

STUDY REPORT

ON

THE PROJECT FOR
IMPROVEMENT OF EXPANDED PROGRAMME
ON IMMUNIZATION

IN

THE KINGDOM OF NEPAL

July 2003

Japan International Cooperation Agency

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PREFACE

In response to a request from the Kingdom of Nepal, the Government of Japan decided to conduct a study on the Project for Improvement of Expanded Programme on Immunization, and entrusted the Japan International Cooperation Agency (JICA).

JICA sent to Nepal a study team in March, 2003.

The team held discussions with the officials concerned of the King of Nepal, and conducted a field survey at the study area. After the team returned to Japan, further studies were made.

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 King of Nepal for their close cooperation extended to the team.

July 2003

Takao Kawakami
President
Japan International Cooperation Agency

Location Map/ Perspective



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Abbreviation

AHW	Auxiliary Health Worker
AIDS	Acquired Immuno-deficiency Syndrome
BCG	Bacillus Calmette-Guerin
CCA	Cold Chain Assistant
CFC	chlorofluorocarbon
CMS	Central Medical Store
DHQ	District Head Quarter
DPT	Diphtheria, pertussis, tetanus vaccine
EPI	Expanded Programme on Immunization
GAVI	The Global Alliance for Vaccines and Immunization
GII	Global Issues Initiative on Population and AIDS
HB	Hepatitis B
HCFC	hydro chlorofluorocarbon
HP	Health Post
Hib	Haemophilus influenzae type b vaccine
HIV	Human Immunodeficiency Virus
ICCs	National Immunization Inter-Agency Coordinating Committees
LLDC	Least among Less Developed Countries
LMD	Logistic Management Division
MCHW	Maternal and Child Health Worker
MNT	Maternal Neonatal Tetanus
MTSP	Medium Term Strategic Plan
MYPOA	Multi Year Plan of Action
MoH	Ministry of Health
NFHP	National Family Health Program
NGO	Non-Governmental Organization
NID	National Immunization Day
OPV	Oral Poliomyelitis Vaccine
PHC	Primary Health Center
PHO	Public Health Office
PRSP	Poverty Reduction Strategy Paper
RMS	Regional Medical Store
SHP	Sub-Health Post
SLTHP	Second Long Term Health Plan
STD	Sexually Transmitted Disease
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
USAID	the United State Agency for International Development
VDC	Village Development Committee
VHW	Volunteer Health Worker
WB	World Bank
WHO	World Health Organization

Chapter 1 Background of the Project

During the 1960s, the Kingdom of Nepal was recording a high in the under-5 mortality rate among developing countries. The rate of 315 per 1,000 births (1960) was higher than that of 222 on the average of developing countries and 283 on the average of the least among less developed countries in the same year (all data from UNICEF). Nepal commenced an immunization program covering 3 districts in 1979, and immunization came to be conducted in all 75 districts for BCG, DPT, polio, measles, and tetanus vaccines by 1988.

Expansion of immunization is positioned as one of the most prioritized health care programs in the national development plan of Nepal, the 10th 5-year program (2002-06)/Poverty Reduction Strategy Paper (PRSP).

Because vaccines need temperature management, they are transported via a cold chain system from the Central Medical Store (CMS) in Kathmandu, the capital city, to Regional Medical Stores (RMSs) in 6 locations across the country, and thereafter distributed to lower level facilities for the execution of immunization. Each facility in the cold chain system has refrigeration equipment, and vaccine carriers are used at the lowest level facilities. However, many of these items have become decrepit, since they were procured in the 1980s. In addition, the quantity of needed vaccines has increased because of the recent introduction of a new vaccine (Hepatitis B vaccine) and the increase in the population of the country. This resulted in the shortage of refrigerators and cold rooms.

In this situation, the Government of Nepal made a request to Japan for grant aid cooperation.

Chapter 2 Contents of the Project

2 - 1 Basic Concept of the Project

Based on the above-mentioned situation, this project intends to promote enrichment and improvement of the cold chain system needed for EPI activities through the renewal of decrepit cold chain equipment and through the provision of new equipment in areas suffering from the shortage of equipment.

In the introduction and improvement of cold chain equipment, this project intends to support higher-level programs promoted by Nepal, such as the 2nd Long Term Health Plan (SLTHP) and the Multi Year Plan of Action (MYPOA).

2 - 2 Basic Design of the Requested Japanese Assistance

2 - 2 - 1 Design Policy

This grant aid cooperation intends to supply fund for providing walk-in cold rooms, icelined refrigerators, icepack freezers, generators, automatic voltage regulators (AVRs), etc. to cold chain facilities for the purpose of assisting in the qualitative upgrading and improvement of decrepit cold chain equipment.

The selection of equipment in this project was decided according to the following policies.

(1) Policy concerning electric power conditions

As mentioned above, the supply of electric power in Nepal is still tight and suffers from frequent interruptions and voltage fluctuations. It is therefore necessary that walk-in cold rooms are equipped with stand-by generators to be used in case of power failure. Refrigerators should be capable of withstanding power failure (icelined, electricity/kerosene, etc.) and be equipped with AVRs.

(2) Policy concerning natural conditions

Nepal enters the rainy season in June, and roads are likely to become impassable due to floods and landslides. Schedule should be planned so that the project will be completed preferably before the beginning of the rainy season. Air transportation will be used for the delivery to some sites located in mountainous areas.

(3) Policy concerning social and economic conditions

Since February 1996, radical Maoist groups of the Communist Party of Nepal demanding the abolishment of constitutional monarchy and establishment of a republic have been launching attacks, under the name of a popular front, on police stations and governmental facilities. The Ministry of Foreign Affairs (MOFA) of Japan, in response, issued Travel Advice and Warning recommendations to Japanese residents and travelers in various parts of Nepal. These included "Recommendations to defer all travel," "Recommendations to evaluate carefully the implications for their security and safety before

deciding travel,” and “Travel cautions.”¹ A cease-fire agreement between the Government of Nepal and Maoists was reached on January 29th, 2003, and thereafter there have been two peace talks as of July 23. Although some of the “Recommendations to defer all travel” were removed or lessened in mid-June, there are a number of MOFA recommendations still in place. In this situation, it is difficult for Japanese personnel to conduct transportation to such areas. The transportation of equipment to the areas of Maoist activities (mainly in the Mid-western Region) should be conducted by the Nepalese side.

(4) Policy concerning refrigerators containing CFCs

The refrigerators and freezers to be replaced in this project include many old refrigerator-freezers containing CFCs. Paying attention to environmental issues, these should be replaced with CFC-free units recommended by WHO. The CFCs in the removed old refrigerators and freezers will be treated responsibly by the Nepalese side.

¹ Travel Advice and Warning from the Ministry of Foreign Affairs of Japan: (1) "Recommendation to evaluate carefully the implications for their security and safety before deciding travel" (former warning level 2): Mid-western Region (Rolpa, Rukum, Jajarkot, Salyan, and Kalikot districts); (2) "Travel Caution" (former warning level 1): Far-western Region (Bajura and Achham districts), Mid-western Region (Jumla, Dailekh, Bardiya, Banke, Surkhet, Dolpa, Dang, and Pyuthan districts), Western Region (Myagdy, Baglung, Gulmi, Arghakhanch, Parbat, Palpa, Tanahun, Lamjung, Syangia, and Gorkha districts); Central Region (Dhading, Nuwakot, Makwanpur, Sindhupalchok, Kavrepalanchok, Dolkha, Ramechhap, and Sindhuli districts), Eastern Region (Okhaldunga, Khotang, Udayapur, Sankhuwasawa, Bhojpur, Dhankuta, Taplejung, Terhathum, Panchthar, and Ilam districts and Sol area of Solkhumbu district). For the other 31 districts, "Travel cautions" have been removed. As of July 23, 2003.

2 - 2 - 2 Basic Plan

(1) General Plan

In this Project, two types of equipment, i.e., walk-in cold rooms and solar-powered refrigerators, are planned to be installed. These items will be installed at locations and under conditions described below.

1) Walk-in cold room

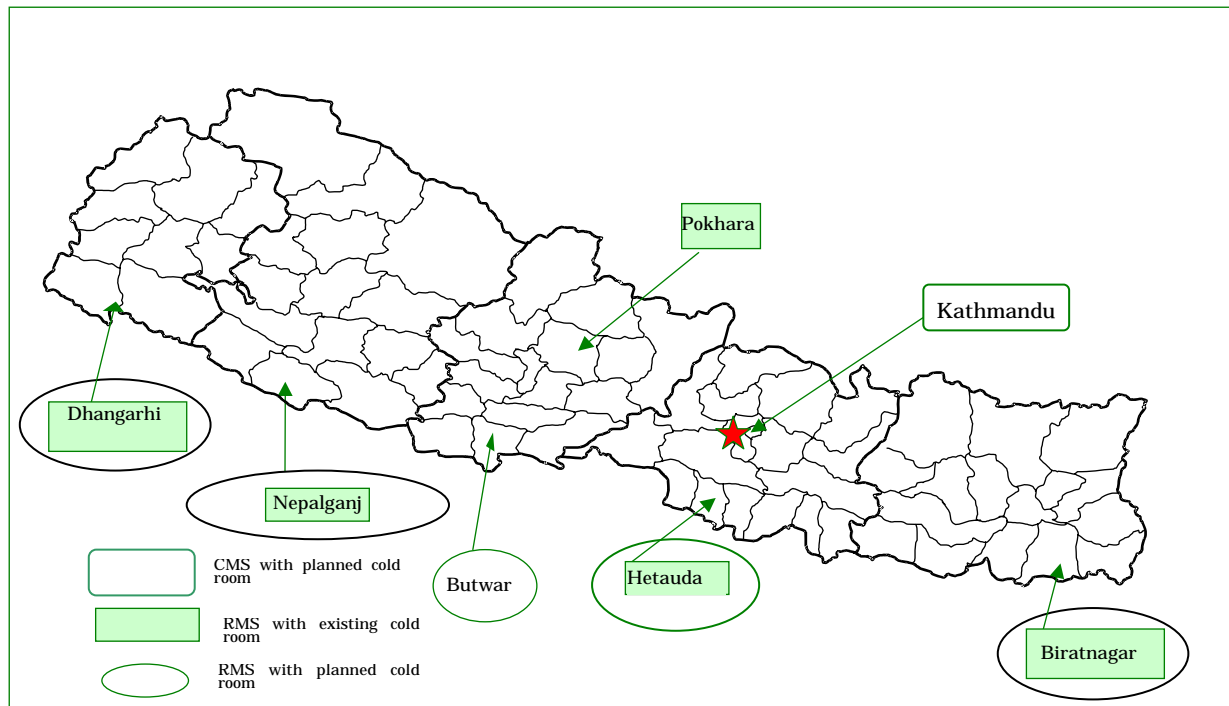


Figure 2-1 CMS and RMSs that have been or are planned to have walk-in cold rooms

Walk-in cold rooms will be installed at the Central Medical Store (CMS) of Nepal and Regional Medical Stores (RMSs). The CMS already has 2 sets of walk-in cold rooms (about 23 m³ and 25 m³), which are operating at present. However, these cold rooms have become decrepit after their installation in 1988 by UNICEF, and troubles of refrigeration units have been reported. Therefore, this project will install new cold rooms with sufficient capacity to cover the needs in future, when the existing ones will become unusable.

On the other hand, there are RMSs at 6 locations in Nepal: Biratnagar, Hetauda², Butwar, Nepalganj, Dhangarhi, and Pokhara. Of these, 5 except for Butwar have walk-in cold rooms (8-18 m³). While the cold room at Pokhara is adequately usable at present, those at other locations have become decrepit from long years of use. Some do not have sufficient capacity for the storage of vaccines. In view of this situation, Biratnagar, Hetauda, Nepalganj, and Dhangarhi RMSs will be provided with 1 set each of cold room to replace the existing one, and 1 set will be provided for Butwar RMS, which is experiencing

² While there are Kathmandu CMS and Hetauda RMS in the Central Region and Pokhara RMS and Butwar RMS in the Western Region, these facilities each serve for different districts. In the Central Region, Hetauda RMS stores the vaccines for 9 southern districts and Kathmandu CMS for 10 northern districts. In the Western Region, Pokhara RMS stores the vaccines for 8 northern districts and Butwar RMS for 8 southern districts.

difficulty in the storage of vaccines due to the lack of a cold room (See Fig. 2-1).

2) Solar-powered refrigerator

Many areas in the mountainous parts of Nepal are not provided with electric power, and kerosene is expensive and not easily available in these areas. Difficulty in repair is also expected in remote, less accessible areas. Refrigerators using electricity, kerosene, or gas are not suitable for the use in such situations, and solar-powered refrigerators are more effective because of a low maintenance cost and a smaller liability to mechanical failures.

However, because Nepal does not have a sufficient procurement plan for solar-powered refrigerators, this project will supply only 5 units for locations in hilly and mountainous areas. This is expected to help the Government of Nepal in the future development of guidelines for installation of solar-powered refrigerators.

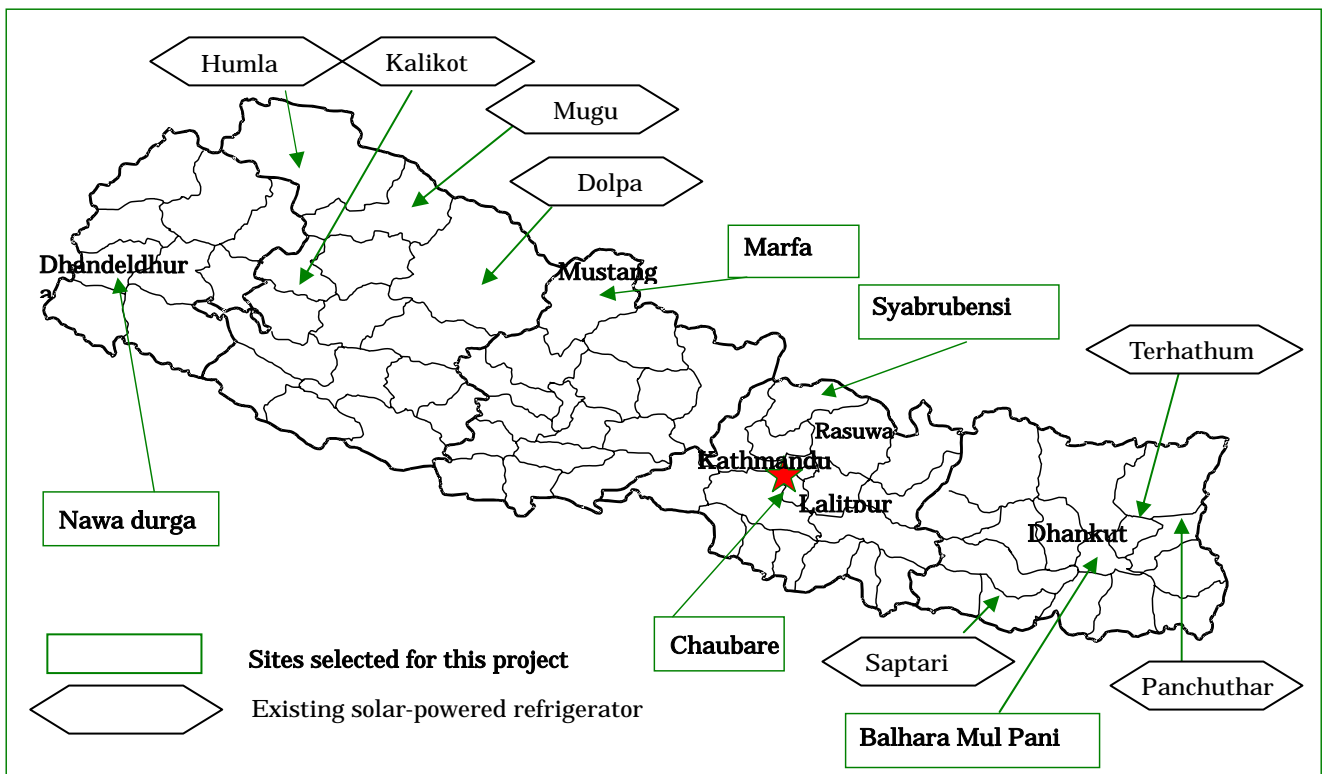


Figure 2-2 Planned Distribution of Solar-powered Refrigerators

The five sites selected for the installation of solar-powered refrigerators are Balhara Mul Pani (Dhankuta District, Eastern Region), Syabrubensi (Rasuwa District, Central Region), Chaubare (Lalitpur District, Central Region), Marfa (Mustang District, Western Region), and Nawa durga (Dadeldhura District, Far-western Region). One set of the refrigerator will be installed at each of these sites (See Fig. 2-2). These five sites are all remote villages and have problems in electric power supply. According to the data for sunshine, number of cloudy days, altitude, and other natural conditions

submitted by the Nepalese side, there is little difference in these natural conditions among the 5 sites. The experience in the installation and operation of solar-powered systems in areas like these are expected to provide us with valuable data and know-how, which will facilitate the future formulation of procurement plans in Nepal. The environmental conditions at these five sites are as shown in Appendix 5.

(2) Equipment Plan

Walk-in cold room (30 m³ class)

One set will be installed at the CMS in Kathmandu so that the total storage capacity of all cold rooms at the CMS will be sufficient for storing the vaccines needed in whole country. For determining the needed capacity of the walk-in cold room, we calculated the storage volume of vaccines needed for one year based on the population of the country, the types of vaccines and the number of vaccinations, the wastage rates, and reserve rates. According to the regulation in Nepal, the CMS must be able to store vaccines for a half year. The CMS hence must have a storage volume of about 20m³, which is one-half of the calculated storage volume of vaccines for a year. The total space of all cold rooms should be 60 to 80 m³, which is 3 to 4 times as large as the storage volume of vaccines. Because there are already two sets of existing cold rooms in Nepal (47 m³ in total), this Project will provide a new cold room to cover the remaining 30 m³. The procurement of the cold room will also include shelves, lighting equipment, and temperature recorders.

Walk-in cold room (15 m³ class)

The capacity of the walk-in cold rooms at Regional Medical Stores (RMSs) was calculated in the same manner as above (except that the calculation was made for a period of 3 months, because RMSs are required to store vaccines for 3 months). Considering the need for working space, the capacity of these cold rooms was determined to be 15 m³ each.

Generator (stand by)

While the areas containing the CMS and RMSs are receiving more stable supply of electric power than other areas, interruption of power supply still occurs frequently. Generators will be installed to provide a stand by system that automatically supplies electricity to each walk-in cold room in case of a power failure. Six sets of generators will be procured, a set for each of the two types of walk-in cold rooms described above.

Icepack freezer

Of the icepack freezers placed at region- and district-level medical facilities across the country, this project will replace the 76 units that have been used for over a decade. The project will procure icepack freezers recommended by WHO and having sufficient product quality.

Icelined refrigerator-freezer

The highest ambient temperature exceeds 40 °C in some areas in Nepal, such as Nepalganj, and power failures extending to hours may occur frequently. For this reason, we select icelined freezers that can maintain low temperature for a long time. This project will procure icelined refrigerator-freezers recommended by WHO.

Of the icelined refrigerator-freezers placed at region- and district-level medical facilities across the country, this project will replace the 35 units that have been used for over a decade.

Icelined refrigerator

The highest ambient temperature exceeds 40 °C in Terai Plain and some other parts of Nepal, and power failures extending to hours may occur frequently. Because of this reason, we select icelined refrigerators that can maintain low temperature for a long time. This project will replace the 87 units that have been used for over a decade at region- and district-level medical facilities. The project will procure icelined refrigerators recommended by WHO.

Electric/kerosene freezer

The project will replace only the 132 units that have been used for over a decade at region- and district-level medical facilities. Because of the unstable supply of electric power in relevant areas, we select WHO-recommended electric/kerosene freezers that can be operated on both kerosene and electricity.

Electric/kerosene refrigerator

The project will procure 361 units of electric/kerosene refrigerators in total, including the 154 units that have been used for over a decade at region- and district-level medical facilities, 1 unit each for the 8 primary health centers (PHCs) that did not receive the supply of refrigerators from UNICEF, and 199 units for the health posts (HPs) in Terai area.

Because no refrigerators have hitherto been installed at HPs, vaccines arriving at HPs have been transported immediately using cold boxes and vaccine carriers. The provision of refrigerators in this project is expected to improve this situation. Although the condition of electric power supply at the sites receiving these refrigerators are relatively good as compared with mountainous areas, power failures still occur not infrequently. Because of this reason, we select WHO-recommended absorption-type refrigerators that can be operated on both kerosene and electricity.

Solar-powered refrigerator

The specifications for solar-powered refrigerators should be according to the recommendation of WHO. These should be capable of freezing icepacks, in addition to storing vaccines. The refrigerators will be supplied with batteries that can be used for 7 to 10 years. To allow for possible damage during transportation, each unit will be supplemented with 1 spare battery. As mentioned above, five sets will

be procured in total, one set for each of the five sites.

Automatic voltage regulator (for refrigerator-freezer)

In addition to power failures, the problem of voltage fluctuation is severe in Nepal. Refrigeration equipment can easily be broken without appropriate power source protection. To prevent the damage to various refrigerators, this project procures 691 sets of AVRs, one for each of the refrigerators and freezers planned for procurement in to above.

Automatic voltage regulator (for walk-in cold room)

As the protection against the severe voltage fluctuation in Nepal, a set of AVR will be procured for each of the walk-in cold rooms described in and above. In addition, one set will be procured for one of the two sets of existing walk-in cold rooms at the CMS in Kathmandu, because it lacks an AVR and is likely to have problems in operation.

Refrigerator maintenance tool set

Refrigerator maintenance tool sets will be procured for the refrigerators that were installed in and after the 1980s, because on-site workshops are experiencing the shortage of these tools. The specifications for various tools will basically be according to the recommendation of WHO. This project will procure 8 sets in total, one for each of the 6 RMSs nationwide and 2 for the CMS.

Large cold box

Large cold boxes are used for the transportation of vaccines from the CMS to RMSs or District Head Quarters (DHQ), and sometimes for the recovery of vaccines from RMSs to the CMS.

This project will procure WHO-recommended products that are large (15 L or more) and can maintain low temperature for a long time (120 hours or more). These boxes must have adequate insulation capacity, because vaccines are transported in trucks and pickup trucks over long distances from 200 to 700 km. 50 boxes will be procured for the CMS.

Small cold box

Small cold boxes are procured for the appropriate transportation of vaccines from RMSs to DHQs and from DHQs to PHCs. Because these boxes are used for the areas having smaller population than the cold boxes in above, we select WHO-recommended small (4-15L) type products. In some mountainous parts of Nepal, it is necessary to carry the box on foot, and such transportation requires long time. Because of this reason, the boxes must be able to maintain low temperature for a long time (90 hours or more). In total, 150 boxes will be procured, 2 for each of the 75 DHQs across the country.

Large vaccine carrier

Vaccine carriers are procured for the transportation of vaccines from PHCs to lowest-level facilities.

Because we have confirmed that the existing vaccine carriers are decrepit and many are damaged, this project will replace them with new ones. While some of the vaccine carriers we observed during the field survey were those procured for National Immunization Day (NID), these are inferior to ordinary models because they are smaller and less hermetic. Because these are not suitable to the vaccine transportation over long distances and to the sites in mountainous areas, we procure WHO-recommended large (0.1-4L) vaccine carriers that can maintain low temperature for 24 hours or more.

Of the 3,180 Sub-Health Posts (SHPs) in the country, this project will provide 2,000 SHPs excluding the sites covered by the UNICEF projects with one vaccine carrier each, 2,000 vaccine carriers in total. (See Table 2-3 for the sites receiving vaccine carriers.)

Based on the above description, the contents and quantities of equipment to be procured under the project are shown in Table 2-1, the plan for the distribution of refrigerators in Table 2-2, and the areas receiving vaccine carriers in Table 2-3.

Table 2-1 Contents and Quantities of Equipment

	Name of equipment	Use	Planned quantity
1	Walk-in cold room (30m ³)	For cold storage of vaccines (for storing vaccines used in the whole country)	1 set
2	Walk-in cold room (15m ³)	For cold storage of vaccines (for storing vaccines used in a region)	5 sets
3	Generator	For the stand by system of walk-in cold room	6 units
4	Icepack freezer	For freezing of icepacks	76 units
5	Icelined refrigerator-freezer	For cold (frozen) storage of vaccines	35 units
6	Icelined refrigerator	For cold (refrigerated) storage of vaccines	87 units
7	Electric/kerosene freezer	For freezing of icepacks	132 units
8	Electric/kerosene refrigerator	For cold storage of vaccines	361 units
9	Solar-powered refrigerator	Refrigerator-freezers for non-electrified areas	5 sets
10	Automatic voltage regulator (for refrigerator-freezer)	For protection against voltage fluctuation	691 units
11	Automatic voltage regulator (for cold room)	For protection against voltage fluctuation	7 units
12	Refrigerator maintenance tool set	For maintenance of refrigerator	8 sets
13	Large cold box	For vaccine transportation (from center to region)	50 pieces
14	Small cold box	For vaccine transportation (for district)	150 pieces
15	Large vaccine carrier	For vaccine transportation (for SHP)	2,000 pieces

Table 2-2 Planned Distribution of Refrigerators

Region	District	City	Facility	Ice pack freezer	Icelined refrigerator-freezer	Icelined refrigerator	Electric/kerosene freezer	Electric/kerosene refrigerator	
	Total			76	35	87	132	361	
Far-western	Achham		DHQ				3	4	
			SHP						
	Bajhang		DHQ				3	2	
			SHP						
	Bajura		DHQ						
			SHP						
	Doti		DHQ		2		3	4	
			SHP						
	Kailali	Dhangadhi		RMS	1	5	2		
				DHQ	1		1	4	4
			HP					8	
	Baitadi		SHP						
			DHQ		1		2		2
	Dadeldhura		DHQ				1	1	2
			SHP						
	Darchula		DHQ					3	1
		SHP							
Kanchanpur		DHQ		1		1	1	2	
		HP						8	
		SHP							
Mid-western	Banke	Nepalganj	RMS	2	7	1			
		Banke	DPHO	1		1	1	1	
			HP					10	
			SHP						
	Bardiya		DHQ		1		1	2	1
			HP						8
	Dailekh		SHP						
			DHQ					5	5
	Jajarkot		SHP						
			DHQ		1			3	6
	Surkhet		SHP						
			DHQ		1	2	1	2	4
	Dang	Syujia		DHQ	2		1	2	3
				PHC					1
			HP					11	
	Pyuthan		SHP						
			DHQ		2			1	4
	Rolpa		SHP						
			DHQ		1			3	1
	Rukum		SHP						
			DHQ					4	4
	Salyan		SHP						
			DHQ					3	2
	Dolpa		SHP						
			DHQ						
	Humla		SHP					3	4
		DHQ							
Jumla		SHP							
		DHQ		2		1		1	
Kalikot		SHP							
		DHQ					4	4	
Mugu		SHP							
		DHQ					1	3	
Western	Arghakhanchi		DHQ	1				3	
			SHP						
	Gulmi		DHQ					2	
			SHP						
	Kapilvastu		DHQ		1		3	1	
			HP					7	
	Nawalparasi		SHP						
		Bulingtar		DHQ	2		3		
				PHC					1
	Palpa		HP					9	
		SHP							
		DHQ		2		2	2		
		SHP					4		

Region	District	City	Facility	Icepack freezer	Icelined refrigerator-freezer	Icelined refrigerator	Electric/kerosene freezer	Electric/kerosene refrigerator	
Western	Rupandehi	Butwal	RMS	1	2	4			
			HP				8		
			DHQ	3		2		1	
			SHP						
	Baglung		DHQ	1		1	3	4	
			SHP						
	Mustang		DHQ				1	1	
			SHP						
	Myagdi		DHQ	1		1	3	2	
			SHP						
	Parbat	Thulipokhari	DHQ	1			4	3	
			PHC					1	
			SHP						
	Gorkha		DHQ			1	3		
			SHP						
	Kaski Pokhara	Pokhara Kaski	RMS	1	6	1			
			DPHO	2		2		1	
			SHP						
	Lamjung		DHQ					2	
			SHP						
Manang		DHQ					2		
		SHP							
Syangja		DHQ	1		1	3	2		
		SHP							
Tanahun		DHQ	2		2	1	2		
		SHP							
Central	Bara		DHQ	2	1	2	1	2	
			HP					11	
			SHP						
	Chitawan	Chtawan	DHQ	2		2		1	
			HP					6	
			SHP						
	Makwanpur	Hetauda	RMS						
		Makwanpur	DPHO	1	1	1		2	
		Nuwakot	DHQ	3	2	1		3	
			SHP						
	Parsa	Birjung	DHQ	3	3	3	1	2	
			HP					9	
			SHP						
	Rautahat		DHQ						
			SHP						
			Ganga Pipara	PHC					1
	Bhaktapur		HP					9	
			DHQ	1	2	1		3	
			SHP					8	
	Dhading		DHQ				5	2	
			SHP						
	Kathmandu	Kathmandu	CMS	3		2		2	
			DHQ	1		3			
			HP					6	
			SHP						
	Kavre		DHQ	2		4	1	2	
			SHP						
	Lalitpur		DHQ	1		2	1	1	
			HP					9	
			SHP						
Rasuwa	Jibjibe	DHQ	1				3		
		PHC					1		
Sindhupalchok		SHP							
		DHQ							
Dhanusha		HP					9		
		SHP							
Dolkha		DHQ			1	1	2		
		SHP							

Region	District	City	Facility	Icepack freezer	Icelined refrigerator-freezer	Icelined refrigerator	Electric/kerosene freezer	Electric/kerosene refrigerator	
C e n t r a l	Ramechhap		DHQ				6	5	
			SHP						
	Sarlahi		DHQ		2		2	4	1
		Achgadha	PHC						1
		Jamuniya	PHC						1
			HP						11
	Sindhuli		SHP						
			DHQ		1		1	2	1
	Mahottari		SHP						
			DHQ		2		2		1
		HP						6	
		SHP							
E a s t e r n	Bhojpur		DHQ			1	1	3	2
			SHP						
	Dhankuta		DHQ		2		2		2
			SHP						
	Morang	Biratnagar	RMS		1	1	3		
		Biratnagar	DPHO		2		5	1	
			HP						11
			SHP						
	Sankhuwasawa		DHQ		1			2	2
			SHP						
	Sunsari	Inaruwa	DHQ		1	1	1	3	2
			SHP						
			HP						7
	Terhathum		DHQ					3	3
			SHP						
	Ilam		DHQ					2	2
			SHP						
	Jhapa	Chandragadi	DHQ		2		4		1
		Baniyani	PHC						1
			HP						7
			SHP						
	Panchthar		DHQ					2	4
			SHP						
	Taplejung		DHQ					3	2
			SHP						
	Khotang		DHQ					3	2
			SHP						
	Okhaldhunga		DHQ					3	2
			SHP						
	Saptari	Rajbiraj	DHQ		2		2	1	
		HP						9	
		SHP							
Siraha	Siraha	DHQ		1		1	5		
		HP						12	
		SHP							
Solukhumbu		DHQ			1	2		1	
		SHP							
Udayapur		DHQ		1			4	1	
		SHP							

Table 2-3 List of Areas Receiving Vaccine Carriers

Region	District	No. of vaccine carriers	Region	District	No. of vaccine carriers	Region	District	No. of vaccine carriers			
w e s t e r n	Achham	40	w e s t e r n	Gulmi	40	C e n t r a l	Rasuwa	9			
	Bajhang	23		Kapilvastu	38		Sindhupalchok	37			
	Bajura	15		Nawalparasi	37		Dhanusha	55			
	Doti	25		Palpa	32		Dolkha	28			
	Kailali	20		Rupandehi	34		Ramechhap	25			
	Baitadi	32		Baglung	31		Sarlahi	50			
	Dadedhura	14		Mustang	7		Sindhuli	30			
	Darchula	20		Myagdi	23		Mahottari	38			
	Kanchanpur	10		Parbat	24		Bhojpur	34			
	M i d - w e s t e r n	Banke		22	C e n t r a l		Gorkha	35	E a s t e r n	Dhankuta	17
Bardiya		17	Kaski Pokhara	25		Morang	30				
Daiilekh		32	Lamjung	30		Sankhuwasawa	18				
Jajarkot		20	Manang	4		Sunsari	28				
Surkhet		27	Syangja	34		Terhathum	17				
Dang		20	Tanahun	26		Ilam	24				
Pyuthan		25	Bara	52		Jhapa	27				
Rolpa		27	Chitawan	21		Panchthar	22				
Rukum		22	Makwanpur	20		Taplejung	27				
Salyan		24	Parsa	24		Khotang	40				
Dolpa		13	Rautahat	54		Okhaldhunga	28				
Humla		15	Bhaktapur	12		Saptari	60				
Jumla		16	Dhading	26		Siraha	55				
Kalikot		17	Kathmandu	32		Solukhumbu	17				
Mugu		14	Kavre	46		Udayapur	26				
Western		Arghakhanch	21			Lalitpur	20			Total	2,000

2 - 2 - 3 Implementation Plan

2 - 2 - 3 - 1 Implementation Policy

- (1) Of the equipment to be procured, the Japanese side takes charge of the land transportation of walk-in cold rooms and solar-powered refrigerators to the final destination sites (also including the air transport of the solar-powered refrigerator for Marfa), as well as on-site installation work and initial operation guidance. The destinations of these items are not included in the areas with Maoist activity, and thus there will be no concern about the security of Japanese personnel.
- (2) After all equipment is landed at the port of Kolkata³ by the Japanese side, the Japanese side takes charge of transporting all items other than walk-in cold rooms and solar-powered refrigerators to the Central Equipment Store at Pathlaiya in the southern part of Nepal.
- After arrival at the Medical Store, the Government of Nepal takes responsibility to distribute the equipment promptly to the final destination sites. Some of the final destination sites are located in the areas with Maoist activity, for which the MOFA has issued the “Recommendation to evaluate carefully the implications for their security and safety before deciding travel” and “Travel caution.” Because the Nepalese side conducts the transportation from Pathlaiya, there will be no concern about the security of Japanese personnel.

2 - 2 - 3 - 2 Implementation Conditions

- (1) Because some of the electric/kerosene refrigerators are supplied to HP-level facilities in this project, initial operation guidance and maintenance guidance will be performed for the personnel of these facilities. All costs for such guidance, including wages paid to Nepalese-side participants and their travel expenditures, will be borne by the Nepalese side.
- (2) Because the performance of solar-powered refrigerators is affected greatly by local conditions, the design related to the installation of these units should be conducted after confirmation of latitude, altitude, site plan, necessary vaccine capacity, presence or absence of obstacles, etc.

2 - 2 - 3 - 3 Scope of Work

【Japanese side】

- Procurement of all equipment
- Transportation of procured equipment to the sites of delivery (to the final destination sites in the case of walk-in cold rooms and solar-powered refrigerators, and to the Central Equipment Store at Pathlaiya in the case of all other equipment)
- Installation work and initial operation guidance related to walk-in cold rooms and solar-powered refrigerators
- Initial operation guidance and maintenance guidance related to electric/kerosene refrigerators

³ Kolkata: renamed from Calcutta in January 2001.

(for HP personnel)

【Nepalese side】

- Tax exemption, customs clearance, and other procedures (including the procedures at the port of Kolkata)
- Transportation of equipment other than walk-in cold rooms and solar-powered refrigerators from the above-mentioned site of delivery to each site
- Provision of the space for installation of walk-in cold rooms and solar-powered refrigerators
- Power distribution work and other primary work needed for the installation of the above-mentioned equipment
- Provision of the place for conducting guidance related to electric/kerosene refrigerators and bearing of the costs related to the guidance on the Nepalese side.

2 - 2 - 3 - 4 Consultant Supervision

The Consultant will conduct procurement supervision to ensure smooth execution of the project. After the arrival of the procured equipment in Nepal, the Consultant will dispatch procurement supervision personnel to perform unpacking, on-site receiving inspection, and delivery.

Because this project pertains to the procurement of equipment and materials, procurement supervision will be conducted in the manner described below:

- 1) Close communication with the personnel of relevant organizations in Nepal to ensure timely completion of the procurement of equipment.
- 2) Supervision of procurement contractors to ensure execution of work in conformity with the contracts.
- 3) Pre-shipment inspection of equipment
Pre-shipment inspection of equipment will be conducted by a third-party organization. This inspection will include confirmatory checking of the shipping document against the list of equipment in the contract, confirmation of the date of delivery, quantities and packaging of goods, etc.
- 4) Receiving inspection of all equipment other than walk-in cold rooms and solar-powered refrigerators at the time of delivery to the site specified by the Ministry of Health of Nepal (Central Equipment Store at Pathlaiya).
- 5) With respect to walk-in cold rooms and solar-powered refrigerators, inspection will be conducted at all sites where these items are installed. This inspection will include specifications for the equipment, quantities, damage, etc. The completion of the contracted work will be verified by the approval of receipt by the Nepalese side.

2 - 2 - 3 - 5 Procurement Plan

(1) Procurement of Equipment

At present, Nepal is introducing cold chain equipment complying with WHO standards. Therefore, the items to be procured in this project will be selected also in accordance with these standards. Because none of the items to be procured are produced in Nepal, they will be procured from either Japan or third countries.

With respect to walk-in cold rooms, various refrigerators, and generators, spare parts in necessary quantities will be procured along with the main units, and servicing should be available from the sales agencies or dealers in Nepal for a year after procurement.

The expected sources of equipment are as shown in Table 2-4.

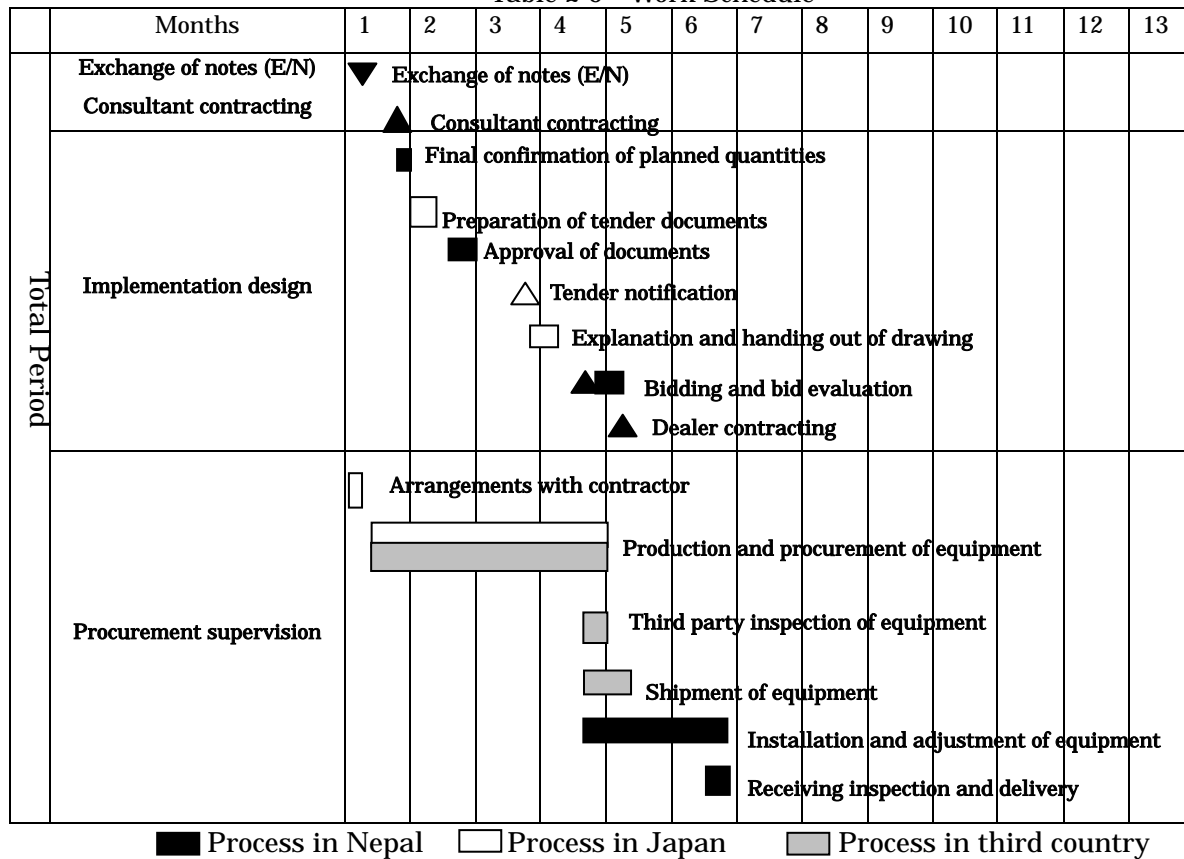
Table 2-4 Sources of Equipment

No.	Equipment	Source		
		Local	Japan	Third country
1	Walk-in cold room (30m ³)			
2	Walk-in cold room (15m ³)			
3	Generator			
4	Icepack freezer			
5	Icelined refrigerator-freezer			
6	Icelined refrigerator			
7	Electric/kerosene freezer			
8	Electric/kerosene refrigerator			
9	Solar powered refrigerator			
10	Automatic voltage regulator (for refrigerator-freezer)			
11	Automatic voltage regulator (for walk-in cold room)			
12	Refrigerator maintenance tool set			
13	Large cold box			
14	Small cold box			
15	Large vaccine carrier			

2 - 2 - 3 - 6 Quality Control Plan

Total period (from E/N to delivery):	11 months
From E/N to dealer contracting:	5 months
Delivery time (from dealer contracting to delivery):	6 months

Table 2-5 Work Schedule



2 - 3 Obligations of the Recipient Country

If and when the Japanese grant aid cooperation is executed, the Nepalese side should conduct the following activities:

Appropriate and prompt customs clearance and tax exemption procedures concerning the equipment delivered to the Central Equipment Store at Pathlaiya.

Prompt distribution of equipment from the above-mentioned Central Equipment Store to each project site.

Provision of warehouses needed for the storage of procured equipment.

Appropriate maintenance of equipment and related budgetary arrangements.

Summoning of the Nepalese-side participants to the guidance concerning on-site assembly, installation, and handling instructions conducted by the Japanese side, provision of the place for training, and bearing of the costs including wages paid to participants and food, lodging, travel, and other expenditures.

Disposal of existing CFC-containing refrigerators and freezers replaced by the newly procured equipment (including the treatment of CFCs).

Allocation of 2 million US dollars as the necessary costs of the cold chain system for the 5 years from 2002.

2 - 4 Project Operation Plan

The organizations implementing this project will be the Immunization Promotion Section and the Vaccine Transportation and Cold Chain Section in the Health Service Bureau, the Ministry of Health. Under the supervision of these sections, the equipment procured and distributed according to the distribution plan will be maintained under the responsibility of each site.

The repair of equipment such as refrigerators and freezers is mainly performed by cold chain assistants (CCAs). There are 4 CCAs in each region and 1 or 2 CCA(s) in each district. While no CCAs are posted at PHCs and lower-level facilities, district CCAs in charge of the area will repair refrigerators at these facilities. In addition to the repair of common electric troubles, CCAs deal with relatively simple servicing, such as the replacement of fuse elements and the replacement of gas burners. More difficult problems, such as the prevention of gas leakage and the troubles in the compressor, are handled by engineers dispatched from the center, who visit various sites in the country to meet the need for repair.

From a budgetary standpoint, the Ministry of Health secured 1,037,000 Nepalese Rupee (NR) (about 1,660,000 yen) for the purchase of expendable supplies and 581,000 NR (about 930,000 yen) for maintenance costs in fiscal 2002. For 2003 and later fiscal years, the Ministry has allocated sufficient fund to cold chain costs: \$200,000 for 2003, \$500,000 for 2003 to 2006, and \$300,000 for 2007 using financial aids from UNICEF, GAVI, USAID, and other donors. It is considered that the allocation of a sufficient budget to the enrichment of the cold chain system will continue in the future.

From the standpoint of equipment maintenance, mechanical troubles of refrigeration equipment are expected to generate repair costs. However, because this project replaces decrepit refrigerators that have already been requiring repair, the project does not generate new maintenance costs, and therefore does not impose much financial burden on the facilities. In reverse, the project is expected to lessen maintenance costs as for the immediate future, because it replaces old refrigerators that have been failing frequently. In this project, spare parts recommended by WHO will also be procured simultaneously with the main units, and this will be effective means to support the maintenance of equipment.

2 - 5 Approximate Project Cost

2 - 5 - 1 Approximate Project Cost of the Cooperation Project

1) Break-down of the project cost

Table 2-6 Approximate Project Cost

Division	Amount (million yen)	Remarks
Equipment procurement cost	241.3	
Equipment cost	226.3	
On-site procurement management and installation work	15.0	
Design and supervision costs	20.9	
Implementation design	13.9	
Work supervision	7.0	
Soft component	0.0	
Total	262.2	

Note) Exchange rates: US\$1 = 119.29 yen

Local currency = 1.62 yen

2) Costs borne by the Nepalese side

In this project, no costs on the Nepalese side will be generated until the Japanese side completes the transportation to the Pathlaiya Central Equipment Store and other destinations. After the delivery of equipment to the Pathlaiya Central Equipment Store by the Japanese side, the Nepalese side must transport the equipment to various project sites, but this transportation will be conducted within routine work, and the Nepalese side will not incur any special burdens.

3) Conditions for cost estimation

Time of estimation

June 12, 2003

Exchange rates

US\$1 = 119.29 yen 1 local currency = 1.62 yen

Procurement period

As shown in project schedule 3-2-3-6.

Other

This Project will be conducted according to the grant-aid cooperation scheme of the Government of Japan.

Chapter 3 Project Evaluation and Recommendations

3 - 1 Project Effect

3 - 1 - 1 Direct Effect

Decrepit equipment that has been used for over 10 years after installation will be replaced by new equipment. In specific terms, 241 (54.3%) of the 444 existing refrigerators (region and district levels) and 243 (69.2%) of the 351 existing freezers (region and district levels) will be renewed. In addition, 207 refrigerators will be supplied to PHC- and HP-level facilities, which have rarely been equipped with refrigerators hitherto. This will reinforce the cold chain network and ensure the ability for appropriate storage of vaccines needed for the Program.

By assisting in the Program, which intends to immunize about 1.8 million persons, this project will contribute to the extermination of polio and measles, as well as the control of diphtheria, tetanus, whooping cough, hepatitis B, etc.

This project will contribute to the attainment of goals of Multi Year Plan of Action (MYPOA), which are to increase the percentage of people receiving regular immunization to 90% or more and to maintain the increased level.

3 - 1 - 2 Indirect Effect

As mentioned above, this project will supply new CFC-free refrigerators and freezers to replace the 484 units that contain CFCs and have been used for over 10 years out of the 795 existing units (60.9% replaced). This will be in accordance with the CFC-free policy advocated by WHO, and at the same time contribute to the goals of the Montreal Protocol in relieving the burden on the ozone layer and reducing greenhouse gases.

Measles is causing a large number of deaths in Nepal. Prevention of measles through immunization will contribute to reduction of the infant mortality rate.

3 - 2 Recommendations

(1) Efficient Transportation of the Equipment

It is necessary for the Nepalese side to take responsibility for efficient transportation of the equipment. There were cases in the past that provided equipment did not arrive at the final destination sites. We need to ensure that the Nepalese side will complete the transportation to the final destination sites.

(2) Cooperation with Other Donors

While many donors are actively providing assistance in the field of health care in Nepal, there is a need for future cooperation in the “soft” areas, centered on the training of Nepalese staff, to be triggered by the implementation of this project. In specific terms, it is desirable that the equipment provided by the Japanese side will be used by other donors not only for the training in equipment maintenance but also for various training related to the cold chain system, such as the safety of injection and the operational aspects of EPI activities.

(3) Study for Future Full-scale Introduction of Solar-powered Refrigerators

There is high expectation for solar-powered refrigerators in Nepal, where power failures occur frequently not only in mountainous areas but also in flatlands. There have been experiments in the use of these refrigerators, as well as the demonstration study on hybrid refrigerators, which are operated on a combination of commercial power sources and solar energy. However, it was found during the study for this project that Nepal has not developed a clearly defined procurement plan concerning such equipment, and that the data for sunshine and other natural conditions of the proposed sites are lacking. It was considered impractical, therefore, to introduce a large number of solar-powered refrigerators in this situation, and we had to give up the plan for the full-scale introduction of solar-powered refrigerators, whether hybrid or not. Nepal still strongly hopes for the full-scale introduction of solar-powered refrigerators. It is desirable that the Nepalese side will actively utilize the solo-type equipment procured in this project, so that the experience, know-how, and data concerning the use of these refrigerators may be accumulated for the realization of the full-scale introduction in the future.

1 . Member List of the Survey Team

Leader of the Study Team M.D Kazuo HIKITA
International Medical Center of Japan

Procurement Planner Mr. Kyota AOKI
Japan International Cooperation System (JICS)

Equipment Planner Mr. Satoshi HORIE
Japan International Cooperation System (JICS)

2 . Study Schedule

	Date		Schedule			Accommodation
			Team Leader (Mr. Hikita)	JICS (Mr. AOKI)	JICS (Mr. HORIE)	
1	1-Mar	Sat		TG641 Narita (10:45)	Bangkok (15:45)	Bangkok
2	2	Sun		TG319 Bangkok (10:30)	Kathmandu (12:45)	Kathmandu
3	3	Mon		UNICEF, JICA Office, Visit to Embassy of Japan, MOF, WHO, USAID, Discussion in MoH		Kathmandu
4	4	Tue		Discussion in MoH, UNICEF		Kathmandu
5	5	Wed		Discussion in MoH, UNICEF		Kathmandu
6	6	Thu		Survey on the relative organization ; Central warehouse of vaccines, District, Health Post, Sub-Health Post		Kathmandu
7	7	Fri		Movement(Kathmandu B iratnagar Kathmandu) : by air, Site Survey	Movement Kathmandu Nepalganj) :by air, Site Survey	Kathmandu/ Nepal ganj
8	8	Sat	TG641Narita(10:45) Bangkok (15:45)	Movement (Kathmandu Bhairahawa Butwal Bharatpur) : by car, Site Survey	Site Survey(Nepal ganj Dhangadhi) :by car, Site Survey	Bangkok/Baratpur/Dhangadhi
9	9	Sun	TG319 Bangkok(10:30) Kathmandu (12:45)	Movement (Bharatpur Hetauda Kathmandu): by car, Site Survey	Site Survey(Dhangaj Nepal ganj Kathmandu) :by car, air	Kathmandu
10	10	Mon	Discussion on the Minutes			Kathmandu
11	11	Tue	Discussion on the Minutes			Kathmandu
12	12	Wed	Discussion on the Minutes			Kathmandu
13	13	Thu	Discussion on the Minutes, ICC Meeting			Kathmandu
14	14	Fri	Movement (Kathmandu Pokhara): by air, Site Survey			Pokhara
15	15	Sat	Movement (Pokhara Kathmandu): by air			Kathmandu
16	16	Sun	(Holiday) internal meeting			Kathmandu
17	17	Mon	(Holiday) internal meeting			Kathmandu

18	18	Tue	Signing on the Minutes, Discussion in MoH	Kathmandu
19	19	Wed	Report to JICA Office, Embassy of Japan TG320 Kathmandu(13 : 50) Bangkok (18 : 15) TG642 Bangkok (23 : 40) Narita	Bangkok
20	20	Thu	7:30 Narita	

3 . List of Parties Concerned in the Recipient Country

No.	Name	Organization	Title
Japanese Side			
1	Kazumi SUZUKI	Embassy of Japan in Nepal	Minister
2	Saburo SATO	Embassy of Japan in Nepal	First Secretary
3	Eitaro MITOMA	JICA Nepal Office	Resident Representative
4	Fumio IMAI	JICA Nepal Office	Deputy Resident Representative
5	Shigeki FURUTA	JICA Nepal Office	Assistant Resident Representative
6	Keiko KOBATASHI	JICA Nepal Office	Programme Expert
7	Madhav Khadka	JICA Nepal Office	Chief Programme Officer
Nepalese Side			
8	B.D. Chataut (Dr.)	Policy Planning and Foreign Aid Division, Ministry of Health (MOH)	Chief Specialist
9	Pathak (Dr.)	Department of Health Services (DHS), MOH	Director General
10	Oja (Dr.)	Child Health Division (PHD), DHS, MOH	Director
11	Missira (Dr.)	EPI Section, PHD, DHS, MOH	Director
12	Shree Krishna Bhatta	EPI Section, PHD, DHS, MOH	Program Officer
13	Chettri (Dr.)	Logistic Management Division (LMD)	Director
14	Surya Bahadur Khadka	Kathmandu Central Medical Store (Teku), LMD, MOH	Chief
15	Swatantra Raj Joshi	Kathmandu Central Medical Store (Teku), LMD, MOH	Refrigerator Technician
16	L.S. Ghimire	Foreign Aid Coordination Division, Ministry of Finance	Under Secretary
17	Shrest	Lubu Primary Health Care Center	Auxiliary Health Worker
18	Lu baph	Lubu Primary Health Care Center	Peon
19	L.S.Ghimire	Ministry of Finance, Foreign Aid Cooperation Division	Under Secretary
20	Gajendra Bista	Far Western Regional Medical Store	chief
21	Pandy	Chaumala Primary Health Care Center	PHC in charge
22	Karel	Chaumala Primary Health Care Center	Auxiliary Health Worker
23	ChetRaj Bhatta	Chaumala Primary Health Care Center	Auxiliary Health Worker
24	Ganesh Shaestha	Malakheti Health Post	Cold Chain Assistant
25	Budd	Krishnapur Sub-health Post	Auxiliary Health Worker
26	Saud	Tikapur Hospital	Cold Chain Assistant
27	Shyam K. Adhikari	Mid-Western Regional Medical Store	Pharmacist
28	Shrestha	DoHS	Cold Chain Assistant
29	Jayabasdur Karki	Bank District Public Health Office	Senior DPHS Official
30	Sor	Bankatwa Primary Health Care Center	Cold Chain Assistant
31	Pan Bahadur Kshetry	Biratnagar Eastern Regional Medical Store	Chief

32	Bharat Shan	Biratnagar Eastern Regional Medical Store	Store Keeper
33	Besha Wasti	Biratnagar Eastern Regional Medical Store	Cold Chain Assistant
34	Rakesh Thakur	Saptari District Public Health Office, Eastern Region	Public Health Officer
35	Kemanand Dev	Saptari District Public Health Office, Eastern Region	Auxiliary Health Worker
36	Susil Gupta	Saptari District Public Health Office, Eastern Region	EPI Supervisor
37	Ram Pukar Shah	Saptari District Public Health Office, Eastern Region	EPI Supervisor
38	Gagendra Kam	Saptari District Public Health Office, Eastern Region	Cold Chain Assistant
39	Bishnu Deo Prasad Singh	Babhangamakati Primary Health Care Center, Saptari District, Eastern Region	Auxiliary Health Worker
40	Tara Nand Jha	Hanuman Nagar Health Post, Saptari District, Eastern Region	Auxiliary Health Worker
41	Shib Narayan Yadav	Rani Health Post, Morang District, Eastern Region	Public Health Inspector
42	Sri Prasad Mishra	Rupandehi District Health Office, Western Region	Statistical Assistant
43	Mohan Shah	Rupandehi District Health Office, Western Region	Cold Chain Assistant
44	Urmila Gubaju	Rupandehi District Health Office, Western Region	Store Keeper
45	Ram Bhajan Yadev	Rupandehi District Health Office, Western Region	Vector Control Assistant
46	Ram Prasad Gyawali	Rupandehi District Health Office, Western Region	Office Assistant
47	Gokarn Nepal	Butwal Western Region Medical Store	Incharge Acting
48	Rewati Raman Sharma	Butwal Western Region Medical Store	Office Assistant
49	Chirtamani Gyowali	Butwal Western Region Medical Store	Cold Chain Assistant
50	Raman Jha	Hetauda Central Region Medical Store	Acting Incharge
51	Ram Babu Shah	Hetauda Central Region Medical Store	Refrigerator Technician
52	Kapil Upadhyaya	Pokhara Western Regional Hospital	Medical Superintendent
53	Maya Rangiska	Pokhara District Public Health Office	Officer
54	Kalyan B. Pradhan	Environment Sector Programme Support, Ministry of Industry, Commerce and Supplies	Local Adviser
International Organization			
55	K.B. Gharti (Dr.)	The Global Alliance for Vaccines & Immunization (GAVI)	In-Country Immunization Officer
56	Mian Muhammad Asif	Polio Eradication Nepal, World Health Organization (WHO)	Operation Manager
57	Jagat Narain Giri (Dr.)	Surveillance & Support Team, Polio Eradication Nepal, WHO	Immunization Co-ordinator
58	Wanna Hanshauworakul	Polio Eradication Nepal, World Health Organization (WHO)	WHO Consultant
59	Suomi Sakai	United Nations Children's Fund (UNICEF), Nepal Office	Representative
60	Agatha Pratt	Health Section, UNICEF Nepal Office	Chief
61	Prabhat Bangdel	Health Section, UNICEF Nepal Office	Project Officer
62	Heam Shalega	Nepal Family Health Program(NGO)	Program Officer
63	Frank R. White Jr.	Nepal Family Health Program(NGO), JSI	Deputy Chief of Party Finance and Administration
64	Janardan Lamichhane (Dr.)	Nepal Family Health Program(NGO), JSI	Team Leader, Logistics
65	Udev Maharjan	Nepal Family Health Program(NGO), JSI	Program Officer, Training
Private Company			
66	Felix Nitz	IT Power India Pvt. Ltd	Energy Engineer
67	Dipan Raghubansi	LASERSUN ENERGY PVT. LTD.	Director
68	Subarna Man Rajjibandari	LASERSUN ENERGY PVT. LTD.	Managing Director
69	Dipak Raj Poudel	LOTUS ENERGY PVT. LTD.	Service Manager

MINUTES OF DISCUSSIONS
ON THE STUDY
ON THE PROJECT
FOR IMPROVEMENT OF EXPANDED PROGRAMME ON IMMUNIZATION
IN THE KINGDOM OF NEPAL

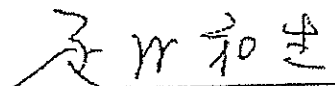
In response to a request from the Government of the Kingdom of Nepal (hereinafter referred to as "Nepal"), the Government of Japan decided to conduct a study on the Project for Improvement of Expanded Programme on Immunization (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent the Study Team (hereinafter referred to as "the Team"), which is headed by Dr. Kazuo Hikita, International Medical Center of Japan, Ministry of Health, Labour and Welfare, and is scheduled to stay in the country from 2nd to 19th of March 2003.


The Team held discussions with the officials concerned of the Government of Nepal and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Study Report.

Kathmandu, the 18th of March 2003



Dr. Kazuo Hikita
Leader
Study Team
Japan International Cooperation Agency



Dr. B.D. Chataut
Chief Specialist
Policy Planning and Foreign Aid
Division
Ministry of Health
HMG Nepal

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve the expanded programme on immunization in Nepal, through procurement of necessary equipment.

2. Project Sites

The project sites are the whole of Nepal.

3. Responsible and Implementing Agency

The responsible and implementing agency is the Department of Health Services, the Ministry of Health, HMG Nepal.

4. Items requested by HMG Nepal

After discussions with the Team, the items described in Annex-1 were finally requested by the Nepalese side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

5-1 The Nepalese side understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex-2.

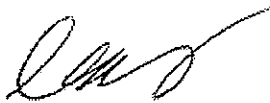
5-2 The Nepalese side will take the necessary measures, as described in Annex-3, for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the Study

Based of the Minutes of Discussions and technical examination of the study results, JICA will complete the final report and send it to HMG Nepal by June 2003.

7. Other relevant issues

7-1 As for Walk-in Refrigerated Units and Back-up Generators in Annex-1,



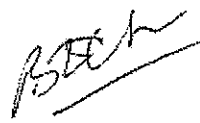
Japanese side will deliver and install them directly in 6 regional medical stores: Kathmandu, Biratnagar, Hetauda, Butawal, Nepalganj and Dhangadhi. Japanese side will also cover the initial orientation on the proper operation and daily maintenance.

- 7-2 As for Photovoltaic Solar Refrigerators listed in Annex-1, Japanese side will deliver and install them in 5 health posts, and conduct a short-term technical training for installation, operation and maintenance soon after the delivery. Nepalese side shall furnish Japan side with the required technical information as soon as possible, provides a place for the training, invites their personnel concerned, and bears the cost of their personnel such as daily allowance, meal, transportation, accommodation and so on. After the installation and training, Nepalese side shall monitor the working condition regularly to gain the data for future expansion, and then provide the monitor report to JICA Nepal Office.
- 7-3 As for the other equipment listed in Annex-1 than those which forenamed, Japanese side will deliver it to the central medical store in Pathlaiya, and Nepalese side will transfer it from Pathlaiya to the designated sites. Nepalese side shall therefore take a special financing measure for this smooth transportation and report the progress of transfer to JICA Nepal Office.
- 7-4 After delivery and installation of the equipment, Nepalese side shall take all necessary measures for sustainable use.
- 7-5 Issue on the residual CFC gas in the old cold chain equipment being replaced shall be handled by Nepal side.
- 7-6 Both sides confirmed that the equipment specifications and the other technical information shall be confidential before the tender to be held in the implementation stage of the Project.

Annex-1: List of Equipment

Annex-2: Japan's Grant Aid Scheme

Annex-3: Major Undertakings to be taken by Each Government



EQUIPMENT LIST

	EQUIPMENT	Q'ty	A	B	C
1	Walk-in refrigerated unit for 24~30m ³	1	○		
2	Walk-in refrigerated unit for 15m ³	5	○		
3	Generator, stand-by	6	○		
4	Icepack freezer	76	○		
5	Icclined Refrigerator & iccpack freezer	35	○		
6	Icepack freezer, absorption type	132	○		
7	Icclined refrigerator	87	○		
8	Refrigerator, absorption type	361	○		
9	Large cold box, long range	50		○	
10	Small cold box, long range	150		○	
11	Large vaccine carrier	2,000		○	
12	AVR, single phase	691	○		
13	AVR, 3phase	7	○		
14	Photovoltaic solar refrigerator	5	○		
15	Maintenance tool	8		○	

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Japan's Grant Aid Program

1. Japan's Grant Aid Procedures

(1) The Japan's Grant Aid Program is executed by the following procedures.

Application (request made by a recipient country)

Study (Basic Design Study conducted by JICA)

Appraisal & Approval (appraisal by the Government of Japan and approval by the Cabinet of Japan)

Determination of Implementation (Exchange of Notes between both Governments)

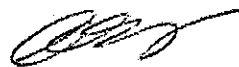
Implementation (implementation of the Project)

(2) Firstly, an application or a request for a Grant Aid project submitted by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Japan's Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study Report prepared by JICA and the results are then submitted to the cabinet for approval.

Fourth, the project approved by the cabinet becomes official with the Exchange of Notes signed by the Government of Japan and the recipient country.



Finally, for the implementation of the Project, JICA assists the recipient country in preparing contracts and so on.

2. Contents of the Study

(1) Contents of the Study

The purpose of the Basic Design Study conducted by JICA on a requested project is to provide a basic document necessary for appraisal of the project by the Japanese Government. The contents of the Study are as follows:

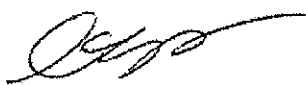
- a) confirmation of the background, objectives, benefits of the project and also institutional capacity of agencies concerned of the recipient country necessary for project implementation,
- b) evaluation of the appropriateness of the project for the Grant Aid Scheme from a technical, social and economical point of view,
- c) confirmation of items agreed on by the both parties concerning a basic concept of the project,
- d) preparation of a basic design of the project,
- e) estimation of cost of the project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

Final project components are subject to approval by the Government of Japan and therefore may differ from an original request. Implementing the project, the Government of Japan requests the recipient country to take necessary measures involved which are itemized on Exchange of Notes.

(2) Selection of Consultants

For smooth implementation of the study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on the proposals submitted by the interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.



The consulting firm(s) used for the study is (are) recommended by JICA to a recipient country after Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials or such.

(2) Exchange of Notes (E/N)

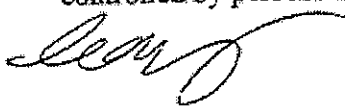
Both Governments concerned extend Japan's Grant Aid in accordance with the Exchange of Notes in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid etc., are confirmed.

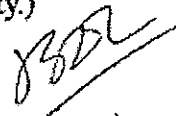
(3) "The period of the Grant Aid" means one Japanese fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedure such as Exchange of Notes, concluding a contract with (a) consulting firm(s) and (a) contractor(s) and a final payment to them must be completed.

(4) Under the Grant, in principle, products and services of origins of Japan or the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant may be used for the purchase of products or services of a third country.

However the prime contractors, namely, consulting, contractor and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)



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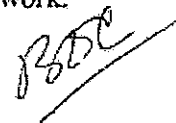
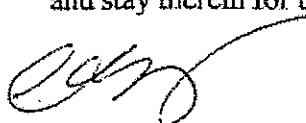
(5) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. The Government of Japan shall verify those contracts. The "Verification" is deemed necessary to secure accountability to Japanese tax payers.

(6) Undertakings Required to the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

- a) to secure land necessary for the sites of the project prior to the installation work in case the project is providing equipment,
- b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- c) to secure buildings prior to the installation work in case the project is providing equipment,
- d) to ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
- e) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- f) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.



(7) Proper Use

The recipient country is required to maintain and use the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for the operation and maintenance as well as to bear all expenses other than those covered by the Grant Aid.

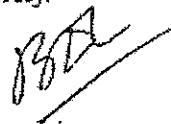
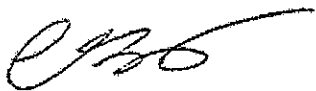
(8) Re-export

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

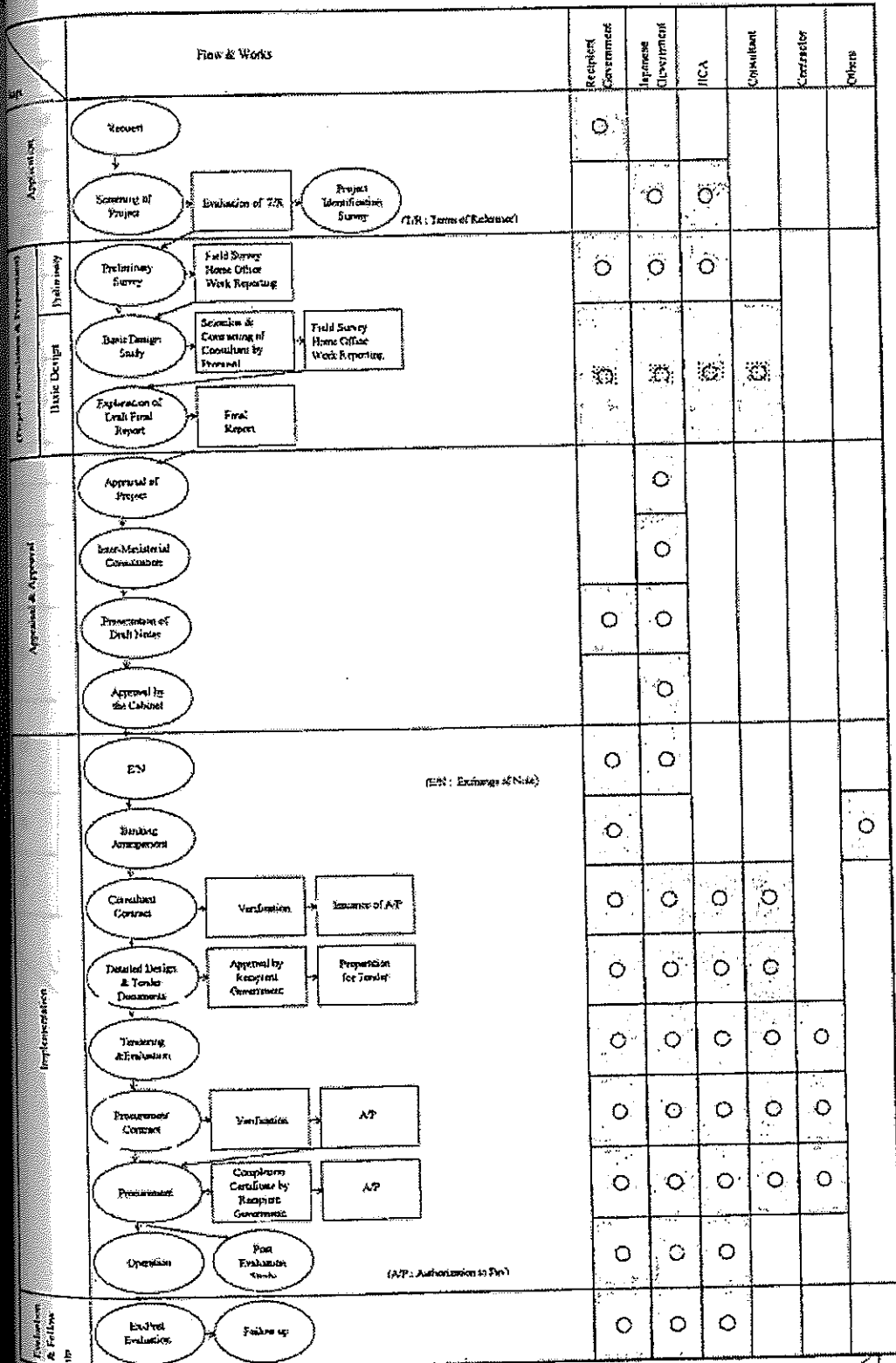
(9) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority shall open an account in the name of the Government of the recipient country in a bank in Japan. The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the bank to the Government of Japan under an Authorization to Pay issued by the Government of the recipient country or its designated authority.



FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



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Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
	To bear the following commissions to the Japanese bank for banking services based upon the B/A		
1	1) Advising commission of A/P		●
	2) Payment commission		●
	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the equipment from Japan or other country of origin to the recipient country	●	
	2) Advice to the customs office at the port of Kolkata in India to have a permission for internal transportation of the bonded equipment in India		●
	3) Customs clearance at the port of Kolkata in India	●	
2	4) Tax exemption and custom clearance of the equipment at the border of the recipient country		●
	5) Internal transportation and installation of the Walk-in Refrigerated Unit and Back-up Generator to the designated regional medical stores	●	
	6) Internal transportation of the other equipments to the central medical store in Patilaya or Kathmandu	●	
	7) Internal transportation of the equipment from the central medical store in Patilaya or Kathmandu to each designated site		●
	8) Short-term training for Photovoltaic Solar Refrigerator	●	●
3	To accord Japanese nationals, whose service may be required in connection with the supply of the equipment and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the equipment and services under the verified contracts		●
5	To maintain and use properly and effectively the facilities contracted and equipment provided under the Grant Aid		●
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		●