

NO.

**BASIC DESIGN STUDY REPORT
ON
THE PROJECT
FOR
IMPROVEMENT OF MEDICAL EQUIPMENT
OF PRIMARY HEALTH CARE FACILITIES
IN THE FIELD OF MOTHER AND CHILD HEALTH
IN
GEORGIA**

AUGUST 2003

**JAPAN INTERNATIONAL COOPERATION AGENCY
CRC OVERSEAS COOPERATION Inc.**

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PREFACE

In response to a request from the Government of Georgia, the Government of Japan decided to conduct a basic design study on the Project for Improvement of Medical Equipment for Primary Health Care Facilities in the Field of Mother and Child Health and entrusted the study to the Japan International Cooperation Agency (JICA).

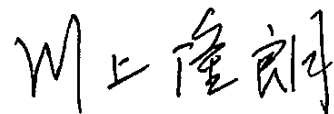
JICA sent to Georgia a study team from April 5 to May 11, 2003.

The team held discussions with the officials concerned of the Government of Georgia, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Georgia in order to discuss a draft basic design, and as this result, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Georgia for their close cooperation extended to the teams.

August, 2003



Takao Kawakami
President
Japan International Cooperation
Agency

August, 2003

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of Medical Equipment for Primary Health Care Facilities in the Field of Mother and Child Health in Georgia.

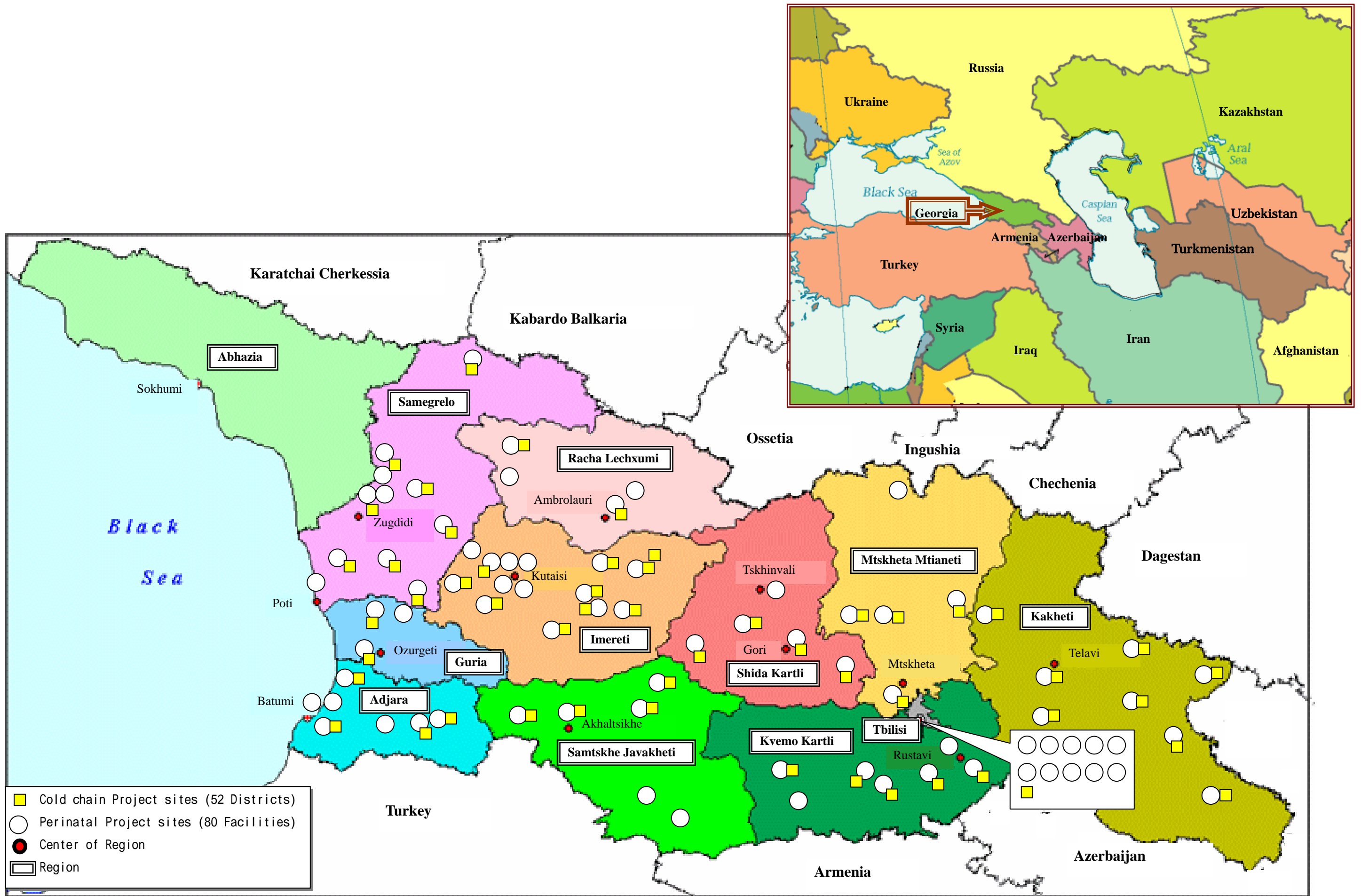
This study was conducted by CRC Overseas Cooperation Inc., under a contract to JICA, during the period from April, 2003 to August, 2003. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Georgia and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,



Yoshiharu Higuchi
Project manager,
Basic design study team on
the Project for Improvement of Medical Equipment
of Primary Health Care Facilities in the Field of
Mother and Child Health in Georgia.
CRC Overseas Cooperation Inc.



Map of Georgia/Project Site

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Abbreviations

BCG	Bacille Calmette Guerin (vaccine)
CIS	Commonwealth of Independent States
DPT	Diphtheria, Pertussis and Tetanus (vaccine)
E/N	Exchange of Notes
EPI	Expanded Program for Immunization
EU	European Union
GAVI	Global Alliance for Vaccination and Immunization
GEL	Georgian Lari
GDP	Gross Domestic Product
IC/R	Inception Report
IDP	Internally Displaced Persons
IRD	International Relief and Development
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
JIS	Japan Industrial Standards
MCH	Mother and Child Health
M/D	Minutes of Discussion
MSF	Medicins Sans Frontieres
NCDC	National Center of Diseases Control
NIS	Newly Independent States
PHC	Primary Health Care
PIS	Product Information Sheet
PIU	Project Implementation Unit
SISUFG	Social Insurance State United Fund of Georgia
SMIC	State Medical Insurance Company
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WB	World Bank
WHO	World Health Organization
WWC	Women's Consultation Clinic

Summary

Georgia (69,700 km²) is situated in a mountainous region between the Great Caucasus Range and the Lesser Caucasus Range. Georgia's borderlines span 1,461 km; it neighbors Armenia, Azerbaijan, Russia and Turkey and opens wide onto the Black Sea to the west.

Georgia has a population of 4.96 million (2002); its major industries are stock farming, agriculture and manufacturing, and it is rich with mineral resources including coal, manganese, copper and chrome. However, immediately upon independence, GDP dropped by half, and as the country dipped into extreme economic depression, a large refugee population arose as a result of economic blockades and civil conflict, creating a serious economic burden for Georgia. Since these disputes have cooled, transport of goods continues to improve. Thanks to economic reforms such as the passing of laws including the Foreign Investment Law in 1995, the introduction of the new currency (Lari) and the promotion of strict financial measures, inflation was reigned in and the economy began to recover after 1995. However, the Georgian economy suffered severely from the 1998 Russian financial crisis and again in the drought in 2000, and now both the country's future economic prospects and its financial situation are of great cause for concern.

The Georgian national healthcare system has fallen to a degree where it is unable to offer sufficient medical services. This is due to a lack of cost awareness in public services—that is a common feature amidst confusion during systemic transitions, during economic downturns and also in former socialist countries—coupled with an inadequate healthcare plan. In such conditions, after mother and child health indicators had declined, the Georgian government drew up plans for the Georgian National Health Policy in 1999, with mother and child health given top priority. In the same year, to further tackle this field, the creation of the Strategic Health Plan for Georgia 2000-2009 set definite goals of reducing by 15% each of infant mortality, still birth and maternal mortality rates. However, troubled finances have meant that equipment required to enable an appropriate level of medical service is superannuated and is significantly hindering the improvement of healthcare services aimed at mothers and children. With

regard to children's infectious diseases, there are many diseases where infection and death may be prevented through immunization, and the improvement and maintenance of the immunization rate has become an important task—currently as one measure, Georgia is carrying out an Immunization Program with support from UNICEF. In spite of this, just 30% of facilities for immunization are fitted with refrigerators to store vaccines; many of the vaccines have had to be thrown out unused, and there are fears that the costs of purchasing additional vaccines will put pressure on state healthcare finances. Just 62% of nursing infants were vaccinated within the appropriate timeframe; since it has been pointed out that inappropriately timed vaccination leads to decreased effects, the regular storage of vaccines in Cold Chain equipment at immunization facilities is urgently required.

Taking this into account, Japanese Grant Aid has been requested by Georgian government with the objective of upgrading healthcare services for mothers and children on a national level. This is to be achieved through the installation of 1) medical equipment for perinatal diagnosis at Women's Consultation Clinics nationwide where obstetrics and gynecological diagnosis is performed at the PHC level and 2) Cold Chain equipment at immunization facilities themselves. In response to the request of Georgian government, the Japanese government decided to conduct a Basic Design Study and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Georgia a study team from 5 April to 11 May 2003. Upon their return to Japan, draft report was drawn up based on the results of the field survey, technical examination and discussion with those on the ground in Georgia. The components of draft report was explained and consulted with Georgian side from 27 June to 16 July.

The Ministry of Labor Health and Social Affairs of Georgia is presently targeting greater efficiency of medical services and is pushing forward its Project to merge the excess medical institutions nationwide and to improve PHC level medical facilities. It has confirmed that target facilities for procuring of medical equipment for perinatal diagnosis will be facilities that are targets neither for closure or relocation under the merger plans nor for privatization, and where facilities already possess the above equipment, provision of new equipment will not take place where an overlap will occur.

Ultimately 80 public Women’s Consultation Clinics stand to procure equipment after the beneficiary population and the technical standards of doctors have been considered.

Turning to Cold Chain equipment, the Cold Room at the National Center of Disease Control (NCDC) needs replacement and will be a target of this Project. Regarding requests for Icelined refrigerators, sites will be chosen based on the conditions of existing equipment, distance from the District Public Health Center, and the number of registered children who would be eligible for immunization. It is considered suitable for 169 facilities to be targeted as sites for provision of one Icelined refrigerator.

(See for table overview of equipment to be provided)

Classification	Equipment	Qty.	Use
Equipment for Perinatal diagnostics	US (Ultra Sound) Scanner, Obst. / Gyn.	80	To be mainly used at the examination for pregnant women or nursing mothers to diagnose fetal condition, abdominal organs and uterine
Equipment for Perinatal diagnostics	US (Ultra Sound) Detector, Fetal	79	To be used at the examination for pregnant women to diagnose hypoxia, neonatal condition
Equipment for Perinatal diagnostics	Scale, Adult, weight	28	To scale pregnant women
Equipment for Perinatal diagnostics	Scale, Adult, height	28	To weigh pregnant women
Equipment for Perinatal diagnostics	Sterilizer, dry	78	To be used for sterilization of the small steel instruments
Equipment for Perinatal diagnostics	Sterilizer, steam, small capacity	79	To be used for sterilization of the instruments and linen unsuitable for the dry sterilization
Equipment for Perinatal diagnostics	Diagnostic equipment set	79	To be used for the basic obstetrics and gynecology examination
Cold Chain Equipment	Cold Room	1	To set up in NCDC of Tbilisi as a main vaccine storage for all Georgia
Cold Chain Equipment	Icelined Refrigerator	169	To store vaccine at the district vaccination facility level

A total period of 10 months is requisite to complete the objectives of this Project where the objectives will be carried out by the Japanese government through Grant Aid. Total costs are estimated at approximately JPY 250 million (Japan: JPY 247 million, Georgia: US \$28,095). However, the budget for operation and maintenance of perinatal diagnostic equipment under this Project is to be borne by the Free Program for Perinatal Diagnosis, carried out by the State Program of Mandatory Medical Insurance

of the Social Insurance State United Fund of Georgia (SISUFG). The increase in operation and maintenance costs incurred by the provision of perinatal diagnostic equipment under this Project will amount to 5.6% of the annual budget for the Free Program for Perinatal Diagnosis. Still, the field of mother and child health has been established as a priority area in the Strategic Health Plan and it may be possible in the future for a priority budget allowance to be directed to this program from the coffers of the State Program of Mandatory Medical Insurance. Hence, the allocation of a budget for operation and maintenance of perinatal diagnostic equipment under this Project is not deemed to be problematic. Replacement of the Cold Room—which is frequently out of order—will improve cooling capability and a decrease in electric consummation and maintenance costs are also expected. Furthermore, operation and maintenance costs for Icelined refrigerators are low and there are no necessary expendables. The provision of this equipment will make it possible to reduce the purchase costs of vaccines since the rate of vaccine wastage will be cut, and the overall budget for the Immunization Program may be reduced.

Operation of all equipment to be supplied under this Project is considered relatively uncomplicated, and many of the facilities have experienced healthcare workers and qualified staff to use the equipment. Moreover, all target facilities plan to put in place the appropriate personnel or training for efficient use of the equipment after installation, therefore use of the equipment post procurement is not thought to be a problem.

The target beneficiaries of this Project are the 44,147 pregnant women (2002) and the 1,040,000 children under the age of 15 (2002) (target children for immunization) throughout the land. The range of beneficiaries is broad and furthermore coordinates with the priority areas of the Strategic Health Plan; the Project is expected to contribute greatly to the promotion of the Strategic Health Plan and the improvement of mother and child health in Georgia. This Project is therefore deemed a suitable target for Japanese Grant Aid.

The following beneficial effects are anticipated through the execution of this Project:

(1) Direct Effects

- Women's Consultation Clinics nationwide will be equipped with a uniform and high quality perinatal diagnostic treatment system.
- Appropriate storage of vaccines will be possible at target facilities; there will be improvements to both the immunization system and the efficiency of vaccines.

(2) Indirect Effects

- Due to improved diagnostic ability, perinatal complications may be discovered at an earlier stage. Patients will therefore have the opportunity to receive timely treatment, and through this improved healthcare services are anticipated.
- An improved immunization system is likely to facilitate a decrease the rate of infectious diseases.

The following recommendations are proposed to ensure the quick realization of this Project, the smooth application of the newly procured equipment by the target facilities and the achievement of initial objectives:

- **Maintained stability of healthcare finances**

The Georgian government is currently undertaking restructuring of the Health Insurance system in order to stabilize healthcare finances. The mother and child health program—which includes this Project—receives its budget from the SISUFG State Health Insurance Program, contributed from state budget allocation and public insurance contributions. Since the aim is for the entire population to have health insurance cover by 2010, it is estimated that several years from now the fiscal situation of the healthcare system will be much improved. However looking in the long-term, the introduction of the health insurance system accompanied by a weak economic base, unstable politics, and a fragile institutional system makes it impossible to guarantee a stable system. Hence it will be important not just to aim for increased annual revenues

through reorganization of the insurance contributions system, but also to build a system where a higher portion of the existing healthcare budget is allocated to the highly efficient PHC level, so the limited resources are utilized to maximum effect.

- **Heightened activities of regional education mobile team**

In order to improve mother and child health in primary healthcare, the strengthening of regional education activities is another important area alongside equipping primary medical facilities. In order to carry out such activities, the placement of trained medical staff is indispensable. To this end, support in the form of equipment and financing for training and education of doctors and nursing staff has been given by international organizations and other donors. However, in the depopulated areas, mainly in the mountainous regions, childbirths in unsanitary conditions—including home births—are the norm and are one cause of high-risk delivery. Moreover, due to a lack of education on the side effects of immunization, there are many cases of parents refusing to have their children immunized. In order to see further improved services in the field of mother and child health, education activities of existing mobile teams need to be brought up to a higher level.

- **Cooperation with other donors**

The World Bank, international organizations etc. continue to support the Georgian government in the field of mother and child health since it was established as a priority in the Strategic Health Plan, and their support and this Project complement each other. The activities being carried out by these other donors (renovation Project of target sites under this Project; the set up of a healthcare information system including building a network connecting all healthcare facilities, and improvement of reliable healthcare statistics; close exchange of information and ideas in order to cooperate on a 'soft' level of nurturing and reeducating healthcare staff) will lead to further improved effects in this Project.

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Chapter 1

Background of the Project

Chapter 1 Background of the Project

The Georgian national healthcare system has fallen to a degree where it is unable to offer sufficient medical services. This is due to a lack of cost awareness in public services—that is a common feature amidst confusion during systemic transitions, during economic downturns and also in former socialist countries—coupled with an inadequate healthcare plan. In such conditions, after mother and child health indicators had declined, the Georgian government drew up plans for the Georgian National Health Policy in 1999, with mother and child health given top priority. In the same year, to further tackle this field, the creation of the Strategic Health Plan for Georgia 2000-2009 set definite goals of reducing by 15% each of infant mortality, still birth and maternal mortality rates. However, troubled finances have meant that equipment required to enable an appropriate level of medical service is superannuated and is significantly hindering the improvement of healthcare services aimed at mothers and children. With regard to children’s infectious diseases, there are many diseases where infection and death may be prevented through immunization, and the improvement and maintenance of the immunization rate has become an important task—currently as one measure, Georgia is carrying out an Immunization Program with support from UNICEF. In spite of this, just 30% of facilities for immunization are fitted with refrigerators to store vaccines; many of the vaccines have had to be thrown out unused, and there are fears that the costs of purchasing additional vaccines will put pressure on state healthcare finances. Just 62% of nursing infants were vaccinated within the appropriate timeframe; since it has been pointed out that inappropriately timed vaccination leads to decreased effects, the regular storage of vaccines in Cold Chain equipment at immunization facilities is urgently required.

Taking this into account, Japanese Grant Aid has been requested with the objective of upgrading healthcare services for mothers and children on a national level. This is to be achieved through the installation of 1) medical equipment for perinatal diagnosis at Women’s Consultation Clinics nationwide where obstetrics and gynecological diagnosis is performed at the PHC level and 2) Cold Chain equipment at immunization facilities themselves.

Chapter 2

Contents of the Project

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

(1) Goal and Objectives of the Project

The Georgian national healthcare system has fallen to a degree where it is unable to offer sufficient medical services. This is due to a lack of cost awareness in public services—that is a common feature amidst confusion during systemic transitions, during economic downturns and also in former socialist countries—coupled with an inadequate healthcare plan. In such conditions, after mother and child health indicators had declined, the Georgian government drew up plans for the Georgian National Health Policy in 1999, with mother and child health given top priority. In the same year, to further tackle this field, the creation of the Strategic Health Plan for Georgia 2000-2009 set definite goals of reducing by 15% each of infant mortality, still birth and maternal mortality rates. However, troubled finances have meant that equipment required to enable an appropriate level of medical service is superannuated and is significantly hindering the improvement of health care services aimed at mothers and children.

On account of such situation of the Georgian health care, the Project purpose was set of as “upgrading healthcare services for mothers and children on a national level”. This is to be achieved through the procurement of 1) medical equipment for perinatal diagnosis, 2) Cold Chain equipment for vaccine storage at perinatal care and immunization facilities. As a result of this, the overall goal is provided such as “improvement of maternal and child health indicators” which indicates in the Georgian National Health Policy.

(2) Basic Concept of the Project

For achieving the goals above, the medical equipment will be procured at Women’s Consultation Clinics nationwide where obstetrics and gynecological diagnosis performed at the PHC level and immunization facilities. The Project will support for improvement of health care services such as that 1) Women’s Consultation Clinics nationwide will be equipped with a uniform and high quality perinatal diagnostic treatment system and 2) Appropriate storage of vaccines will be possible at target facilities; there will be improvements to both the immunization system and the efficiency of vaccines, in target facilities of each cooperated field.

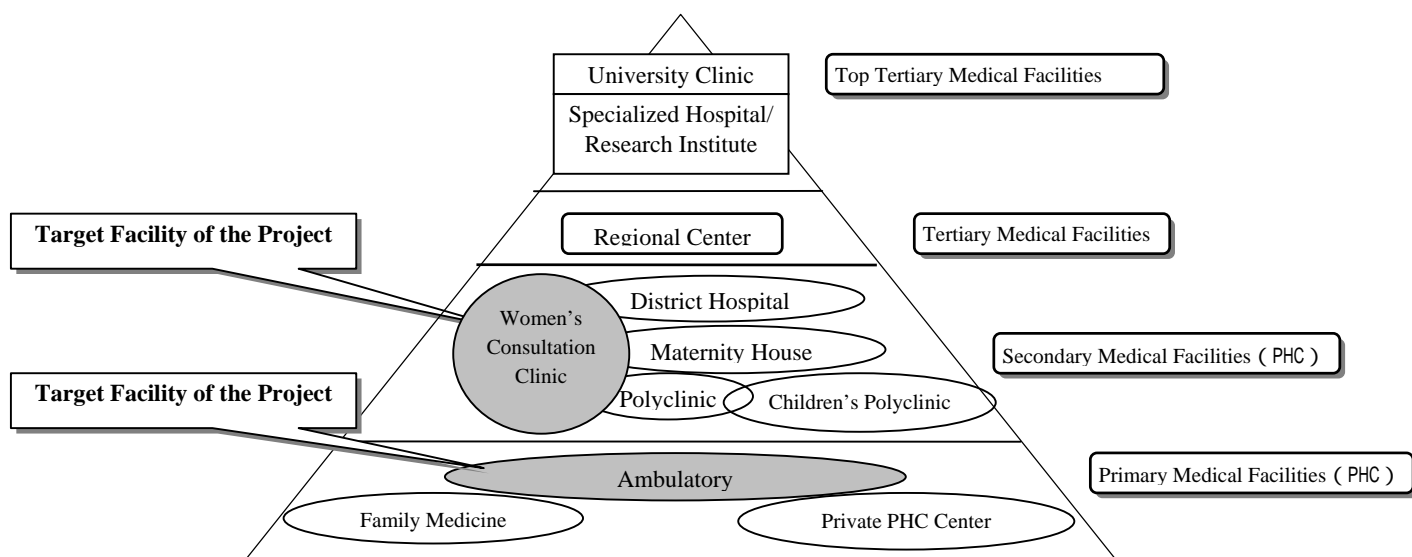


Figure 1 Target Facilities of the Project

2-2 Basic Design of the Requested Japanese Assistance

2-2-1 Design Policy

This Project has been requested with the objective of improving healthcare services, in particular, in the field of mother and child healthcare which has been prioritized by the Georgian government. The basic design of the Project takes into account the following factors when selecting target sites and perinatal diagnostic and Cold Chain equipment: 1) grade of target facility and optimization plan in the healthcare sector, 2) sufficient positive effects, 3) lasting use of equipment, 4) installation environment and 5) operation and maintenance.

(1) Target Facilities

1) Target Facilities for Perinatal Diagnosis

Georgia is currently implementing the “Free Program for Quarter Perinatal Diagnosis”—target facilities for procurement of equipment for perinatal diagnosis in the Project are those public Women’s Consultation Clinics involved in the Free Program.

Georgia’s health sector has been a recipient of World Bank loans and is going ahead with its Project to optimize excess medical facilities nationwide and to improve PHC level medical facilities. Initially, the request to Japan was to target 89 facilities, however, the results of field survey, and discussion with the Ministry of Labor Health and Social Affairs led to 82 target facilities being selected for procurement of equipment. These 82 facilities

have been confirmed as not being targets for closure, relocation or privatization under the optimization plan.

Of the 82 facilities, numbers of registered pregnancies at 2 facilities (the Polyclinic for IDP in the Senaki District and the Khobi District of the Samegrelo Region) are extremely low, furthermore, the target Women's Consultation Clinics are close by—therefore, they will not produce significant effects and have been excluded from the target facilities. The Woman's Healthcare Center in Kutaisi city in the Imereti Region has already been equipped with all the equipment except an US Scanner by another donor—procurement of a US Scanner only is to be target. The above survey brought the final number of target facilities to a total of 80.

2) Target Facilities for Cold Chain Equipment

The Public Health Department of the Ministry of Labor Health and Social Affairs (responsible for coordination of immunization), the National Center of Disease Control (NCDC) and UNICEF were consulted regarding target facilities for Cold Chain equipment. As a result, the replacement of existing equipment at the central storage facility Cold Room belonging to the NCDC in Tbilisi was confirmed as appropriate. Of the 1,131 vaccination facilities nationwide, 200 facilities were investigated for procurement of Icelined refrigerators with the condition that electric power capacity must be sufficient for running.

Of the 200 facilities, 8 already possess vaccine storage of sufficient capacity and so have been eliminated from the Project. Target sites were chosen from the remaining 192 facilities based on factors (shown in the **Table 1**) such as distance from the District Public Health Centers and numbers of registered children eligible for vaccination (i.e. under 14 years of age). As a result of these surveys, a further 23 facilities were eliminated from the Project as being unsuitable in terms of potential effects, and a final total of 169 facilities were selected. Procurement of one Icelined refrigerator per facility is considered appropriate. The table below (**Table 2**) shows the distribution of Icelined refrigerators for each region.

Table 1 Criterion of Target Facilities for Icelined Refrigerator

Distance from District Public Health Center	No. of Registered Children	Decision	Reason
Less than 5km	-	×	If the distance from Health Center to the target facility is less than 5km, the vaccine wastage shall be prevented by putting it back in the refrigerator of the Center. Therefore it is unnecessary procurement of the refrigerator for this kind of facility.
5 ~ 10km	Under 1,000	×	The facility which has under 1,000 registered children, the effects on the vaccine wastage diminution and the improvement of immunization by an appropriate schedule would be relatively low.
	Over 1,000		The facility which has over 1,000 registered children, the effects on vaccine wastage diminution and improvement of immunization by an appropriate schedule would be relatively high
More than 10km	-		If the distance from Health Center to the target facility is more than 10km, the efficient on the vaccine distribution and the vaccine wastage prevention shall be realized by restoring the vaccine in the refrigerator, therefore its effects would be high.

Table 2 Procurement Plan of Icelined Refrigerator by Region

No	Region	No. of Requested Facilities	No. of Target Facilities	No. of Existing Refrigerators	No. of Total Refrigerators	No. of Registered Children	No. of Existing Refrigerators /1,000(Now)	No. of Existing Refrigerators /1,000(After)
1	Tbilisi	2	2	28	30	233,942	0.12	0.13
2	Adjara	13	9	44	53	92,225	0.48	0.57
3	Guria	8	5	21	26	26,995	0.78	0.96
4	Imereti	27	22	51	73	137,775	0.37	0.53
5	Kakheti	25	23	33	56	68,748	0.48	0.81
6	Kvemo Kartli	19	19	36	55	92,672	0.39	0.59
7	Mtskheta Mtianeti	16	14	12	26	22,569	0.53	1.15
8	Racha Lechumi	2	2	12	14	4,909	2.44	2.85
10	Samegrelo	43	38	38	76	93,107	0.41	0.82
11	Samtskhe Javakheti	11	10	12	22	29,494	0.41	0.75
12	Shida Kartli	26	25	16	41	57,998	0.28	0.71
	Total	192	(a) 169	(b) 303	(a)+(b)472	860,434	Average 0.56	Average 0.82

(2) Equipment plan**1) Equipment for Perinatal Diagnosis****• US Scanner, Obst./Gyn.**

The diagnosis with US Scanner in Obstetrics field enables heart rate and growth of fetus quite accurately. Meanwhile, it is basic and essential equipment for any diagnosis

regarding pregnancy, because in Gynecology, it can easily identify myoma of uterus or tumor of uterus from the surface of stomach. Presently, the diagnosis with US Scanner is practiced in about one third of the target Woman's Consultation Clinics, and about a half of the diagnosis depends on the rental from private properties of other doctors. Existing equipment is old and expected its replacement. Regarding technical level of medical staffs, almost of all those clinics has those who have license and/or experiences in practices with US Scanner. After procuring of the equipment, re-trainings and replacement of doctors will be done for better use of the equipment. "Free program for quarterly perinatal diagnosis" will include the diagnosis by US Scanner. Procuring this equipment is made possible in all Women's Consultation Clinics. As a result, the effectiveness of the pregnant women receiving benefit nation wide is expected. Therefore procuring the US Scanner is considered appropriate.

- **US Detector, Fetal**

The fetus normally starts its heart beat around five weeks of pregnancy, and heart rate becomes faster about 140 beat/min when it peaks around nine weeks, after that the rate decreases gradually until its normal rate. The heart rate of fetus is often measured by ultra sonic doppler signal. The requested equipment is US Detector, Fetal with US Doppler signal, commonly used even in private Obstetrics/Gynecology clinics in Japan. This equipment provides the most reliable and stabilized information of fetus, especially effective for detecting low oxygen conditions. There is almost maintenance free like US Scanner. The target facilities do not have US Detector at all, and Pinard type stethoscopes are used as substitutions at this moment. This equipment is easy to operate and considered appropriate for procuring basic medical equipment in a matter of its effectiveness of use.

- **Scale (weight and height for adult)**

The Scale (weight and height for adult) is one of the most basic diagnostic equipment. The purpose of this equipment is quite obvious, and there are no facilitative restrictions. The target facilities, except three of them, have existing equipment, and the scales in 54 facilities are functioning well. Therefore, procuring the scale in 25 facilities where existing equipment can no longer use due to superannuating and three sites where no scales have been equipped are considered appropriate.

- **Sterilizer, dry and steam, small capacity**

These equipment were firstly requested for the most basic and common sterilizing medical equipment as medical institutions. The sterilization condition of medical equipment in target facilities is very unsatisfactory due to superannuating and/or breakage of the equipment. The steam sterilizers function only in two facilities and the dry sterilizers in a facility. Most of the target facilities are practicing boiling sterilization, which makes medical staffs difficult to prevent infections in the facilities from providing hygienic medical services. It is considered appropriate that procuring the dry sterilizers in 78 facilities and the steam sterilizer in 79 facilities, because replacements of old equipment and installation of new one are indispensable for providing their medical services.

- **Diagnostic equipment set**

As a result of basic design study of existing equipment in the target Woman's Consultation Clinics, the study team found that almost all clinics has problems of diagnosis, because basic examination instruments such as vaginal speculum or other forceps are rusted or worn out badly due to long years of their utilization. Procuring diagnostic equipment set including vaginal speculum and other forceps improves the quality of diagnosis of pregnant women. As a result, those target facilities establish their medical functions as much as they originally should have, leading high effectiveness of utilization. Therefore, procurement of this equipment in 79 facilities is considered appropriate.

In the requested equipment for perinatal diagnosis, the purpose of colposcope is to find cervix cancer in the early stage. The number of patients with cervix cancer in the year 2001 in Georgia was 249, and about a half of them was found mainly in high-populated towns such as Tbilisi. The obstetrics medical facilities in those towns are high leveled and equipped with colposcope. Therefore, it is not appropriate to procure colposcope for Woman's Consultation Clinic functioning as PHC level.

In addition, stethoscope (Pinard type) is quite low priced equipment and able to procure it by their own efforts without difficulties, and all target facilities already have the equipment. Those two requested items were deleted from the procuring list by the reasons above.

Table 3 Facilities List for Perinatal Diagnosis Equipment is shown in the next page.

Table 3 Facilities List for Perinatal Diagnosis Equipment

Region	District	No.	Facility (Women's Consultation Clinic)	US Scanner	US Detector	Scale, weight	Scale, height	Sterilizer, dry	Sterilizer, steam	Diagnostic equipment set
Tbilisi	Tbilisi	1	Women's Consultation for IDP from Abkhazia	1	1	0	0	1	1	1
	Tbilisi	2	Treatment/Diagnostic center & family medicine	1	1	1	1	1	1	1
	Tbilisi	3	Hospital-polyclinical unit #5	1	1	0	0	1	1	1
	Tbilisi	4	Treatment-profilactic center #3	1	1	0	0	1	1	1
	Tbilisi	5	Maternity home #5	1	1	0	0	1	1	1
	Tbilisi	6	Women's consultation #8	1	1	0	0	1	1	1
	Tbilisi	7	MCH Treatment/prophylactic center	1	1	0	0	1	1	1
	Tbilisi	8	Treatment-profilactic center #2	1	1	0	0	1	1	1
	Tbilisi	9	Treatment-profilactic center #1	1	1	0	0	1	1	1
	Tbilisi	10	Treatment-profilactic center #4	1	1	0	0	1	1	1
Adjara	Batumi	11	Maternity home	1	1	1	1	1	1	1
	Batumi	12	MCH Health Care Center	1	1	1	1	1	1	1
	Kheda	13	District polyclinic	1	1	0	0	1	1	1
	Kobuleti	14	Maternity home	1	1	0	0	1	1	1
	Khulo	15	MCH regional center	1	1	0	0	0	1	1
	Shuakhevi	16	Policlinical/ambulatory unit	1	1	1	1	1	1	1
	Khelvachauri	17	Polyclinical/ambulatory unit	1	1	0	0	1	1	1
Guria	Lanchkhuti	18	Medical Center	1	1	1	1	1	1	1
	Chokhatauri	19	Hospital/polyclinical unit	1	1	0	0	1	1	1
	Ozurgeti	20	Maternity home	1	1	0	0	1	1	1
Imereti	Kutaisi	21	Polyclinic, for IDP from Abkhazia	1	1	0	0	1	1	1
	Kutaisi	22	MCH Health Care Center	1	1	0	0	1	1	1
	Kutaisi	23	Women's consultation #2	1	1	0	0	1	1	1
	Kutaisi	24	Women's health care center	1	0	0	0	0	0	0
	Tskaltubo	25	Maternity home	1	1	0	0	1	1	1
	Chiatura	26	Women's consultation	1	1	0	0	1	1	1
	Tkibuli	27	Multiprofile hospital	1	1	0	0	1	1	1
	Vani	28	District polyclinic	1	1	0	0	1	1	1
	Terjola	29	District hospital	1	1	1	1	1	1	1
	Zestafoni	30	Maternity home	1	1	0	0	1	1	1
	Bagdadi	31	Medical Center	1	1	1	1	1	1	1
	Samtredia	32	MCH Health Care Center	1	1	0	0	1	1	1
	Kharagauli	33	District polyclinic	1	1	1	1	1	1	1
	Khoni	34	District polyclinic	1	1	1	1	1	1	1
Kakheti	Telavi	35	Maternity home	1	1	1	1	1	1	1
	Lagodekhi	36	Maternity home	1	1	0	0	1	1	1
	Sagarejo	37	Maternity home	1	1	0	0	1	1	1
	Kvareli	38	MCH Health Care Center	1	1	0	0	1	1	1
	Dedoplistskaro	39	Medical Center	1	1	0	0	1	1	1
	Akhmeta	40	Medical Center	1	1	1	1	1	1	1
	Gurjaani	41	Medical Center	1	1	0	0	1	1	1
	Signagi	42	Medical Center	1	1	1	1	1	1	1
Kvemo Kartli	Rustavi	43	Maternity home	1	1	0	0	1	1	1
	Bolnisi	44	Maternity home	1	1	0	0	1	1	1
	Dmanisi	45	District polyclinic	1	1	0	0	1	1	1
	Tetritskaro	46	Maternity home	1	1	0	0	1	1	1
	Gardabani	47	District hospital	1	1	0	0	1	1	1
	Tsalka	48	Medical Center	1	1	1	1	1	1	1
	Marneuli	49	Maternity home	1	1	0	0	1	1	1
Mtskheta Mtianeti	Akhalgori	50	District hospital	1	1	0	0	1	1	1
	Dusheti	51	District hospital	1	1	0	0	1	1	1
	Tianeti	52	Medical Center	1	1	0	0	1	1	1
	Mtskheta	53	Regional Multiprofile hospital	1	1	0	0	1	1	1
	Kazbegi	54	Medical Center	1	1	0	0	1	1	1
Racha Lechxumi	Ambrolauri	55	District polyclinic	1	1	1	1	1	1	1
	Lentekhi	56	District polyclinic	1	1	0	0	1	1	1
	Oni	57	District polyclinic	1	1	1	1	1	1	1
	Tsageri	58	District polyclinic "mkurnali"	1	1	0	0	1	1	1
Samegrelo	Poti	59	Medical Center	1	1	0	0	1	1	1
	Zugdidi	60	Polyclinic for IDP	1	1	1	1	1	1	1
	Zugdidi	61	Women's consultation	1	1	1	1	1	1	1
	Abasha	62	Polyclinical/ambulatory unit	1	1	0	0	1	1	1
	Martvili	63	Maternity home	1	1	1	1	1	1	1
	Mestia	64	Maternity home	1	1	1	1	1	1	1
	Senaki	65	Maternity home	1	1	0	0	1	1	1
	Chkorotsku	66	Maternity home	1	1	0	0	1	1	1
	Tsalenjikha	67	Medical Center	1	1	1	1	1	1	1
	Tsalenjikha	68	Djvari urban polyclinic	1	1	1	1	1	1	1
	Khobi	69	MCH center	1	1	1	1	1	1	1
Samtskhe Javakheti	Adigeni	70	Maternity home	1	1	1	1	1	1	1
	Aspindaza	71	Hospital/polyclinical unit	1	1	1	1	1	1	1
	Akhaltshikhe	72	Regional multiprofile Hospital	1	1	1	1	1	1	1
	Ninotsminda	73	District Hospital-Polyclinical Unit	1	1	1	1	1	1	1
	Akhalkalaki	74	District Hospital-Polyclinical Unit	1	1	1	1	1	1	1
	Borjomi	75	Maternity home	1	1	1	1	1	1	1
Shida Kartli	Gori	76	Maternity home	1	1	0	0	1	1	1
	Kaspi	77	Polyclinical/ambulatory unit	1	1	0	0	1	1	1
	Khareli	78	District hospital "zaza fanascerteli"	1	1	0	0	1	1	1
	Khashuri	79	Maternity home	1	1	0	0	1	1	1
Tskhinvali	80	Kurta urban hospital	1	1	0	0	1	1	1	
Total				80	79	28	28	78	79	79

2) Equipment for Cold Chain

• Icelined Refrigerator

All vaccination bottles for CIS countries will be replaced with new type bottles from the year 2004, Open Vial, able to preserve unused vaccine for a certain period of time in the refrigerator after opening the cap. The study team confirmed that information from WHO. The utilization of this new bottle will decrease the rate of vaccine wastage from the present level, but as a precondition, furnishing refrigerating preservation facilities is necessary. Georgian side requested procuring the Icelined Refrigerator in the selected facilities for immunization where electricity is provided at least for eight hours a day in order to use the refrigerator effectively even though in Georgia many places are provided electricity intermittently. After discussions with UNICEF Georgian office, WHO Georgian office, Ministry of Labor Health and Social Affairs of Georgia and NCDC, procuring Icelined refrigerator in 169 facilities for immunization is considered appropriate, because it will give a great positive influence on immunization system in Georgia.

• Cold Room

Presently, Cold Room in National Center of Diseases Control (NCDC) was procured in 1995 by the cooperation with UNICEF and EU, and it is used to store all vaccines provided in Georgia and functions as a central storage at national core level. The existing Cold Room has experienced troubles in several occasions in recent years. Especially, one out of two compressor units is close to beyond of its repair. If the Cold Room no longer functions completely, serious national level problem will arise. Although at this moment reserved refrigerator and freezer are prepared, replacement is an urgent matter. Even though the Cold Room has complicated systems such as automatic temperature adjusting system, those workers who have skills and knowledge of this equipment are staffed for its maintenance. Therefore, replacement of the Cold Room is appropriate even taking maintenance requirement into consideration.

After the study team had discussions regarding Cold Chain equipment with Ministry of Labor Health and Social Affairs of Georgia, three items were deleted from the list by the following reasons; 1) requested five freezers are going to be procured by GAVI, 2) procuring 50 solar refrigerators has problems in their maintenance and effectiveness of use, 3) procuring refrigerator cars does not meet the requirement of procurement standard by

WHO. In addition, regarding 50 refrigerators and their electric stabilizers, UNICEF procured already in all Regional Public Health Division in 1996. The capacity of those refrigerators is enough for their needs, and the need for replacement is not considered necessary. The urgency of implementation is low and the procurement of those refrigerators is not appropriate.

Table 4 Facilities List for Cold Chain Equipment is shown in the next page.

Table 4 Facilities List for Cold Cahin Equipment

Icelined Refrigerator

Region	District	No	Facility	Qty.	
Tbilisi	Isan-Samgori	1	Tbilisi #5 Children Polyclinic	1	
		2	Tbilisi #11 Children Polyclinic	1	
Adjara	Kobuleti	3	Legva Amburatory	1	
		4	Kokhi Amburatory	1	
		5	Chaisubani Amburatory	1	
		6	Dagva Amburatory	1	
		7	Acharistskali Amburatory	1	
	Khelvachauri	8	Pushrukhauli Amburatory	1	
		9	Khikhadziri Amburatory	1	
	Shuakhevi	10	Tsklisakra Amburatory	1	
		11	Oladauri Amburatory	1	
	Guria	Ozurgeti	12	Dzimiti Amburatory	1
Lanchkhuti		13	Bakhvi Amburatory	1	
		14	Jurkveti Amburatory	1	
		15	Grmagele Amburatory	1	
Imereti	Kharagauli	16	Nigvziani Amburatory	1	
		17	Moloti Amburatory	1	
	Sachkhere	18	Khunevi Amburatory	1	
		19	Jalaurta Amburatory	1	
		20	Chalokani Amburatory	1	
		21	Zeda Sazano Amburatory	1	
	Terjola	22	Kveda Simoneti Amburatory	1	
		23	Nakhsirgele Amburatory	1	
		24	Chognari Amburatory	1	
		25	Vartsikhe Amburatory	1	
	Bagdati	26	Tsutskhvati Amburatory	1	
		27	Tobanieri Amburatory	1	
	Tkibuli	28	Amagleba Amburatory	1	
		29	Boslevi Amburatory	1	
	Chiatura	30	Perevisa Amburatory	1	
		31	Nigozeti Amburatory	1	
		32	Tsirkvali Amburatory	1	
		33	Khreiti Amburatory	1	
		34	Kvatsikhe Amburatory	1	
		35	Gomi Amburatory	1	
Samtredia	36	Tolebi Amburatory	1		
	37	Maglaki Amburatory	1		
Tskaltubo	38	Rioni Amburatory	1		
	39	Kv. Khodasheni	1		
Kakheti	Telavi	40	Ruispiri Amburatory	1	
		41	Karajala Amburatory	1	
		42	Napareuli Amburatory	1	
		43	Akura Amburatory	1	
		44	Manavi Amburatory	1	
	Sagarejo	45	Giorgtsminda Amburatory	1	
		46	Badiauri Amburatory	1	
		47	Chailuri Amburatory	1	
	Akhmeta	48	Dumasturi Amburatory	1	
		49	Kabalo Amburatory	1	
Lagodekhi	50	Ulianovski Amburatory	1		
	51	Sakobo Amburatory	1		
Signagi	52	Bodbiskhevi Amburatory	1		
	53	Anaga Amburatory	1		
	54	Kv. Bbodbe Amburatory	1		
	55	Jugaani Amburatory	1		
	56	Shilda Amburatory	1		
Kvareli	57	Akhalsopeli Amburatory	1		
	58	Zemo Keda Amburatory	1		
Dedoplistskaro	59	Samtatskaro Amburatory	1		
	60	Machkhaani Amburatory	1		
	61	Kardenakhi Amburatory	1		
	62	Kojori Amburatory	1		
Kvemo Kartli	Gardabani	63	Teleti Amburatory	1	
		64	Ponichala Amburatory	1	
		65	Krtsanisi Amburatory	1	
		66	Saakadze Amburatory	1	
		67	Gamarjveba Amburatory	1	
		68	Tabakhmela Amburatory	1	
		69	Karajalari Amburatory	1	
		70	Aktaklia Amburatory	1	
		Tsalka	71	Asarvani Amburatory	1
			72	Khachkovi Amburatory	1
Bolnisi	73	Darbazi Amburatory	1		
	74	Talaveri Amburatory	1		
Marneuli	75	Khojorni Amburatory	1		
	76	Shulaveri Amburatory	1		
	77	Kesalo Amburatory	1		
	78	Kabanakhchi Amburatory	1		
	79	Damiaguarkhi Amburatory	1		
Tetri Tskaro	80	Borbalo Amburatory	1		
	81	Lisi Amburatory	1		
Mtskheta Mtianeti	Mtskheta	82	Zahesi Amburatory	1	
		83	Galavani Amburatory	1	
		84	Tsilvani Amburatory	1	
		85	Mukhrani Amburatory	1	
		86	Ksovrisi Amburatory	1	
		87	Nichbisi Amburatory	1	

Region	District	No	Facility	Qty.	
Mtskheta Mtianeti	Tianeti	88	Khevsurtsopeli Amburatory	1	
		89	Largvisi Amburatory	1	
	Dusheti	90	Tsinagari Amburatory	1	
		91	Mchadijvari Amburatory	1	
		92	Ananuri Amburatory	1	
		93	Shatili Amburatory + Orphana	1	
		94	Choporti Amburatory	1	
		95	Nikortsinda Amburatory	1	
	Racha Lechxumi	Lentekhi	96	Zhakhunderi Amburatory	1
		Zugdidi	97	Akhalsopeli Amburatory	1
98	Ingiris Ambulatoria Amburatory		1		
99	Tsaishi Amburatory		1		
100	Ganmukhuri Amburatory		1		
101	Orolu Amburatory		1		
102	Rike Amburatory		1		
103	Chkhorია Amburatory		1		
104	Jikhshkari Amburatory		1		
105	Chkaduashi Amburatory		1		
106	Kortskheli Amburatory		1		
Khobi	107	Orsantia Amburatory	1		
	108	Akhali Khibula Amburatory	1		
	109	Kvemo Kvaloni Amburatory	1		
	110	Khaniskuri Amburatory	1		
	111	Pirveli Maisi Amburatory	1		
	Chkhorotsku	112	Kirtskhi Amburatory	1	
		113	Akhuti Amburatory	1	
		114	Napichkhovo Amburatory	1	
	Martvili	115	Didi Chkoni Amburatory	1	
		116	Agropirma D/Chkoni Amburatory	1	
117		Bandza Amburatory	1		
118		Najakhao Amburatory	1		
119		Tamakoni Amburatory	1		
120		Kurzu Amburatory	1		
121		Khonka Amburatory	1		
122		Kitsia Amburatory	1		
Tsalenjikha		123	Sachino Amburatory	1	
		124	Kakhulani Amburatory	1	
	125	Muzhava Amburatory	1		
Abasha	126	Melani Amburatory	1		
	127	Ketilari Amburatory	1		
Senaki	128	Nokalakevi Amburatory	1		
	129	Ushapati Amburatory	1		
	130	Ledzadzama Amburatory	1		
Mestia	131	Akhali Sopli Amburatory	1		
	132	Ushguli Amburatory	1		
	133	Chuberi Amburatory	1		
	134	Khaishi Amburatory	1		
Borjomi	135	Tadzrisi Amburatory	1		
	136	Bakuriani Amburatory	1		
	137	Tsagveri Amburatory	1		
Aspindza	138	Dzveli Amburatory	1		
	139	Toloshi Amburatory	1		
Adigeni	140	Arali Amburatory	1		
	141	Varkhani Amburatory	1		
	142	Turtskhi Amburatory	1		
	143	Kumurdo Amburatory	1		
Akhalcalaki	144	Alastani Amburatory	1		
	145	Zegduleti Amburatory	1		
Gori	146	Skra Amburatory	1		
	147	Ateni Amburatory	1		
	148	Variani Amburatory	1		
	149	Karaliti Amburatory	1		
	150	Mereti Amburatory	1		
	151	Kveshi Amburatory	1		
	152	Plavi Amburatory	1		
	153	Kheltubani Amburatory	1		
	154	Zerti Amburatory	1		
	Kareli	155	Kekhivari Amburatory	1	
156		Village Breti Amburatory	1		
157		Agara Amburatory	1		
Khashuri	158	Avlevi Amburatory	1		
	159	Tsagavli Amburatory	1		
	160	Vaka Amburatory	1		
	161	Kvishkheti Amburatory	1		
Kaspi	162	Kavtiskhevi Amburatory	1		
	163	Metekhi Amburatory	1		
	164	Akhalkalaki Amburatory	1		
	165	Doesi Amburatory	1		
	166	Zemo Khandaki Amburatory	1		
	167	Telani Amburatory	1		
	168	Okami Amburatory	1		
	169	Agaiani Amburatory	1		
	TOTAL				169

Cold Room

Region	Facility	Qty.
Tbilisi	National Center for Disease Control	1

(3) Policy Concerning Procurement Condition

1) Standard of the Medical Equipment

Establishment of new standard of the medical equipment has been considering in Georgia at present. Unification of international standards known as ISO and EU standard with the old national standard during Soviet period has been considered since 1999. But the new standard has not established yet definitely as of 2003. The standardizing of the medical equipment for the Project applying ISO, EU and JIS, will not a problem, like two Japanese grand aid Projects carried out previously.

2) Road Condition

The total length of a paved road is 21,700km in Georgia. Since the main road through Batumi, Poti, Tbilisi, up to the frontier of Azerbaijan (about 420km) plays an important role so-called a lifeline of Georgia, its maintenance condition is relatively well. However, the most of the other roads have not been repaired for a long period. Especially in the mountainous areas, roads are damaged and in rough condition. Nevertheless, there are no specific difficult areas the distribution of the procured equipment; therefore the special considerations should not be necessary.

(4) Policy Concerning Operational, Maintainable, and Managerial Capability

Operation of equipment for perinatal diagnosis to be procured under this Project is considered relatively simple, and many of the facilities have experienced and qualified staff to use the equipment. Moreover, operation and the maintenance guidance will be carried out at the procurement period in principal cities.

Whereas, regarding the Cold Chain equipment, the equipment procured by UNICEF is maintained adequately. Furthermore, the maintenance and management staffs of refrigerator and Cold Room are permanently stationed at the Regional Public Health Departments and NCDC. Regarding the present condition of the existing Cold Chain equipment, the level of maintenance skill of the engineers is high, therefore use of the equipment will not be a problem.

(5) Policy Concerning Equipment Grade Planning

Regarding the grade and technical specifications of the medical equipment, we have to pay attention on suitable quality and quantity in order to play its roles and function in the context of the Project. Priority in planning of equipment will be given to the point of

little maintenance and easy operations.

(6) Policy for the Period of the Execution of the Project

Our objective is to complete this Project within one fiscal year.

Even this Project is going to be implemented simultaneously with the Structure Reform Plan carrying out by the Ministry of Labor Health and Social Affairs of Georgia and the World Bank, the target facilities of this Project will persist. Therefore no specific problems are anticipated in execution. However, due attention must be paid to ensure that there are no delays to the supply, transportation and fit out periods, etc, including instances where the supplier is in a third-party country.

2-2-2 Basic Plan (Equipment Plan)

(1) Total Concept of the Project Planning

It has been confirmed that the target facilities for equipment of perinatal diagnosis will continue to operate upon completion of the current optimization program and that 80 public Women's Consultation Clinics are to be targeted—where significant effects are anticipated. Procurement of 7 types of basic diagnostic equipment, necessary for a basic perinatal diagnosis, has been studied and equipment selected based on its potential effects, the technical standards of doctors and non-overlapping of equipment—with the procurement that no quality gap of diagnosis should arise between the facilities in terms of activity objectives and that a uniform service of free diagnosis for pregnant women could be offered throughout Georgia. There is one subject for concern among the target facilities—that of electric power supply. Three facilities have an unstable power supply and do not have standby power generators. As a precondition to equipment being supplied under the Project, these three facilities will be fitted with emergency generators, the costs of which will be absorbed by the Georgian side.

The Cold Room inside the NCDC—the central storage facility for a 6-month supply of vaccines for use throughout Georgia—has frequent troubles and requires replacement; hence this will be a target for procurement. The Cold Room is the only one that required installation in the Project; since the Cold Room is set to replace existing equipment, it will be fitted after the removal of the existing equipment—removal of which will be undertaken by the Georgian side. The NCDC has emergency backup refrigerators, thus the temporary storage of vaccines during the installation period will not pose a problem. Both positive effects of a lower rate of vaccine wastage and an improvement of vaccination

service due to the Icelined refrigerators are ensured, and refrigerators for 169 facilities—which have access to the minimum 8 hours of power supply per day necessary to run a refrigerator—will be procured.

(1) Equipment Plan

Key factors and basic specifications for equipment deemed suitable for procurement are laid out below. These are based on the results of the field survey.

Equipment for Perinatal Diagnostis

The use of US scanners in the Project is limited to perinatal diagnosis in PHC facilities. For diagnosis of fetal heart rate that requires Doppler-Mode, simple fetal monitors have been requested separately; hence diagnostic imaging equipment with wide-ranging uses and that uses B/M mode will be suitable.

The convex transducer (approx. 3.5-5.0MHz), commonly used for the abdominal region, is a suitable and necessary transducer for use in the target facilities. Use of a trans-vaginal transducer (approx. 5.0-7.0MHz) enables precise diagnosis of even slight abnormalities to the ovaries, however, diagnosis in the upper tiers of the referral system is sound, and since target facilities in the Project are PHC facilities, trans-vaginal transducers will not be procured.

In generally speaking, US scanners rarely break down, and there are no significant maintenance issues. However, it is feasible that transducers may break down through over use and thus procurement from manufacturers reliably able to supply spare parts is desirable.

Existing weighing scales and height measures (in part provided by UNICEF) are all analog and independent pieces of apparatus. Taking into consideration breakdowns and maintenance, procurement of similarly maintenance-free, analog, individual units will be investigated.

Various sizes of dry sterilizers are available depending on their capacity. Sterilizers with a volume of 70 ~ 100 liters (based on assumed use by each facility) will be suitable. Steam sterilizers are used for apparatus that cannot be dry sterilized, and linen etc. Procurement of vertical, small capacity steam sterilizers that incorporate steam-generating apparatus will be suitable. Both sterilizers are mechanically simple and not liable to break downs. If sufficient training is provided on basic maintenance, then regular checks and repairs by manufacturer agents etc. will not be necessary.

Cold Chain Equipment

In order to cope with emergency situations such as compressor break downs etc. in the Cold Room, the specifications will provide for a standby compressor unit, a temperature recorder and malfunction alarm in order to implement adequate temperature regulation. It is vital that there be a member of staff in place with the required operation skills and knowledge. This instance involves the replacement of existing equipment and the NCDC technician in charge of operating the current equipment will be able to handle the new equipment also. Calculations of annual storage capacity of the new equipment show it to be the same as that of the existing equipment.

Icelined refrigerators can be cooled by icepacks (chemical coolant) buried into the heat-insulated walls of the refrigerator and thus are able to run on a minimum power supply of 8 hours/day. It is necessary to select products conforming to the WHO Product Information Sheet (PIS) standards—these products are not manufactured domestically in Japan and will need to be procured from a third country manufacturer. Minimum capacity refrigerators have been selected after consideration of storage capacity at target facilities.

Table 5 Procuring Equipment

Classification	Equipment name	Qty.	Use	Basic specification
Equipment for Perinatal diagnostics	US Scanner, Obst. / Gyn.	80	To be mainly used at the examination for pregnant women or nursing mothers to diagnose fetal condition, abdominal organs and uterine	Mode / B, B/B, M, B/M Ultrasonic frequency / 3.5-7.5MHz Monitor / 9 inch, B/W Beam former / Analogue type Transducer / Convex Transducer connector / 2 Printer / B/W
Equipment for Perinatal diagnostics	US Detector, Fetal	79	To be used at the examination for pregnant women to diagnose hypoxia, neonatal condition	Ultrasonic frequency / 2.5MHz Audible output / 0.5-1W Speaker / 10-12cm FHR measurement range / 50-210bpm Battery / Rechargeable
Equipment for Perinatal diagnostics	Scale, Adult, weight	28	To scale pregnant women	Analog type Weight capacity / -160kg or more Sensitivity / 100g
Equipment for Perinatal diagnostics	Scale, Adult, height	28	To weigh pregnant women	Analog type Measuring range / 900mm-2,000mm Minimum graduation / 1mm
Equipment for Perinatal diagnostics	Sterilizer, dry	78	To be used for sterilization of the small steel instruments	Capacity / 70-100 liters Temperature range / 50°C-250 or more Heating system / Forced air or natural Temperature control system / Microcomputer Alarm / attached

Equipment for Perinatal diagnostics	Sterilizer, steam, small capacity	79	To be used for sterilization of the instruments and linen unsuitable for the dry sterilization	Capacity / 20-30 liters Sterilizing temperature / 105°C-120°C or more Timer / more than 60min.
Equipment for Perinatal diagnostics	Diagnostic equipment set	79	To be used for the basic obstetrics and gynecology examination	Virginal speculum, forceps, sterilizing case etc. Total 18 items
Cold Chain Equipment	Cold Room	1	To set up in NCDC of Tbilisi as a main vaccine storage for all Georgia	Operating temperature / +4 ±2 or more wide range Power source / 380V, 50Hz, 3phase Insulate panel / 17m ³ -21m ³ Control panel / Digital Temperature Display, Temperature & machine Alarms / Temperature, mechanical trouble
Cold Chain Equipment	Icelined Refrigerator	169	To store vaccine at the district vaccination facility level	Operating Temperature / +4 ±2 Technical standard / WHO approved Power source / 220V, 50Hz Vaccine storage capacity / 45 liters

(2) Procurement from Third-party Countries

Of the equipment for perinatal diagnosis to be procured through the Project, there are 6 Japanese manufacturers of US scanners available for export to Georgia, 3 manufacturers of US fetal detector, several manufacturers of weighing scales and height measures, and 5 for sterilizers. Hence, there is considered to be adequate competition among Japanese products for the bidding process.

However, Icelined refrigerators are limited to those companies manufacturing products recognized by the WHO. There are no Japanese manufacturers recognized, and those companies manufacturing the relevant capacity are European companies. It will therefore be necessary to expand the area of procurement to third-party countries.

Table 6 Procuring Countries

Equipment	Made in Japan	Made in Third-party Countries
US Scanner, Obst./Gyn.		
US Detector, Fetal		
Scale, Adult, weight		
Scale, Adult, height		
Sterilizer, dry		
Sterilizer, steam, small capacity		
Diagnostic equipment set		
Cold Room		
Icelined Refrigerator		

2-2-3 Basic Design Drawing

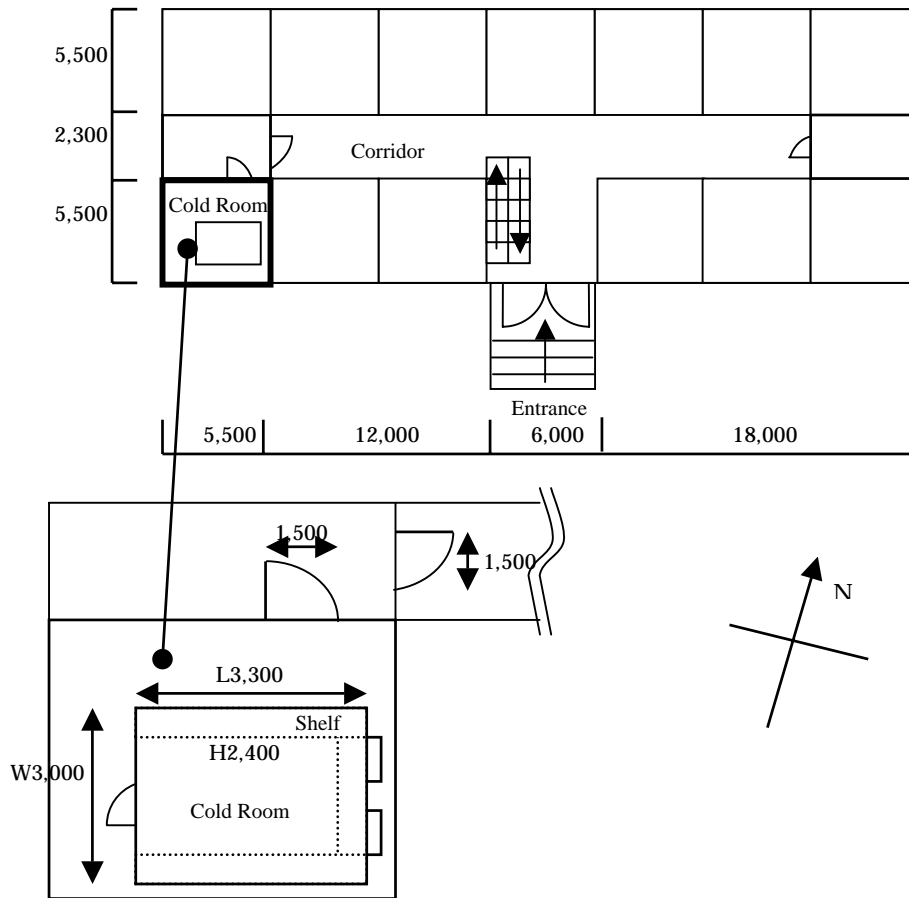


Figure 2 Layout of the Cold Room in NCDC

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The Project will be carried out after the signing of the Exchange of Notes (E/N) by the two governments concerned in accordance with Japan's Grant Aid Scheme.

After the Notes are exchanged, the entire scope of the Project, from design, installation, and inspection to procurement, should be completed smoothly and promptly. Therefore, plans involving work and personnel should be formulated so that each stage of the Project can be executed efficiently and effectively.

To ensure smooth execution of the Project, a time and location should be arranged for representatives from the relevant organizations of the government of Georgia such as the Ministry of Labor Health and Social Affairs, Ministry of Foreign Affairs and from the target facility to meet with staff from a Japanese consulting firm and supplier of the equipment, so as to discuss plans and other details.

After the Project is approved by the governments of both countries involved and the

Exchange of Notes is concluded, a Japanese consulting firm that is currently under contract with the Georgian Government will oversee the plan's execution as well as actual procurement of the equipment. Also, a supplier of the equipment will be determined on the basis of open tender as specified in the official notes, and this supplier will be responsible for procurement and installation of the equipment.

(1) Party Responsible for the Implementation of the Project

The responsible party in the Recipient Country is the Ministry of Labor Health and Social Affairs. The Ministry of Labor Health and Social Affairs will act as the contracting party of the Recipient Country, and shall be responsible for implementing the Project. The Ministry of Labor Health and Social Affairs is required to cooperate in regard to the appointment of the responsible persons concerned for the facility and work necessary for unpacking, delivery, and assembly/trial run of the equipment.

The Ministry of Foreign Affairs and the Ministry of Labor Health and Social Affairs shall be responsible for customs clearance, internal transportation, and so forth.

(2) Consultant

Following the signing of the Exchange of Notes (E/N) between two governments concerned, the Ministry of Labor Health and Social Affairs shall sign a consultation agreement with a Japanese national consulting firm for the detailed design of the equipment to be procured. The work will also be associated with tendering and supervision of Project implementation. The agreement will be verified subject to approval by the Japanese Government. The consultant shall be responsible for implementation of the following work under the agreement.

1) Detailed Design Phase

The final confirmation of the Project, reviewing the equipment specifications, preparation of tender documents, supervision of tender procedure, and evaluation of the contents of the tender

2) Implementation Phase

Supervision of Project implementation including control of the work schedule, inspections of equipment, supervision of transportation, supervision of installation work, and issuance of certificates

(3) Suppliers of the Equipment

Based on the Exchange of Notes (E/N) and in accordance with the “Guidelines for Procurement” under Japan’s Grant Aid Scheme, the Ministry of Labor Health and Social Affairs shall sign a procurement agreement with Japanese national suppliers that shall be determined on the basis of open tenders on the equipment to be provided. The agreement shall be verified subject to the approval of the Japanese Government. The suppliers shall implement the following tasks under the agreement:

- Procurement, transport, and delivery of the equipment up to the warehouse of Poti and Tbilisi
- Installation of the Cold Room, and technical guidance for all equipment concerning operation, maintenance, and repair

2-2-4-2 Implementation Conditions

All possible measures shall be taken to ensure the implementation and a complete procedure for installation, which will conduct the quick and efficient completion of the procurement, transport, delivery, and installation of the equipment. The consultations with officials concerned are essential prior to customs clearance, internal transportation, and removal of old equipment, storage area for the procured equipment, route for carrying them in, etc.

None of the equipment that has been requested is such that is likely to cause the environmental issues. On the contrary, the sterilizers designated for procurement are highly effective as a measure against infection inside the facilities. Use of WHO standard inclined refrigerators implies the use of an alternative to CFCs as coolant.

2-2-4-3 Scope of Works

The work provided for the Project by the Recipient Country and covered by Japan’s Grant Aid is described below.

Due to the difficulties of Japanese nationals entering some regions where request sites are situated, excepting the Cold Room which requires setting up, the Japanese party will bear responsibility for delivery of equipment as far as the warehouse depots of Poti in West Georgia and Tbilisi in East Georgia, after which the responsibility for final delivery domestically will be borne by the Georgian side.

1) Work to be carried out by Georgia

- Processing the procured equipment through customs in an appropriate and timely manner, and for the expenses involved
- Secure the necessary warehouse space for storing the procured equipment in Tbilisi and Poti
- Distribute the procured equipment promptly from the warehouse (Tbilisi and Poti) to the final domestic destination, and to bear the distribution expenses
- Removal of existing equipment (Cold Room) necessary for installation among the procured equipment
- Connection of utilities such as electricity, water supply, drainage, etc. at the designated points for the equipment to be procured
- Preparation of the route for carrying the equipment to the room

2) Work to be covered by Japan's Grant Aid

- Procurement of the new medical equipment
- Transport of the procured equipment to the temporary warehouse (west Georgia, Tbilisi and East Georgia Poti)
- Delivery, installation, and trial run of Cold Room
- Technical transfer on operation and maintenance of the all procured equipment (in Tbilisi and Poti)

2-2-4-4 Consultant Supervision

A Japanese national consulting firm shall provide fair guidance, advice, and coordination throughout the detailed design phase and implementation phase of the Project. Furthermore, this consulting firm shall do whatever is necessary in order to ensure the smooth implementation of the Project in accordance with the Japan's Grant Aid Scheme and the Basic Design Study Report. The consultant will be deemed to have completed its work when the equipment is completely installed, it is confirmed that all conditions of the contract have been met, the official delivery of the equipment is witnessed, and the approval of the Recipient Country is obtained.

(1) Framework of Implementation Supervision

- 1) Management of the completion dates for installation, maintaining close contact among

all parties concerned

- 2) Supervision of installation work of Cold Room
- 3) Suggestions for maintenance after the official delivery of equipment

(2) Personnel Plan

The consultants required for the supervision of detailed design and implementation shall be as follows:

1) Project Manager One (1)

This Project manager shall be responsible for the comprehensive supervision of work.

2) Equipment Planner/ Implementation Supervision One (1)

This person shall be responsible for the re-examination of the Project, the confirmation of the equipment specification, supervision of the installation of the equipment, the estimation of Project costs, the preparation of tender documents and evaluation of the contents of the tender.

2-2-4-5 Procurement Plan

(1) Procurement of Equipment

The equipment planned for procurement in the Project is mostly basic equipment that does not require frequent checks or a high level of technical skill in operation or emergency response upon break down. Still, the selection of manufacturers with agents either in Georgia or in neighboring countries, and able to carry out repairs and supply parts, is a condition that should be met.

(2) Inland Transport and Distribution

Due to the difficulties of Japanese nationals entering some regions where request sites are situated, the distribution of equipment from storage depot to final destination will be undertaken by the Georgian side.

It has been ascertained that the main transport route for equipment is by ship to the port of Poti. Equipment destined for West Georgia will be detained at Poti whilst that destined for East Georgia will be transported inland from Poti to Tbilisi by the Japanese party. In both cities, the equipment will be divided up, cleared through customs and then stored in the depots of the local transporters. Thereafter, it will be repacked onto trucks

and transported to each site by the Georgian side. The Cold Room is destined for Tbilisi—installation and adjustments will be required, hence transport and installation will be carried out by Japan. Further, confirmation of the installation of equipment at each site will be carried out immediately after delivery by the coordinated work of consultants, the Ministry of Labor Health and Social Affairs and the District Public Health Centers.

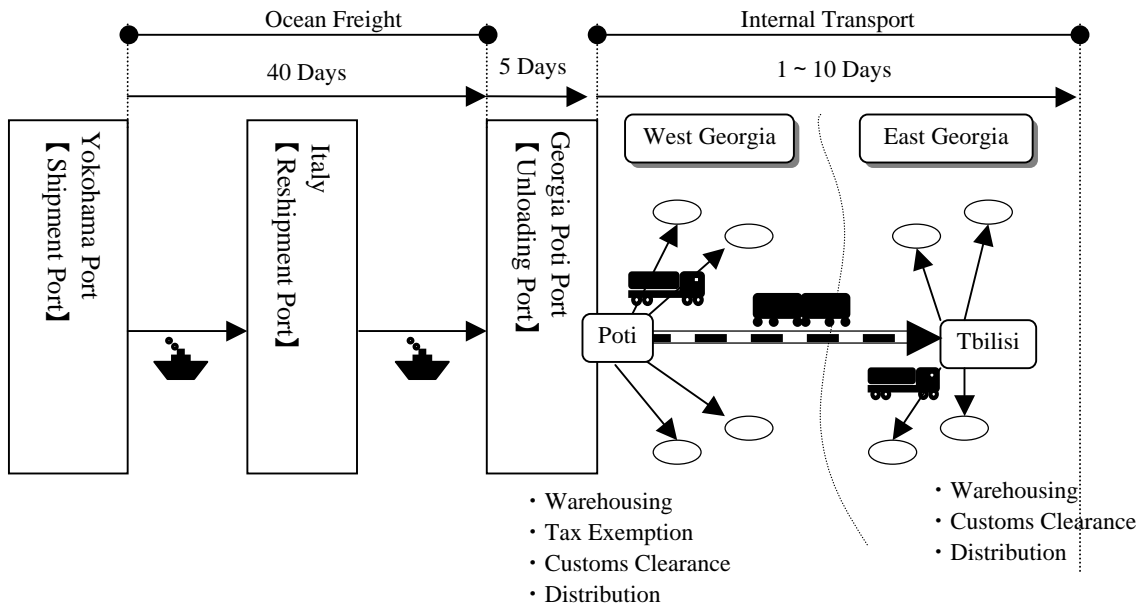


Figure 3 Transport Process

(3) Program for Dispatching Technicians

A technician will be dispatched from either Japan or the country of origin in order to install the Cold Room. Other necessary staff for the installation will generally be sourced from local. In order to ensure sufficient transfer of skills to the doctors and other responsible persons at the facilities, a training process will be created for a suitable period of time, whereby representatives and doctors responsible for the equipment at each facility will come together for courses offering guidance on operation and daily maintenance of the new equipment. It is therefore necessary to confer with the Ministry of Labor Health and Social Affairs before finalizing the skills transfer period etc.

Table 7 Engineer Dispatch Plan

Engineer	Number	Days	Period(M/M)
Field Manager	1	15	0.5
X-ray Equipment Relation	1	7	0.23

2-2-4-6 Implementation Schedule

When the time arrives for the Project to be carried out, the consulting firm will investigate the specifications of the equipment. Then, the supplier of the equipment, who will be decided through open tender, will procure the equipment.

The Project implementation schedule is given in **Table 8**.

Table 8 Project Implementation Schedule

Accumulate month	1	2	3	4	5	6	7	8	9	10	11	12
Detailed Design												
	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> Works in Japan </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="width: 20px; height: 10px; border: 1px solid black; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); margin-right: 5px;"></div> Works in Recipient Country </div>											
	(Total 6.50 months)											

2-3 Obligations of the Recipient Country

The Recipient Country shall perform the following in accordance with the Exchange of Notes (E/N), for the smooth implementation of the Project.

- To distribute the procured equipment (excluding the Cold Room) promptly from the warehouse of Tbilisi and Poti to the final domestic destination and to bear the distribution expenses
- To exempt customs duties, internal taxes, and other fiscal levies that may be imposed in the Recipient Country with respect to the supply of the equipment and the provision of services under the verified contracts
- To ensure both prompt customs clearance in the Recipient Country and a procedure for internal transportation therein of the medical equipment brought from Japan and third-party countries
- To provide Japanese nationals and third-party country engineers working on the Project with every convenience to facilitate their entry into the Recipient Country and their stay therein

- To ensure the issuance of permits required by the laws of the Recipient Country for the implementation of the Project, and other permits, including tax exemptions
- To ensure that the Recipient Country bears the expenses for removing the existing Cold Room of NCDC in Tbilisi
- To ensure that the equipment procured under the Grant Aid Scheme should be maintained and used properly and effectively for the Project
- To confirm that the Recipient Country bears all expenses except for those agreed to be covered by the Japanese government

2-4 Project Operation Plan

2-4-1 Operation and Maintenance Cost

The budget for operation and maintenance regarding this Project to be borne by the Free Program for Perinatal Diagnosis and Immunization Program is carried out by the State Program of Mandatory Medical Insurance of the Social Insurance State United Fund of Georgia (SISUFG), based on mandatory payroll tax together with central health budget transfers.

(1) Operation and Maintenance Cost for Perinatal Diagnosis Equipment

The costs should be considered as a operation and maintenance of the procured equipment for perinatal diagnosis concerning the Project are:)The expenses for covering an increase of pregnant women who receive the free program for quarter perinatal diagnosis financed by SISUFG;) Operation and maintenance cost for equipment.

1) The Additional Expenses

) The expenses by SISUFG for covering an increase of pregnant women who receive the free program for quarter perinatal diagnosis

In 2002, the cost of the diagnosis: per pregnant woman, GEL 25 is paid from SISUFG to each Woman's Consultation Clinics. However, the number of pregnant women who have had the free program for quarter perinatal diagnosis is limited only by 60% (28,000 pregnant women). The tendency of population about pregnant women shows a consistent decline; therefore, extreme increase in future will not be expected. Moreover, 100% of pregnant women will be able to receive the free program for quarter perinatal diagnosis by grace of procuring perinatal equipment, with additional expenses of SISUFG about GEL 435,100.

Table 9 Cost of Free Program
(In case of all pregnant women have quarterly perinatal diagnosis)

Unit: GEL

Rate of pregnant women who receive Free Program for Quarterly Perinatal Diagnosis	60% Present (2002)	90% National Target (+30%)	100%
No. of Pregnant Women	26,743 人	39,732 人	44,147 人
Cost of Diagnosis	668,575	993,300	1,103,675
Increased Amount	-	324,725	435,100

Source: SISUFG

) Operation and maintenance cost for equipment.

Since the equipment to be procured of this Project is basic, there is a low need to consider its maintenance cost and consumable, nevertheless, the maintenance cost shall be estimated at GEL 10,800 per year, on the assumption of an unexpected breakdown of the US Scanner's Transducer. Also, regarding the procurement of consumable, gel and printing paper shall be required. The cost will be at 12,000 per year. Therefore, total operation and maintenance cost shall be at GEL 22,800.

2) Relevance

Referred to above, the total increase in operation and maintenance costs (GEL 457,900) incurred by the provision of perinatal diagnostic equipment under this Project will amount by 5.6% of the annual budget (GEL 8,175) for the Free Program for Perinatal Diagnosis, carried out by the State Program of Mandatory Medical Insurance of SISUFG. Still, mother and child health has been established as a priority in the National Health Policy and it might be possible in the future that the budget allowance to be directed to this program from the coffers of the State Program of Mandatory Medical Insurance will be prioritized. Hence, the allocation of a budget for operation and maintenance of perinatal diagnostic equipment under this Project is not deemed to be problematic.

Table 10 Annual Budget Transition of State Insurance Program

Unit: GEL 1,000

Year	2000	2001	2002
Total Program Budget	39,200	45,070	50,770
Perinatal Program Budget	5,900	8,565	8,175

Source: SISUFG

(2) Operation and Maintenance Cost for Cold Chain Equipment

Turning to Cold Chain equipment, replacement of the Cold Room (frequently out of order) will improve cooling capability, decrease in electric consumption and maintenance costs. Furthermore, operation and maintenance costs for Icelined refrigerators are low and no needs of any consumable. The provision of this equipment will make it possible to reduce the purchase costs of vaccines since the rate of vaccine wastage will be cut by the reusing open vials introduction, and the overall budget for the Immunization Program may be reduced.

2-4-2 Operation and Maintenance System

Operation of US scanners designated for procurement as equipment for perinatal diagnosis is relatively simple—staff will be able to operate the equipment with just a small amount of training. However, unlike examining a child with the naked eye or examining an X-ray image, the image produced by a US scanner must be analyzed in a particular way. This requires an experienced doctor in ultrasonographic diagnosis; with the exception of 2 facilities in Tbilisi and the Mtsukheta region, each site employs experienced doctors or certified practitioners and no hindrance to basic diagnoses using the convex transducer are anticipated. For the 2 facilities mentioned above, it has been confirmed from the individual facilities, the District Public Health Centers, and the Ministry of Labor Health and Social Affairs that if US scanners were to be procured, either experienced doctors would be newly employed or training in image-reading would take place in Tbilisi preceding procurement.

The Regional Public Health Department will head up the management of the Cold Chain equipment. Refrigerators at each immunization facility are managed by tenured doctors and nurses. Internal fridge temperatures will be checked twice per day to establish and record vaccine temperature conditions and refrigerator working conditions. This data will be reported on a monthly basis to the Regional Public Health Department; should equipment break down, the Regional Public Health Department will request the NCDC to carry out repairs. There is a technician employed permanently at the NCDC in order to carry out management and maintenance of refrigerators and the Cold Room—this technician has proven his skills by maintaining the current Cold Chain equipment to a high standard.

Therefore, neither staff numbers nor skill levels are considered an issue.

2-5 Estimated Cost of the Project

Total costs of the Project are estimated at approximately JPY 250 million (Japan: JPY 247 million, Georgia: US \$28,095). The detail costs of each country are shown below.

(1) Japanese Side

Total costs of Japanese side are estimated at approximately JPY 247 million. Total cost of the plan is composed of procurement cost of equipment, as well as equipment transportation to tentative warehouses (west Georgia: Poti, East Georgia: Tbilisi), delivery and installation/trial run of the Cold Room, guidance for operation/maintenance. Still, this cost estimate is provisional and would be further examined by the Government of Japan for the approval of the Grant Aid Guidance. Also, this Project shall be implemented in accordance with Japan's Grant Aid Scheme.

Table 11 Project Cost Estimation

		Total Estimation Cost JPY 247 million	
Contents		Estimation cost (million JPY)	
Equipment	Equipment for Perinatal	211	223
	Equipment for Cold Chain	12	
Implementation plan · Procurement management · Technical training		24	

Exchange Rate: JPY/US \$ 1 US \$=JPY 121.06
JPY/EURO 1 EURO=JPY 128.11

(2) Georgian Side

Removal of the existing Cold Room of NCDC in Tbilisi and distribution of the procured equipment to the final domestic destination shall be borne by the Georgian side. The necessary cost can be estimated as follows.

Table 12 The Expenses Borne by the Recipient Country

Contents	Expenses
Cost of removal (Cold Room)	US \$ 95
Cost of internal distribution	US \$ 28,000
Total	US \$ 28,095

Exchange Rate: GEL/US \$ 1 US \$=GEL 2.17

Chapter 3

Project Evaluation and Recommendations

Chapter 3 Project Evaluation and Recommendation

3-1 Project Effect

(1) The Effects for the Perinatal Care

The medical equipment for top referral hospitals including a mother and child health care has already been installed by the previous Japanese Grand Aids Projects. Therefore, the effects for mother and child health care sector of Georgia will be expected not only to the Project level but also to the program level, because of the referral system of mother and child health care will be completed vertically by implementing of the Project.

1) Direct Effects

- Women's Consultation Clinics nationwide will be equipped with a uniform and high quality perinatal diagnostic and treatment system.

2) Indirect Effects

- Due to improved diagnostic ability, perinatal complications may be discovered at an earlier stage. Patients will therefore have the opportunity to receive timely treatment, and through this improved healthcare services are anticipated.

(2) The Effects for the Immunization

By procuring Cold Chain equipment, the effects of the Project will be expected which were identified in accordance with the National Plan for Action for Immunization 2000-2006 produced by the Georgian government and UNICEF (main aid organization for the Immunization Program).

1) Direct Effects

- Appropriate storage of vaccines will be possible at target facilities; there will be improvements to both the immunization system and the efficiency of vaccines.

2) Indirect Effects

- Improved immunization system is likely to facilitate a decrease the rate of infectious diseases.

3-2 Recommendations

The high implementing capability of the Ministry of Labor Health and Social Affairs of Georgia for this Project can be expected, therefore, the following measures are proposed to ensure the quick realization of this Project, the smooth application of the newly supplied equipment by the target facilities and the achievement of initial objectives:

(1) Maintained stability of healthcare finances

The Georgian government is currently undertaking restructuring of the Health Insurance system in order to stabilize healthcare finances. The mother and child health program—which includes this Project—receives its budget from the SISUFG State Health Insurance Program, contributed from state budget allocation and public insurance contributions. Since the aim is for the entire population to have health insurance cover by 2010, it is estimated that several years from now the fiscal situation of the healthcare system will be much improved. However looking in the long-term, the introduction of the health insurance system accompanied by a weak economic base, unstable politics, and a fragile institutional system makes it impossible to guarantee a stable system. Hence it will be important not just to aim for increased annual revenues through reorganization of the insurance contributions system, but also to build a system where a higher portion of the existing healthcare budget is allocated to the highly efficient PHC level, so the limited resources are utilized to maximum effect.

(2) Heightened activities of regional education mobile team

In order to improve mother and child health in primary healthcare, the strengthening of regional education activities is another important area alongside equipping primary medical facilities. In order to carry out such activities, the placement of trained medical staff is indispensable. To this end, support in the form of equipment and financing for training and education of doctors and nursing staff has been given by international organizations and other donors. However, in the depopulated areas, mainly in the mountainous regions, childbirths in unsanitary conditions—including home births—are the norm and are one cause of high-risk delivery. Moreover, due to a lack of education on the side effects of immunization, there are many cases of parents refusing to have their children immunized. In order to see further improved services in the field of mother and child health, education activities of existing mobile teams need to be brought up to a higher

level.

(3) Cooperation with other donors

The World Bank, international organizations etc. continue to support the Georgian government in the field of mother and child health since it was established as a priority in the Strategic Health Plan, and their support and this Project complement each other. The activities being carried out by these other donors (renovation Project of target sites under this Project; the set up of a healthcare information system including building a network connecting all healthcare facilities, and improvement of reliable healthcare statistics; close exchange of information and ideas in order to cooperate on a ‘soft’ level of nurturing and reeducating healthcare staff) will lead to further improved results in this Project.