural gas stoves is 120 m<sup>3</sup>/MT bread (which is equivalent to 100 kg mazout/MT bread and 80 kg diesel/MT bread). The demand for electric stoves is 295 kWh/MT bread and 690 kWh/MT Georgian flat bread. The non-oven electricity usage is 59 kWh/MT bread.

The GOG natural gas department expects to close the natural gas pipeline for all of Georgia west of Tbilisi this winter. Ovens there will be entirely dependent on diesel and mazout. Last winter when the bakeries were unable to operate due to the lack of energy, flour was dispensed to the population.

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<sup>4</sup> Calculations: 160 Gcal/hr x 1/8 efficiency x 1 m<sup>3</sup> natural gas/8000 kcal = 25,000 m<sup>3</sup> natural gas/hour. 160 Gcal/hr x 1/8 efficiency x 1 kg mazout/9630 kcal x 1 MT/1000 kg = 20 MTs mazout/hour.

<sup>5</sup> Calculation: 33 gcal/hour x 1/8 efficiency x 1 kg coal/ 4000 kcal x 1 MT/1000 kg = 10 MTs coal/hour

<sup>6</sup> About 1000 kg wheat makes 750 kg flour, and 1012 kg bread.

### **Vital Railway Trunk Lines**

There are two vital rail lines, one linking Georgia with Russia through Azerbaijan, the other linking eastern Georgia with the ports of Batumi and Poti, and Armenia. The line linking the Georgian port cities with Armenia is the only rail freight route currently supplying Armenia. The internal rail system is important for solid and liquid fuel movements within the country, as well as humanitarian aid shipments to both Georgia and Armenia.

All railroads are electrified. The railway has its own substations, but if an entire region loses power, electricity supply to locomotives is lost. According to the First Deputy of the Railway Department three diesel locomotives are available for use during power interruptions. Diesel locomotives have half the haul capacity of electric locomotives.

### **Trucking**

High diesel fuel prices have resulted in high shipping costs. Transportation costs rapidly become a large fraction of an item's retail cost as transportation distance increases.

### **Planting and Harvesting**

Under normal conditions the agriculture sector consumes about 40% of the country's annual liquid fuel supply. Price increases of gasoline and diesel and fuel shortages have played a large part in the reduction of food available in Georgia. The GOG estimates that 1993 agriculture activity was 60% of a normal year and that only 55% of arable fields were plowed.

### **Fire Service**

Until this time, the shortages of diesel and gasoline have not significantly reduced the fire department's ability to respond to emergencies, although gasoline fueled trucks are not being used because of gasoline's high price. Fire fighting also requires a pressurized city water supply, which during periods of prolonged power blackout may not be available. Fire trucks have their own water tanks, with a capacity of 2 - 4 MT, but this amount provides only a 2 - 4 minute fire fighting supply.

#### **3.1.10 Possible Energy Supply Scenarios for the Winter Worst Case Scenario**

This scenario represents a worst case. The scenario assumes that the Inguri HPP, which current supplies about half of the net hydro energy, is lost and all natural gas supply is interrupted. Georgia could lose its high voltage line connection with Inguri and high voltage connections with the CIS and Turkey, as the result of sabotage or political problems with Abkhazia. The natural gas supply could be lost either because of sabotage or failure of the line, or Turkministan could stop supplying gas because of Georgia's inability to pay. If such a situation occurred it would probably span a period of a few days to a week, while distributions systems are repaired.

This situation would have the following consequences:

- The generation of electricity at TPPs is discontinued. The Tbilisi TPP will have to burn 300 MT of mazout/day to run in an idle mode.
- Hydroelectric plants will generate about 8.5 million kWh/day (the available capacity is approximately 350 MW).
- The supply of power to the population and water and sewage system will be discontinued.

- No natural gas will be available for residential cooking. The only urban fuel would be wood, limited kerosene and in some regions very limited coal. These fuels would be able to meet perhaps 15 - 20% of the urban populations demand.
- Bakeries and mills will not operate.
- Most services relying on electricity will not operate, with the exception of some rail roads, coal mines, few hospitals etc. which have their own substations.
- All other industrial facilities will not operate.

In this scenario, deaths due to hypothermia and complications from hypothermia will increase significantly. Adequate nutritional levels will be maintained only through massive food relief (other than grain) and air and road transport will become increasingly important.

### **Medium Case Scenario**

A situation similar to what is outlined below is anticipated this winter. It is likely that Turkministan will reduce natural gas imports to Georgia. The current natural gas contract is reduced by 70% to about 7 million m<sup>3</sup>/day. About 19.2 million kWh will be generated daily from hydropower. Power transmission from the CIS and Turkey is assumed to be 70% of last year or 3.6 million kWh/day. In such a situation:

- Tbilisi TPP will operate on idle.
- Hydropower plants will operate supplying all critical end users with their own substations with continuous power.
- Uninterrupted power could be supplied to all essential services if dedicated cables were run or if only those substations providing power to districts with critical services were provided with continuous power.
- Natural gas will be supplied to critical end user and the residential sector of eastern Georgia.
- All mazout in storage will be rapidly consumed by bakeries, hospital space heating and for the idle run of the Tbilisi TPP.
- Because bakeries and mills do not have dedicated cables or generator capacity, they may not meet the demand for bread.
- The quality of services at hospitals lacking generators and operating room battery banks will decline.
- The likelihood of contamination of the drinking water supply will increase sharply.
- All industrial activity not essential for survival of the population will cease.
- The majority of the population will not suffer from severe hypothermia.

### **Best Case Scenario**

This scenario would closely resemble last winter, with the exception that mazout storage is lower at the Tbilisi TPP (4500 MT versus 150,000 MT), and the natural gas supply is 12 million m<sup>3</sup>/day rather than last years 18 million m<sup>3</sup>/day. Power would be generated at all hydropower plants and units #9 and #10 at the Tbilisi TPP. 29.3 million kWh/day would be generated. Imported power imports would be at the same level as last year. Total power available would be 34.5 million kWh.

- All electricity demand for bakeries, hospitals, railroad, mills, etc. will be met.
- The residential sector will provided power 3 - 5 hours a day.
- All of eastern Georgia will be supplied with natural gas for residential cooking and bread baking.
- The industrial sector manufacturing export goods will operate, but with at a reduced level.

## **3.2 Food**

In Georgia, the national agricultural production for 1993 fell well below requirements for grains, animal products, potatoes and other vegetables. Estimates for food needs vary due to different methods of calculation. Total annual needs for grain for 1993-1994 were estimated by FAO and EEC (1.3 Million MT) and GOG (1.2 Million MT). Actual harvest estimates were 180,900 MT (Wheat - 130,000 MT; Barley - 44,000 MT and Oats and Rye - 6,900 MT). Maize harvest estimates were not available but projected at about 100,000 MT. Total wheat needs were estimated by GOG and EEC using 184 kg/person/yr (956,800 MT). Coverage of the wheat deficit by imports, credits and donations is available for 500-600,000 MT.

### **3.2.1 Food Supply and Nutritional Adequacy**

The relative susceptibility or vulnerability to food insecurity is most evident on the household level. Near total loss of purchasing power for the majority of Georgians renders them susceptible to some degree of food shortage or insecurity throughout the winter. Urban households largely reliant on income for food are increasingly limited in their access to food. Due to reduced agricultural productivity and marketing bottlenecks, there will be food and cash shortages in both urban and rural areas.

Food shortages and lack of purchasing power over the winter months may critically affect the nutritional status and health of the population, especially for vulnerable groups (see Annex 5 for vulnerable group estimates) whose food intake consists largely of bread or starchy foods with vegetables. Meats, dairy and oil products are unaffordable except in small quantities for those dependent on pensions, but may be received through food assistance. Cases of iron deficiency anemia, calcium and Vitamin A deficiencies may be expected. Insufficient intake of Vitamin C on a daily basis will increase susceptibility to infections. Protein-energy malnutrition (PEM) where the total quantity of food consumed is inadequate to supply sufficient energy for body warmth, muscular and metabolic activities and protein synthesis may occur. This deficiency is of particular concern in the absence of central heating in Georgia. PEM can be exacerbated by social stresses and produces effects such as reduced resistance to disease, reduced productivity, and reduced learning in children.

Early indicators of food stress are evident. Bread lines are long and sometimes require waiting overnight. Sales of household assets are widespread. In vulnerable groups the following indicators are seen: unprecedented begging by elderly and children, dependence on bread for extremely high percentages of the diet and commitment of 100% of income to food. (See also Public Health section 3.2.3).

### **3.2.2 Bread Supply**

#### **Production and Distribution**

For Georgians, bread is both a staple and a traditional food. The Georgian diet has customarily contained a large percentage of bread and other grains. Wheat is currently the major grain used for bread baking by state and commercial concerns, however, particularly in western Georgia, a traditional maize pan bread (mchadi) is prepared at home. Maize is therefore a significant source of calories in certain areas.

The large majority of bread is obtained through government bread shops in 800-1,200 gram loaves at the average cost of 80 coupons per kg. Prices vary slightly depending on grade of wheat used, milled quality, and the type of bread produced (traditional Georgian flatbread requires

twice as much energy to bake.) Dough is sometimes sold for home baking. When bread is rationed, 400 grams per person are allowed each day. Ration cards are currently used in Kutaisi, Telavi, Samtredia and other cities and towns. The ration must be obtained each day. In Tbilisi, bread is presently sold on demand but rationing will be implemented on December 1, 1993.

Bread is produced by the Georgian State Corporation for Grain Products (GSCGP) in 58 large bakeries and 200 small bakeries countrywide. Fourteen mills process flour with a capacity of 4,000 MT per day under 24 hour operation. The Corporation markets 48% of the subsidized bread while a partially privatized company (Tsekavshiri) buys the ingredients from the corporation and markets it for a profit, distributing the remaining 52%. Commercial shops bake and sell bread at the price of 1,000-2,000 coupons per kilogram but contribute a small proportion of the total production in the country. Bread prices are scheduled to rise by the end of November with an accompanied increase in salary levels.

### **Consumption**

Historic requirements for the bread production industry, according to the GSCGP is 90,000-100,000 MT (GOG estimate) of wheat per month, which is milled at an average milling rate of approximately 75-80% to produce an average of 75,000 MT/month of flour. This amount is in excess of that required to provide average consumption rate of 400 grams (66% of standard requirement of calories) per day per person. (See section on Ameliorating Factors for explanation of bread hoarding and other uses.)

Using population estimate of 5.2 million and assuming even coverage, minimum needs for grain can be calculated at approximately 64,000 MT/month. However, coverage of the population appears to be uneven with generally unrestricted access in Tbilisi and sporadic distribution of bread or substitute flour in rural areas especially in winter months. The operation of rural bakeries has become less consistent in recent years due to shortages of power, fuel or grain. Rural families are accustomed to being cut off from government bread supplies during the winter and they store food according to this expectation.

### **Production Requirements**

In addition to grain, yeast and salt are currently added to bread. The yeast factory in Tbilisi has ceased production. Yeast is now imported from Holland with credits and according to GSCGP, the yeast pipeline should be adequate for six months. The GOG has not been able to secure a steady supply of quality salt. (In the past, oil and sugar were added to bread. Special ducts to add these ingredients to dough still exist in the bread factory visited by the mission.) Due to the age of the equipment in the bread factories, breakdowns are expected.

Electricity is needed to mill grain into flour and should power be lost more than 3-12 hours per day, the demand for flour may not be met. Bakeries cannot bake bread without a continuous supply of fuel. Those in western Georgia are dependent on diesel and mazout. Most of the urban and some rural areas of the country are supplied with natural gas for cooking. If natural gas supplies are cut off residents will be unable to cook or bake bread if bakeries are unable to operate. Some rural areas depend on wood for fuel, and wood is increasingly scarce and expensive.

### **3.2.3 Nutritional Status**

#### **Purchasing Power**

Due to severely limited purchasing power, persons receiving pensions and minimum wage are able to procure less than one tenth of the monthly economic food basket designated by the GOG. For many, this means a diet of mainly bread.

#### **Rationing**

Bread (currently composed of grain, yeast, salt and water) consumed at 400 grams per day per person, provides 1,456 calories or about 66% of calorie requirements (FAO/WHO standards) of 2,200 calories per person/day. While consumption norms have decreased in Georgia over the past five years, current level is close to the WHO standard requirement. It is assumed that reduced purchasing power and high market prices will limit caloric intake and increase the percentage of bread in the diet, perhaps to 90% or higher of total intake on average for vulnerable groups.

#### **Nutrient Sources**

Based on market survey conducted by the IOM mission in Tbilisi, potatoes, tomatoes and onions are the chief sources available for Vitamins A and C and trace minerals, but these vegetables are expected to be higher priced or unavailable in winter months (one kilo of potatoes = 10,000 coupons on November 4). Dairy products, considered essential for children and pregnant and lactating women, are beyond the means of vulnerable groups and will become less affordable for the general public as high fuel costs and lack of inputs constrict productivity and marketing. Other sources of protein such as beans, cheese and meat cost 2-10 times the monthly minimum wage per kilo (for example, one egg=4,500 coupons). Sugar and oil are highly valued by Georgians in their diet but are largely imported, rarely rationed by the government, and currently available only in commercial shops (one liter of oil=50,000 coupons). (*See Annexes 6 and 7 for more complete market analysis.*)

#### **Access**

Special constraints which restrict access to food among vulnerable persons include:

- Many IDPs living in hotels do not have personal cooking facilities and others lack cash to purchase dishes and utensils.
- Food aid distributions are uncoordinated, and produce uneven coverage. Follow-up monitoring is not fully in place.
- There is a lack of resources/strategies to cope with food shortages, especially among the newly displaced and urban poor.

### **3.2.4 Agriculture and Marketing**

#### **Background**

Georgia was a primary producer of fruits, vegetables, tea, tobacco, wine and a wide variety of specialty crops for the former USSR, receiving in return wheat and feed grains, agricultural inputs, machinery and petroleum products. The breakup of the Soviet Union has left Georgia without vital inputs or markets. Most farmland and agribusinesses are being rapidly privatized but the disincentives of poor and uncertain markets, bad transport, meaningless currency, loss of management expertise, and reduced access to production inputs, such as fertilizers, seeds and pesticides have reduced production levels. Although regional and sub-regional variations exist, in general, land was privatized by division into mini-farms of 1-2 hectares, now mainly

supporting diverse crops and some livestock to provide subsistence and small surpluses for trade. Approximately 60% of farmland is now privatized.

### **Agricultural Production**

Agricultural production has fallen by more than 60% in the last two years. Due to the lack of fuel and machinery required to harvest last year, less area was planted with wheat and barley as well as important winter vegetables such as potatoes and beets. In 1993 approximately 60,000 MT were lost due to severe hail storms and late harvesting due to lack of fuel. In contrast to other grains, the hectares sown for maize increased from 107,000 to 155,000 because it can be hand harvested. Actual harvest figures for maize, much of it grown in the formerly Zviadist-controlled areas were not available but estimated at 100,000 MT.

In 1993, actual grain harvest figures (excluding maize) obtained from the GOG Ministry of Agriculture (MOA) on November 1 indicated that 180,900 MT of grain was produced of which 130,000 MT was wheat. Gross estimates only can be made of private stocks. To date the GOG has only purchased 13,500 MT from private sources. Due to low government buying prices and fluctuating currency rates, farmers are keeping private stocks as a hedge against inflation, bartering for needed goods or exporting over borders.

People living in high mountain areas do not rely on grain products but instead preserve and store different foods. Alternative indigenous food sources include nuts, dried fruit, dried meats and fish, and vegetables. The long storage life of potatoes allow them to be marketed throughout the winter. However, the potato crop was projected to be below 1992 levels.

### **Production Deficit**

Agricultural production, decreasing dramatically in the past three years, was at an all time low for a ten year period in 1993, leaving a deficit of approximately 950,000 MT for human consumption and a severe deficit (estimated 400,000 MT or about 80%) for animal consumption. Unless inputs are provided, the production picture for 1994 looks even more bleak. While reduced production has kept the price of food high, other market disincentives also contribute to high market prices.

- Low prices for grain offered by the GOG and resultant sales of grain to neighboring countries
- High transport costs
- Lack of consumer buying power, low export demand
- Forced monopolies in the markets
- Need by rural populations to hoard and barter goods for predictably difficult winter period ahead, possibly causing urban market shortages
- Reduced production or close-down of food processing plants.

### **Food Sources to be Available Beginning with the 1994 Harvests**

The mild climate of Georgia permits harvest of certain vegetable crops as early as June. Winter wheat harvesting begins in July. The MOA estimates, however, that only half the amount of land (72,000 ha) was planted with winter wheat this fall compared to 1992 (140,000 ha). This will result in a more serious deficit of wheat in 1994-1995. If farmers receive or are able to purchase inputs such as improved seeds (particularly spring wheat for autumn harvesting) and fertilizers, the forecast for grain production may improve. However, the important constraints of lack of fuel, machinery, and marketing disincentives must be overcome.

### **3.2.5 Food Assistance**

#### **Pipeline for Bread Production**

Complete information regarding government stocks of grain, expected imports including food aid and available credits, and shipping schedules for imported grain is not available. The GOG has only partially provided this information to donors and they have not consolidated their pledges due mainly to lack of a coordinating body. Therefore, it is presently not possible to accurately predict where grain gaps will occur.

The logistical capabilities to move needed grain from the ports for bread production are highly uncertain. At present, Batumi is the only fully accessible port but is congested and operating with marginal efficiency. The train network is the most efficient means of transport for grain from the ports but is vulnerable to disruption. Other routes into Georgia and means of transport are under consideration, however, damages to the transport infrastructure or logistical bottlenecks are expected. A more complete discussion is found in section 3.4 of this report. The GOG says it has no grain reserve in the event of disruption of supplies or other emergencies.

The amount and scheduling of wheat to be obtained by the GOG on credit or trade agreements from other countries remains unclear. Food for Progress wheat from the United States (130,000-140,000 MT) plus additional wheat for NGO programs (for a total of 168,000 MT), is scheduled to arrive in mid-February, 1994. Stocks at Batumi port as of November 1, totaled 47,200 MT, enough for approximately three weeks. Stock positions appear to be tenuous from late November until mid-February.

The following information was made available by the State Committee for Foreign Economic Relations on sources and approximate metric tonnage or credit equivalents available for Georgia in the coming months. The total does not include a possible shipment of wheat from Kazakhstan (60-100,000 MT) mentioned in discussion between the IOM mission and GSCGP.

#### Approximate MT of Wheat

Turkey (US\$15,000,000)	125,000
EEC credits (40,000,000)	160,000
Germany Credits for agriculture (DM 30,000,000)	125,000
United States	168,000
Total	578,000 MT

The IOM mission was informed by GSCGP that 60,000 MT was due to arrive in mid-December from USAID, however, this information was not confirmed in documents received from USAID. The mission found considerable confusion between the GOG and donors with regard to the sufficiency and timing of the pipeline, both in terms of amounts and scheduling of shipments.

#### **Amounts Required**

With the exception of the USAID grain, the above mentioned amounts of imported wheat and food aid are neither confirmed nor is it known if credits have been negotiated. However, using

this tonnage as a best guess, and assuming local harvest will be available in July 1994 wheat amounts should be adequate to meet minimum demands for bread at average consumption level of 400 grams per day for 5.2 million people (monthly need = 63,266 MT or 506,1338 MT for eight months December through July). This must be considered the minimal requirement, as the average need for vulnerable groups already exceeds 400 grams.

#### **Timing of Shipments**

For the above tonnages, with the exception of USAID commodities, shipping information was not available. Negotiations were reportedly underway to obtain an immediate shipment of wheat from Turkey. Wheat shipped from Turkey can reach Georgia in two days and possibly can be shipped to flour mills in one week.

#### **Scenarios**

In terms of projections of pipeline sufficiency, the best guesses that can be made with available information are the following:

**OPTIMISTIC SCENARIO:** Grain deliveries are negotiated for immediate delivery with Turkey or Kazakhstan or manipulated through efforts of GOG, donors and NGOs. Gaps are filled between usage of 47,200 MT at the port (estimated to last until end November at current level of production) and arrival of USAID wheat in mid-February. (Amount needed for 2.5 months: minimum of 158,165 MT). A reserve stockpile of wheat and flour is accumulated.

**POSSIBLE SCENARIO:** Grain deliveries cannot be adequately programmed or manipulated to ensure complete coverage and distribution is hampered in all or part of the country, requiring rationing to 400 grams or below for a 1-2 month period including days when distribution is not sufficient.

**PESSIMISTIC SCENARIO:** No breakthrough occurs in negotiations with Turkey and Kazakhstan, and shipments from Germany and EEC are unable to be processed in time. Grain deficiencies are severe from end-November to mid-February, requiring emergency shipment arrangements and possibly airlifts to provide minimum requirements for calories to the population. Shipments may later converge on the ports at the same time, causing logistical bottlenecks.

#### **3.2.6 Agencies Providing Assistance**

A number of GOG agencies and NGOs provide food assistance to the vulnerable groups.

- GOG Humanitarian Assistance Commission (HAC)
- Ministry of Labor and Social Affairs
- CARE
- ACTS (A Call To Serve)
- International Federation of the Red Cross and the Georgian Red Cross Society
- ASB (Arbeiter Samaritenbund)
- Salvation Army
- International Committee of the Red Cross
- EEC (ECHO)

Needs of the vulnerable groups are being addressed but coverage is uneven and resources insufficient. GOG HAC has a national network but lacks the technical capacity to coordinate

agency efforts. Other GOG ministries and local NGOs have provided much needed assistance in the past but do not have resources to cover current needs. Although newly arrived international NGOs continue to set up operations in Georgia, most are located in Tbilisi and have yet to branch into other areas. For example, IDPs from Abkhazia and Mengrelia have congested the city of Kutaisi, more are continuing to arrive from the western war torn areas, and more are expected to return to central and western Georgia from Tbilisi where there is no more housing. IDPs requiring GOG support may exceed 30,000 and needs have only been minimally addressed.

In addition, about 5,000 refugees in Mestia and surrounding villages are essentially stranded unless evacuated by helicopter. Due to restrictions on helicopter flights, about 3,000 are expected to winter in Mestia where the situation is reportedly increasingly chaotic and local inhabitants have exhausted food reserves. An attempt by CARE and IOM to evaluate the area on October 30-31 failed due to bad weather and shortage of helicopters.

### **3.2.7 Ameliorating Factors and Coping Strategies**

Despite the reduced production, cash deficit and high prices relative to income, food continues to be available in local markets and sales appear to be active. Purchasing power remains adequate for many people due to alternate income support. (See Introduction of this mission report.)

Georgian traditional culture serves as a safety net for family and friends which provides a flow from those with excess resources to those with resource deficits. Children are given special attention and nutritional deficiencies in children are not thought to be widespread. In normal times, communities provide support for vulnerable individuals.

The unrestricted subsidized bread distribution in Tbilisi and possibly other towns has allowed extensive hoarding and profit by resale by both rural and urban populations. (Dried bread has a cracker-like texture and can be kept for several months.) Rural people reportedly arrive by public transport, collect quantities of bread, which are resold or distributed in the rural communities. Entrepreneurs capitalize by waiting in line and reselling the bread locally or over borders, particularly to Russia and Armenia where bread is more expensive or scarce. Bread is given to livestock in lieu of more expensive or unavailable feed.

Rural families preserve and store food extensively for the winter. Newly privatized land (small farms of 1-2 ha.) is planted with a variety of crops for the purposes of storing and trading. Urban families who can afford to do so also preserve foods and if possible have gardens and keep fowl and other small stock.

## **3.3 Public Health**

### **3.3.1 Health System Financing**

Due to the collapse of the Georgian economy, the health care system cannot provide health care to the people of Georgia without outside assistance. Ministry of Health (MOH) expenditures for the entire Georgian Republic (including all salaries, medicines, and supplies for hospitals, polyclinics, and sanitary/epidemiology stations) are shown in the following table:

Table 4 - Health expenditures for the Republic of Georgia by year

Year	Expenditure
1991	758,230 rubles
1992	3,275,354 rubles
1993	30,982,420 coupons (budgeted)

Source: MOH, Finance Directorate

Note \*\*Exchange rate of 29,000 coupons to the dollar on 11/06/93

Only token monthly salaries can be paid to physicians (US \$0.55-\$0.80 at exchange rate of 29,000 coupons to the dollar on 11/6/93) and other medical staff. There are essentially no funds available for the purchase of medications or medical supplies, the maintenance of facilities, or operation of national public health programs.

### 3.3.2 Health Information System

Morbidity (especially infectious disease), mortality, environmental health, and childhood immunization data are collected, analyzed, and reported by the Sanitary/Epidemiology (San/Epi) Directorate of the MOH. There are 92 district San/Epi stations reporting to three republic level stations (Tbilisi, Adjara, Abkhazia).

The head of the San/Epi Directorate indicated that due to resource shortages (fuel and computers) and communication and security problems, it is impossible for district sanitarians and epidemiologists to perform their health surveillance functions. As a result, some parts of the country have either not been reporting health data during the past 12 - 18 months or have only sporadically reported. These problems preclude the timely collection and reporting of complete health information.

Potential data quality problems, especially under-reporting, must always be kept in mind when interpreting GOG health data.

### 3.3.3 Health Care System

#### Health Care Delivery

Health care is delivered by two commingled systems. The first is the centrally controlled system of socialized medicine created by the former Soviet Union. This regionalized system consists of village primary health care clinics; district polyclinics (usually separate women's, pediatric, and adult polyclinics); and a series of district, central, and specialty hospitals. All care under this system is/was free of charge.

This system is still operational in terms of its administrative function and as the primary source of care for the poor. However, a second privatized system also operates. Under this system patients with the ability to pay choose a personal physician and receive care on a fee for service basis. There are two important reasons for this privatization. First, physicians are forced to supplement their salaries and, second, many people believe the quality of care is higher in the private system.

#### Health Facilities and Infrastructure

Georgia has an abundance of health facilities; 407 hospitals (110.7 beds per 10,000 persons) and 1,426 clinics. Inspections of 5 hospitals and 10 clinics in various parts of Georgia uniformly showed old poorly maintained facilities. A recent UNICEF report (October 1993) indicated that 40% of health facilities were in immediate need of repair and in rural areas, 17% of medical

facilities were without water and 27% were without sewage disposal. MOH officials stated that although some hospitals have emergency backup generators, most are without fuel or spare parts.

#### **Medical Personnel**

MOH data show very high physician and mid level health care worker-to-population ratios (59.2:10,000 and 118.3:10,000 respectively). While there are well trained and highly motivated physicians within Georgia, interviews with a number of Georgians, both inside and outside the health care system, indicated that the diagnostic and treatment skills of many physicians is low. Results from licensing exams held in 1988 showed that only 36% of primary care physicians and 44% of hospital specialist passed the exams. Two NGOs providing medical care in Georgia, corroborated this problem. Due to the extremely low salaries, many of the best trained and motivated physicians have suspended their medical practices and found other work (for example, warehousemen for relief agencies).

#### **Diagnostic Laboratories**

Most laboratories rely on very old and sometimes unreliable equipment. Laboratory equipment, spare parts, and supplies previously provided by the former Soviet Union, have been either completely unavailable or are in extremely short supply since 1990. Shortages are reported in bacterial growth media, petri dishes, bacteriologic stains, reagents, and serologic test materials. Due to these problems, many tests cannot be accurately performed.

The Institute of Vaccine and Sera which previously produced vaccines and diagnostic test materials (sera) for use in laboratories, has maintained its facilities and qualified staff. This institute appears to have potential for re-starting production of diagnostic sera and vaccine.

#### **Health Care Utilization**

A recent UNICEF report (October 1993) indicated that the average number of patient visits made to primary health care (PHC) clinics per person per year decreased from 8 visits to 2 visits between 1990 and 1992 (75% decrease). This decrease in utilization is further substantiated by the data presented in Annex 9 showing a 50% decrease in the number of pediatric health care visits to pediatric polyclinic # 18 in Tbilisi which serves 64,000 children. Records from the Telavi pediatric polyclinic (8,000 registered children) show a 21% decrease in visits to the clinic between 1992 and 1993 (projected). The percentage of these visits that were for illness (vs. preventive care) also decreased at both clinics.

Hospital occupancy is also lower than in previous years. MOH data show an over abundance of under utilized medical facilities. The 720 bed Telavi hospital (serving a pop. of 75,000) had an occupancy rate of approximately 25% in mid October and occupancy rates at the Tbilisi Children's Hospital and the Republic Hospital during this same period were both about 50%.

The most likely reasons for this decreased utilization are hyper inflation induced poverty (i.e., unable to afford medicine), shortages in medicines and medical supplies, fewer services provided, and transportation difficulties due to high fuel costs and fuel shortages.

#### **3.3.4 Medicine and Medical Supplies**

Georgia has essentially no existing medicine or medical supply production infrastructure of its own and previously purchased all medicines and all diagnostic and therapeutic medical supplies from the Soviet state run monopoly. Since Georgian independence in 1990, Russia and other

potential suppliers have demanded hard currency for all purchases and Georgia has been unable to obtain medicine or medical supplies.

### **Medicine**

The Pharmacological Committee of the MOH together with the advisors from the World Health Organization developed an essential drug list for Georgia and estimated the needs of the republic for one year. This list was to be used as the basis for requesting donations or for making credit purchases. Although some donors have responded to the essential drug list with donations of particularly critical medications, the supply of medicine to Georgia appears largely donor driven. Most donors provide medications they are able to procure. In some cases the supply has not matched the need. The ad hoc nature of the content and timing of donations makes inventory control and coordination extremely difficult.

### **Coordination**

The MOH Central Pharmacy is attempting to act as the coordinating body for all humanitarian medical donations by requesting that all donors and in-country relief agencies inform the Central Pharmacy of incoming shipments and distributions. However, for reasons already stated the inventory control system is functioning poorly and there appears to be no reliable information on what proportion of the projected needs have been met, what medicines are in the pipeline, what has actually been distributed, or where gaps exist.

### **Bottlenecks**

Besides the inventory control problems already mentioned, major bottlenecks for the distribution of medicine and most other commodities are fuel and transportation shortages and security problems. The MOH does not have the funds to transport the stocks it has warehoused in Tbilisi to other parts of Georgia. Hospitals are expected to find the means to come to Tbilisi to pick up their supplies. Most distribution is dependent on relief agencies.

### **Distribution Priority**

Information obtained through site visits in various parts of the republic and interviews with key officials in the GOG and relief agencies indicates that to date, much or most of the donated medicine has gone to Tbilisi hospitals. Other priority areas for donated medicines have been cities and towns receiving displaced persons (especially Kutaisi and towns near the conflict zone). Only small amounts have been distributed to other city and rural hospitals. Almost no medicine appears to have been distributed to outpatient facilities, polyclinics or primary health clinics.

### **Private Pharmacies**

Other sources of medicine are the private pharmacies and kiosks. Stocks of medications are purchased from Russia or the black market but resale prices are well beyond the means of many or most Georgians, especially the disadvantaged. Fifteen private pharmacies in Tbilisi and its suburbs were surveyed for the following categories of medicines on 10/21/93:

1. Antibiotics
2. Diabetic Medication (except insulin)
3. Antihypertensives
4. Asthma Medications
5. Heart Medications
6. Arthritis Medications

7. Pain Medications  
 8. Vitamins and Supplements

A third of these pharmacies were well stocked with several different types of drugs within each of the 8 categories. Prices were high and varied widely between pharmacies (*see Annex 8*).

**Medical Supplies**

The supply, inventory control, and distribution of medical and supplies is similar to that for medicines, and the same problems and bottlenecks exist. Site visits to hospitals, polyclinics, and dental clinics revealed critical shortages of sterile disposable rubber gloves and syringes. Sterilization equipment was old and often poorly maintained.

**3.3.6 Health Indicators**

**Mortality**

MOH data for the republic show a jump in the crude mortality rate from 8.5 per 1000 population in 1991 to 9.6 per 1000 in 1992 (table 6). The infant mortality rate has been steadily decreasing and is currently (1992) at 12.4. Tbilisi City data show increasing crude and age specific (65 years and above) mortality rates for the city (table 7).

**Table 6 - Crude and infant mortality rates  
 by year for the Republic of Georgia**  
 Rates are per 1000

Mortality Rate	1989	1990	1991	1992
Crude Rate	8.6	8.4	8.5	9.6
Infant Rate	19.6	15.9	13.7	12.4

Source: MOH

**Table 7. - Crude and age specific (65 yr and above) mortality rates  
 by year for the city of Tbilisi**  
 Rates are per 1000

Mortality Rate	1991	1992	1993 (projected)
Crude	8.2	9.4	9.9
65 Yr & above	10.7	12.1	13.2

Source: MOH

Note that the 1993 projections were made by calculating a monthly average based on the number of deaths occurring during the first 9 months of 1993.

The leading causes of mortality among adults are cardiovascular diseases (60%) and cancer. For children the leading causes are respiratory diseases (48.4% for ages 1-4 yr, 35.3% for ages 5-9 yr, and 24.5% for ages 10-14 yr) and injuries (24.0%, 30.0%, 34.5%).

**Infectious Diseases**

Disease rates for selected infectious diseases are presented in Annex 10. MOH data show that rates for most reportable diseases have been decreasing. However with the recent massive population displacements, dire socioeconomic situation, and collapsing health system, it is likely that these rates will level off or increase. Outbreaks of food and water borne illnesses were reported among a large number of displaced persons in Svaneti in September and October, 1993.

**Hepatitis A:** The annual rates of hepatitis A prior to 1993 are quite high (approximately 10 times higher than in the US), and are a cause for concern. With the crowding that is occurring due to population displacements, the reported shortages of soap for hand washing, and the decreasing ability of public health officials to respond to reports of food and water borne illness, risk of Hepatitis A outbreaks will increase.

**Hepatitis B:** Hepatitis B which is transmitted through sexual contact, and exposure to contaminated needles, dental and surgical instruments, and blood and blood products also poses a serious threat. The current shortages of disposable rubber gloves, sterile syringes, sterilizing equipment, and blood supply testing materials will greatly increase the risk of exposure.

**Tuberculosis:** The MOH data show decreasing rates for tuberculosis while data from Georgia's TB control program indicate that the number of patients diagnosed with TB has increased (7600 in 1989 to 10,700 in 1992). As TB patients are forced to leave treatment programs prematurely due to displacement or drug shortages, as screening declines (due to shortages of testing materials), and as crowding worsens, the risk of the spread of tuberculosis will increase.

**HIV/AIDS:** The director of the AIDS and Immunodeficiency Research Center indicated that to date, 18 HIV infected individuals have been identified. He further stated that based on epidemiological work from Europe, the former Soviet Union, and Georgia, 40,000 cases of HIV infection could be expected by the year 2000 if Georgia's HIV screening and education program collapsed.

Georgia has 28 HIV testing centers and 13 blood banks which have ongoing needs for HIV screening materials. Barriers to AIDS prevention include shortages of disposable syringes, rubber exam gloves, condoms, and materials and funding for education.

#### **Women's Health**

Due to the current economic situation (hyper inflation), prices of food, medicines, prenatal supplements and most other goods are beyond the reach of most Georgians and shortages have occurred in every sector. As a result, most pregnant women are at higher risk than in previous years. The Obstetrical Directorate indicates that women are now averaging 5-6 prenatal visits per pregnancy rather than the recommended 14 (>50% reduction) and receiving fewer and lower quality services. Prenatal vitamin supplementation is no longer available in most clinics.

The birth rate has been decreasing (18.5 in 1985, 17.0 in 1990, and 16.6 in 1992) for the past several years as the economic, social, and political conditions have deteriorated. The 1993 birth rate for Georgia is not available but the rate calculated for the town of Telavi (pop 25,000) based on the first 9 months of 1993, shows a 13.5% decrease (17.0 in 1992 to 14.7 in 1993). In addition, data from two Tbilisi women's clinics (#11 serving 63,567 women age 14 and older, and # 5 serving 43,527) show a 20-40% decrease in the number of women registering for prenatal care between 1992 and 1993.

The maternal mortality rate increased from 25.7/100,000 live births/yr in 1990 to 49.8/100,000 live births/yr in 1992 (nearly a 2 fold increase), probably reflecting the decrease in the amount and quality of prenatal and obstetric care.

One potential indicator of women's nutritional health is the incidence of anemia. Iron deficiency anemia is relatively common in menstruating women, but an increase in the proportion of newly

diagnosed cases may indicate an increase in the occurrence of nutritional iron deficiency. Data from three women's clinics showed increases of 3-10% in the proportion of cases of anemia among women registering for prenatal care between 1992 and 1993.

Modern means of birth control were prohibited in the former Soviet Union and as a result, elective abortion remains the primary means of birth control (726.1/1000 live births in 1992). The head of the Obstetric Directorate indicated that with the current shortages of contraceptives (condoms, IUDs, pills), the number of women using unreliable "traditional methods" is increasing, as is the number of elective abortions. With the shortage of sterile gloves, syringes, and instruments, abortions will become more risky.

### **Children's Health**

Data from a Tbilisi pediatric polyclinic and from two rural clinics (Telavi, Borjomi) show no increase in the number of cases of infectious diseases over the past 3 years. The head of the Maternal and Child Health Directorate indicated that the most common causes of childhood morbidity are acute respiratory (46.3%) infections and diarrheal disease (23%).

**Nutrition:** The head of the Maternal and Child Health Directorate and pediatricians in several urban and rural areas indicated that malnutrition has not been a public health problem in Georgia for many decades. To help confirm this information, a review of growth charts from 100 randomly selected infant records from 5 randomly selected Tbilisi pediatric polyclinics (total of 20 such clinics in Tbilisi) was performed. All calculated weight for height Z scores were within normal limits.

Caution must be used in generalizing these results. Infants (0-1 yr) who are under the constant care of their mothers, may be less likely to go without meals than older children (i.e., 1-5 yr). Further, similar chart reviews were not performed in rural areas.

Nutritional surveillance (including micro nutrient deficiency surveillance) is not currently being carried out by the MOH nor is it being planned. The head of the Maternal and Child Health Directorate indicated that "most" children are not currently receiving adequate nutrition and so although evidence of acute under nutrition was not found during this assessment, it may simply be too early to be manifested. No information was available on rickets, scurvy, or other micro nutrient deficiencies. However, they may develop if hyper inflation and food shortages continue.

A report by the head of the Directorate of Obstetrics and Gynecology indicates that due to certain hospital practices as well as to economic and social conditions only 22-25% of mothers leaving maternity hospitals breast feed their infants and only 20% continue to breast feed at 4 months. As a result, up to 80% of all infants (approximately 74,000 per year) must be supplied with formula and supplemental baby food.

Infant formula, baby food, and whole dried milk (for older children and pregnant or lactating mothers) is being distributed through women's and pediatric clinics in Tbilisi and other population centers but there are many rural and less accessible areas of Georgia that are not yet covered.

### **Mental Health and Substance Abuse**

Interviews with physicians, displaced persons, and others make it clear that stress related mental health conditions, domestic violence, and substance abuse are serious problems. As the political, social, and economic crises continue, these problems will likely increase.

The republic of Georgia is unprepared to deal with these mental health problems. Some inpatient facilities exist but there is no outpatient community based mental health system to provide preventive, routine, or crisis counseling services. Substance abuse prevention and treatment services are also underdeveloped within Georgia.

### **3.3.7 Immunization**

As with most other medical commodities, Georgia formerly received all of its vaccines from the central MOH in Moscow. Vaccination coverage rates were very high in 1989-1991 (*Annex 11*), and illness rates were correspondingly low (*Annex 12*). However, beginning with Georgian independence in 1990, the supply of vaccines began to decrease and hard currency was required for its purchase. By 1992 stocks were depleted, vaccinations essentially ceased, and coverage rates dropped off sharply. The MOH reports that national rates are expected to be even lower for 1993.

Vaccine preventable disease incidence rates would not be expected to immediately rise as coverage rates decrease, but as the number of susceptible individuals increases, outbreaks of these illness (especially measles) are possible. Diphtheria and measles have been reported in a number of areas in the former Soviet Union. Records from three clinics (Tbilisi #18, Telavi, Borjomi) show no increases in immunizable childhood diseases between 1992 and the first 9 months of 1993.

A Resources for Child Health (REACH) report indicates that for 1993 immunization coverage is needed for 160,126 infants (95,000 born in 1993 and a backlog of 65,126 born in 1992). Currently 100% of vaccine needs (primary series only) for 1993 have been received or committed by donors (Table 8). UNICEF plans to provide the 6 basic antigens for primary vaccinations for 1994-95.

**Table 8. - Status (October, 1993) of vaccine needs, deliveries, and commitments for Georgia**

	BCG	DPT	Measles	Polio
Doses Needed *	800,603	628,505	428,985	592,868
Deliveries from CIS Countries	48,000	0	46,000	600,000
Outside Donor Commitments:				
UNICEF	50,000	162,000	55,000	254,280
Georgia Found.	8,000	6,000	0	10,000
MSF - Spain	945,000	465,000	330,000	0
Doses Received or Committed	1,051,000	633,000	431,000	864,280

Sources: REACH (\* calculated needs for primary series for 1992-93)

Although vaccine supply needs have been met for 1993, problems exist in distribution. Of the vaccines provided by MSF-Spain, for example (Table 8), only 34% of the BCG, 20% of the measles vaccine, and 0% of the DPT vaccine had been distributed by 3 November 1993. Several

reasons were cited for the delay: vaccinations are not routinely given during the summer months; high fuel costs and fuel shortages; lack of transport vehicles; and security problems in many areas of the republic. REACH is currently conducting a seminar for the MOH on vaccination policy and vaccine distribution.

### **Cold Chain**

Cold chain capacity and reliability also appear to be problems. Polyclinics visited in Tbilisi, Telavi, and Borjomi each had one small refrigerator and no backup in the event of power outages. Power is expected to be limited to a few hours per day in Tbilisi.

A total of US\$ 692,700 was budgeted for cold chain equipment under the USA/GOJapan Joint Immunization Initiative and US\$ 641,285 has been used to purchase priority items. REACH has immunization and cold chain workshops scheduled for November and December, 1993.

### **3.3.8 Water and Sanitation**

The republic San/Epi station in Tbilisi reports that Georgia has 1300 registered water sources. Of these 140 are categorized as central sources (cities), 127 are for smaller towns, and the remainder are village or other rural sources. Many of these potable water systems are old and in poor repair, and many of the rural systems are not chlorinated. The mission was not able to visit each of the water systems but the following systems provide representative examples of the systems in the Georgia.

#### **Tbilisi (pop 1,263,000)**

Tbilisi has two major sources of water, a large reservoir 40 km northwest of the city and the Aragvy River which flows through the city. The water engineers indicated that the system has adequate capacity and enough redundancy and supplies (liquid chlorine is purchased from Armenia) to operate through the winter. Approximately 20% of the distribution system is very old resulting in frequent breaks, water loss, and probable contamination.

The chief engineer of the regional sewage treatment system (includes Tbilisi) indicated that although the plant is currently able to handle the volume of sewage it receives (70% of maximum capacity), it is equipped to provide only "essential purification." The discharge water is still far below acceptable levels of fecal contamination.

#### **Kutaisi (pop 250,000)**

The city water engineer indicated that Kutaisi's water system was one of the worst in the republic. A recommendation had been made two years earlier to replace the portion of the system supplying the central part of the city where 40% of the population reside. As many as 20,000 displaced persons are also now located in this area. The system is currently in need of coagulant (240 MT for the remainder of 1993, and 2000 MT for 1994) as well as chlorine, replacement pumps and spare parts.

### **Water Testing**

Water testing is usually done by the district or city San/Epi stations on a regular basis. The water quality surveillance system appears to operate normally in the large population centers, but due to shortages in testing supplies (reagents, bacteriology materials, chlorine test kits), and fuel for transportation to water sources, the system is breaking down in the rural areas. MOH data show that of the approximately 10,000 annual bacteriologic tests performed of Tbilisi's potable water, only 0.2% - 0.3% fail to meet WHO water quality standards. The situation is much different in

situation is much different in other areas however. Data indicate that in some cities and towns up to 35%-48% of tests fail to meet WHO standards.

### **3.3.9 Vulnerable Populations**

Georgia's vulnerable populations include a large group of pensioners, orphans, invalids, single parent families, families with more than 3 children, displaced persons, refugees, and the poor (especially urban poor).

#### **Cold Stress and Hypothermia**

District heat for heating homes, apartment buildings, schools, hospitals, and businesses in urban areas was generally unavailable last winter and will not be provided again this winter. Rural areas appear to be less dependent on district heat. Chronic cold stress will undoubtedly contribute to morbidity and mortality this winter by increasing the metabolic demand (and caloric need) placed on individuals, by aggravating underlying chronic conditions, and by decreasing the effectiveness of the immune system. However, the actual prevalence of cold stress and hypothermia is difficult to determine and depends upon aggravating (extremes of age, malnutrition, underlying illness) and mitigating (warm clothes, physical activity) factors.

#### **Displaced Persons (IDPs)**

Civil and ethnic conflicts in Ossetia, Abkhazia, and Mengrelia over the past 24-36 months have resulted in the displacement of huge numbers of people (250,000 - 300,000 or 4.5% - 5.5% of the population). Georgia's Humanitarian Assistance Commission is attempting to register these people so that they may receive governmental and humanitarian support and be quickly resettled. As of October 30, 184,363 displaced persons had been registered. Of these 33,944 are in Tbilisi, 32,500 are in Kutaisi, and the rest are in various smaller cities and towns within the republic. Based on current registration information at least 70% - 75% of the displaced are living with family and friends and the remainder are housed in public buildings (hotels, sanatoria, hospitals, schools, and other public buildings).

The registration which is done by hand, is very slow, often taking more than 2 weeks to complete. Due to shortages of computer hardware, software, and data management assistance, the data is largely uncomputerized and unavailable for decision makers to use.

#### **Survey of Displaced Persons**

The current actual needs and resources of the vulnerable groups are largely unknown. In an attempt to obtain some of this information, a survey was performed between October 27 and November 1 among 1075 households (4762 persons) displaced before September 27, 1993 (the fall of Sukhumi) and currently living in public buildings within Tbilisi and its suburbs. See the attached full survey report (*Annex 13*).

### **3.3.10 Existing Resources**

#### **GOG Health Information System**

The MOH is attempting to maintain its health information system (Sanitary/Epidemiology) which consists of 92 district reporting stations and 2 republic stations. The main republic laboratory is located in Tbilisi and each district operates its own small laboratory. The system is staffed by 6443 people, 1400 of whom are professional level employees.

### **External Inputs**

The Centers for Disease Control and Prevention is currently developing a proposal to assist the MOH to improve its health information system.

### **GOG Health Care System**

Georgia's health care infrastructure consists of a system of unmaintained deteriorating health facilities (407 hospitals and 1,426 clinics), and a large staff of physicians (31,400 in 1990), nurses (26,850 in 1990), and other mid-level health care providers who receive only token salaries. The system is totally dependent on outside assistance for the provision and distribution of all medicine and medical supplies.

### **External Inputs**

A number of relief agencies are currently in Georgia providing medical assistance:

1. ACTS International has been in Georgia for approximately 14 months and is involved in several activities. It is distributing medicines, infant formula, baby food, whole milk, and other humanitarian supplies. It is also attempting to develop a computerized information network among the various GOG and relief agencies.
2. The International Committee of the Red Cross is providing medicines, medical supplies, and medical staff to hospitals involved in the treatment of war related trauma.
3. Medecins Sans Frontieres-Spain (MSF-S) is providing medicine, medical supplies, and medical staff to several hospitals and clinics involved in primary health care.

Other agencies, such as Save the Children, have been primarily involved in funding medical assistance. Several organizations have recently arrived and are assessing the needs (International Rescue Committee, MSF-Holland, and MSF-France).

Relief agencies involved primarily in food and non-medical relief include the International Federation of Red Cross and Red Crescent Societies, CARE, and the Salvation Army.

### **GOG Mental Health Resources**

The MOH has no outpatient community based mental health system.

### **External Inputs**

There are currently no mental health activities in Georgia.

### **GOG Immunization Resources**

The MOH is totally dependent on outside assistance for vaccines. The MOH has one cold storage facility in Tbilisi where donated vaccines are currently stored. The capacity and reliability of the cold chain outside of Tbilisi is questionable.

### **External Inputs**

Vaccine needs for 1992-93 have been met by donors (MSF-Spain/EEC, Georgia Foundation, UNICEF) and the needs for 1993-94 have been promised by UNICEF. Cold chain supplies and training needs are being met by REACH/USAID.

### **GOG Water and Sanitation Resources**

Georgia's water and sanitation infrastructure is quite variable, ranging from untreated village systems to relatively sophisticated systems in Tbilisi. Many of the systems are old, and poorly maintained. The Sanitary/Epidemiology Directorate of the MOH is involved with monitoring these systems.

### **External Inputs**

Oxfam and the International Rescue Committee are currently making assessments and will consider small scale projects. No organization is currently assessing the needs of larger systems.

## **3.4 Logistics**

### **3.4.1 Critical Operational Needs**

Successful delivery of commodities in three sectors is essential to maintaining acceptable levels of nutrition and public health during the coming winter:

1. Donated grain must be delivered to mills and bakeries.
2. There must be reliable delivery of diesel fuel and mazout to bakeries.
3. A reserve supply of mazout must be delivered to thermal generating stations so that, in the event that the hydro power fails and natural gas becomes unavailable, power generation will be sufficient for rail and mill operation.

For the reasons discussed previously in this report, precise figures for essential food and fuel delivery for Georgia can not now be compiled. The GOG has been unable to supply baseline data for the supply of natural gas and exact nutritional needs of the population have yet to be determined.

Any analysis of delivery systems and logistic capabilities must take into account needs in the neighboring countries of Armenia and Azerbaijan. Armenia is almost completely dependent on Georgian ports, rail-lines and highways for import of essential commodities. Azerbaijan is less dependent on Georgian ports and rails, but may come to depend on them if routes through Russia become unusable. (See Annex 14 for maps of Georgia.)

### **3.4.2 Scenarios**

While it is impossible to predict the ultimate capacity requirements for the ports and inland transport conduits, two scenarios are useful as baselines in considering the possible logistical requirements.

#### **Scenario 1 Estimated Minimum Logistical Capacity Required to Meet Winter Needs (Georgia and Armenia - imported food and fuel)**

Georgia - minimum emergency food needs <sup>7</sup>	63,000 MT/month
Armenia- minimum emergency food needs <sup>8</sup>	36,000 MT/month-
minimal emergency fuel needs	21,000 MT/month
Total	120,000 MT/month = 3 train loads/day

<sup>7</sup>Based on a ration of .4 kg/day for a population of 5.2 million.

<sup>8</sup>Based on a ration of .35 kg/day for a population of 3.5 million

**Scenario 2 Estimated Maximum Logistical Capacity Required to Meet Winter Needs (Georgia and Armenia - imported food and fuel)**

Georgia - maximum emergency food needs	130,000 MT/month
maximum emergency fuel needs	80,000 MT/month
Armenia - maximum emergency food needs	85,000 MT/month
maximum emergency fuel needs	80,000 MT/month
Total	375,000 MT/month = about 10 train loads/day

It is unlikely that requirements would reach the figure in scenario 2 which in fact, exceed the estimated combined capacity of the two ports. Should the capacity of the delivery system fall below the figure in scenario 1 for more than 45 days, vulnerable groups in both countries will begin to experience severe nutritional stress.

### **3.4.3 Delivery Systems**

Potentially the most efficient system for delivery of fuel and food is the Georgian port and rail system. The system was relatively well developed under the Soviet system, but has deteriorated due to lack of maintenance, unmotivated management, and the destruction of infrastructure in the recent conflicts.

#### **Ports**

Georgia has two ports, Batumi and Poti. Recent analysis of the ports by WFP, an EEC logistics management team, CARE, and an American grain transport consultant have indicated the following capacities and problems:

##### **Batumi**

At the time of the mission's visit to Batumi (25-28 October), discharge rates varied between 1,000 and 3,000 MT per day on days when weather permitted continuous discharge. Rain reduced discharge on one day to 500 MT. Rain delays in Batumi are common. Infrastructure appeared to be in good condition and able to function well.

Meaningless salaries among port workers encourages disinterested management and diversion of cargoes. Most observers attributed many of the delays to this factor.

For much of October, Batumi was the only port available for discharge of cargoes bound for Armenia. Reduced discharge capacity resulted in competition for berths and discharge facilities. At the time of the mission's visit, ships which were discharging cargo for Armenia were asked to pull off their berths and wait in the roads while ships with Georgian cargo discharged.

All discharge is dependent on a shuttle rail system which takes cargo from the berth to a rail yard in Batumi. There rail wagons are assembled for shipment inland. Port officials told the mission that usually wagons are available, but occasionally lack of wagons halts discharge. At the time of the mission's visit, conflict near the railhead of Samtredia had disrupted rail service, reducing the available rail wagons and preventing train shipments

inland. Storage space or space for discharge onto trucks is negligible. There is a very limited amount of warehouse space.

### **Poti**

At the time of the completion of the IOM mission (6 November), Poti had not yet to begun port operations following its occupation by Zviadist forces.

Due to the conflict and the difficulty in reaching the port, precise information on port capacities was not available. Visits by WFP and the EEC logistics teams confirmed that the port appeared to be undamaged. Historically the capacity of the Port has been greater than Batumi. There is area on the quay which could be used to install temporary storage silos.

### **Rail Systems**

The Georgia rail system connects the ports with the interior and with Armenia and Azerbaijan. One line connects the railhead at Samtredia with the rail system in Russia via Abkhazia.

All rail transport is carried by electric engines. There are also three diesel engines and they are used primarily for extra power at steep mountain pass crossings. The entire rail system is dependent on a steady supply of electricity and the system is particularly susceptible to sabotage of the power lines at the rail line.

When working efficiently, costs of electric rail-engine transport are far below comparable costs for diesel rail-engine or truck transport. The line has the capacity and equipment for bulk grain transport and for bulk fuel transport (diesel and mazout). Successful shipment by rail has been increasingly sporadic and problematic in recent weeks due to damage to the rail lines and bridges by Zviadist forces and other security problems. EEC logistics managers reported loss of the cargo in several wagons to undetermined sources.

To address the problems of security the GOG mounted a rail police operation, but this has had limited effectiveness in reducing incremental loss, and has not prevented larger losses. In late October Armenia, Georgia, and Azerbaijan signed an agreement to provide a joint armed force to provide security on the rails. This force was not in place by 6 November. The rail line from Poti to Samtredia is reported to have been damaged by Zviadist forces in the offensive of 26 - 29 October. Rail officials in Samtredia expected repairs to take approximately three weeks.

### **Truck Transport**

Relative to rail transport, little bulk cargo is moved inland into Georgia by truck. The Government of Armenia has organized truck convoys with Armenian trucks from the port of Batumi to Armenia over a mountain road through Adjara. This road is reported to be impassable in the winter due to heavy snow.

Truck transport is far less efficient and more expensive than rail transport. A normal rail shipment will carry 1,200 to 2,000 MT of grain. A twenty truck convoy will carry 100 to 400 MT. The majority of the trucks that the mission observed in Batumi and on the roads had 5 - 10 ton capacities.

NGOs have not yet successfully organized private truck transport on a large scale. Some NGOs have been able to hire a few trucks reliably, but report difficulty in hiring larger numbers of trucks for transport.

Supply of petrol at retail tank trucks on the street in Tbilisi has been reliable until recently. The retail price of petrol in Tbilisi (US \$0.75/liter) is approximately 90% higher than the cost in Azerbaijan. Supply of petrol has been good. The price of diesel in Tbilisi (US \$0.35/liter) during most of October was closer to the price in Russia, but had become hard to obtain in Tbilisi in early November, and the price had begun to rise rapidly.

Some international organizations (chiefly the Federation of Red Cross and Red Crescent Societies and the International Committee of the Red Cross) and private commercial importers have brought food and other commodities via truck from Turkey. These commodities were either purchased in Turkey, or brought by ship to Trabzon, then transported into Georgia via road. Typically trucks were off loaded in Batumi and warehoused for transfer, but some Turkish truck convoys provided transport into Tbilisi or other destinations in the interior of Georgia. The tonnages brought in by this method have been relatively small. No serious problems with security or border crossing were reported.

#### **3.4.4 WFP Logistics Support**

In its recent *Briefing Note Towards and Appeal for Emergency Food Requirements for the Caucasus Region*, WFP noted the problems above and proposed fielding a team to address logistic coordination issues. The team (Caucasus Logistics Advisory Unit -CLAU) would be based in Tbilisi, but would include a port advisor in Batumi<sup>9</sup>, logistics officers in Georgia, Armenia, and Azerbaijan to advise and monitor logistics, a data manager responsible for establishing data bases on all food aid consignments to each country, and a railroad expert to perform a one month analysis of the rail system. The *Note Towards an Appeal* also calls for a reliable radio communications network to provide communications between the ports, important railheads and Tbilisi, and provision of a light aircraft to provide reliable transport between ports and cities when insecurity prevents road travel. At the conclusion of the mission, much of the WFP proposal had been funded and two team members had arrived in Tbilisi.

### **3.5 Emergency Management**

#### **3.5.1 Emergency Response Structure**

As might be expected the GOG management capability for delivering assistance is a combination of the systems which were left from the Soviet era and new organizations created in response to growing numbers of displaced. The tasks associated with relief operations are divided among a number of ministries, commissions, government corporations, and committees (Figure 1). The current GOG system consists of a separation of the GOG management of foreign assistance into two categories: (1) direct management of assistance such as might be handled by the Ministry of Health or an NGO, and (2) the management and distribution of large scale assistance for the entire population. The functions are handled by different agency groups.

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<sup>9</sup>The WFP Regional Logistics Coordinator analyzed capacities at both Batumi and Poti. With the assistance of WFP CLAU and steady, adequate supplies of power, fuel and equipment, discharge capacities of both ports combined should reach an average of 10,000 MT. However, in view of probable energy cuts and fuel shortages during the winter, this capacity is not likely to be attained.

The first category includes four organizations which have different but interlocking operations:

**Ministry of Labor and Social Affairs (MOLSA)** has responsibility for the care of elderly, disabled, and other welfare categories. The IOM mission found that this ministry appears to have been allocated very few GOG resources and that little assistance is provided by or coordinated through this ministry. The vulnerable groups traditionally assisted through the MOLSA are now being served by international NGOs, primarily the International Federation of Red Cross Societies in collaboration with the Georgia Red Cross, and by the Salvation Army.

**Ministry of Health (MOH)** administers hospitals, local clinics (polyclinics), and pharmaceutical stores. It identifies and responds to the medical needs in Georgia.

**Committee on Refugees (COR)** was created in 1991 to assist persons who were displaced by the conflict in Ossetia and has continued to assist the displaced from conflicts in Abkhazia and from the civil war. The COR registers displaced persons, forwards GOG assistance to them, and provides information to the HAC in order to help direct international assistance for the displaced.

**Humanitarian Assistance Commission (HAC)** was created to provide GOG assistance for international and local NGOs and to coordinate the assistance from the international community. The HAC has few operational resources of its own, and is set up to provide only coordinating and facilitating functions.

The second category is performed by the **State Committee on Foreign Economic Relations (SCFER)** and the **Georgian State Corporation for Grain Products (GSCGP)**.

SCFER negotiates and manages large scale bulk donations of food commodities and other assistance such as feed grain, fertilizer, or fuel. Their functions include responding to perceived shortages of grain and other commodities by making appeals to the international community for assistance and occasionally arranging transport for the commodities to Georgia.

Answering to the SCFER is the GSCGP, which handles the transport of grain from the port, milling, baking and other tasks associated with provision of the subsidized bread ration.

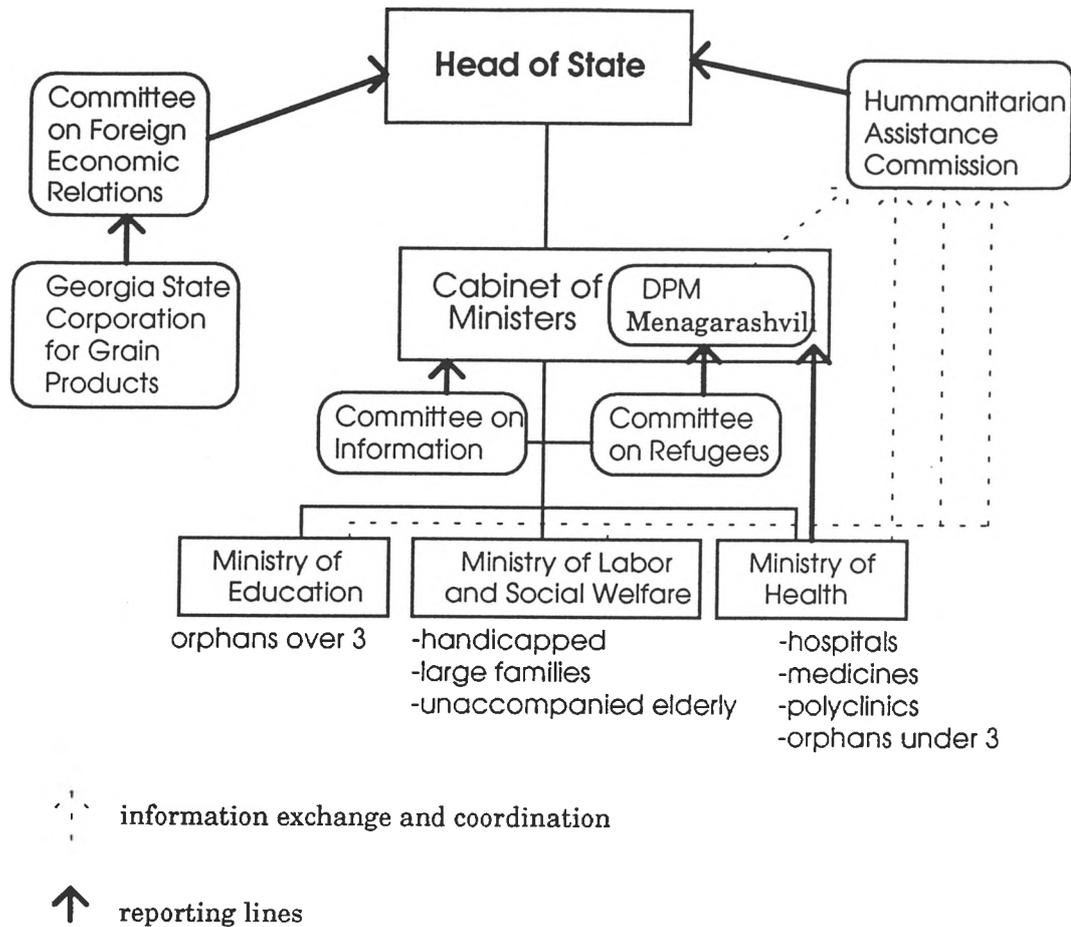


Figure 1 - Organizational Diagram for Management of Humanitarian Assistance

### 3.5.2 Information Deficit

The mission found that all organizations appeared to be struggling to address needs and provide effective responses, but uniformly suffered from lack of resources, planning, information management, and sometimes motivation. Information on relief plans and status of needs provided to the mission was often contradictory. Coordination between GOG organizations and international organizations varied, but was generally poor. No overall emergency needs plan had been developed nor was there any indication that the crucial links between delivery of energy, food, and other assistance were coordinated.

### 3.5.3 Management Structure

The mission found that the division of management responsibilities between the two groups of organizations - Direct Assistance (HAC/MOH/MOLSA/COR) and Bulk Food Assistance (SCFER/GSCGP) effective for a number of reasons. While the need to address emergency needs quickly is normally performed best in a system which provides one focal point for decisions, in this instance these two areas of activity have little administrative overlap. Bread is provided to all Georgians through a system which has no targeting mechanisms. The more specific medical,

food, relief assistance provided by NGOs and the ministries are targeted at specific groups. While there is a need to coordinate information about general nutritional needs and for special arrangements to be made to provide bread to more vulnerable groups, this communication requirement alone does not warrant imposing another level of decision making in an organizational situation which needs to remove layers, not add them.

#### **Management of Direct Humanitarian Assistance**

Direct humanitarian assistance is provided by two groups, (1) GOG agencies which have traditionally served this function (MOH and MOLSA) and the recently created COR, and (2) foreign non-governmental organizations. The HAC was created to provide assistance to the international community and to provide coordination of needs and resources among these two groups. Ministries and the COR effectively operate with few resources other than personnel and office space (see discussion of MOH in section 3.3). While the GOG is providing occasional assistance in the form of relief commodity transport, food, or money to purchase food for vulnerable populations, most groups are supported primarily with foreign assistance.

#### **NGOs**

As is the case in most countries where NGOs provide assistance in an emergency, the NGOs in Georgia coordinate their efforts with the GOG ministries and committees in varying degrees. Some, like the International Federation of Red Cross Societies (IFRC), have entirely supplanted a function of a ministry, in this case, the MOLSA's responsibility for aged pensioners living alone, orphans, and some institutionalized vulnerable groups. IFRC updates and refines MOLSA's beneficiary lists and provides delivery of rations for all of the aged pensioners living alone in the GOG controlled areas of Georgia with very little operational input by the Ministry.

Other NGOs have not been able to identify a discrete and manageable group to whom to provide support, or they do not have the resources to address a discrete group. Most have provided assistance where they have been able to identify a need, but this process has so far proceeded on an ad hoc basis, with no planning, and with little coordination from any organization from the GOG or international community. With the exception of organizations like IFRC, who have defined their own role at the expense of MOLSA, or ICRC, who follow their own traditional role independent of governments or other organizations, the roles and responsibilities of the actors in the Georgia GOG and NGO relief community are not yet clearly defined.

#### **3.5.4 Organizational Needs of the GOG Emergency Relief System**

An effective emergency assistance response and management system requires (1) an efficient system for providing reliable information on needs, numbers of vulnerable persons, their locations, and their critical needs, (2) a management system which has clear lines for communication of this information both up to decision makers and down to operations managers, (3) a *modus operandi* or policy for determining priorities among the vulnerable groups competing for relief resources, and (4) clearly defined roles and responsibilities among the individuals and groups in the system. None of these requirements exist in the GOG management of humanitarian assistance except where occasionally established to address a specific situation.

The role of information management is crucial to effectively identify vulnerable groups and efficiently allocate resources for assistance. But information management is as crucial to addressing the needs of donors for credibility in the government's appeal for assistance. Requests for assistance may elicit an immediate response when the needs are illustrated on the front page, but donors are typically less responsive when the emergency has become less dramatic, even

though the needs are as great or greater than they were in the heat of conflict or exodus. A displaced population's needs usually grow after the first few weeks of resettlement as adjustments to lower caloric intake, stress of resettlement, difficult conditions, and reduced levels of health care take their toll. At this point the collection and presentation of credible information on medical and nutritional needs is essential to adequate response from the donor community.

### **3.5.5 Constraints**

The GOG would appear to have the essential structure for providing effective emergency management - MOH, MOLSA, and the COR providing the operational organization, with the HAC providing overarching coordination of the relief effort. But the system is crippled due to the following constraints:

#### **Information Systems**

Ministry of Health. The MOH at present has no system or data processing equipment to effectively provide information on pharmaceutical and medical supply inventories and distribution, basic epidemiological information on vulnerable populations, or other essential medical information (*see Public Health, section 3.3*).

Committee on Refugees. The COR has a system for registering displaced, two computers for registration, and staff for data entry. But field staff for registration is limited (sometimes only one part-time person per district), and there is no program in place for systematically assessing and responding to needs of displaced groups or individuals.

Ministry of Labor and Social Welfare. Information on aged pensioners alone and some other vulnerable groups is well organized on IFRC computers.

Humanitarian Assistance Commission. Information provided by the HAC often contradicts information provided by the COR. A system for providing the critical information on needs of specific vulnerable groups and number and location of resources from the international community is not available.

#### **Lines of Communications**

Although there appears to be nascent systems for effective transfer of information within some organizations (e.g. COR), these systems respond slowly and there is poor transfer of information between organizations like the COR and HAC.

#### **Planning for Distribution of Resources**

All resources are now distributed on an ad hoc basis, attempting to react to the most pressing needs as they are revealed. Some NGOs have complained that their resources have remained in the warehouse for weeks waiting for HAC direction. Decisions on the distribution of GOG resources are made only by the Cabinet of Ministers. There is no plan for allocation of scarce energy resources to assure the operation of essential services (*see discussion at section 3.1*).

#### **Role Definition.**

The respective roles of the HAC and the NGOs appear to be reasonably well defined (the NGOs provide assistance, the HAC provides trucking assistance and is supposed to coordinate requests from the MOH, COR, and MOLSA). In reality all operations continue to proceed *ad hoc*. Interventions react to needs without any real assignment of areas of operation or areas of

responsibility to one NGO which might secure attention to vulnerable populations. The presumed role of the HAC as overall coordinator has not been well defined or executed.

#### **Management Resources**

The HAC Director runs the coordination and support operation in a small, one room office which houses the director, a secretary, and several staff. The director and staff spend most of their time reacting to displaced persons and others who walk in the door instead of collecting and analyzing data and managing the flow of resources to critical needs in a planned manner.

#### **Time Constraints**

At the time of writing cold weather has arrived in Georgia and most areas have received snow. There are approximately 250,000-300,000 displaced, 100,000-150,000 of which have recently been resettled. Inflation and decreased buying power send increasing numbers of people into vulnerable categories, and many of the historically vulnerable groups are not receiving assistance.

Plans for assistance in the installation of information collection systems, analysis systems, and management reform must be developed in this context. While plans for developing an effective organization would normally be implemented over six to eighteen months, the GOG relief system must install systems immediately in order to efficiently reach the largest possible number of beneficiaries.

### **3.5.6 Reaching Non-historically Vulnerable Groups**

A number of categories of vulnerable groups have historically been identified by the GOG and its Soviet predecessor (*see the Introduction to this mission report*). But the largest vulnerable group is likely to be one which the government has not traditionally identified - destitute persons. As unemployment grows and pensions and salaries become more meaningless, fewer Georgians will have the means to buy any food other than bread, and some who find themselves unable to draw a pension, unemployment compensation, or find any work will be completely without resources. Those in this category will be most prevalent in urban areas where extended family relationships may be less likely and where surplus agricultural food is less likely to be available. **It is important that this growing number of destitute be targeted by programs for assistance.** This group was not traditionally registered by the GOG and thus has no identification to target it as a vulnerable category (such as the address on the IDP identification cards). No role system currently exists to begin such a program and, furthermore, registration for a group this size would easily overburden existing GOG organizational resources.

If this group is to be identified, it must be through traditional non-government sources and through a process of voluntary self-selection. Indigenous charity organizations such as the Orthodox Church have traditionally provided support for the needy who fall outside the government purview, and could provide a reliable source of information about those in this category. In addition, traditional programs for the very poor like soup kitchens end up creating a self-identification of the very poor as standing in a soup line becomes a choice made only when other resources have been exhausted.

### **3.5.7 Management of Bulk Food Resources**

Without the disparate vulnerable constituency faced by groups trying to provide direct assistance, the SCFER and the GSCGP are not faced with the enormous need for immediate data management that faces the HAC and MOH, and COR. However, the mission found that SCFER requests to the donors uniformly lacked the information and calculations regarding nutritional needs, estimated beneficiaries, and program details which contribute to donor confidence. USDA Food for Progress wheat, which arrived earlier in 1993, was consigned to the GOG to be monetized. The proceeds were to be used in designated sectors. Use of the grain varied from the program anticipated by the USDA. The failure by the GOG to provide the expected management of donor food programs could also result in a restricted response to future requests.

## PART 4 -RECOMMENDATIONS

### Introduction

The IOM mission makes its recommendations aware that the winter has begun, the agricultural season is finished, food prices are already rising, and energy requirements increasing. The following recommendations are made in the context of this condition of urgency - all recommendations are identified as *Critical* and *Secondary*. Critical recommendations concern those interventions which are essential for maintenance of acceptable levels of nutritional and public health through the winter. Secondary recommendations address less urgent issues, but are extremely important if continuation of the emergency is to be avoided.

### Vulnerability in the Critical Sectors

Throughout this analysis the mission has indicated that (1) almost all factors influencing provision of food and support for public health are dependent on a steady supply of energy, and (2) all sectors are vulnerable to disruption. There are a number of possible events which could result in widespread reduction of critical services:

1. Disruption or serious reduction in natural gas to the Tbilisi TPP, reducing domestic power generation by up to 40%
2. Breakdown of both the Tbilisi TPP and the Inguri HPP, resulting in a 65% reduction in domestic power generation.
3. Breakdown in or failure of the power supply for the railway, resulting in reduction of the flour supply by 80-90%. Bread rations (60 - 90% of the population's caloric intake) would be reduced accordingly.
4. Disruption of the rail line by sabotage or maintenance failure resulting in reduction of bread supply by 80-90%.
5. Reduction of power in mills and/or bakeries as a consequence of No 1. or No 2 above. Up to 100% reduction of the bread ration.
6. Diesel fuel shortages which restrict delivery of flour to bakeries and reduce bread distribution.
7. Fuel shortages which severely restrict transport of stored crops from farms to markets. Market food supplies are lower, prices are higher, and a large group on the margin of destitution become completely dependent on relief.
8. Rural residents find good markets in neighboring countries for produce which would have normally been slowly released into the local market. They sell their surplus stocks early. Food supplies in local markets dwindle, with consequences as in No 7.

Given this vulnerability of transport, delivery, and availability of assistance, the mission believes that there are two concepts which must guide all recommendations:

1. **Stockpiling.** Creating some redundancy in supplies is essential given the possible disruption of supplies at any time.

2. **Flexibility.** As mentioned, a precise assessment of needs by sector can not now be accomplished in time to be effective. In all areas, flexibility must be maintained in order to respond to the situation as it unfolds. Stockpiles of fuel and food must be developed immediately, then made available to appropriate sectors as the need becomes clear.

### **Information Collecting and Processing**

In addition, the mission finds that one recommendation is applicable to all sectors. The mechanisms for providing information on needs by the GOG and for developing acceptable proposals to the donor community must be immediately improved. In almost every area of investigation, the mission found that information normally considered essential was difficult to find and often presented in a manner which was difficult to process usefully. This seems to be a consequence primarily of the transition to western methods from the methods used in the previous Soviet systems - information is not gathered in the same manner, used for the same purposes, nor presented in the way that a donor government would expect as the foundation for making a request for assistance.

Recommendations in each sector include assistance for developing meaningful data collection and processing systems, for assistance in developing proposals which employ pertinent data to develop the case for a specific type of assistance, and in some cases for assistance in program development and management. Developing these types of systems will also provide the basis for improved management in each of these sectors by the GOG.

## **4.1 Energy**

### **4.1.1 Prioritizing Energy Resource Utilization**

Based on the price of fuels and their availability to meet increased demand in the upcoming year the following prioritization of usage is suggested.

1. Electricity generated by hydroelectric power plants
2. Domestic coal and wood
3. Mazout (US \$0.92 - 1.10 /million BTU)
4. Natural Gas (US \$2.66 /million BTU)
5. Kerosene (US \$2.80 - 2.94 /million BTU)
6. Diesel Fuel (US \$3.55 - 4.26 /million BTU)
7. Electricity from thermal power plants (US \$9.50/ million BTU)
8. Imported electricity (US \$10.25/ million BTU)

Hydropower is the cheapest and largest domestic energy resource. Hydropower's ability to increase generation this winter is limited by the capacity of facilities already in place, water volumes at reservoirs and river flow rates. Currently reservoirs are being drained faster than is ideal in order to provide nearly continuous power to the population.

Domestically produced coal could meet the power demands but not in the short term. There are two major obstacles to its utilization this winter. First, only one mine, with an output of 200-500 MT/day is currently operating. This mine is unsafe and requires significant investment to increase production. Second, very little of the energy infrastructure is able to burn coal. Coal heating and cooking stoves could be manufactured, but 80-85% of the coal is removed from the mine as small particles and is too small for coal stove use. The incorporation of coal stoves into urban apartment block settings would not be feasible.

Wood is an important energy resource in rural forested areas. In rural areas distant from forests, the price of wood is high due to transportation fuel costs. Wood is not a viable energy resource in urban areas. Production of wood can not be significantly increased without rapid deforestation.

Of imported fuels, mazout from Russia is the least expensive. Although it must be heated for transport during the winter it can be easily imported by rail from Russian and delivered throughout Georgia. Mazout can be used at the thermal power plants, portions of the district heating system and building space heating boilers as well as in some bread ovens.

Georgia has the infrastructure, from cooking stoves to power plants, to use natural gas and a well developed distribution network. It is also a clean fuel and easy to use. Yet, natural gas imports are not as reliable as mazout because the 3000 km gas pipeline transits through seven nations of varying stability and because the GOG has a large debt to Turkministan for natural gas already consumed. Thus, supplies for this winter are threatened. Georgia is able to store mazout but has no means of storing natural gas. When gas supplies are cut so are all dependent services.

Electricity imported from Turkey and the FSU is expensive and not dependable because the lengthy high voltage transmission network is vulnerable to sabotage. Infrastructure needed to distribute and utilize imported power is in place.

Kerosene and diesel are very expensive fuels for cooking, heating, baking or power generation and their distribution is controlled by the private sector. These fuels are only viable as emergency backups supplied by humanitarian agencies.

#### **4.1.2 Recommended End Use Utilization Priorities by Fuel Type**

##### **Natural Gas**

1. Residential cooking
2. Bakeries without mazout fired ovens
3. Boiler houses providing hospital space heating, without mazout reserves
4. Boiler houses providing refugee shelters, orphanages, schools, etc. with heat.
5. Bakeries with ovens able to use mazout
6. Boiler houses for residential heating in cities with severe climates
7. Facilities and industries essential for the survival of population
8. Industries manufacturing export goods
9. The Tbilisi cogeneration power plant and units #9 and #10 at the Tbilisi TPP.

##### **Mazout**

1. Bakeries in areas without natural gas
2. Boiler houses providing refugee shelters, orphanages, schools, etc. with heat.
3. For idle operation of thermal power plants during periods when natural gas is not available.
4. The Tbilisi cogeneration power plant and Units #9 and 10 at the Tbilisi TPP.

##### **Diesel Fuel**

1. Diesel generators at hospitals
2. Diesel locomotives when electricity is not available.
3. Shipment of food and medicine by truck
4. Bread ovens able to use diesel in areas where natural gas is not available
5. Flour and bread delivery trucks
6. Emergency vehicles (fire department, etc.)

7. Wood Harvesting
8. Standby fuel for bakeries relying on natural gas
9. Urban and inter-city public transport

Beginning in the spring, a very high priority will be to provide diesel and gasoline to the agricultural sector for tilling, planting, harvesting and shipping goods to market.

#### **Gasoline**

1. Vehicles for food delivery, particularly flour and bread
2. Government service vehicles (i.e. police and emergency vehicles)

#### **Coal**

1. Residential cooking for regions (typically high altitude regions) lacking other fuels. Stoves must be provided simultaneously
2. Hospital boiler houses in regions lacking other fuels
3. Cooking and heating at refugee shelters
4. District heating of severe weather cities
5. Sale to Armenia and Ukraine for hard currency

#### **Aviation Kerosene**

1. For air freight shipments of emergency food and medical aid

#### **Stove Kerosene**

1. Hospital operating room space heaters
2. Residential cooking for urban areas lacking other fuel supplies
3. Cooking and space heating for refugee shelters lacking other fuels

### **4 1.3 Recommendations for Assistance by International Donors**

The impact of the winter energy crisis can be moderated if the donor community acts immediately to begin supplying mazout and other fuels, technical and management assistance, stoves, window covering etc. All donor community activities must be implemented with the complete cooperation of the GOG.

#### **4.1.4 Critical Recommendations**

##### **Management Training: Winter Energy Crisis Management**

Currently the energy sector of Georgia is unprepared to deal with the anticipated winter energy emergency. Technical assistance is needed to assist the GOG develop a comprehensive winter energy emergency management strategy. The efforts of all energy departments must be coordinated. The comprehensive program should include: defining the priority of critical and non critical end users; developing a plan to provide energy to critical services; communicating the plan to the population; and designing, and constructing the personnel structure needed to distribute and implement the necessary items. This effort would require four consultants for the duration of the winter.

##### **Fuels: Background**

Russia is the best supplier of mazout, it is both the lowest cost supplier and good rail connections link Georgia with Russia. The rail line has the capacity needed to transport the mazout requirements outlined below. The mazout would need to be heated for off loading. The Tbilisi TPP and mazout-fired district heating stations have such facilities.

Diesel, and kerosene could either be moved in country by rail through Azerbaijan or by sea to Batumi. There is no significant price advantage to purchasing these fuels in the CIS. Diesel and kerosene would need to be guarded, both while in transit and when in storage. In each city a central diesel and kerosene fuel depot should be established where fuels can be protected. As the need arises the fuels would be moved to the essential endusers (i.e. bakery, refugee shelter or hospital).

#### **Fuels: Residential and IDP Cooking Needs**

Cooking stoves and fuel are needed in urban areas lacking natural gas, rural areas lacking wood and many refugee shelters. The minimal daily fuel requirements for a family of 4 is 1.5 - 3 liters kerosene, 3 - 6 kg coal, or 6.5 - 13.5 kg wood. The refugee population is 250,000-300,000, the size of the needy urban population has not been determined, but is estimated to be at least 100,000 and is likely to be larger. Assistance is needed to provide these fuels and stoves.

#### **Fuels: Tbilisi TPP Power Generation**

Approximately 50,000 - 100,000 MT of additional mazout is needed by the Tbilisi TPP to generate power during natural gas supply interruptions and when natural gas supplies are unable to meet the demands of the residential sector and power generation. This quantity of mazout would supply power for 16 - 33 days (at a level equivalent to what would be generated using 3.5 million m<sup>3</sup> natural gas/day). Mazout is preferable to natural gas because it is less expensive and large quantities can be held in storage.

#### **Fuels: Bakery Ovens**

Mazout and diesel is needed for supplying bread ovens, particularly in western Georgia. Approximately 80 kg diesel and 100 kg mazout are consumed per ton bread baked. Diesel and mazout fired ovens can produce approximately 20,000 and 35,000 MT of bread per month (55% of monthly demand) respectively.

#### **Fuels: Bakery Emergency Generators**

Diesel fuel is also needed for emergency generators located at the 58 large bakeries. If each generator is an average of 150 KW, and they operate at full capacity for 4 hours/day then 32 MT of diesel are required each month.

#### **Fuels: Hospital Emergency Generators**

Diesel is needed for diesel generators at hospitals. Approximately 2 MT of fuel are needed per hour to operate all hospital generators (net 6390 KW capacity) at full load. This corresponds to about 330 MT of diesel each month if the generators are operated 4 hours/day.

#### **Fuels: Hospital Operating Room Heating**

Kerosene (and heaters) is needed for operating room space heaters<sup>1</sup>. Kerosene heaters warming a 10 m<sup>3</sup> area in each of Georgia's 102 operating hospitals would consume an estimated 33 liters of kerosene/hour. If the heaters are operated 8 hours each day at all hospitals then 8,000 liters of kerosene are needed monthly.

#### **Heating and Cooking Appliances-Background**

An alternative method for residential cooking and minimal heating is needed in areas without the availability of natural gas or wood. Stoves able to burn kerosene or wood and coal are recommended. The International Rescue Committee and other non governmental organizations are now initiating the

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<sup>1</sup> In order to safely use kerosene space heaters in a confined operating room a supply of fresh air is needed to prevent problems with high CO levels.

local production of multi-fuel (principally coal and wood burning) stoves (prices range from US \$4 - 20/each). Production of a limited number stoves at five factories is already underway. These stoves will be distributed to unheated refugee shelters this winter.

**Heating and Cooking Appliances: IDPs**

There are an estimated 62,500 IDP families, of these perhaps 50% need stoves for heating, cooking and baking.

**Heating and Cooking Appliances: Hospitals**

Georgia's one hundred and two hospitals need space heaters for the operating rooms. US made portable kerosene heaters able to heat a 10 m<sup>3</sup> volume cost US \$100 - 200 each.

**Electricity Supplies: Hospitals, Batteries for Operating Rooms**

Approximately 500 batteries are needed to replace dead batteries used in battery banks in operating rooms (estimated FSU cost US \$150 each for the 12 volt 132 amp battery).

**Window Insulation Improvements - Background**

Replacement window glass, caulk and plastic window covering (e.g. tedlar film) are needed to reduce heat losses from hospitals, refugee housing, schools, etc. A window film can double the insulating value of single pane windows.

**Hospitals**

If 5% of hospital windows are broken, it is estimated that 2,250 m<sup>2</sup> of replacement window glass is needed to reduce building heat losses. The current FSU cost for window glass is US \$2/m<sup>2</sup>. Hospitals need approximately 1 m<sup>2</sup> of plastic window covering per bed. With 45,000 beds, 45,000 m<sup>2</sup> of sheeting, at a cost of \$2/m<sup>2</sup> (for US made tedlar and application tape) US \$ 90,000 is needed. An estimated US \$1.00 is needed for caulk (US made) for each 1 m<sup>2</sup> of window area. Such a window improvement program could only be undertaken at a few of the most vital hospitals this winter as a primary recommendation. The windows of the remaining hospitals should be repaired and upgraded over the coming year.

**Technical Assistance: Tbilisi TPP**

The staff of the Tbilisi thermal power station has been unable to properly operate the facility since key non-Georgian technical staff left following the dissolution of the USSR. Specialists familiar with the Tbilisi TPP are needed to supervise its operation, repair and maintenance, to avoid further damage. Six specialists/engineers from the FSU are needed for one year.

**Material Needs: Tbilisi TPP - OMT Oil**

The 300 MW unit #10 is prepared to go on line for use this winter. Unit 10 would replace older units which are much less efficient. 10 MT of control system oil (OMT oil) are needed for the block's control system. GOG officials estimate that US \$60,000 are needed for the oil.

**Public Education Programs: Background**

Residential consumers treat natural gas, electricity and water services as free goods. They may not understand the larger implications of their energy use on the welfare of Georgia and the future supply of these services. It is recommended that rational energy use behavior be encouraged through a media campaign.

**Public Education: Energy Conservation**

This effort should concentrate on communication energy and water saving behavior and simple efficiency improvements which the public can use. This could result in significant energy savings at a low cost.

**Public Education: Residential Building Weatherization**

A public information campaign is needed to address methods that the public can use to better insulate and weatherize their apartments utilizing inexpensive locally-available materials. This would both improve their comfort levels and reduce the amount of electric power and natural gas they use for space heating.

**Public Education: Distribution System Load Management**

In order to safeguard building wiring and the electric distribution system from being overloaded, the public needs to be informed how to properly use their electrical appliances.

**4.1.5 Secondary Recommendations**

Several action items, those listed below, can not be feasibly done this winter. The international donor community should support the following recommendations, in order to meet critical needs in the coming year and the next winter.

**Fuels: Hospital Heating**

During the winter 9,000 MT of mazout and 5,000 MT of coal are needed monthly to operate hospital heating boilers when natural gas is not available.

**Fuels: Extreme Weather District Heating Systems**

Five of the coldest cities have buildings whose only space supply are building-wide boilers (net capacity 40 Gcal/hour). The temperatures in these cities can be considered life threatening. It is recommended that these systems be provided with the necessary fuel supplies to operate their district heating systems.

**Heating and Cooking Appliances: Urban Population**

An estimated 47,500<sup>2</sup> urban families without natural gas service and lacking the finances to purchase stoves will need stoves.

**Electricity Supplies: Flour Mills**

Dedicated power cables and other necessary materials are needed to provide Georgia's 14 flour mills with continuous power. Action is needed on this item to have the cables installed by next winter.

**Electricity Supplies: Hospital Generators**

Approximately 100 mobile diesel generators are needed to supply critical hospitals with power (estimate FSU cost US \$2,500 for a 100 KW unit). About 100 replacement batteries are needed for generators (estimate FSU cost US \$150 each for the 12 volt 132 amp battery).

**Window Insulation Improvements - IDP Housing**

If each IDP family has 1.5 m<sup>2</sup> of window area, and 10% of the windows needed replacement glass, then 7,500 m<sup>2</sup> of replacement glass is needed. If 50% of their window area is to be weatherized then 37,500 m<sup>2</sup> of window area needs plastic film and caulking (see hospital window improvements for prices).

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<sup>2</sup> Assuming 750,000 urban residents in western Georgia, 25% poor and 4 people per family.

**Material Needs: Tbilisi TPP - Maintenance Needs**

During the Summer of 1994 turbine #9 must to be repaired<sup>3</sup>. Both technical and material assistance will be required. Cost estimates and materials needs have not been determined. The IOM consultants were provided with a list of material needed at the Tbilisi TPP for general maintenance.

**Material Needs: Tbilisi TPP - Efficiency Improvements**

Low cost means, such as insulation improvements, automated combustion control devices (US \$30,000/boiler) and boiler blowdown systems (US \$25,000/boiler), for improving energy efficiency need to be integrated into the Tbilisi TPP. Efficiency increases of 2 - 3% are typically realized with these improvements.

**Material Needs: Mindeli Coal Mine**

Financial assistance for the purchase of mining equipment and spare parts is needed to maintain and perhaps increase domestic coal production while improving mine safety. The net cost of the high priority items is approximately US \$500,000.

**Material Needs: Electric Distribution System**

Cables and other assorted replacement parts are needed for maintenance and the repair of lines damaged by saboteurs. Because the phone system is unreliable for managing the national and regional electric networks during crisis periods both long and short distance radio communication systems are needed. The exact needs and costs have not been determined.

**Material Needs: Water System**

To better maintain water pressure during periods of power loss leaks in the system need to be repaired. Because of the lack of FSU-made gaskets and mechanisms for faucets and toilets leakage from sinks and toilets is very high. Gaskets and other replacement parts are needed to reduce end use leakage. If 25% of the population is targeted, each flat has one sink or toilet per occupant and material cost are US \$0.25/leak point (for FSU made materials) then approximately US \$350,000 is needed.

**Material Needs: Natural Gas Pipelines**

In order to better respond to natural gas pipeline accidents the Natural Gas Department has requested materials and vehicles.

**4.1.6 Recommendations for Local Government of Georgia Authorities**

1. The GOG has to work together with the international community to develop an emergency energy management program. It is necessary to establish the procedures needed to maintain energy services for all critical needs during energy shortages. Currently GOG's energy departments are oriented toward immediate problems only and are not adequately preparing for the winter.
2. The GOG should reallocate mobile generators to hospitals from other less essential facilities.
3. Reserves of mazout should be moved from the district heating system, where over 40,000 MT are in storage, to the Tbilisi TPP, where less than 5,000 MT are in storage, as soon as possible, to help bridge interruptions in natural gas supplies.

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<sup>3</sup> Recall that it was damaged during the Winter of 1992/93 and is currently unable to operate at full load.

4. A public education campaign should be developed to be used in the local media which addresses methods that the public can employ to conserve energy, reduce building heat losses and manage energy use to safe-guard against overloading the electric distribution system.
5. Strategic reserves of gasoline, diesel and mazout need to held for the winter energy emergency needs. These fuel stores must be protected by armed guards at regional depots to reduce the threat of theft.
6. District heating systems have not been properly maintained. The IOM team concurs with the GOG decision not to operate the district heating system this winter.

#### **SAKENERGO**

1. Hydropower should be used as much as possible without draining reservoirs faster than planned. Only the Tbilisi cogeneration plant and most efficient turbines at the Tbilisi TPP (units #9 and 10) should be operated.
2. Given the expected shortages of imported fuel for power generation, electricity supplies to all non critical users should be reduced, beginning immediately, in order to increase hydroelectric reservoir volumes.
3. Random blackouts should be avoided. Instead output from hydropower facilities with reservoirs should be controlled to supply the residential sector with power in the morning and the evening.
4. Substations providing power to wheat mills and hospitals should be provided with uninterrupted power, until the time that dedicated cables can be installed.
5. When available, more mazout should be used at the Tbilisi TPP. Based on current fuel prices (US \$90/1000 m<sup>3</sup> natural gas and US \$42/ton mazout) mazout is a less expensive means of generating power than natural gas (fuel costs is US\$0.04/KWH for natural gas and US\$0.015/KWH of mazout fired power).
6. SAKENERGO should allocate electricity supplies equitably to each of the country's districts. Then each district should supply the power for each sub-district. The decision making structure should be decentralized so that sub-district's power managers are able to identify and distribute power to the critical sectors as needed.

#### **Natural Gas Department**

1. Natural gas for residential cooking should have priority over power generation. Buildings with electric stoves should be supplied with power or alternative fuels (coal, wood or kerosene) and stoves.

#### **Ministry of Health and SAKENERGO**

1. A hospital energy emergency strategy needs to be developed to supply continuous power to critical urgent care hospitals. SAKENERGO and local hospital personnel should begin a program of generator and boiler house inspection, repair, fueling and testing.

#### **Georgian Grain Cooperative**

1. Dedicated stocks of mazout and diesel need to be reserved and stored for baking, particularly in Western Georgia.

### **Humanitarian Assistance Commission and Committee on Refugees**

1. Schools and other public building should be supplied with kerosene or coal stoves and the necessary fuel to function as community centers where the refugees and area residents who are unable to cook can prepare food and stay warm.

## **4.2 Food**

### **4.2.1 Required Actions**

The situation in Georgia regarding the availability and access to food is critical particularly for the vulnerable populations. The following concerns and recommendations must be addressed:

1. The IOM mission was not able to obtain adequate information to ascertain the wheat currently available within Georgia, the wheat that is ordered and enroute, the monthly bread requirements for Georgia, nor the logistics capability within Georgia to distribute food to the vulnerable populations. However, very plausible scenarios and partial information indicate a strong likelihood that there will be bread shortages which will especially affect the vulnerable populations. Therefore it is extremely urgent that reliable data be obtained to enable a clear analysis of how much wheat may need to be imported, on what schedule and by what logistical means bread will reach the vulnerable populations.
2. The food distribution systems including government agencies and NGOs must be coordinated to cover basic needs of all vulnerable groups and expanded to include free or subsidized distribution to the general population if needed.
3. The bread ration must be supplemented by other foods providing needed nutrients such as vegetables, oil, legumes, beans, and meat or dairy products, particularly for vulnerable groups.
4. Nutritional and health status of vulnerable groups should be monitored to permit timely interventions.
5. Agricultural production systems, marketing networks and food producing industries should be evaluated and appropriate inputs designed to improve production and efficiency.

### **4.2.2 Recommendations for International Assistance**

#### **Critical Recommendations**

1. Immediate plans should be made to assess the needs of the IDPs and local residents in Svaneti Region, and to ascertain numbers and locations of all IDPs. Immediate consideration should be given to proposals to provide food supplies to the Mestia area for the winter.
2. Surveys similar to the IOM pilot survey should be conducted where possible to determine the health and nutritional status of the IDPs and to identify problem areas. Polyclinics and public communication systems should be utilized to provide public health messages and to publicize the available options and procedures for obtaining relief.
3. GOG and NGO agencies assisting vulnerable groups should monitor nutritional status of their target populations by looking for signs of weight loss, weakness, sickness and other physical or mental changes. These should be reported on an interagency basis to determine if assistance measures should be increased. Possible measures include subsidization or distribution of vegetables, animal products such as milk powder, or other supplementary foods, and increase in or free distribution of the bread ration for the vulnerable groups.

4. NGOs should be encouraged and funded to set up soup kitchens to prepare vitamin and mineral rich foods for distribution to the most vulnerable sectors. Vitamin and mineral supplements should be made available to groups where the potential for severe deficiency is high.

#### **Secondary Recommendations**

5. Systematic methods should be applied to collection of household level information including household productive activities and sources of income, family composition and linkages, problems with access to food and services, health status, assets and sales of assets. This information is vital for organizations undertaking development programs and to properly target relief assistance.

6. Relief groups should begin the purchase of local potatoes, cabbage and other storable crops for use in IDP group housing and for distribution to the most vulnerable. Particular attention should be given to accessing produce which was left in the field or barn due to the farm's distance from the markets and consequent high transport costs. This will be especially important if local buying power becomes so reduced that produce is taken to more lucrative markets (Russia, Armenia, Azerbaijan). However, internal purchase should be carried out slowly and evenly to assure that increased demand does not increase prices in local markets.

7. Surplus grain which is not needed for the bread ration should be monetized to provide funds to support agricultural production in the next growing season and to support relief programs in the winter. Essential commodities other than grain (milk powder, oil, sugar) should also be acquired and monetized. Internal purchase of 1994 crops should be in the planning stages. An experienced manager/agricultural economist should be provided as an advisor to the State Committee on Foreign Economic Relations to help the GOG meet the donor's management requirements, to assist with the efficient use of monetized commodities and to plan for internal purchase.

8. Agricultural inputs to improve production for 1994 are required. The GOG and the donor community should work together to improve accessibility of improved seed, fertilizers, equipment, livestock feed and vaccines, and strategies for livestock, crop, and pest management. Investment and technical assistance are required to support food processing and agribusiness industries.

#### **4.2.3 Recommendations for the Government of Georgia**

##### **Critical Recommendations**

1. The GOG should provide donors with as clear a picture as possible of a) the final estimates of tonnage of wheat and other grains harvested in 1993 and purchased from local farmers and amount of land planted with wheat for 1994; b) the size of the existing in-country grain stockpiles, and c) the status of credits, grants or agreements under which grain will be obtained d) the relief food programmed and received from all sources in order to coordinate needs and supplies and management of the wheat pipeline.

It is particularly important to coordinate the schedule for arrival of grain to avoid a gap in supply and consequent interruption of the important bread ration as well as congestion and costly demurrage in the port. The WFP CLAU team described in the Logistics section in this report would be the logical focal point for scheduling and coordination of the grain supply and should be given this role.

With the assistance of WFP, the GOG should immediately convene and coordinate for the next year a working group including donors and NGOs to collect and share information concerning wheat stocks,

wheat pipeline and schedules for deliveries. The discussion should include planning for all aspects of logistics required to transport grain to the mills and energy requirements for production and distribution.

2. If possible, a reserve of at least one month's supply of flour at minimum consumption levels (64,000 MT) should be accumulated in secure government stores, as some of the risk factors to the energy/logistical/wheat pipelines are unlikely to be resolved over the next few months. As suggested below in Logistics, this reserve could possibly be supplied by utilizing Russian ports as well as Georgian ports.

There are a number of contingencies which affect the production of the bread ration, including the steady supply of power for milling wheat into flour. One of the critical recommendations of this mission is to fund a team to help the GOG create an emergency energy allocation plan which would determine whether the mills can be expected to receive this power. If the conclusion is that this is not the case, then the GOG should immediately request that purchases of wheat stop and credits would be used to purchase flour. In any case, as much as 10% of the supply of wheat could be shipped as flour and sent directly to rural bakeries (see discussion of pilot trucking program in section 4.4.4 of this mission report).

### **Secondary Recommendations**

3. A documentation of the mechanisms of the bread distribution network should be made, including the names, locations, capacities of all mills and bakeries and distribution centers countrywide. This should include a complete assessment of each mill and bakery including the fuel needed for operation, fuel storage capacities, and spare parts needed, as well as the operational status of the rural bakeries. This exercise should be undertaken as a precedent to an appeal to donors for spare parts, fuel, and needed quantities of flour and other commodities to restart or continue operation of rural bakeries should that be required.

The numbers of rural families in each area should also be made available in preparation for flour distribution where needed in rural areas. Contingency plans should be made to increase the bread ration or its availability to vulnerable groups and/or to increase the caloric density of the bread by adding oil or other supplements to the dough. The effects of the increase in bread prices on the vulnerable groups and rural people should be investigated by means of household surveys.

Projections for grain and or flour requirements should take into consideration various possible scenarios as mentioned above. Management inputs for mills and bakeries may be required to respond to needs while maintaining efficient use of resources.

4. Height and weight monitoring should be carried out routinely by GOG Ministry of Health and NGOs with food distribution programs, particularly of children under the age of five. In addition, seasonal dietary intake surveys would provide critically needed per capita norm information regarding calorie intake and contribution to the diet of specific commodities. (See also Public Health)

#### **4.2.4 Coverage of Vulnerable Group Needs**

GOG and NGO food assistance programs currently focus on the most needy in the vulnerable groups. Target group numbers are likely to increase due to the hardships brought on by winter and the classification of vulnerable persons may broaden to include a wider range of individuals. Certain crisis events may trigger a sudden or large increase in needs such as civil disruption, complete devaluation of currency, disruption in the bread supply, epidemics, or major power failures affecting the ability to keep warm and cook food.

### **Critical Recommendations**

1. Relief agencies should begin immediate monitoring of the peripheral members of the groups being served as well as conducting cluster surveys of the general population to determine if the needs are increasing. Specific criteria should be established for admitting new beneficiaries to the target group. These may include level of assets, nutritional status as demonstrated by weight/height ratios or other anthropometric measurements, health indicators etc.
2. Needs assessment, targeting, monitoring and evaluation components of emergency relief assistance programs should be fully implemented. Programs should be designed with monitoring and evaluation components built in to assure that food is reaching the target group and that interventions are effective. Interagency cooperation is required to research key issues and pool resources to avoid overlap, confusion and permit complete coverage.

### **Secondary Recommendations**

3. Since a high probability exists for increasing numbers of vulnerable households, early warning systems are needed to program assistance on a timely basis. Scientific methods should be used to collect baseline data for comparison purposes (market surveys, household surveys, dietary surveys, weight/height of children under five, health surveys). Rural situations may be examined through methods such as Rapid Rural Appraisal (RRA). This method allows quick summation of community resources and identification of problems.
4. Needs for training should be routinely identified particularly as the current emergency is addressed.
5. A public information campaign may effectively assist both vulnerable persons and the general public to cope with the food shortages. Multi-media announcements may contain information on the status of the bread ration, availability of commodities, health and nutrition information and guidance for seeking assistance if needed.

## **4.3 Public Health Recommendations**

### **4.3.1 Capacity Building**

#### **Critical Recommendation**

1. Georgia is attempting to maintain the basic infrastructure of its national health information system, but due to the lack of resources and knowledge of modern epidemiological methods, this system is unable to provide accurate and timely information which is critical for making timely and appropriate health policy and intervention decisions. An organization should be identified and funded to assist the MOH develop the capacity and improve the quality of its health information system. This assistance should include computer hardware, software, and training in epidemiological research methods.

#### **Secondary Recommendations**

2. Georgia has an over abundance of under utilized health facilities. Due to the lack of funding most facilities are in a serious state of deterioration and frequently without heat, electric power, or an adequate water supply. An organization should be identified and funded to assist the MOH plan and implement a health facility consolidation program. Resources should be allocated for the provision of utilities and basic maintenance.

3. Georgia has an over abundance of health care providers. However, due to inadequate training, many appear to lack appropriate diagnostic and treatment skills and the best trained are leaving clinical practice due to extremely low (token) salaries. An organization should be identified and funded to develop and implement a training program for primary health care physicians and mid level health care providers. This should include the training of a cadre of local trainers using accepted diagnosis and treatment protocols. Consideration should also be given to providing health care professionals with financial incentives. The goals of an incentives program would be to encourage health care professionals to continue providing health care and to motivate them to change inappropriate medical care practices.

#### **4.3.2 Public Utilities**

##### **Critical Recommendations**

1. District heat will not be provided to homes and public buildings in Tbilisi and other urban areas of Georgia this winter. Cold stress from chronic exposure to cold temperatures will undoubtedly contribute to morbidity and mortality this winter, especially among the vulnerable groups. Programs should be funded to provide these groups with alternate forms of home heating (i.e., wood, coal, and kerosene stoves).

2. Many of Georgia's potable water systems are very old, prone to leakage and contamination, over burdened with the addition of displaced persons, and have insufficient supplies of coagulant, chlorine, and spare parts to effectively operate during the next 12 months. An organization should be identified to assist the GOG to purchase spare parts and water purification systems. Priority should be given to cities and regional centers such as Kutaisi, or where there are large numbers of displaced persons. Funding sources should be found to meet these needs.

#### **4.3.3 Laboratories**

1. With few exceptions, Georgia's medical (hospital and clinic) and public health laboratories (including the central laboratory) rely on old often unreliable equipment and are in urgent need of critical supplies. These shortages seriously reduce their ability to accurately diagnose disease and safeguard public health. The MOH should be provided with laboratories with diagnostic systems and supplies.

#### **4.3.4 Medicines/Medical Supplies**

##### **Critical Recommendation**

1. Georgia produces no medicines or medical supplies and is entirely dependent upon outside assistance. While some medications and supplies are available from the evolving private pharmacy system, prices are well beyond the means of the vulnerable groups. Essential drugs and medical supplies remain in short supply and it is unclear whether the current level of humanitarian aid will be able to meet the ongoing needs. Donors should be encouraged to continue their donations but they should coordinate the content and timing of these donations with the needs outstanding.

2. The Institute of Vaccine and Sera which previously produced vaccines and diagnostic test materials (sera) for use in laboratories, appears to have potential for re-starting production of these materials. An assessment should be made of this institute's capacity and prospects for producing diagnostic sera and vaccine. There will be an ongoing need for these products, so the development of an indigenous source is desirable.

3. The vaccine supply needs of Georgia have been met for 1992-93 (delivered, or committed) and UNICEF has promised to provide the needs for 1994-95. However, to date only a fraction of current stocks have been distributed. Georgia's cold chain capacity and reliability are also problematic, but equipment has been ordered or received and REACH is in the process of conducting cold chain

equipment has been ordered or received and REACH is in the process of conducting cold chain maintenance training. While no further inputs of vaccine or cold chain equipment are needed at this time, the delays in vaccine distribution emphasize the need to help the GOG develop a stronger distribution system.

#### **4.3.5 Coordination - Critical Recommendation**

The current inventory control and distribution systems have serious weaknesses. Many problems appear to be due to the lack of coordination between the donors, relief agencies, and the MOH. Other major obstacles to an effective system are resource shortages and the poor security conditions. An organization must be immediately identified to assist the MOH to plan and implement an effective inventory control system for all drugs, vaccines, laboratory materials, and medical supplies. This system will have to include sufficient computer hardware and software, technical and data management assistance. To overcome current impediments to distribution, relief organizations and donors must assist the GOG to provide dedicated supplies of fuel, transport vehicles, and transport security personnel.

#### **4.3.6 Prioritization - Critical Recommendation**

Most donated medicine and medical supplies appears to have gone to hospitals (especially in Tbilisi) while outpatient facilities (primary health care clinics, polyclinics) have not been targeted for the distribution. There is an urgent need to develop a prioritized medicine and medical supply distribution strategy. The MOH should develop a strategy that assures that distribution reaches beyond Tbilisi and that primary health care clinics and polyclinics receive adequate supplies of appropriate medicines and supplies.

#### **4.3.7 Monitoring**

##### **Critical Recommendations**

1. Early indicators of a developing nutritional emergency are already present. It is urgent that signs of a deepening emergency be monitored. Nutritional surveillance of children, pregnant women, and pensioners should be established as soon as possible in sentinel clinics and hotels or sanatoria housing displaced persons.
2. Although infectious disease rates have been declining yearly, the current conditions of crowding, compromised hygiene (i.e., soap shortages), shortages of disposable rubber gloves, sterile syringes, and blood supply testing materials all greatly increase the risk of communicable diseases. In order to detect and control outbreaks of infectious diseases with epidemic potential, active surveillance should be initiated in sentinel locations (i.e., areas with concentrations of displaced persons) such as Kutaisi, Tbilisi, and others.

##### **Secondary Recommendation**

3. Georgia's TB and HIV/AIDS control programs have been interrupted by population displacements and shortages in screening materials, drugs, and educational materials. Under current conditions it is likely that incidence rates of these conditions will increase. Donors/funding sources should be sought to support these and other important public health programs. If these programs are allowed to collapse, greater public health problems will develop in the near future.

#### **4.3.8 Vulnerable Groups**

Georgia has a large population of vulnerable people and as the current economic crisis continues more people are likely to fall into this category. Many Georgian households, especially the vulnerable, are

currently unable to obtain proper nutrition and this situation will substantially worsen when the price of bread increases as predicted. The funding of food programs for Georgia's vulnerable populations must remain a priority.

The population displacements are ongoing as people continue to flee the fighting. Assistance with the housing, feeding, clothing, medical care, transport, and eventual resettlement of displaced persons currently staying in Kutaisi or other secure towns in western Georgia is urgently needed. The GOG and relief agencies must focus resources in these areas in order to avert increased morbidity and mortality.

#### **Critical Recommendations**

1. It is critical that displaced persons be registered as soon as possible after displacement in order to quickly provide them with humanitarian assistance and facilitate their resettlement. Data management capabilities for IDP registration must be improved (see Recommendations under Section 4.5.1)
2. An organization should be identified to perform or to assist an appropriate Georgian agency to perform needs assessments of the vulnerable populations. This assistance should include training, supervision, and computer support.

#### **4.3.9 Public Education/Outreach Programs**

##### **Secondary Recommendations**

3. The Republic of Georgia is unprepared to deal with the mental health, substance abuse, and domestic violence problems that are being reported. Some inpatient facilities exist but there is no outpatient community mental health system to provide preventive, routine, or crisis counseling services. Substance abuse prevention and treatment services are also underdeveloped within Georgia. An organization(s) should be identified and funded to assist the MOH develop a community based mental health program.
4. Elective abortion is the primary form of birth control. With shortages in other forms of birth control (i.e., pill, IUD, condom), the abortion rate is likely to increase. With the shortages in sterile gloves and syringes, abortion is more risky. An organization should be identified to assist the MOH develop a birth control education program and donors must be found to provide birth control pills, IUDs, condoms, and spermicides.

#### **4.4 Logistics Recommendations**

Basic infrastructure for an efficient bulk transport system is in place in Georgia. In recent weeks the system has not performed efficiently due to failures in coordination, management, and to disruption of infrastructure from the civil war. Each of the recommendations here are critical and must be addressed in order to assure that the system has the capacity to transport the commodities required in the emergency.

##### **4.4.1 Management and Coordination**

The WFP logistics support program is the most important activity in the provision of coordination and management support. The GOG and the donor community should give full support to the WFP's expert management assistance in the ports and rails, their establishment of reliable communications, and to other WFP logistics programs.

The WFP program provides a one month consultancy for rail management. The rail lines are both the most important and the most vulnerable link in the transport chain which moves mass commodities into

Georgia and Armenia. It is likely that support for the rail will continue to be necessary and WFP should ask for donor support to extend the rail support sector of their program.

#### **4.4.2 Security.**

It remains unclear if the GOG will be able to provide effective security for rail transport of commodities. The UN should immediately begin to draw up plans for a Humanitarian Corridor system should it be required to allow for safe rail transport through to Tbilisi and Armenia.

#### **4.4.3 Secure Power Supply**

The GOG should immediately develop plans for the secure provision of power to rail substations. Sufficient mazout should be provided to the appropriate TPP so that in the event that hydropower is cut off and natural gas is not available, a supply of mazout will be available to provide power.

#### **4.4.4 Rail Transport Alternatives**

The rail-lines out of the ports remain vulnerable to disruption in several ways. On November 10 power infrastructure was reportedly attacked at Inguri and near Borjomi. Given the possibility that Zviadist forces will continue to create disruptions in all systems, alternatives to the rail link between Poti, Batumi and Tbilisi should be immediately explored and employed in order to provide experience in other routes and transport.

Two alternatives should be explored immediately:

##### **Truck transport.**

Although far less efficient than rail, truck transport is independent of the power systems and is not dependent on one route, thus less vulnerable to occasional sabotage. A NGO experienced in commodity transport logistics should be funded to begin a pilot program in commodity transport from the ports by truck.

The most efficient use of trucking is to transport commodities which must be delivered in small quantities to places off of the rail line. Mills are usually situated on the rail lines, so delivery of grain to them should continue by rail. Since flour is taken from the mill to rural areas and small bakeries by truck anyway, if the trucks are used to transport flour directly to rural bakeries which are far from mills or the rail line, use of trucks would represent the most efficient use of fuel and time for delivery to these points.

##### **Other rail options**

Shipment by rail from Russian ports should begin as soon as possible. If Georgia rail capacities will allow it, grain should initially be delivered by all feasible means and from three or four ports in order to establish maximum stockpiles at the mills. This would also allow a *modus operandi* to be established on other routes and with alternative transport so that the most reliable systems can be identified. In this way experience is developed in alternative systems which may be required in the event that the Georgia rail system becomes disabled due to conflict or energy shortages.

High priority should be given to maintaining power supply to the rail lines. Detailed discussion of this is found in Section 4.1 above.

## **4.5 Emergency Management Recommendations**

### **4.5.1 Data/Information Management**

Effective management of information is needed in all sectors of the GOG emergency management system. Recommendations have previously been made for systems to help with inventory and processing of epidemiological information in the MOH. This system should be connected by modem to systems installed in the HAC, to existing equipment in the COR, and to the MOLSA/IFRC system. All systems should include one printer per agency and supplies for operation. A consultant should be provided to assure that the new systems interface with existing systems and to provide a comprehensive training program for enough key personnel to establish some redundancy of operational knowledge.

### **4.5.2 Training**

Given the urgent need for information on vulnerable groups, a team of three to five experienced emergency data management experts should be offered to the HAC to conduct an intensive **action focused** training on emergency data systems. This team would work closely with the HAC, COR, MOH, and MOLSA to create a system which would immediately provide the information required to address the needs of vulnerable groups. The experts would help the host agency to put a system in place, develop an information collection system and begin use of the system within two weeks of the team's arrival. Two experts would work intensively with the COR to improve registration response. This activity would require GOG support through increased resources in personnel and transport to allow displaced registration and other vulnerable group identification to accelerate. The target date for completion of IDP registration should be one month after the team's arrival.

### **4.5.3 Coordination**

1. The recently begun NGO/UN coordination groups in the areas of Food, Non-food, and Medical assistance are an important step toward effective use of resources. These coordination groups should work with the HAC to provide a free flow of essential information about NGO activities and resources; information about size, location, and needs of vulnerable groups; and information about GOG activities.
2. As detailed in section 4.1.4, a team of emergency energy experts should be provided to the GOG to help in immediately developing a plan for emergency allocation of energy resources under the possible supply reduction scenarios.
3. In order to include the destitute, and particularly the urban destitute, in targeted vulnerable groups, NGOs should form partnerships with indigenous organizations (e.g. the Orthodox Church) which have traditionally provided support for vulnerable groups outside the governmental systems. These groups can also be supported through soup kitchens and other mechanisms for assistance to the very poor.

### **4.5.4 Intervention Support from the Government of Georgia**

1. The HAC should be provided with the resources to provide effective coordination of the emergency effort. This includes:
  - Sufficient office space for a functional working environment for the Head of the HAC and staff. The Head of the HAC should be given an office which allows her to hold private and uninterrupted meetings, and provides sufficient work space for her staff.

- Vehicles, fuel, and the other resources to allow at least six members of the HAC staff to perform assessments, gather data on vulnerable groups, and perform other information collection required to support the direction and coordination of humanitarian resources.
2. Provision of resources needed for a program to establish a rapid information collection system (see section 4.5.2).

## Annex 1

### Natural gas use by sector for 1989 and the IV Quarter 1992 through the III Quarter 1993

in million cubic meters

(Source: Natural Gas Department)

Sector	Residential <sup>1</sup>	District Heating <sup>2</sup>	TPP <sup>3</sup> & Industrial	Utility <sup>4</sup>	Agriculture	Total <sup>5</sup>
I Quarter						
1989	374	507	1310	84	219	2525
1993	523	234	509	63	38	1407
II Quarter						
1989	97	169	1079	25	134	1514
1993	203	21	467	13	19	731
III Quarter						
1989	48	106	1019	16	124	1316
1993	145	13	411	7	35	618
IV Quarter						
1989	299	348	1225	57	213	2152
1992	439	124	694	42	53	1373

#### Average Daily Consumption

1989	2.24	3.1	12.7	0.5	1.9	20.57
IVQ 1992-						
IIIQ 1993	3.59	1.07	5.7	0.34	0.4	11.3

#### comments

1. Includes the consumption of natural gas by cooking stoves and small building boiler houses (<20 Gcal/hour). Only very few small boiler houses have been operating.
2. Includes boiler houses larger than 20 Gcal/hour. Such boilers are located in Tbilisi, Rustavi and Kutiasi. District heating consumption is largely a reflection of the severity of the winter. During 1992 and 1993 the district heating system was only providing occasional hot water.
3. See Table 7. for the estimate of daily consumption at Tbilisi TPP.
4. Includes smaller boilers of less than 20 Gcal/hour in the commercial sector
5. Total includes physical losses, which according to the Natural Gas Department, range from 2.7 - 0.3 % of total consumption.

## Annex 2

### Wholesale prices for oil products, as paid by the GOG in the Fall of 1993

(Source: Oil Products Department)

Fuel	Price \$US/tonne	Source
Gasoline	190 - 200	commercial
Diesel	145 - 175	Baku
Mazout	35 - 42	Russia
Aviation Kerosine	Baku	
Motor & Diesel Oil		Baku

#### comments

1. The retail price of fuels supplied by the private sector are extremely high. Gasoline on the streets of Tbilisi costs US\$ 0.6 to 0.8/liter, while diesel costs US\$ 0.3 to 0.4/liter. Prices are higher in rural areas.
2. High prices of oil products force up prices in dependant sectors of the economy (e.g. farming and food distribution).
3. Consumption:  
The consumption of fuels purchased by the GOG has plunged dramatically over the last 3 years.

## Annex 3

### Winter power supply and generation for the Republic of Georgia -for the period October 1 to March 31

in ( ) is fraction supplied by the overlying source.

(Source: SAKENERGO)

Million Kwh (% of total supply)	1989	1990	1991	1992	Anticipated <sup>3</sup> 1993
<b>Source</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>
<b>Thermal Power</b>					
Plants (TPP)	3561 (38%)	3206 (36%)	2956 (41%)	2207 (34%)	1502 (28%)
Tbilisi TPP	3352 (36%)	2991 (33%)	2910 (41%)	2170 (34%)	1465 (27%)
Other TPP <sup>1</sup>	209	215	46	37	37
Indust. plants	335	288	215	196	196
<b>Hydro Power</b>					
Plants (HPP)	3432 (37%)	3119 (35%)	2589 (36%)	3282 (50%)	3106 (58%)
w/ reservoir	2245	2072	1772	2029	
seasonal	1187	1047	810	1253	
Inguri HPP	1719 (18%)	1518 (17%)	1269 (18%)	1424 (22%)	
Imported power	2049 (22%)	2403 (27%)	1405 (20%)	835 (13%)	585 (11%)
Turkey	-13	126	310	275	193
FSU <sup>2</sup>	2062	2277	1095	560	392
<b>Total Supply</b>	<b>9377</b>	<b>9016</b>	<b>7165</b>	<b>6520</b>	<b>5329</b>

#### comments

- 1 Value includes the Tvkarcheli TPP and the Tbilisi cogenerator. The Tvkarcheli TPP closed in 1991.
- 2 Former Soviet Union
- 3 Anticipated TPP generation was provided by SAKENERGO. Anticipated HPP generation is estimated based on previous years. Generation at industrial thermal power plants was reduced 30% to reflect further declines in GDP. Imported electricity reduced 30% from preceding year to reflect importers unwillingness to supply ROG in light of the ROG's ever increasing debts.

## Annex 4

### Climate of the major urban areas in the ROG

(Source: State Association of Utility Services)

City	Average Temperature of the Five Coldest Days of Year (C)	Length of Heating Season (days)
Tbilisi	-7	132
Kutiasi	-3	121
Batumi	-1	125
Gori	-12	164
Rustavi	-8	151
Zugdidi	-3	132
Samtredia	-3	121

#### comments

- 1 District heating systems are designed to supply both space heating and domestic hot water to the residential, commercial, and portions of the industrial sectors.
- 2 District heat is based on stand alone boiler houses, not cogeneration power plants as is typical in the former Soviet Union. The boilers burn primarily natural gas and mazout.
- 3 78 cities in the ROG have district heating systems. The ROG system is comprised of 558 boiler houses of variable capacity, of which 313 burn natural gas, 167 use natural gas and 78 burn coal.
- 4 Some severe weather high altitude cities have apartment blocks and hospitals with heating boilers. The five coldest cities and the capacity of their district heating systems are shown below on Table 14. They have been operating the last two winters but at very low levels. No fuels are currently in storage for winter 1993/94 use.

## Annex 5

### VULNERABLE GROUP ESTIMATES

Category	Numbers from January, 1993 (all of Georgia)	Pension, Salary and Benefits from October, 1993 (amount in coupons)***
1. Minimum Wage	NA	9,200
2. Old-age pensioners	797,882	9,200-9,600
3. Disability Pensioners	163,230	9,200-10,600
5. Pensioners/paid contribution	1,866	9,200-9,600
6. Preferential pensioners	23,952	9,400
7. Social Pensioners	52,909	8,800-9,200
8. War disabled	19,471	8,000-9,200-
9. Survivor's pensioners (families of military servants)	21,726	NA
10. Single mothers bread compensation	3,496 (Tbilisi only)	3,600 1,200
11. Child-related allowance	22,741	3,000-6,000
12. Unemployed		NA
Registered	140,567	
Applying	186,305	
13. IDPs*	284,000 (Nov.'93)	9,600
14. Pregnant and lactating women and young children**	450,000 (July '93)	NA

Total number of Pensioners (Categories #1-11): 1,144,995

Total Unemployed: Numbers do not include those who have part-time jobs, are on leave without pay or who have not registered.

Source for information on pensioners and unemployed: Ministry of Labour and Social Affairs, Government of Georgia

Source for \*: HAC

Source for \*\*: MOH

\*\*\* Update, November 30, 1993: Pensions amounts have been increased to 23,000 coupons.

## Annex 6

### MARKET SURVEY TBILISI - DESERTIR MARKET

Date of Survey	September 30, 1993 *	November 2, 1993 **	Percent change in approximately one month
EXCHANGE RATE COUPONS TO DOLLAR	12,000- 14,000	29,000	223%
COUPONS TO RUBLES	13	25	192%
COMMODITIES (one kilogram - except where noted)			
1. Bread (800 Grams) (non-subsidized)	1,000	2,000	200
2. Macaroni	5,000	15,000	300
3. Flour	5,000	15,000	300
4. Milk - liter	5,000	8,000	160
5. One Egg	700	5,000	714
6. Beef	20,000	90,000	450
7. Chicken	40,000-90,000	160,000	177-400
8. Tomatoes	2,000	7,000	350
9. Cabbage	2,000	3,000	150
10. Onions	4,000	25,000	625
11. Potatoes	5,000	12,000	240
12. Oil - liter	20,000	40,000	200
13. Sugar	13,000	30,000	231
14. Cheese	25,000	90,000	360
15. Nuts	50,000	150,000	300
16. Corn flour	NA	12,000	-
17. Dried Beans	NA	20,000	-
18 One piece of Soap	NA	8,000-14,000	-

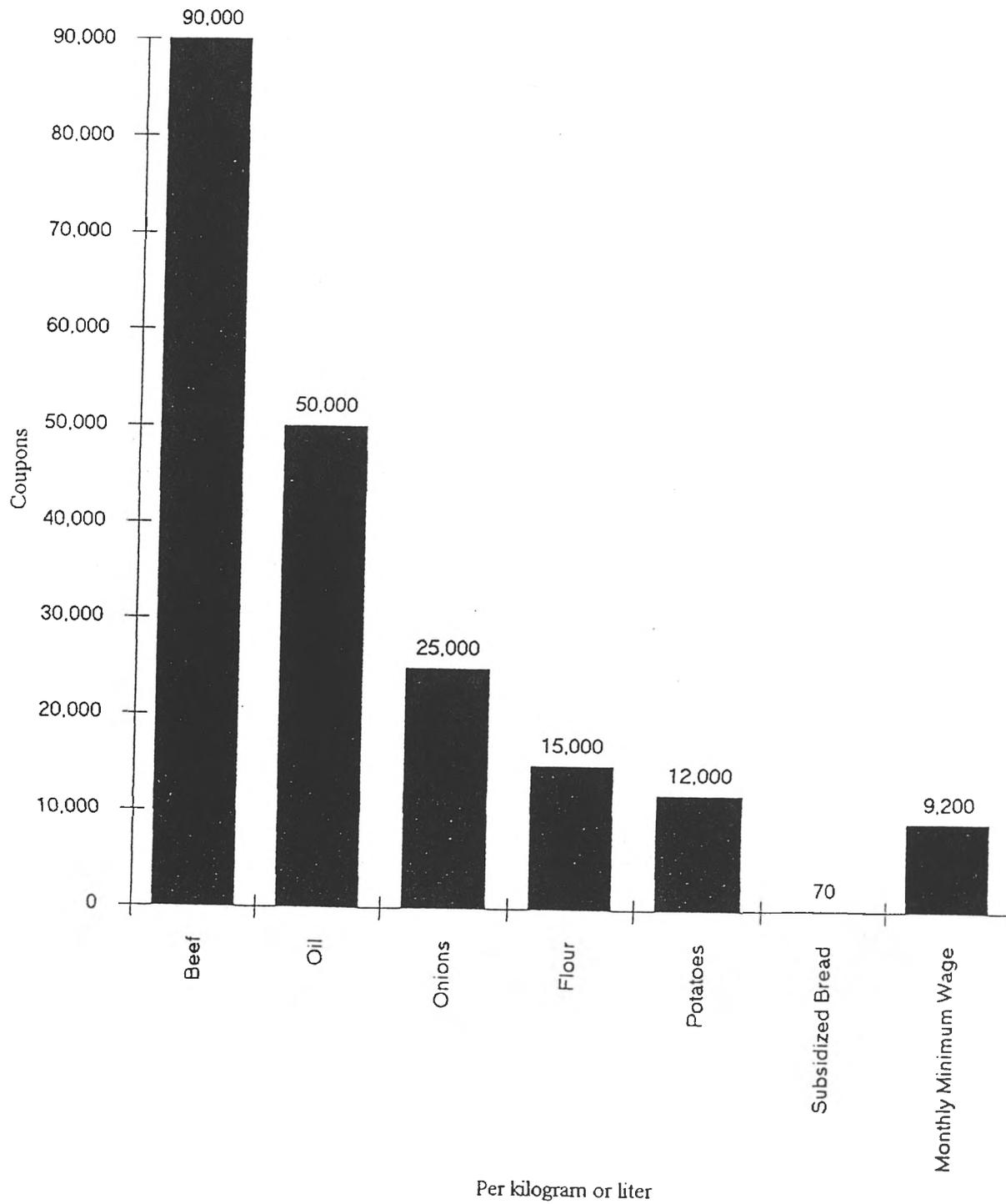
\* CARE Survey

\*\* IOM Survey

Note: The prices shown are from open or commercial market and shops. Of the items on this survey, the only ones available in government shops near the market area on November 2, were bread at the subsidized price of 50-70 coupons, macaroni, flour and soap.

# Annex 7

## BASIC FOOD ITEMS AND MINIMUM WAGE AS OF NOVEMBER 2, 1993



Source: IOM Market Survey, Tbilisi Desertir Market

## Annex 8

Prices of various medications in privatized state pharmacies and private kiosks on 10/21/93

Category	Medication	Price in Coupons 10/21/93	USD Equivalent 10/21/93
1	Ampicillin 20 tab	20,000	1.00
2	Manilin 120 tab	8,000 - 18,000	0.40 - 0.90
3	Adelphan 10 tab	700 - 4,000	0.04 - 0.20
4	Berotec Inhaler	20,000 - 160,000	1.00 - 8.00
5	Nitro 20 tab	545 - 805	0.03 - 0.04
6	Indomethacin 30 tab	4,000 - 22,000	0.20 - 1.10
7	Analgin 10 tab	3,000 - 28,000	0.15 - 1.40
8	Vitamin C 10 amp	1,000 - 4,625	0.05 - 0.23

## Annex 9

### Pediatric health care visits (clinic and home)

#### Pediatric Polyclinic # 18

#### Tbilisi, 1991, 1992 and 1993

	1991	1992	1993 (9 mo.)	1993 projected
No. Clinic Visits	97,330	92,576	34,378	45,837
% of Clinic Visits for Illness	23.3%	23.7%	9.0%	
No. Home Visits	35,789	29,550	29,937	39,916
% of Home Visits for Illness	67.5%	44.0%	55.7%	

Source: Prepared by clinic director from clinic logs.

Note that the 1993 projections were made by calculating a monthly average based on the number of visits occurring during the first 9 months of 1993.

## Annex 10

Infectious disease rates for the Republic of Georgia  
Rates are per 100,000 population

Disease	1989	1990	1991	1992
Dysentery	36.6	33.1	32.9	25.1
Enteritis	23.1	19.9	18.1	12.2
Hepatitis A	-	213.3	142.9	111.5
Hepatitis B	41.0	45.8	37.1	30.3
TB	150.3	146.7	122.8	111.8

Source: MOH

## Annex 11

Vaccination Coverage by Year  
Percent of Target Population (0-14 yr)  
for Republic of Georgia

Vaccine	1989	1990	1991	1992
Polio	100.5%	103.9%	116.4%	68.9%
Measles	115.3%	91.8%	86.1%	16.0%
Diphtheria	92.4%	99.5%	101.2%	71.5%
Pertussis	87.6%	85.3%	83.7%	58.3%
Tetanus	94.7%	104.0%	100.8%	73.5%
BCG	97.0%	94.8%	82.5%	16.9%

Source: MOH

## Annex 12

Vaccine Preventable Disease Rates by Year  
(cases per 100,000 persons per year)  
for Republic of Georgia

Disease	1989	1990	1991	1992
Polio	0.04	0.57	0.12	0.00
Measles	2.94	6.69	6.51	2.12
Diphtheria	0.06	0.02	0.13	0.05
Pertussis	5.85	7.28	6.20	2.36
Tetanus	0.15	0.07	0.04	0.05

Source: MOH

## Annex 13

### PRELIMINARY REPORT OF A SURVEY OF DISPLACED HOUSEHOLDS TBILISI, REPUBLIC OF GEORGIA 11/18/93

#### BACKGROUND

Approximately 100,000 persons were displaced from their homes by ethnic conflicts in Ossetia and Abkhazia between January, 1991 and September 27, 1993 (the fall of Sukhumi). Another 100,000-150,000 have been displaced from Abkhazia since September 27, 1993. Most (estimated at 75-90%) of those displaced before September 27 have resettled with relatives and friends in various parts of Georgia. The remaining 10-25% are housed in hotels, and sanatoria located in Tbilisi, Kutaisi, Batumi, and numerous other cities and towns. Of those displaced after September 27, most are again seeking homes with relatives and friends while the remainder are being housed in the remaining hotels and sanatoria, as well as in hospitals, schools, cinemas, and other public buildings.

The Government of Georgia (GOG) and various relief organizations are attempting to house, feed, clothe, and support these displaced persons during a period of national political and economic crisis. Hyperinflation makes the local currency almost worthless and there are serious shortages of food, energy, medicine, and almost every commodity previously supplied by the former Soviet Union.

In order to make the most efficient use of scarce resources and to appropriately target the most vulnerable segments of the population for aid, it is important to obtain objective information about their actual needs and resources. The vulnerable groups include, but are not limited to, displaced persons, the poor, the disabled, pensioners, single parent households, and households with more than 3 children.

This survey focuses on persons displaced before September 27, 1993 who are housed in hotels and sanatoria in Tbilisi and its suburbs. This group was selected for two reasons. First, most of these households have been living on the local economy and humanitarian aid system for weeks to months and their responses may provide an opportunity to evaluate these systems. A second, and more practical reason is that most of these displaced persons have been registered and are accessible. This group may or may not be the most vulnerable.

It is hoped that this survey will be the first of several to assess the actual needs and resources of groups at high risk for adverse health outcomes.

#### METHODS

Twenty five hotels and sanatoria within Tbilisi and its suburbs house a total of 4300 persons (1075 households) displaced prior to September 27, 1993. Using a target of 108 household interviews (10% sample), every tenth household was systematically sampled from a random start within each of the 25 facilities. The survey was carried out during afternoon and evening hours between October 27 and November 1, 1993 by 6 trained Georgian interviewers using a pretested standardized Georgian language questionnaire.

The data were analyzed using EpiInfo, a public domain epidemiology software program. The household was the primary unit of analysis.

## RESULTS

Note: 95% confidence intervals are in brackets.

### Households Characteristics

Interviews were obtained from 116 (10.8%) of the 1075 households (HH) displaced before September 27, 1993. These 116 HHs represented a total of 504 persons for a mean of 4.3 persons per HH [4.0-4.7]. Of this total 57.6% were female and 42.4 were male.

Of the 116 HHs interviewed, 80 (80/116 = 69.0%) were comprised of a single nuclear family, 31 (26.7%) contained members from 2 nuclear families, and 5 (4.3%) contained members from 3 nuclear families.

Eighty seven HHs (75.0%) contained children. Among these HHs the mean number of children per HH was 2.1 [1.9-2.3]. Nine HHs (9.5%) had more than 3 children. The total number of children in these HHs was 179 (179/504 = 35.5% of all persons represented in the survey). Figure 1 shows the age distribution.

Figure 1.  
Number and proportion of children in displaced HHs by age group

Age Group	No. of HHs with Children	% of HHs with Children (n = 116)	Total No. of Children in these HH	% of All Children (n = 179)
< 1	8	6.9%	9	5%
1 - 5	42	36.2%	47	26.2%
6 - 12	49	42.2%	69	38.5%
13 - 18	35	30.2%	54	30.2%

Thirty six HHs (31.3%) contained persons 65 years of age or older. Among these HHs the mean number of persons age 65 years or older per HH was 1.36 [1.2-1.5]. The total number of persons in this age group was 49 (49/504 = 9.7% of all persons represented in the survey).

Seventy HHs (60.3%) reported having a total of 103 physically disabled HH members (103/504 = 20.4% of all persons represented in the survey). "Physically disabled" was not defined and included persons with minor degrees of impairment. Five HHs (4.3%) reported having a total of 6 HH members with psychological impairments (6/504 = 1.2% of all persons represented in the survey).

Ninety two HHs (79.3%) provided dates of displacement and arrival in Tbilisi. Of these 92 HHs, 7 (7/92 = 7.6%) were displaced before 01/01/92, 68 (68/92 = 73.9%) were displaced between 01/01/92 -12/31/92, and 17 (17/92 = 18.5%) were displaced after 01/01/93. The mean duration of displacement is shown in figure 2.

Figure 2.  
Mean duration of displacement for 92 displaced HHs

	Mean Duration of Displacement	95% Confidence Interval
Displaced Before 01/01/92 (n = 7)	165.6 weeks	157.0 - 174.1 weeks
Displaced between 01/01/92 - 12/31/92 (n = 68)	55.4 weeks	55.0 - 55.9 weeks
Displaced After 12/31/92 (n = 17)	27.4 weeks	24.9 - 29.9 weeks

Eighty eight HHs (88/114 = 76.5%) were displaced from Abkhazia, 1 (0.9%) was from Samegrelo (Mingrelia), 24 (20.9%) were from Shida Kartli (Ossetia), and 2 (1.7%) were displaced from their homes in Tbilisi. All displaced HHs indicated that they were displaced by civil or ethnic conflict.

Twenty eight HHs (24.1%) were able to bring some belongings with them when they left. Of these HHs, 26 (92.8%) brought personal belongings, 4 (14.3%) brought household belongings, and 4 (14.3%) brought valuables. Eighty eight HHs (75.9%) left with nothing but the clothes they were wearing. One hundred ten HHs (97.4%) report not having enough warm clothes for HH members.

#### Living Conditions

One hundred twelve HHs (96.6%) are housed in hotels and 4 (3.4%) are housed in sanatoria. The mean number of persons per room is 504/154 = 3.3.

All HHs report having access to running water; 94.8% have this water in their rooms and 5.2% have access to it in the building but not in their rooms. All HHs report having access to a functioning toilet; 87.1% have a toilet in their rooms and 12.9% have access to one in the building but not in their rooms.

All HHs report currently having electricity 24 hours per day, however this is due to be reduced to 4 hours per day this winter. Tbilisi will have no district heat (central hot water heat) this season. One hundred six HHs (106/111 = 95.5%) report having small electric room heaters.

#### Health

##### Immunization

Of 83 HHs with children, 18 (21.7%) reported that not all of the children were fully vaccinated. Of the 171 children in these HHs, 23 (13.4%) were not fully vaccinated. Parents reported that 12 (12/23 = 52.2%) of these children were not vaccinated due to shortages of vaccine or syringes and 7 (7/23 = 30.4%) were not vaccinated due to medical contraindications. Age information was available on 20 of the 23 unvaccinated or incompletely vaccinated children; 6 (30%) were less than one year of age, 13 (65%) were between 1-5 years, and 1 (5%) was between 6-12 years.

##### Chronic Illness

Eight seven HHs (75%) reported having members with chronic illnesses. Information about the number of persons with chronic illnesses was obtained from 79 HHs. These HHs reported a total of 125 persons with chronic illnesses (125/504 = 24.8% of all persons represented in the survey). The chronic illnesses are reported in figure 3. The "Other" category included, 7 HHs reporting gastrointestinal conditions such as ulcer and gastritis, 3 HHs reporting renal diseases, 2 reporting HH members with cancer, 2 reporting liver diseases, and one reporting a child with hemophilia.

Figure 3.  
Chronic illnesses reported among members of 87 households

Chronic Illness	No. HHs Reporting This Illness	Percentage of HHs Reporting This Illness
Diabetes	17	19.5%
Hypertension	44	50.6%
Heart Disease	43	49.4%
Asthma	5	5.7%
Arthritis	11	12.6%
Epilepsy	2	2.3%
Tuberculosis	4	4.7%
Other	32	36.8%

### Acute Illness

Figure 4 shows the number and percentage of HHs reporting acute illnesses, either currently or within the past 2 weeks.

Figure 4.  
Households reporting acute diarrheal or respiratory illnesses  
(n = 115 HHs)

Acute Illness	No. and % with current illness	No. and % with recent illness (within 2 wks)
Bloody Diarrhea	1 (0.9%)	2 (1.8%)
Watery Diarrhea	2 (1.8%)	6 (5.2%)
Respir. Illness	36 (31.3%)	40 (34.8%)

### Medical Care

Eighty three HHs (71.6%) reported not having all HH members registered in a polyclinic. Among this group of HHs, 90 children (90/179 = 50.3% of children), and 190 adults (190/325 = 58.5% of adults) were unregistered. Reasons for not registering are shown in figure 5.

Figure 5.  
Reasons given by households for not registering in a polyclinic  
(n = 83 HHs)

Reason	No. of HHs	Percent of Total
Have insufficient info to register	47	56.6%
Would not be able to afford medicine	40	48.2%
Lack faith in ability of Polyclinic doctor	6	7.2%
Transportation difficulties	31	37.3%
Not necessary	11	13.3%

Sixty two HHs (53.9%) reported having outside sources of health care. These sources may have been in lieu of or in addition to the polyclinic system. Of these HHs, 25 (40.3%) were treated by a health care worker in their hotel or sanitorium, and 42 (67.7%) reported obtaining medial care through "personal contacts".

### Medicine

Of all HHs reporting chronic illnesses (87/116 = 75%) none reported being able to regularly obtain the medicines they needed. One hundred thirteen HHs (95.4%) reported being **unable** to obtain medicines for acute illnesses when they needed it. The reasons given for being unable to obtain needed medicines were:

1. Unable to find it - 10 HHs (8.8%)
2. Unable to afford it - 110 HHs (95.7%)

## Mortality

Ten HHs (8.6%) reported the death of at least one HH member between the time of displacement and the date of the survey. These 10 HHs experienced a total of 15 deaths ( $15/504 = 3.0\%$ ); 1 was age 13-18, 7 were age 19-65, and 8 were older than 65 years of age. Seven HHs (6.0%) reported the loss of a total of 10 wage earners.

Of the 15 deaths, cause of death information was obtained on 10; 4 ( $4/10 = 40\%$ ) were due to injuries related to the conflict, 4 (40%) were due to chronic illnesses, 1 (10%) to acute illness, and 1 (10%) to non-conflict related trauma. Five deaths ( $5/15 = 33.3\%$ ) occurred at the time of displacement or before arrival in Tbilisi and 10 deaths ( $10/15 = 66.6\%$ ) have occurred since arrival in Tbilisi.

## Food and Nutrition

The mean number of major meals (i.e., exclude tea or coffee) eaten per day was 2.8 [2.7-2.9]. Figure 6 shows the breakdown of meals eaten.

Figure 6.  
Total number and percentage of households  
eating 1, 2, 3, or >3 meals per day  
(n = 116 HHs)

No. Meals Eaten per Day	No. and % of HHs Eating these Meals
1 Meal	3 (2.6%)
2 Meals	31 (26.7%)
3 Meals	69 (59.5%)
More than 3 meals	13 (11.2%)

All of the 25 facilities housing these displaced HHs provided at least 1 meal per day in their public cafeterias. Many HHs prepared all or some of their own meals, either in lieu of or in addition to the public meals. Seventy three HHs (62.9%) reported eating some or all of their meals in a public cafeteria; 21 HHs (18.1%) ate all of their meals in a public cafeteria. Ninety five HHs (81.9%) reported preparing some or all of their own meals; 43 HHs (37.1%) prepared all of their own meals.

One hundred ten HHs (94.8%) reported obtaining food either for meal preparation at home, or to supplement the food they receive in the cafeterias. Of these HHs, 34 (30.9%) purchased food in government stores, 78 (70.9%) purchased food in the markets, 4 (3.6%) reported bartering for food, and 52 (47.3%) reported receiving food from friends and relatives.

HHs reported spending a mean of 12.5 [10.7-14.2] hours per week obtaining food (range 1 hr - 40 hr).

The diets of displaced HH members has changed dramatically since displacement. Figure 7 shows some of these changes.

Figure 7.  
Comparison of average number of days per week households consume various foods  
1990 vs Time of Survey  
(n = 116)

Food	Days per wk - 1990	Days per wk - now
Meat	6.7 [6.57-6.86]	0.1 [0.05-0.23]
Milk products	6.9 [6.87-6.99]	0.5 [0.27-0.67]
Fresh Vegetables	6.4 [6.13-6.67]	3.5 [3.09-3.39]

Forty two HHs (36.2%) report having all or some HH members go to bed hungry at night. The mean number of nights HH members reported going to bed hungry was 3.2 [2.8-3.5].

One hundred seven HHs (92.2%) reported food scarcity induced weight loss among all or some HH members. The mean number of HH members per HH, reporting weight loss was 3.4 [3.0-3.7]. The mean number of estimated kgs lost per person was 7 [6.3-7.7] (range 1-20 kg).

### Resources

Thirty eight HHs (32.8%) reported having at least one employed HH member. Among these HHs there were a total of 51 employed persons (51/504 = 10.1%). Seventy eight HHs (67.2%) had no salary income.

All HHs reported receiving stipends. The mean monthly, per-person stipend was 3270 coupons [3066-3474] (range 1500-9200 coupons) (USD equivalent = \$0.11 at exchange rate of 29,000 coupons to the dollar on 11/1/93). Pensions were received by 40.4% of HHs.

The mean total monthly HH income was 25,413 coupons [22,368-28,458] (range 3000-78400) (USD equivalent = \$0.88 at exchange rate of 29,000 coupons to the dollar on 11/1/93).

Households may also have other potential sources of income. Figure 8 shows some of these sources.

Figure 8.  
Number and percentage of households reporting income sources other than salaries, stipends, and pensions (n = 116)

Source	No. and % of HHs Reporting these Sources
Savings	2 (1.7%)
Sale of Belongings	6 (5.2%)
Help from Relative/Friends	53 (45.7%)
Charity Funds	3 (2.6%)

### DISCUSSION

The percentage of children represented in the survey (35.5%) is 11% higher than what would be expected from national demographic data (24.4%). The percentage of people 65 yrs or older (9.7) was lower than expected, based on estimates calculated from MOH data (approximately 14.5%). Older persons may have been more unable or unwilling to leave their homes.

The large number of HHs reporting HH members with disabilities resulted from a mistranslation of the word disability. As a result, many people over the age of 65 or with a chronic medical condition answered affirmative to the question.

Those HHs displaced before 01/01/92 were displaced as a result of the conflict in Ossetia or as a result of the overthrow of President Gamsakurdia in Tbilisi. Those displaced in 1992 came from Ossetia or from Abkhazia, and those displaced in 1993 came from Abkhazia.

Tbilisi provides water but no hot water. The only sources of heat for most HHs in Tbilisi are small electric room heaters. However, their use will be restricted to 4 hours per day when electric power is reduced from 24 to 4 hours per day this winter as scheduled.

Chronic illness was commonly reported (24.8% of the persons represented in the survey). Hypertension and heart disease were the most frequently reported conditions, followed by diabetes and arthritis. The leading causes of mortality in Georgia are cardiovascular diseases and cancer.

The illnesses usually associated with refugee or displaced person populations are acute diarrheal and respiratory infections. Diarrhea was not commonly reported during this survey (0.9%-5.2% of HHs) while 31.3%-34.8% of HHs did report acute respiratory infections. Interviewers indicated that the 3 cases of reported bloody diarrhea did not appear to be acute infectious diarrhea, but rather chronic conditions that periodically resulted in bleeding.

It is difficult to determine if health care access is a major problem for displaced persons. At least half of the children and adults represented in this survey were not registered in a polyclinic. Most indicated they were unable access this system because they lacked the information necessary to register, they were unable to afford the medicines that would have been prescribed, or they could not get to the clinic. Others chose not to use the system. However, 53.9% of HHs also reported having other sources of health care.

Virtually none of the HHs were able to regularly obtain the medicine they needed for acute or chronic diseases. Affordability rather than availability was the main factor.

Fifteen persons (3% of persons represented in the survey) died between the time of displacement and the date of the survey. The time period for these deaths spanned approximately 3 years.

All HHs report eating at least one meal per day and 97.4% of HHs eat at least two meals per day. Compared to 1990, on a weekly basis HHs are eating fresh vegetables about half as often and they are eating almost no meat or dairy products. Bread which has been heavily subsidized, is the staple.

HHs are spending a mean of 12.5 hours per week obtaining food. Much of this is spent in lines waiting for bread. Over 1/3 of HHs reported that HH members were going to bed hungry while 92.2% reported that HH members had lost weight.

HH resources are scant. Most HHs (75.9%) arrived with nothing but the clothes they were wearing and currently only 32.8% of HHs have at least one employed HH member. At the October, 1993 rate of inflation, the total mean monthly income for these HHs was 41 times less than the minimum subsistence income required for a 4 person family (data on minimum subsistence requirements were reported in an ACTS International survey document produced in October, 1993).

### Limitations

Interviews were obtained only from HHs displaced before September 27, 1993 and only from those living in hotels and sanatoria. The results may not be generalizable to the more recently displaced HHs, some of whom are living in less suitable housing (hospitals, schools, cinemas), or to the majority of displaced HHs which are living with friends and relatives. However, given the current political and economic conditions in Georgia, there are likely to be many similarities between these groups.

Recall bias for dates and events may have affected some of the results. Reporting bias (i.e., self reporting of weight loss and food consumption) was also quite likely to have occurred, resulting in over reporting of weight loss and under reporting of food consumption.

No objective measurement data were collected, such as heights and weights of children, and no inspections were made of food stores.

Mortality data were not gathered over a uniform period of time and therefore it is not possible to calculate mortality rates.

### **CONCLUSIONS**

1. Of displaced HHs living within Tbilisi's hotels and sanatoria, most appear to have ready access to water and toilet facilities, but like all of Tbilisi, they will be without heat 20 or more hours per day this winter.

2. With an average of 3.3 persons per hotel or sanitorium room, crowding is a serious problem.
3. Among these HHs, 13.4% of children are not completely vaccinated and 7% are not vaccinated because of vaccine shortages.
4. Untreated chronic disease appears to be a major problem.
5. Acute respiratory infection is very common and with the cold and influenza season approaching, the problem will worsen.
6. Acute infectious diarrhea does not currently seem to be a problem.
7. A substantial percentage of HHs (71.6%) were not using the polyclinic system. Barriers included not having the proper documentation to be able to register, being unable to afford the medicine the doctor prescribed, and being unable to get to a clinic. However, 53.9% of HHs indicated that they had outside sources of health care.
8. The supply and especially the affordability of medicines for acute and chronic illnesses are major problems.
9. Most HHs (97.4%) are eating at least 2 meals per day, but the content (especially protein) and quantity of these meals are inadequate (92.2% of HHs report weight loss among HH members and 36.2% report that HH members are going to bed hungry).
10. Sixty seven percent of HHs have no employed HH members and are totally dependent on government stipends, pensions, or outside sources. At current inflation rates (29,000 coupons to the dollar on November 6, 1993), the total mean monthly income of the 4.3 person HHs reported in this survey is sufficient to buy 1.2 loaves of bread per day for 30 days.

#### ACKNOWLEDGMENT

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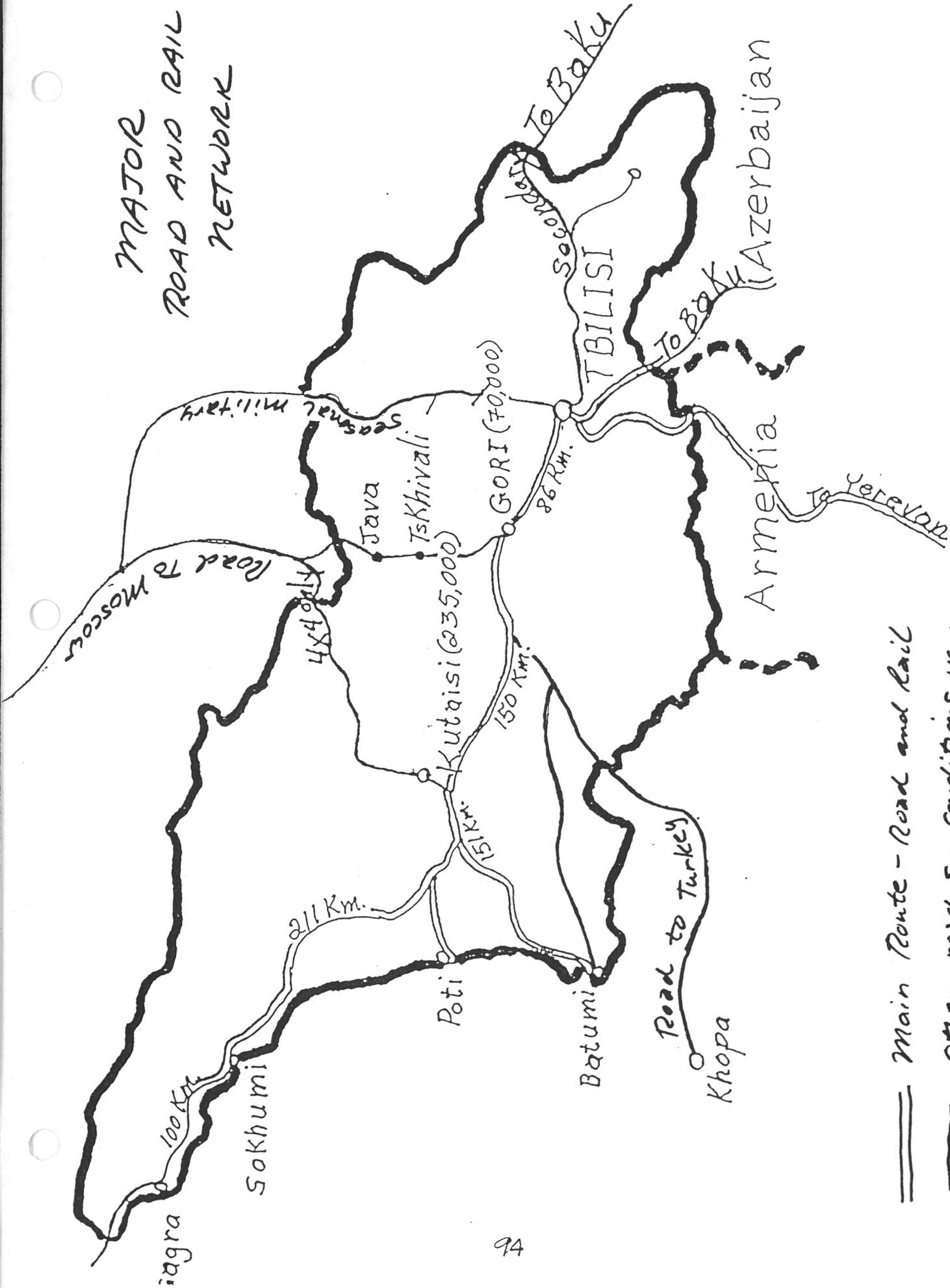
# Georgia



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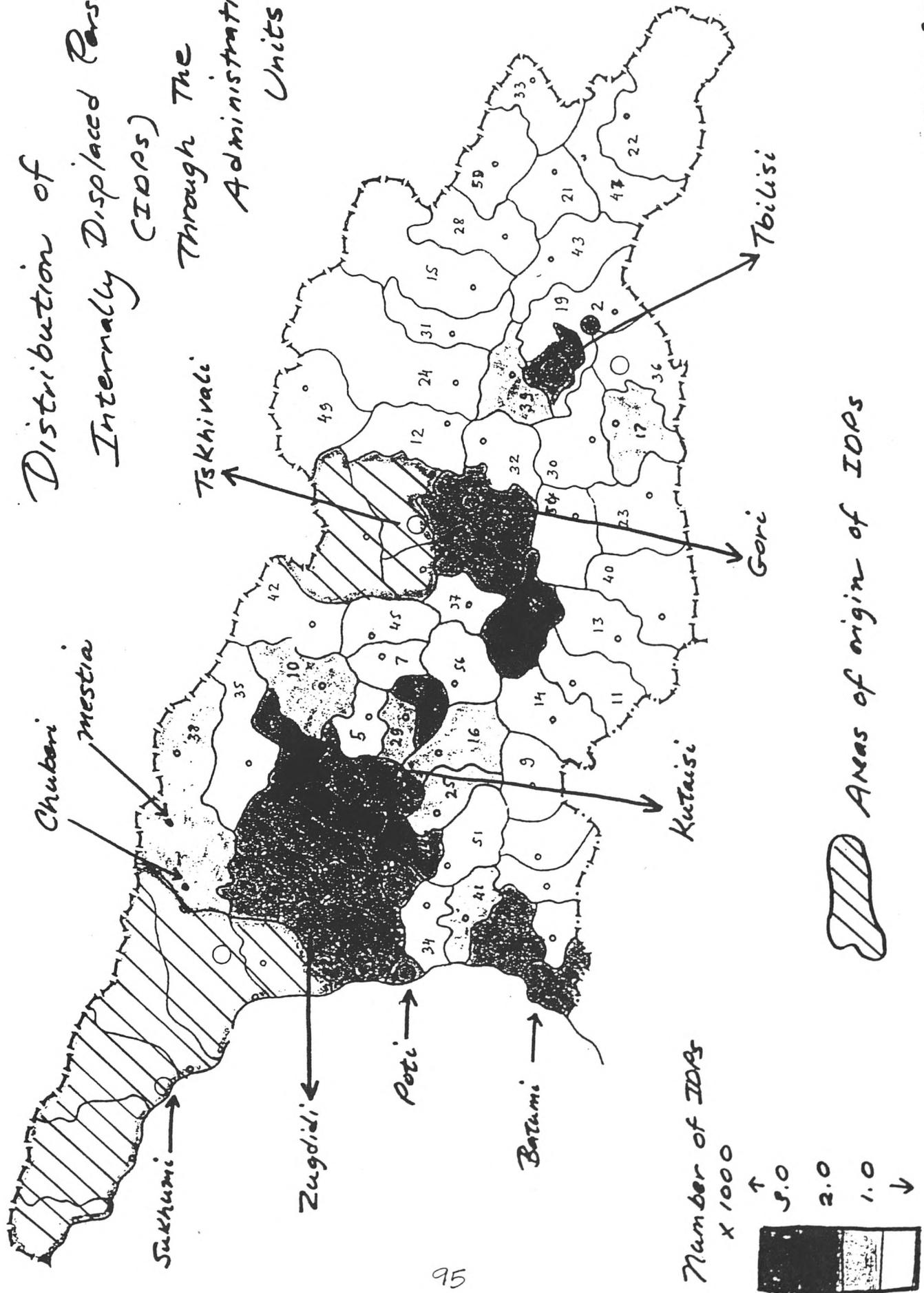


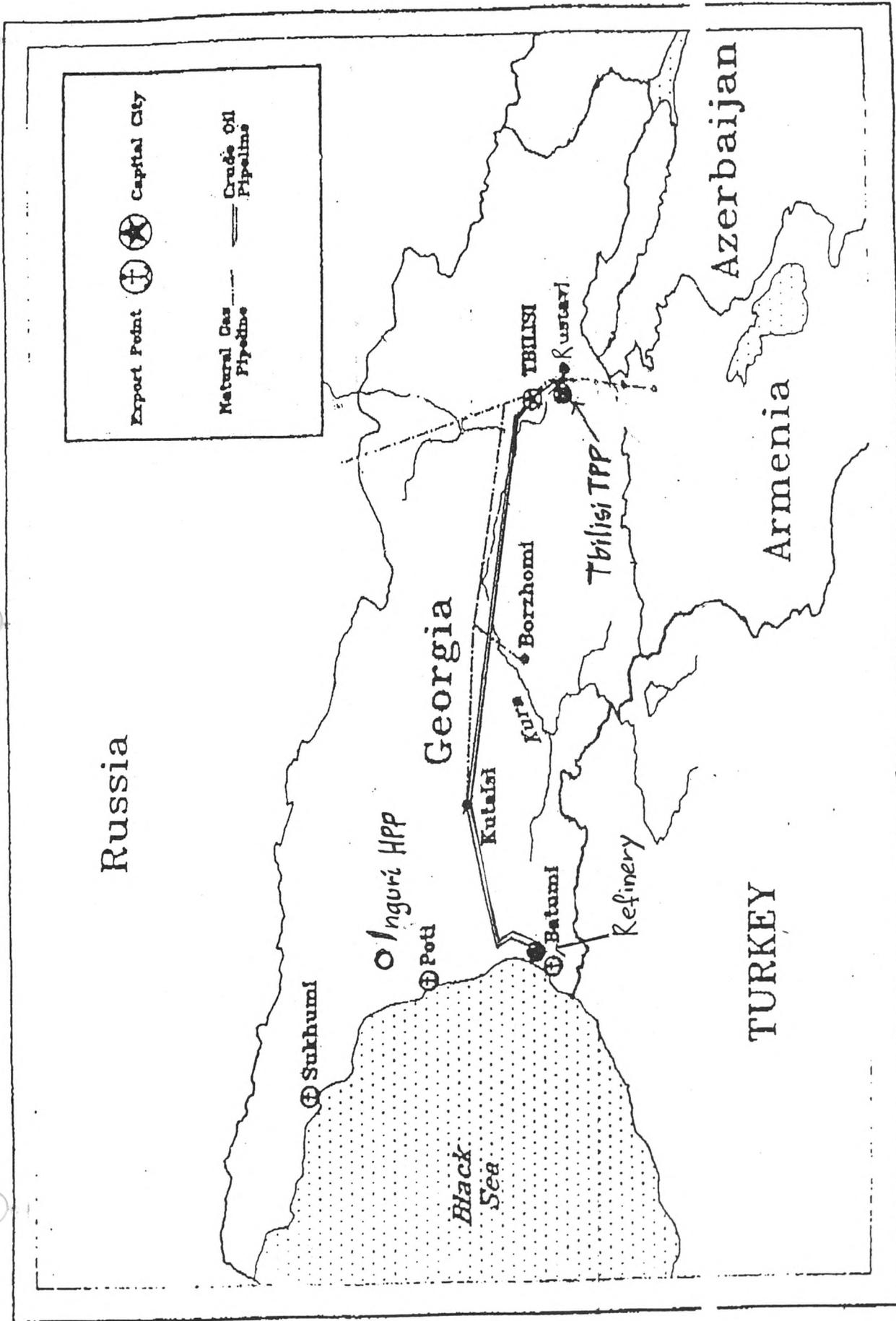
# MAJOR ROAD AND RAIL NETWORK



=== Main Route - Road and Rail  
 --- Other roads - Conditions vary

Distribution of Internally Displaced Persons (IDPs) Through The Administrative Units





# Crude Oil & Natural Gas Pipelines