NO.

THE PROJECT
FOR
STRENGTHENING SYSTEM FOR
IMMUNIZATION
IN
THE REPUBLIC OF KENYA

JANUARY 2000

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

PREFACE

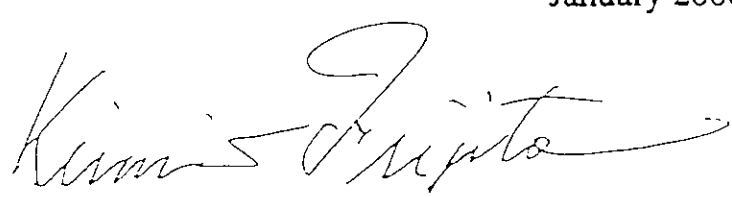
In response to a request from the Government of the Republic of Kenya, the Government of Japan decided to conduct a study on the Grant Aid for Child Health, the Project for Strengthening System for Immunization and entrusted the Japan International Cooperation Agency (JICA) to conduct the study with the assistance of the Japan International Cooperation System (JICS).

JICA sent to Kenya a study team September 22 to October 4, 1999.

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 the Kenya for their close cooperation extended to the team.

January 2000

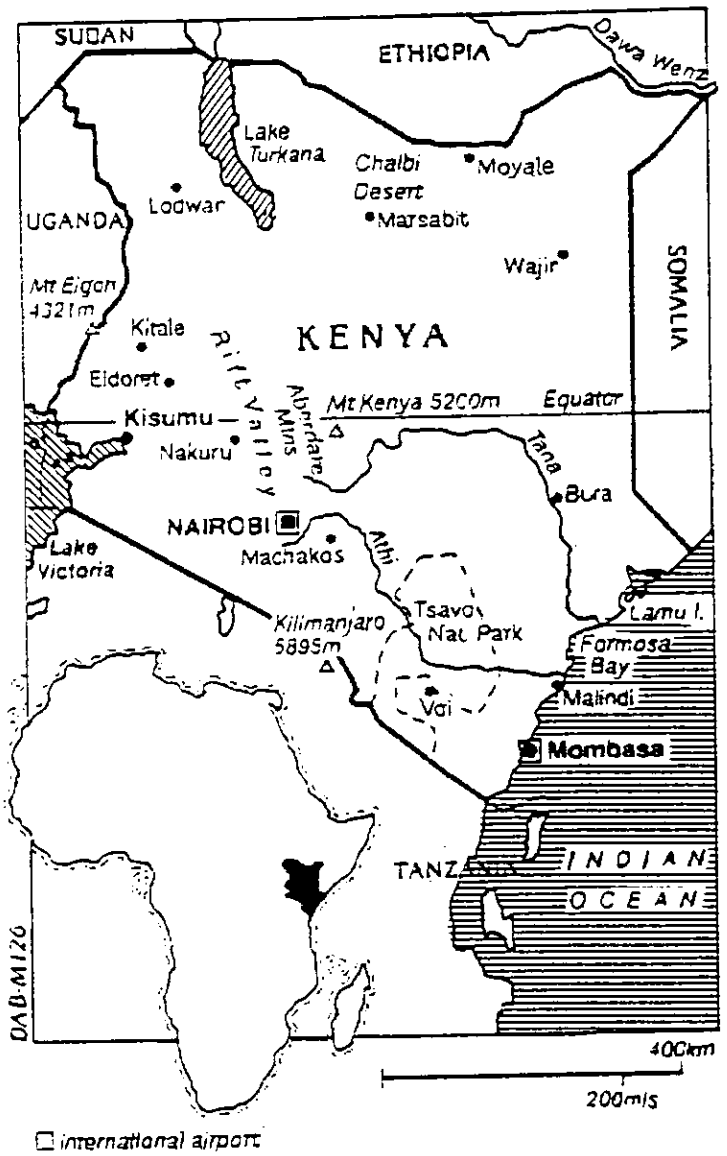


Kimio Fujita

President

Japan International Cooperation Agency

Location Map



Abbreviations

AFP	:	Acute Flaccid Paralysis
BCG	:	Bacillus Calmette-Guérin (vaccine for tuberculosis)
DDST	:	District Disease Surveillance Team
DPT	:	Diphtheria, Pertussis and Tetanus vaccine
EPI	:	Expanded Programme on Immunization
IU	:	International Unit
JOCV	:	Japan Overseas Cooperation Volunteers
KEPI	:	Kenya Expanded Programme on Immunization
MOH	:	Ministry of Health
NGO	:	Non Governmental Organization
NIDs	:	National Immunization Days
OPV	:	Oral Polio Vaccine
UNICEF	:	United Nations Children's Fund
WHO	:	World Health Organization

Letter of Transmittal
Location Map/ Perspective
Abbreviations

(Appendices)

1. Member list of the Survey Team
2. Survey Schedule
3. List of Party Concerned in the Recipient Country

CHAPTER 1. Background of the Project

The Republic of Kenya (hereinafter referred to as "Kenya") has been implementing the "Kenya Expanded Programme on Immunization (KEPI)" since 1980 in accordance with WHO's Expanded Programme on Immunization (EPI) aiming at reducing the infant mortality rate and morbidity rate due to six diseases such as tuberculosis, polio, diphtheria, pertussis, tetanus and measles.

As of 1998, Kenya has 2,232 medical facilities, of which 2,090 are practicing vaccination against the above six diseases. These facilities are provided with the cold chain equipment by the KEPI[1] central administration, Division of Primary Health Care, Ministry of Health. These facilities have also well trained resident staffs, who conduct vaccination for more than 1 million children in a year.

As the result of reinforcement of KEPI activities, the routine vaccination coverage rate increased to nearly 80% in 1993 in comparison with 30 to 40% in previous years. However, the coverage rate after 1993 was decreasing except that for BCG. Table 1-1 shows the coverage rate of each vaccine.

Table 1-1 Coverage of each vaccination

	1987 (%)	1992 (%)	1993 (%)	1994 (%)	1998 (%)
BCG	91	93.0	96.3	94.6	95.9
DPT3[2]	74	85.8	86.9	85.8	79.2
OPV3	75	85.0	86.7	85.8	79.2
Measles	60	81.2	83.8	80.7	79.2
6 kind of vaccine	51	76.7	78.7	76.1	59.5

MOH (KEPI) 1999 NIDs Plan of Action, Feb 1999

The decrease in the routine vaccination coverage rate results in increase in the cases of infectious diseases. Although there is no report on polio and diphtheria, the diseases of measles, pertussis, tetanus and tuberculosis are increasing. Table 1-2 shows the cases of each disease for the past 5 years.

In 1998, there was an outbreak of measles all over the country of Kenya, and KEPI appealed the importance of routine vaccination to communities.

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[1] KEPI: An abbreviation of Kenya Expanded Programme on Immunization, which means the names of both Kenya's vaccination activities and Immunization section, Ministry of Health of Kenya.

[2] DPT3, OPV3: It is required to vaccinate each of DPT (diphtheria, pertussis and tetanus vaccine) and OPV (oral polio vaccine) three times in certain intervals in order to keep the value of antibody. The figure "3" means 3 times of vaccination of routine immunization to communities.

Table 1-2 Indicate of each infectious disease past 5 years

	1994	1995	1996	1997	1998
Polio	0	0	0	0	0
Measles	4,648	3,326	7,606	4,515	11,453
Diphtheria	0	0	0	0	0
Pertussis	31	58	79	20	316
Tetanus	65	30	45	44	76
Tuberculosis	66	184	672	1,227	2,113
AFP except Polio	0	0	12	23	90

Results to questionnaire

It is said that the virus of measles as well as pertussis has the highest infectivity among the pathogens that are presently known. If an infant is infected about 6 months after his/her birth, he/she suffers from the disease immediately because the transfering antibody and immunoglobulin[3] from the mother are disappearing then. Therefore, it is important to inoculate a measles vaccine into infants to increase their immunity as the health and nutrition condition and age of a patient substantially affect to the seriousness of disease and the patient's convalescence period. The schedule of routine vaccination for measles in Kenya is 9 months after his/her birth.

Another serious problem in Kenya is vitamin-A deficiency. [4] The initial symptom is the ophthalmic disorder, however it can trigger infectious diseases. The vitamin-A deficiency is caused by a lack of vitamin-A in the liver and can be prevented by giving sufficient doses of vitamin-A in advance. In Kenya the use of periodical large dose of vitamin A supplements was started in 1997 because it is difficult to fortify vitamin-A with commonly consumed food. For the National Immunization Days (NIDs) in 1999, KEPI, Ministry of Health tried to treat and prevent the vitamin-A deficiency by giving all targeted children with vitamin-A.

The circumstances for EPI activities in Kenya seem to be one of the causes of decrease in vaccine coverage rate. Vaccination is basically free of charge in Kenya, but each facility has to purchase disposable syringes (including needles). Therefore, the costs of syringes (about 10 Kenyan Shillings) have to be borne by patients. Some facilities use the syringes that patients

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[3] Transfering antibody and immunoglobulin: The proteins with the antibody activity that exists in the serum and body fluid are generally called "immunoglobulins". A fetus produces immunoglobulin from its final stage in uthe uterus. Infant can be protected from various types of infection by the mother's antibody transferred through the placenta and the immunoglobulin contained in the foremilk

[4] There is a method of measuring the quantity of retinol in serums to diagnose the vitamin-A deficiency. If retinol is less than 1.0 μ mol/l, the body shows any symptom or an ocular lesion such as xerophthalmia. If retinol is 0.7 μ mol/l or less, the disease condition becomes very serious, resulting in loss of eyesight.

have purchased from commercial sources (i.e. drug stores in the city) and brought with them. The costs of these syringes are an expense to many households.

If the time of vaccination is overlapped with the busy farming season (the harvesting season), priority is given to the farming works, resulting in another problem of decreasing the number of people who visit the medical facilities for vaccination.

Kenya executed the NIDs programme for 3 years from 1996 to 1998 as one of the KEPI activities reinforcement programmes to respond to WHO's campaign "The global initiative to eradicate poliomyelitis by the year 2000".

The NIDs programme is intended for immunizing all children under five years old with oral polio vaccine (OPV) and operated in August and September of every year with the support by international organizations such as WHO and UNICEF and other assistance organizations. For the NIDs in 1998, 5,196,612 people were targeted. A coverage rate of 78.0% at the first round and 81.7% at the second round in 1998 were reported.

The said NIDs programme was started with a schedule for 3 years. However, the KEPI extended the schedule for 2 successive years of 1999 and 2000 by the recommendation of WHO as well as the following reasons:

(1) The coverage rate of routine vaccination was decreasing;
(2) There was a high risk of wild poliovirus inflow by refugees who evacuated into Kenya from Ethiopia, Somalia and Sudan where the EPI activities are very poor;
(3) The NIDs programme could not obtain the coverage rate (80%) required to prevent the spreading of wild poliovirus in the Central Province and the Eastern Province of Kenya; and
(4) A surveillance system to monitor the occurrences of polio patients had not been established well.

The NIDs in 1999 programme was planned to execute the following programmes:

(1) Immunizing against polio (children under-five all over the country);
(2) Vaccination against measles (the epidemic areas only); and
(3) Supplements of Vitamin-A (children under-five all over the country);

The vaccination against measles will be extended to cover the entire country in addition to (1) and (3) above for the NIDs in 2000.

In regard to the cold chain equipment for storage and transportation of vaccines, the replacement of the equipment and the delivery of new products are required because the existing one has been obsolete and the new health and medical care facilities are increasing. A

part of the cold chain equipment was donated by Japan's grant aid in 1996 and 1997, but it has not been sufficient in number to cover all the necessity. The production of some cold chain equipment installed at the beginning stage of KEPI activities is discontinued because they were primarily manufactured more than 10 years ago. It is also difficult to supply spare parts due to financial difficulties. Due to a financial problem, the prospect for the budget is not certain. Therefore, repairs cannot be done on some of the equipment installed in the medical facilities.

The maintenance system for cold chain equipment is managed by the Maintenance Section in the KEPI and departments of maintenance in Provincial or District hospitals and clinics. Several engineers and technicians are positioned in each of these departments to carry out management and maintenance of medical equipment including cold chain equipment. However, these departments have various problems such as difficulty in supply of spare parts and lack of tools for repair.

In the background as described above, the Ministry of Health of Kenya has made a request for vaccines and related goods, such as vitamin-A, cold chain equipment and vehicles for transportation for the NIDs in 2000. Some members of the Japan Overseas Cooperation Volunteers has been dispatched for the polio surveillance programme since July 1999, and the multiplier effect of this Project with JOCV is expected.

CHAPTER 2. Contents of the Project

2-1 Objectives of the Project

The NIDs programme as one of the KEPI activities is aimed at immunizing children under-five with OPV to prevent the infection of wild poliovirus and eradicate polio within the country of Kenya by 2000. At the same time, it is also aimed at (1) reducing the infant mortality rate of measles (95% decrease compared with the mortality before implementation of the project) and (2) prevention and treatment of vitamin-A deficiency by giving them measles vaccine and vitamin-A capsule.

This Project will support the KEPI in fulfilling these objectives for the NIDs in 2000 by procuring polio and measles vaccines and vitamin-A. It is also aimed at providing the cold chain equipment and vehicles for transportation and surveillance to ensure effective vaccine management and reinforcement of the KEPI activities.

2-2 Basic Concept of the Project

In the NIDs programme in 2000, vaccination against measles in addition to polio and giving vitamin-A will be implemented. In this Project, vaccines and vitamin-A for use in the NIDs will be procured and syringes and other materials will also be provided. The cold chain equipment will also be distributed to the medical facilities for which delivery of such equipment is needed urgently, in order to reinforce the adequate vaccine management system.

In addition, vehicles for transportation and surveillance will be provided to implement the NIDs programme in a smooth way and establish the future surveillance activity system.

2-3 Basic Design

2-3-1 Design Concept

This Project is planned to procure the vaccines and related goods, vitamin-A, cold chain equipment necessary for storage and distribution of vaccines and vehicles that will be used for the 2000 NIDs programme to be implemented all over the country of Kenya. As a result of study and examination of the request by Kenya in detail, the procurement of equipment and goods under this Project has been organized in accordance with the policy as described below. Table 2-1 shows the items of request by Kenya.

Table 2-1 Contents of request by Kenya side

		Name of Goods	Quantity		Estimation
A	1	Oral Polio Vaccine	14,000,000	doses	Target population × 2 times immunization + wastage (30%)
	2	Measles Vaccine	7,500,000	doses	Target population + wastage (50%)
	3	Auto destruct syringe	7,500,000	pcs	Target population + wastage (50%)
	4	Safety Box	85,000	pcs	No.3÷100(100pcs/1carton) × 1.1
	5	5ml reconstitution plastic syringe	800,000	pcs	No.2÷10(10 doses/1vial) + reserve
	6	Cotton wool	50,000	roles	
B	7	Vitamin A (100,000 IU)	700,000	doses	Target population + wastage (10%)
	8	Vitamin A (200,000 IU)	5,000,000	doses	Target population + wastage (10%)
	9	Scissors for cutting Vitamin A capsule	35,000	pcs	Target facility × 2(pair) + reserve
C	10	Ice-lined refrigerator/freezer	100	unit	Replacement/new provision + reserve
	11	Voltage regulator	100	unit	Replacement/new provision + reserve
	12	Absorption type refrigerator /freezer	100	unit	Replacement/new provision + reserve
	13	Absorption type smallrefrigerator	500	unit	Replacement/new provision + reserve
	14	Photo-voltaic solar refrigerator / freezer	50	unit	Replacement/new provision + reserve
	15	Vaccine carrier	5,000	unit	Replacement/new provision + reserve
D	16	Vehicle for transportation	2	unit	7t cargo truck
	17	Vehicle for surveillance	4	unit	Region of JOCV dispatched
	18	Vehicle for maintenance	1	unit	For maintenance section in KEPI
E	19	Tool set and manual	50	sets	Same quantity with item No.14

: unaccepted item to include among the final list

2-3-2 Basic Design

(1) Basic Policy

The basic policy for the equipment and goods to be procured will be described as follows:

(A) Vaccines and related equipment

All children under-five will be immunized with OPV vaccine twice. Children from 9 months to 5 years will be immunized with measles vaccine once. The basis of calculation of the population covered by the request will be described below.

① Calculation of population covered by the request

The total population in 2000 has been estimated to be 30,600,000 by involving the growth rate of about 3% based on the result of the census taken in 1989 (23,200,000). The population rate of age under-five to the total was approximately 18%. The actual number in 2000 is estimated to be 5,361,302, therefore OPV will be given according to that number.

On the other hand, the population vaccinated against measles is all children from 9 months to 5 years. The population less than 9 months is about 15% of all children under-five, which is estimated to be 804,195 in 2000. Thus, the population vaccinated against measles is 4,557,107

As measles has been prevailing all over the country since 1998, KEPI has enthusiastically promoted the vaccination of the unvaccinated children less than 12 years old. They plan to vaccinate those children in the NIDs in 2000 and have estimated the increase of the targeted population to be approximately 10%:

4,557,107 × 1.1 = 5,012,818

② Number of OPV doses requested by Kenya

Based on two doses and assuming that the damage rate of vaccines is 30% (international standard), a total of 14,000,000 doses has been requested by Kenya.

5,361,302 (target population) × 2 × 1.3 = 13,939,386 doses

③ Number of measles vaccine requested by Kenya

Based on once of vaccination and assuming that the damage rate of vaccines is 50% (international standard), a total of 7,500,000 doses has been requested by Kenya.

5,012,818 × 1.5 = 7,519,227 doses

However, the wastage rate of OPV was only 4% in the result of the NIDs 1998. And the surplus of OPV were used for routine vaccination. The wastage rate (30%) in the request is too high. Therefore, the wastage rate of polio and measles vaccines has been estimated to be 10% and added to the procurement quantities in this Project. Accordingly, the quantities of equipment and materials including syringes have been adjusted. As a result, the quantities of procured materials in this Project are estimated as follows from Table 2-2 to Table 2-9:

Table 2-2 Procurement Vaccine to be verified and related goods

Name of Goods	Procurement Plan	Quantity of procurement
Oral Polio Vaccine	Target population × 2 × wastage(10%) = 5,361,302 × 2 × 1.1= 11,794,865	11,794,865 doses = 590,000 vials (20doses/vial)
Measles Vaccine	Target population × 1 × wastage(10%) = 5,012,818 × 1 × 1.1= 5,514,100	5,514,100 doses = 552,000 vials
Auto destruct syringe	Target population of Measles vaccination × 1 × wastage(1%) = 5,012,818 × 1.01=5,62,947	5,063,000 pieces
Safety box	Quantity of Auto destruct syringe /100= 5,063,000 ÷ 100 = 50,630	51,0000 pieces
5ml reconstitution plastic syringe	Same quantity with Measles vaccine vial	552,000 pieces
Cotton wool	Cotton wool is inexpensive, that can be purchased by MOH of Kenya	Exclude from the procurement list

(B) Vitamin-A

The target population and the requested quantities are estimated as follows:

① Vitamin-A (100,000 UI) doses requested by Kenya

The infants from 6 to 11 months are targeted and the population of the infants is 536,131. This figure is multiplied by 10% of wastage rate and the number of doses for care of those who are suffering from ophthalmopathy such as xerophthalmia is added. As a result, a total of 700,000 doses have been requested by Kenya.

② Vitamin-A (200,000 IU) doses requested by Kenya

The children of 12 to 59 months are targeted and the population of the children is 4,289,042. This figure is multiplied by 10% of wastage rate and the number of doses for care of those who are suffering from ophthalmopathy such as xerophthalmia is added. As a result, a total of 5,000,000 doses have been requested by Kenya.

③ Number of scissors

The scissors are used to cut the tip of a vitamin-A capsule from which the internal solution is dropped in a mouth. These scissors are small in size like those of stationery. For the NIDs in 2000, 15,000 health posts are planned for implementation. By distributing 2 pairs of scissors to each health post, 35,000 pairs of scissors including 5,000 pairs for reserve have been requested.

The requested quantities of Vitamin A in this Project include 10% of wastage rate. Vitamin-A is sealed in a soft elastic capsule that can be stored at room temperature, unlike vaccines. This is a general method storing chemicals, causing no problem of changing the contents in quality or no damage due to high temperature unless the capsules are exposed to the burning sun. Therefore, the quantities to be procured in this Project are estimated as shown below Table 2-3, judging that the quantities including the add-on damage rate of 10% are sufficient to ensure also the care of ophthalmopathy.

Table 2-3 Guideline for procurement of Vitamin A and related goods

Name of Goods	Guideline for procurement	Quantity of procurement
Vitamin A (100,000 IU)	Target population × wastage (10%)= 536,131 × 1.1=589,745	590,000 doses
Vitamin A (200,000 IU)	Target population × wastage(10%)= 4,289,042 × 1.1=4,717,947	4,720,000 doses
Scissors	At present, scalpel blade are commonly used instead of scissors. It has been decided that the necessity for scissors as equipment to be procured is low.	Exclude from the procurement list

In regard to scissors, it was observed by site surveys that scalpel blades are commonly used instead of scissors in medical facilities. Therefore, scissors are excluded from the

list of equipment and materials to be procured since the necessity for those is not deemed to be so high.

(C) Cold chain equipment

Mr. W. Kilva, Technical Adviser of the KEPI Cold Chain & Logistics Division has expressed the present status of cold chain equipment in Kenya as below. (See Table 2-4.)

Table 2-4 Situation of cold chain equipment

Name of equipment	Q'ty of needs	Q'ty of existing	Q'ty of insufficient
Ice lined refrigerator/freezer	158	81	77
Absorption type refrigerator/freezer	138	57	81
Absorption type small refrigerator	1,664	241	1,423
Photo-voltaic solar refrigerator/freezer	237	28	209

The basic concept of this Project is to procure vaccines and cold chain equipment in order to support the EPI activities for the NIDs in an effective and smooth way. As a result of review referring to Table 2-4 above, the quantities of cold chain equipment to be procured have been established as shown below Table 2-5.

Table 2-5 Guideline for procurement

Name of equipment	Guideline	Q'ty of procurement
Ice lined refrigerator / freezer	To be procured for facilities in which power source is available and in which renewal or new provision of the equipment is required. An ice-lined refrigerator/freezer which is able to keep cooling in case of power failure	Q'ty of insufficient = 77 units
Voltage Stabilizer	One unit to be procured for stabilization of power source in each freezer/refrigerator as above.	77 units
Absorption type refrigerator/freezer	To be procured for facilities in which power failure occurs frequently while propane gas is available as fuel.	Q'ty of insufficient = 81 units
Absorption type small refrigerator	To be procured for facilities similar to the above that are of small type.	Requested quantity = 500 units
Photo-voltaic solar refrigerator/freezer	To be procured for facilities having a poor or no power supply and located at a long distance and with difficulty to access from a gas supply source.	Requested quantity = 50 units
Vaccine carrier	To be procured for health centres and health posts as well as District health centres that require renewal or new installation of vaccine carriers and are located near vaccination sites.	Requested quantity = 5,000 units

In installation of solar-type refrigerators, it is planned to conduct training courses for installation, operation and maintenance. For this purpose, the necessary manuals and tools for repair will be procured. The manuals (instruction manual and maintenance manual) will be included in the supply of each equipment by attaching one copy to each set. The tools will be the general repair tools, and a total of 10 sets of tools will be distributed to 9 districts (Taita Taveta, Tana River, Isiolo, Marsabit, Makueni, Mbeere,

Garissa, Mandera and Kajiado) and the Cold Chain Control Center of KEPI, Nairobi, one set per district. The details of tools are listed in Table 2-6.

Table 2-6 Contents of tools

No	Name of tools	No	Name of tools
1	Tool box	13	Alley key
2	Combination pliers	14	Star screw driver
3	Side cutter	15	Flat screw driver
4	Long nose pliers	16	Tape measure
5	Digital multi-meter	17	File set
6	Precision screw driver (star)	18	Water pump pliers
7	Precision screw driver (flat)	19	Pipe cutter for 2 size
8	Adjustable spanner (large)	20	Flare tool
9	Adjustable spanner (small)	21	Reamer
10	Spring bender set	22	Pinch off tool
11	Open end spanner set	23	Tube piercing tool / valve
12	Ring spanner set	24	Ratchet wrench

The distribution plan of vaccines and related goods as well as vitamin-A is shown in Table 2-7 and the distribution plan of cold chain equipment in Table 2-8.

Table 2-7 Distribution plan of vaccine, related goods and vitamin A

a : Oral Polio Vaccine (doses), **b** : Measles Vaccine (doses), **c** : Auto destruct syringe (pieces), **d** : Safety box (pieces)
e : 5ml reconstitution syringe (pieces) **f** : Vitamin A 100,000 IU (doses) **g** : Vitamin A 200,000 IU (doses)

Name of the District		a	b	c	d	e	f	g
1	Nairobi	499400	233470	214367	2144	23347	26635	213227
2	Kiambu	257776	120510	110650	1107	12051	13348	99535
3	Kiniyaga	169481	79233	72750	727	7923	8467	67840
4	Muranga	163139	76267	70027	700	7627	8118	65045
5	Nyandarua	191288	89427	82110	821	8943	9666	77449
6	Nyeri	252912	118236	108562	1086	11824	13074	104606
7	Thika	220235	102960	94536	945	10296	11331	90788
8	Maragua	167147	78141	71748	717	7814	8338	66810
9	Kilifi	221157	103391	94932	949	10339	11334	90805
10	Kwale	207964	97223	89268	893	9722	10583	84798
11	Lamu	28576	13359	12266	123	1336	717	5744
12	Mombasa	190846	89220	81920	819	8922	9642	77254
13	Taita taveta	102960	48134	44196	442	4813	4808	38524
14	Tana River	71078	33229	30510	305	3323	3055	24475
15	Malindi	113652	53132	48785	488	5313	5397	43237
16	Embu	113293	52965	48631	486	5296	5377	43078
17	Isiolo	36005	16832	15455	155	1683	1125	9019
18	Kitui	237094	110841	101773	1018	11084	12186	97635
19	Machakos	411231	192250	176521	1765	19225	21787	174373
20	Marsabit	45654	21343	19597	196	2134	1657	13272
21	Meru Central	214504	100281	92076	921	10028	10943	87681
22	Makueni	342406	160075	146978	1470	16007	17992	144044
23	Meru South	98371	45988	42226	422	4599	4556	36501
24	Meru North	236355	110496	101455	1015	11050	12151	97310
25	Mwingi	111494	52123	47859	479	5212	5283	42285
26	Mbeere	66537	31106	28561	286	3111	2805	22474
27	Moyale	18407	8605	7901	79	861	157	1264
28	Meru East	36753	17182	15776	158	1718	1174	93349348
29	Garissa	82977	38792	35618	356	3879	3709	29719
30	Mandera	95339	44571	40924	409	4457	4389	35166
31	Wajir	84289	39405	36181	362	3940	3781	30296
32	Central Kisii	224363	104890	96308	963	10489	11496	92024
33	Kisumu	224400	104907	96324	963	10491	11499	92040
34	Siaya	250820	117258	107664	1077	11726	12940	103682
35	Homa Bay	124903	58392	53615	536	5839	6015	48195
36	North Kisii	259734	121426	111491	1115	12143	13431	107613
37	Migori	238421	111462	102342	1023	11146	12391	99189
38	Kuria	64139	29985	27532	275	2998	2673	21417
39	Suba	67813	31702	29109	291	3170	2875	23036
40	Ruchuonyo	133069	62210	57120	571	6221	6464	51793

Name of the District		a	b	c	d	e	f	g
41	South Kisii	199716	93367	85728	857	9337	10130	81163
42	Bondo	114180	53379	49012	490	5338	5434	43541
43	Nyando	138237	64626	59338	593	6463	6749	54071
44	Kajiado	188496	88122	80912	809	8812	9315	76218
45	Kericho	201456	94181	86457	865	9418	10226	81929
46	Laikipia	133652	62482	57370	574	6248	6497	52051
47	Nakuru	539730	252324	231679	2317	25232	28854	231001
48	Narok	225390	105370	96479	967	10537	11559	92574
49	Bomet	202455	94648	86904	869	9465	10305	82564
50	Trans-Mara	120450	56310	51703	517	5631	5771	46232
51	Buret	134750	62996	57841	578	6300	6557	52533
52	Baringo	152007	71063	65249	652	7106	7505	60139
53	Marakwet	62025	28997	26624	266	2900	2556	20485
54	Nandi	264407	123610	113497	1135	12361	13688	109672
55	Samburu	64407	30110	27647	276	3011	2687	21535
56	Turkana	83877	39213	36004	360	3921	3759	30116
57	West Pokot	136453	63792	58572	586	6379	6651	53284
58	Trans-Nzoia	264202	123515	113409	1134	12351	13676	109581
59	Uasin-Gishu	242000	113135	103879	1039	11314	12455	99796
60	Keiyo	62018	28993	26621	266	2899	2556	20482
61	Koibatek	87252	40790	37453	375	4079	3945	31603
62	Bungoma	347965	162647	149364	1494	16267	18283	146494
63	Busia	157678	73715	67683	677	7371	7818	62638
64	Kakamega	288466	134858	123824	1238	13486	14615	117098
65	Vihiga	253452	118476	108783	1088	11848	13087	104831
66	Mt. Elgon	67608	31607	29021	290	3161	2863	22946
67	Teso	76496	35762	32836	328	3576	3353	26862
68	Lugari	84372	39444	36217	362	3944	3786	30333
69	Butere/ Mumias	225711	105520	96887	969	10552	11683	93588
Total		11794864	5514099	5062946	50629	551410	589745	4717947

Table 2-8 Distribution plan of cold chain equipment

A : Ice lined refrigerator/ freezer, **B**: Voltage regulator, **C**: Absorption type refrigerator/freezer,
D: Absorption type small refrigerator, **E**: Photo-voltaic solar refrigerator/freezer, **F**: Vaccine carrier

Name of the District		Cold chain equipment					
		A	**B**	**C**	**D**	**E***	**F**
1	Kiambu	1	1	1	8		100
2	Kiniyaga	1	1	1	9		90
3	Muranga	1	1	1	8		100
4	Nyandarua	1	1	1	12		95
5	Nyeri	2	2	2	11		90
6	Thika	1	1	1	8		116
7	Maragua	1	1	1	13		120
8	Kilifi	1	1	1	8		100
9	Kwale	1	1	1	8		100
10	Lamu	1	1	1	5		65
11	Mombasa	2	2	2	8		100
12	Taita taveta	1	1	1	8	5	95
13	Tana River	1	1	1	3	10	53
14	Malindi	1	1	1	9		50
15	Embu	1	1	1	8		53
16	Isiolo	1	1	1	15	10	55
17	Kitui	1	1	1	8		77
18	Machakos	1	1	1	8		120
19	Marsabit	1	1	1	5	4	53
20	Meru	1	1	2	10		101
21	Makueni	1	1	1	8	5	102
22	Tharaka nithi	1	1	1	8		91
23	Nyambene	1	1	1	7		62
24	Mwingi	1	1	1	5		62
25	Mbeere	1	1	1	5	5	56
26	Moyale	1	1	1	5		34
27	Garissa	1	1	1	5	3	48
28	Mandera	1	1	1	5	3	36
29	Wajir	1	1	1	6		38
30	Kisii	1	1	1	13		100
31	Kisumu	1	1	1	10		101
32	Siaya	1	1	1	8		117
33	Homa Bay	1	1	1	7		101
34	Nyamira	1	1	1	8		103
35	Migori	1	1	1	8		96
36	Kuria	1	1	1	8		38
37	Suba	1	1	1	5		42
38	Rachuonyo	2	2	2	8		88
39	Gucha	2	2	2	9		88

Name of the District		Cold chain equipment					
		A	B	C	D	E*	F
40	Kajiado	1	1	1	5	5	80
41	Kericho	1	1	1	7		84
42	Laikipia	1	1	1	6		70
43	Nakuru	1	1	2	10		121
44	Narok	1	1	1	4		95
45	Bureti	1	1	1	9		91
46	Butere Mumias	2	2	2	9		101
47	Bondo	1	1	2	9		91
48	Bomet	1	1	1	5		51
49	Trans-Mara	1	1	1	5		58
50	Baringo	1	1	1	8		101
51	Marakwet	1	1	1	5		61
52	Nandi	1	1	1	6		42
53	Samburu	1	1	1	5		22
54	Turkana	2	2	2	6		22
55	West Pokot	1	1	1	6		38
56	Trans-Nzoia	1	1	1	5		38
57	Uasin-Gishu	1	1	1	5		56
58	Keiyo	1	1	1	7		41
59	Koibatek	1	1	1	5		31
60	Bungoma	1	1	1	6		61
61	Busia	1	1	1	5		61
62	Kakamega	1	1	1	7		121
63	Vihiga	1	1	1	6		44
64	Mt. Elgon	1	1	1	5		23
65	Teso	1	1	1	7		23
66	Lugari	1	1	1	5		41
67	Nairobi Div.	2	2	3	6		74
68	Nairobi Div.2	2	2	2	6		51
69	Nyando	1	1	1	10		71
Total		77	77	81	500	50	5000

(D) Vehicles

① Two 4-ton trucks for vaccine transportation

Kenya had originally requested two 7-ton trucks for transportation of vaccines and cold chain equipment. This transportation plan had been aimed at transporting and distributing these goods from the vaccine storehouse in Nairobi to two groups of provinces (the country consists of 2 groups of 4 provinces of Central Province, Eastern Province, Coastal Province and Northeastern Province, and 4 provinces of Nairobi, Lift Valley, Western Province and Nyanza Province) in Kenya by 2 trucks over a period of about one month.

However, the district roads (class C) in Kenya is generally narrow, and many of them are unpaved and poorly maintained. In addition, there will be no plan of transporting a large quantity of equipment and goods for the time being after the NIDs in 2000. In consideration of the present status of Kenya, it has been judged that cargo trucks of 4-ton class are suitable for mobility in Kenya. At present, KEPI has only one truck, so that this truck is not expected to be available for the NIDs in 2000. Thus, two 4-ton trucks will be procured in this Project, and effective transportation will be kept or secured.

② Four vehicles for surveillance

Vehicles for surveillance will be procured to reinforce the surveillance system of Kenya. It is planned to dispatch some members of the Japan Overseas Cooperation Volunteers (for polio surveillance) to Kenya at present time, so that they have priority to use the vehicles for surveillance procured in this Project. As of August 1999, 6 members have been dispatched to Western Province. In future, some members will also be dispatched to Nyanza Province and Central Province, and a total of about 20 members will be posted by April 2000. The members will be assigned to the District Disease Surveillance Team (DDST). Their activities include:

(1) Routine visits (once per month or once per 2 weeks) to each health and care facilities (health centers/dispensaries) and active surveillance (house-to-house visits);
(2) Collecting and sending stool specimens of patients with acute flaccid paralysis (AFP) (to Kenya Medical Research Institute in Nairobi); and
(3) Follow-up study of AFP patients after 60 days from first report.

As these members use the vehicles with priority, 4 vehicles will be distributed to each of District Health Bureaus to which the JOCV members are assigned: one to Kakamega District in Western Province (where the members have been posted), one each to Kisumu District and Homa Bay District in Nyanza Province (where the members will be posted in December 1999) and one to Nyeri District in Central Province (where the members will be posted in April 2000.) Kakamega District is the capital of Western Province, so that surveillance can probably cover the entire Province. In Nyanza Province, the road conditions are particularly poor among the provinces to which the JOCV members will be assigned. Therefore, the Province is divided into two so that the western part is covered by one vehicle distributed to Kismu, the capital of the Province, and that the southern part is covered by another vehicle distributed to Homa Bay District. Nyeri is the capital of Central Province and the JOCV members will be dispatched to the district, so that another vehicle will be

distributed to it.

Although the vehicles for repairs and management of cold chain equipment have been requested, they have been excluded from the Project because such vehicles are not accepted as indispensable necessities in the KEPI.

(2) Details and Scale of Procurement

The details and scales of procurement of vaccines and related equipment, vitamin-A, cold chain equipment and vehicles are as shown in Table 2-9.

Table 2-9 The contents and quantity of goods

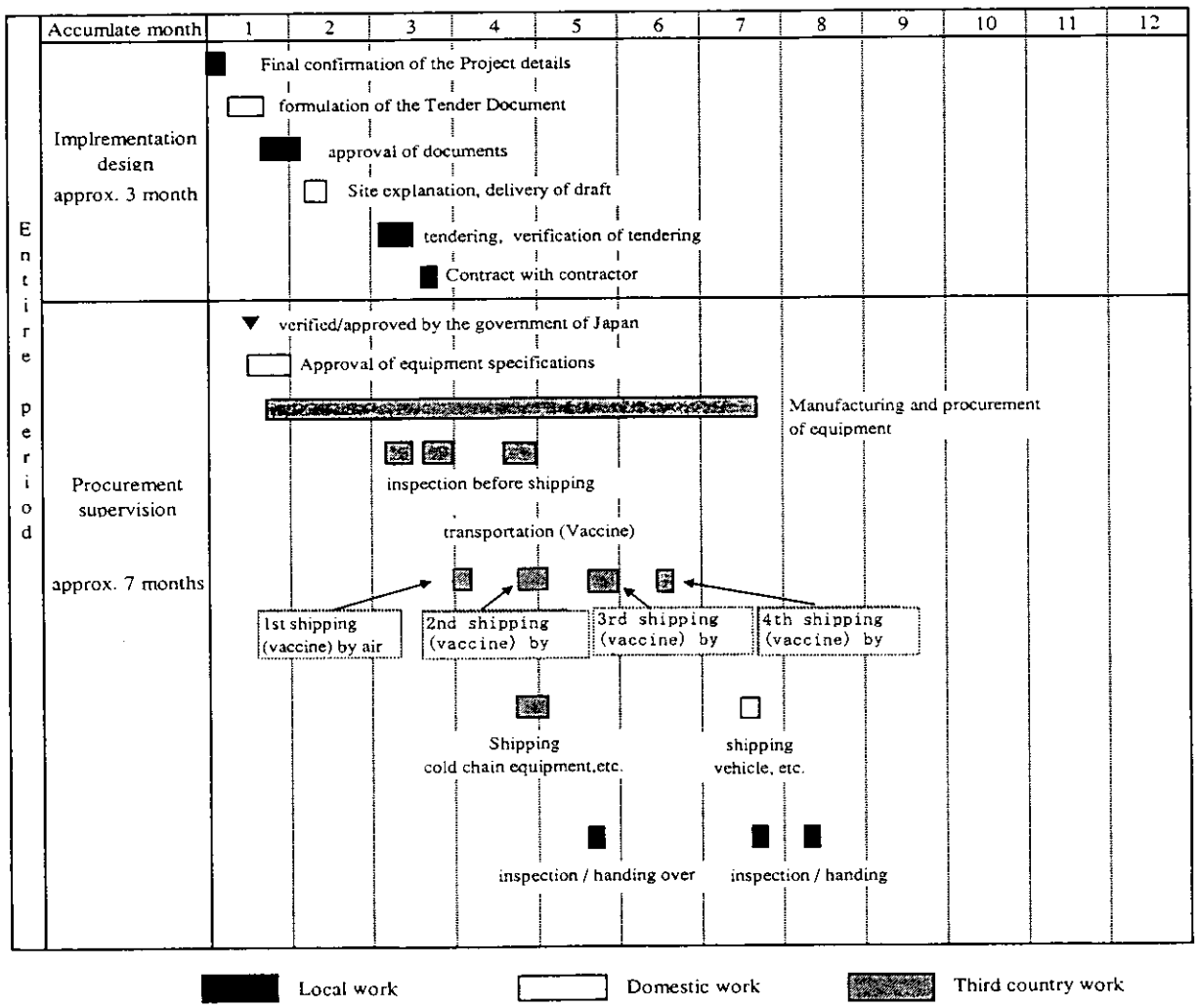
No	Name of Goods	Quantity	Purpose
A) Vaccine and related goods			
1	Oral Polio Vaccine	11,800,000 doses	For prevention of Polio
2	Measles Vaccine	5,520,000 doses	For prevention of Measles
3	Auto-destruct syringe	5,063,000 pieces	For vaccination of Measles inoculation
4	Safety box	51,000 pieces	For disposal of item No.3 and 5
5	5ml reconstitution syringe	552,000 pieces	For dilution of Measles vaccine
B) Vitamin A			
6	Vitamin A (100,000 IU)	590,000 doses	Target : from 6 to 11 month
7	Vitamin A (200,000 IU)	4,720,000 doses	Target : from 12 to 59 month
C) Cold chain equipment			
8	Ice-lined refrigerator/freezer	77 units	For vaccine storage
9	Voltage regulator	77 units	For item No. 8
10	Absorption type refrigerator/freezer	81 units	For vaccine storage
11	Absorption type small refrigerator	500 units	For vaccine storage
12	Photo-voltaic solar refrigerator /freezer	50 units	For vaccine storage
13	Tools for item No. 12	10 sets	For training and repair
14	Vaccine carrier	5,000 units	For delivery of vaccine
D) Vehicle			
15	Vehicle for transportation	2 units	For transportation of vaccine and goods
16	Vehicle for surveillance	4 units	For surveillance

CHAPTER 3. Implementation Plan

3-1 Implementation Plan

3-1-1 Implementation concept

The Work Implementation Schedule has been prepared in accordance with the Japan's grant aid scheme as shown below.



3-1-2 Obligations of Recipient Country

In implementation of this Project, Kenya shall be responsible for the following matters:

(1) To provide data and information materials necessary for implementation of this Project;
(2) To pay the commission for any payment for Kenya to bank in Japan under the Banking Arrangements;

(3) To take tax exemption measures for the equipment and materials to be procured under this Grant Aid Project, carry out prompt loading and unloading of such equipment and materials in Kenya, and guarantee smooth customs clearance and prompt inland transportation thereof;

(4) To exempt the customs, inland tax and any other financial duty and levy imposed on products and services that will be furnished by any Japanese corporation or person engaged in this Project under the authorized agreement;

(5) To provide any Japanese corporation or person engaged in the works necessary for the provision of products and services under the authorized agreement with necessary facilities for their immigration and staying in Kenya to execute such works;

(6) To issue any governmental permit and approval necessary for implementation of this Project;

(7) To secure sufficient budget and personnel to make adequate and effective use of the equipment and materials procured in this Project;

(8) To make adequate and effective use and maintenance of the equipment and materials procured in this Project;

(9) To bear all the costs and expenses necessary for implementation of this Project except the expenses that Japan shall bear under its grant aid.

3-1-3 Particulars

(1) Quality control of vaccines

The shelf life period of measles and polio vaccines is 2 years and the vaccines must be stored under proper temperature control. Therefore, it is required to inspect and put the vaccines under quality control at the times of shipment from factory and arrival at KEPI Nairobi in Kenya.

At the time of the Study, it has been reported from Kenya side that some of the vaccines procured (though the donors are unclear) have the vials with original labels on which other labels indicating the new shelf life are affixed though their original shelf life has expired. In this Project, it is required to make strict check before shipment of vaccines so that a similar trouble shall not occur.

(2) Period of procurement and implementation of NIDs

The point to bring attention to in this Project is that all and every equipment and goods must be present at each site before the NIDs. Especially, the production of measles and polio vaccines will take approximately three months, so that the period from start of production to shipment will require 3.5 to 4 months. Therefore, procurement of these

vaccines has to be observed as important.

On the other hand, the storage capacity of the vaccine storehouse in the KEPI only has enough volume for keeping regular amount of vaccines, but is not capable of storing the entire vaccines for the NIDs in 2000. For the NIDs in 1997, the required vaccines were delivered in 4 times. Similarly, the vaccines under this Project will be delivered in 4 times.

In Kenya, NIDs are implemented in August and September. The NIDs in 2000 also may be scheduled for August and September. The schedule is very tight when considering the plan from procurement to delivery. Procurement of vehicles will take much time. Therefore, it is necessary to adjust the schedule of NIDs 2000 with the Ministry of Health of Kenya.

3-2 Operation & Maintenance Plan

(A) Vaccines and related equipment

The vaccines and related equipment will be transported from the vaccine storehouse in the KEPI to the vaccine storehouse of each District Health Bureau by transportation truck. Those vaccines will be transported from the storehouse of each District Health Bureau to each vaccination site through cooperation of any related District authorities, NGO, civil organization, company or person. The means of transportation in this case will be cars, motorcycles, boats or the like.

Vaccines will be stored and maintained in the vaccine storehouses of the KEPI and each District Health Bureau. Each District Health Bureau will be reported the stock quantities of vaccines from the medical facilities under its control and distribute the required quantities to them.

Kenya has implemented the NIDs programme since 1996 and has experience of mobilizing necessary personnel and vehicles in a nationwide basis. Therefore, the transportation and management of the procured vaccine, equipment and goods in this Project will be executed in a smooth and efficient way.

(B) Vitamin-A

In Kenya, a vitamin-A supplementation programme has already been implemented under the guideline of WHO. At the same time, training courses have also been conducted to enhance the technical capability of the staff.

Vitamin-A does not require as strict temperature control as vaccines, and its storage and transportation is relatively easy. The vitamin-A is sealed in a soft elastic capsule and identified in color for two types of potency (100,000 IU: blue, 200,000 IU: red). In this Project, a similar type of vitamin-A will be procured. It is expected that there will be no problem with the methods of storing and administering it.

(C) Cold chain equipment

Cold chain equipment will be distributed from the KEPI to each District Health Bureau and further to each medical institution under the control of each District Health Bureau in accordance with the distribution schedule in Table 2-8. For solar-type refrigerators, a training session on installation and maintenance will be held by each Province where the equipment will be distributed. Delivery at sites will be undertaken by the maintenance personnel of each District.

Maintenance of the equipment and materials after delivery will be undertaken by the maintenance staff of each District hospital and supervised by the KEPI central administration officers.

The absorption-type refrigerators/freezers use propane gas (15kg/cylinder). The absorption type freezer/refrigerator can be used for approximately 3 weeks with one gas cylinder, and a absorption type small refrigerator for approximately 3 months. The cost per set (including a cylinder and a regulator) is approx. US$90. Ministry of Health is undertaking to provide propane gas under the financial support of some international organizations.

(D) Vehicle

Two 4-ton trucks for vaccine transportation to be procured in this Project will belong to the KEPI, which will undertake maintenance of those. The surveillance vehicles to be used by the members of the Japan Overseas Cooperation Volunteers with priority will be maintained and managed by the District Health Bureau under which the JOCV members will be assigned to the District Disease Surveillance Team (DDST).

CHAPTER 4. Project Evaluation and Recommendation

4-1 Project effect

Kenya has necessity for implementing NIDs as ever and WHO recommends Kenya to extend the NIDs in a nationwide basis to 2000 as well.

According to the report by Kenya, there was no official cases of polio within the country for the past 5 years. In the definitive diagnosis of polio, however, it is the key factor to detect poliovirus in the stool specimens of AFP patients, and it is necessary to have a thorough surveillance system.[5] In Kenya having a total population of more than 30 million, it is estimated that there are 120 to 130 AFP patients. In 1998, 90 cases of AFP were reported, but it is also undeniable that patients suffering AFP caused by poliovirus may be overlooked.

On the other hand, the probability of causing paralysis due to poliovirus infection is 1/100 to 1/200. Most of infected patients are subject to inapparent infection, therefore it is not easy to discover polio patients among them. In addition, there is a high risk that wild poliovirus may have been circulated into Kenya with the refugees who have immigrated from Sudan, Somalia and Ethiopia where the EPI activity is very poor.

With measles, the infectivity of the virus is very strong, and the outbreaks of measles in Kenya since February 1998 is still in progress to sweep the entire country vigorously. It is necessary to obtain the vaccination coverage rate of 95% or more in order to suppress the infection of measles. To obtain such high coverage rate, nation wide vaccination programme has been implemented on NIDS. This Project plans also to procure vitamin-A. Therefore, it is anticipated that the increasing number of patients infected with measles and deaths caused by measles will be reduced in Kenya.

As described above, it is expected that this Project will ensure the polio eradication and other vaccination activities to be continued in Kenya and greatly contribute to the goal of KEPI, and the implementation of the Project is deemed to be reasonable.

In addition, this Project plans to procure 4 surveillance vehicles in order to reinforce the surveillance system of Kenya. If the surveillance system functions in Kenya effectively, the

[5] AFP is a general notation of a group of diseases which is used in the system to report all types of acute flaccid paralysis in the polio eradication plan. The paralysis syndromes such as Guillain-Barré syndrome and transvers myelopathy can not be distinguished from those due to poliovirus. It is necessary to sample, analyze and diagnose faeces probes of all AFP patients in order to overlook no case of polio clinically.

areas to which JOCV polio surveillance members are dispatched may be the model cases for the surveillance system in the country. Thus, the Project will make great contribution to the reinforcement of EPI activities of Kenya by demonstrating the multiplier effect with procured equipment and allocated of personnel.

4-2 Recommendation

1) Improvement of vaccination coverage rate

The vaccination coverage rate in Kenya has been growing since the beginning of the EPI activities, but it has become slow since around 1992 and is rather decreasing in these years. Causes of the decrease are deteriorating economic conditions, migration of the population to urban areas, and decay of public peace and order. The slums around urban areas are bad in public order and hinder the development of vaccination activities at present state. In 1998, an incident of bombing terrorism within the city of Nairobi resulted in substantial decrease of the coverage rate in the city area. The KEPI has given priority to the vaccination in these areas and declared that they will make further efforts to improve the coverage rate in the Nairobi area.

Another problem at the Kenyan borders on Sudan and Ethiopia is that political unrest causes numerous refugees to flow into Kenya. The areas into which the refugees are flowing in have financial difficulty and poor access to the city area. Therefore, the study of the refugees and introduction of human and financial resources are not much available. This is one of the reasons for extension of the NIDs to the year 2000, which normally require 3 years (Kenya had planned to conduct it from 1996 to 1998 at first.).

After the end of the NIDs in 2000, the EPI activities will be continued by mopping-up[6] vaccination and routine EPI activities. Although those activities require the support of international organizations such as WHO/UNICEF and other donors, the efforts made by the KEPI of the Ministry of Health which is the core of the EPI activities will be very important for the countermeasure against infectious disease in Kenya.

2) Establishment of surveillance system

The importance of the surveillance of AFP patients has been described above. In the cases of polio, the cases of paralysis are very low and most of those end in inapparent

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[6] Mopping up: The NIDs programme is aimed at nation wide immunization of polio vaccine throughout the country, and mopping-up is a means of executing the smaller scale of NIDs (sub NIDs) only in limited areas if polio patients are generated only in limited areas.

infection even if the patients are infected with poliovirus. It is not easy to discover all AFP patients (estimated to be 120 to 130 people) all over the country and collect the stool specimens from the patients to make identification. If the surveillance system only functions effectively, it will be possible to implement the polio mopping-up and judge whether or not to declare "polio eradication in Kenya". Therefore, it is necessary to lay importance on secure discovery of AFP patients and to strengthen the surveillance activities.

The surveillance in the border areas and the densely populated areas (such as the slums around Nairobi) are important. The intrusion of wild poliovirus through the border areas and the spreading of virus among unvaccinated children are very much to be concerned . The future establishment of the surveillance system will be impending in financial support and education of personnel, and it is also desired to reinforce the surveillance system not only in the above areas but also nationwide.

3) Improvement of living environment

The infant mortality rate in Kenya was 62/1000 live births for the period of 1988 to 1993, but it increased to 74/1000 births for the period of 1993 to 1998. The diseases with a high morbidity rate include malaria, dermatitis, diarrhea, acute respiratory infection and cholera. The causes of these diseases are greatly attributed to unsanitary environment, insufficient education for sanitation, poor development of social infrastructure such as serving the safety water supply, insufficient waste management and food pollution. These problems that are the causes of infection such as a toilet near a well, unsanitary rooms in houses and drinking water from stagnant water have to be solved together with the thorough EPI activities.

Kenya invested 1.28 million Kenyan pounds (in 1990/1991) as the cost of health and medical care including vaccination with the support of donors. In 1998/1999, the amount of 4.55 million Kenyan pounds was appropriated in the budget as the mainstay of PHC.

Appendix

Appendix

1. Member list of the Survey Team

Leader	**: Eiji HASHIMOTO**	**JICA**
Equipment Planner 1	**: Daizo ARAI**	**JICS**
Equipment Planner 2	**: Tomoko ONDA**	**JICS**
Comercial resercher	**: Chiyuki SHITARA**	**JICS**

***JICS : Japan International Cooperation System**

2. Survey Schedule

SCHEDULE

No	DATE		ACTIVITY	ACOMOD.
1	20-Sep	Mon	11:50 Tokyo (Narita) (JL411) →16:45 Amsterdam 22:00 Amsterdam (KL4341) →	
2	21-Sep	Tue	→ 07:25 Nairobi 10:30 Courtesy call to JICA Kenya Office 11:00 Courtesy Call to Japanese Embassy 14:00 Courtesy Call to Ministry of Health	Nairobi
	22-Sep	Wed	10:00 Discussion with DfID 11:30 Discussion with USAID 14:00 Discussion with KEPI	Nairobi
3	23-Sep	Thr	10:00 Discussion with WHO 14:00 Discussion with KEPI	Nairobi
4	24-Sep	Fri	09:00 Discussion with KEPI 14:00 Discussion with KEPI	Nairobi
5	25-Sep	Sat	Inner Meeting	Nairobi
6	26-Sep	Sun	Inner Meeting	Nairobi
7	27-Sep	Mon	07:00 Nairobi→08:00 Kisumu Province(KQ650) 09:00 Kisumu→10:00 Kakamega Dist.(vehicle) 10:00 Kakamega Provincial Hospital(PMO, DMO) 10:30→16:00 Site survey in Kakamega District	Kisumu
8	28-Sep	Tue	09:00→15:00 Site survey in Kakamega District 15:30 Kakamega District→18:00 Kisumu(vehicle) 16:30 Kisumu→19:30Nairobi(KQ655)	Nairobi
9	29-Sep	Wed	08:00 Nairobi→10:30Muranga District Hospital 11:00 Site survey in Muranga District 16:00 Muranga →18:30Nairobi(KQ655)	Nairobi
10	30-Sep	Thr	09:00 Discussion with Minuetes in KEPI office 13:00 Signing Minutes of Discussion	Nairobi
11	1-Oct	Fri	09:00 Report to JICA Office 11:00 Report to Japanese Embassy 14:30 Discussion with BMESD* 14:30 Meeting of Kenya EPI	Nairobi
12	2-Oct	Sat	10:00 Nairobi (KL4340) → 17:40 Amsterdam	Nairobi
13	3-Oct	Sun	19:30 Amsterdam (JL412) →	Amsterdam
14	4-Oct	Mon	→ 13:40 Tokyo (Narita)	

*BMESD: Biomedical Engneering Service Division, Ministry of Health

Appendix 3

List of Party Concerned in the Recipient Country

Organization	Name	Position	Section
Japanese Embassy JICA Kenya Office	Yosuke MATSUMIYA Munetoshi ISHIDA	Second Secretary Special Assistant	Japanese Embassy
	Eiji HASHIMOTO	Representative , JICA Kenya Office	
	Jun MATSUMOTO	Deputy Representative , JICA Kenya Office	
	Yoshiro KURASHINA	Health Officer , JICA Kenya Office	
	L. Nyambati	HPO, JICA Kenya Office	
	Hitoshi MORITANI	JOCV Coordinator, JICA Kenya Office	
	Dr. Yasuo SUGIURA Dr. FUJIYAMA Dr. NAGAI	Expert KEMRI Chief adviser Expert	ARI Project ARI Project ARI Project
	Naofumi HASHIMOTO	JOCV Senior Volunteer	Disease Surveillance Section, KEPI
WHO Kenya	Dr. Rufaro R. Chatora	WHO Representative	
	Mr. Akpaka Kalu	EPI Officer	
WHO/KEPI	Mr. G. W. Kiluva	Cold chain engineer	Logistics, KEPI
DfID	Dr. Jason Lane	Health & Population Field Manager	Eastern Africa Project Coordination Office
USAID	Victor Masbayi	Child Survival Specialist	Office of Population and Health
DANIDA	Erling Larsson, M.D.	Health Planning & Management Adviser	Health Sector Support Programme, MOH Kenya
Ministry of Finance Planning	J. M. Nyawmba	Ass. Desk Officer of Japan	
Ministry of Health The Republic of Kenya	Prof. Julius S. Meme	Permanent Secretary	Headquarter
	Dr. R. O. Muga	DMS	Ditto
	Mr.Chiboli I. Shakaba	Deputy Secretary	Ditto
	Dr. Stanley Sonoiya	KEPI Manager	Div. of Primary Health Care, KEPI
	Mr. Samuel M. Kamau	KEPI Coordinator Cold Chain and Logistics officer	KEPI
	Dr. Mary Wangai(Ms.)		KEPI
	Ms. Eunice Ngugi	Administrator	KEPI
	Mr. David Mwauru	Statistician	KEPI
	Ms. Susan Otiend	Trainer	KEPI
	Mr. Alfred Maisba		Disease Surveillance, KEPI
	Mr. J.M.S. Ngaruiya	Social Mobilizer	KEPI
	Mr. Joseph Likulu		Logistics(Supplies), KEPI
	Mr. Amos Chwega		Central Vaccine Store KEPI
	Mr. J.M.Nyamu	Head	Biomedical Eng. and Maintenance Div.
	Mr. G. W. Kiruba	Logistic	Cold chain engineer

Organization	Name	Position	Section
[Kakamega District] West Province			
Ministry of Health	Dr. Ahindukria P.B	District Medical Officer of Health	
	Ms Esther OWENDO	KEPI Nurse、Kakamega MOH Hospital	
Bukura R.H.D Center	Mr. W.C. Wesechere	Clinical Officer	
	Mr. Japheth KUBATI		
	A.W. Njenga		
Kakamega Mission Hospital	Ms. Mbwabi	Matron	
	Ms. Anna Kahwai	Nurse	
Shikusi Dispensary	Ms. Adeleude LUNANI	Nurse	
	Ms. Rosyine LUBEMBE	Nurse	
Glory Mai Nursing Home	Ms. Alice QONGE	Clinical Officer	
Contral Nursing Home Kakamega	Jenipher J. NGONO	Clinical Officer	
Kakamega Health Center	Ms. Julia MJAGI	Clinical Officer	
	Ms. Erastus MUNENE	Enrolled Psychiatric Nurse	
	Ms. Irene ITEGI	Nurse	
	Ms. Faith GITAKA	Nurse	
[Muranga District] Central Province			
Muranga District Hospital	Dr. P. M. NDEGWA	Administration Officer	
	Mr. Kariuki KARUGA	Health Education	
	Mr. T.W. GAIHITU	R.H.Fs. Supervisor	
	Ms. M.W. MACHARIA	Nurse	
	Mr. P. N. GATHUNGU	District Health Information Offcier	
	Mr. P.K. NGANGA	Health Education	
	Mr. G.M. MAKINDU	District Hospital	
	Mr. P.W. GATHUGU	Public Health	
	Mr. H.O. LAVISA	District Hospital	
	Mr. M.K. MUNGAI	Public Health Officer	
	Mr. Habir KARAM	Clinical Officer	
	Mr. Ester W. KARUAKI	Occupationaltherapist	
	Mr. Priscilla W. KIMANI	Nutrition Officer	
	Mr Joseph K. KIMARU	Laboratory Technician	
	Mr. Francis K. GITAU	Infectious Disease Control Program	
	Mr. Peter K. NGUGI	Medical Engineer	
	Mr Savid MUCHERU	Physiotherapist	
	Mr. Njoroge M. PETER	Radiographer	
Iruri Dispensary	Ms. Juster Wa Dia Mutri	Staff	
	Mr. Gideon Mwangii MACHARIA	Public Health Technician	
	Ms. Monicah N.WARUI	Public Health Nurse	

MINUTES OF DISCUSSIONS

THE STUDY ON THE PROJECT FOR GRANT AID

FOR THE CHILD HEALTH

EXPANDED PRGRAMME ON IMMUNIZATION

IN

THE REPUBLIC OF KENYA

In response to the request from the Government of Republic of Kenya (hereinafter referred to as "Kenya"), the Government of Japan decided to conduct a Study on the Project for Grant Aid for Child Health, Expanded Programme on Immunization in Kenya (hereinafter referred to as "the Project") and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent the Study Team (hereinafter referred to as "the Team"), headed by Mr. Eiji HASHIMOTO, Resident Representative, JICA Kenya Office, to Kenya from September 21 to October 2, 1999.

The Team had series of discussion with the officials concerned of the Government of Kenya and conducted a field survey.

As a result of discussions between both sides and the field survey, the Team has confirmed that it will convey the request main items as attached for consideration by the Government of Japan.

Nairobi, September 30th, 1999

Mr. Eiji HASHIMOTO
Leader,
Study Team
JICA

Prof. J. S. Mene, EBS, MBS, FRAP
Permanent Secretary,
Ministry of Health
The Republic of Kenya

Mr. Mwaghazi MWACHOFI
Financial Secretary
Ministry of Finance
The Republic of Kenya

ATTACHMENT

1. Objective

The Objective of the Project is to promote the activities for Expanded Programme on Immunization through the provision of necessary goods

2. Project Sites

Project Sites are whole of Republic of Kenya.

3. Responsible and Executing Agency

Responsible Agency : Ministry of Health
Executing Agency : Kenya Expanded Programme on Immunization(KEPI), Ministry of Health

4. Items Requested by the Government of Kenya

(1) After discussion with the Team, the Government of Kenya made a final request to the Government of Japan to consider providing the items described in Annex-1 as part of the Project.
However, items to be included in the Project will be decided after further study in Japan.

(2) The Government of Kenya assigned in Annex-1 their own Priorities on the goods.
Note : A = 1st Priority/Essential, B = 2nd Priority/Necessary,
C = 3rd Priority/Desirable

5. Japan's Grant Aid System

(1) The Government of Kenya has understood the system of Japan's Grant Aid on Annex-2 as explained by the team.

(2) The Government of Kenya will take necessary measures, as described in Annex-3 for the smooth implementation of the Project on the condition that the Grant Aid is extended to the Project by the Government of Japan.

6. Schedule of the Study

JICA will prepare a study report on the Project and send it to the Government of Kenya around January 2000.

7. Other relevant issues

(1) The Government of Kenya will ensure the necessary local support for the implementation of the Project. Such as allocating recurrent cost, personnel, social mobilization and the local transportation of all project supplies throughout the Republic of Kenya

(2) The Government of Kenya will prepare answers to the questionnaire and submit them to the Team by October 1st, 1999.

Annex-1

Requested Item

Republic of Kenya

No	Item	Quantity	Priority
Vaccine for 2000 NIDs and the related supplies			
1	Oral polio vaccine	14,000,000 Doses	A
	With dispenser	700,000 Pcs	A
2	Measles vaccine	7,500,000 Doses	A
3	Auto-destruct syringe with needle	7,500,000 Pcs	A
4	Safety box for auto-destruct syringe	85,000 Pcs	A
5	5ml reconstitution plastic syringe with needle	800,000 Pcs	A
6	Cotton wool	35,000 Role	B
Vitamin A			
7	Vitamin A (100,000 IU)	700,000 Doses	A
8	Vitamin A (200,000 IU)	5,000,000 Doses	A
9	Scissors for cutting vitamin A	35,000 Pcs	A
Cold chain equipment			
10	Ice-lined Refrigerator & Freezer	100 Unit	A
11	Voltage Regulator	100 Unit	A
12	Absorption type Refrigerator/Freezer	100 Unit	A
13	Absorption type Small refrigerator	500 Unit	A
14	Photovoltaic solar Refrigerator	50 Unit	A
15	Vaccine carrier	5,000 Unit	B
16	Vehicle for vaccine distribution	2 Unit	A
17	Vehicle for surveillance	4 Unit	B
18	Vehicle for cold chain maintenance	1 Unit	B
19	Refrigerators installation and Maintenance manuals & maintenance general tools	50 Set	A

A = 1st Priority/Essential, B = 2nd Priority/Necessary,
C = 3rd Priority/Desirable

JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedures

(1) Japan's Grant Aid Program is executed through 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 Cabinet)
Determination	(The Notes exchanged between the Governments of Japan and recipient country)
Implementation	

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

Secondly, JICA conducts the Study (Basic Design Study), using (a) Japanese consultant 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 result are then submitted to the Cabinet for approval.

Fourthly, the Project, once 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 assist the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

(1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project") is to provide a basic document necessary for the appraisal of

the Project by the Japanese Government. The contents of the Study are as follows:

a) Confirmation of the background, objectives and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation,
b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economical point of view,
c) Confirmation of items agreed on by the both parties concerning the basic concept of the Project,
d) Preparation of a basic design of the Project,
e) Estimation of the 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.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations in the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the study, JICA use (a) registered consultant firm(s). JICA selects (a) firm(s) through proposals submitted by interested firms. The firm(s) selected carry(ies) out the 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 to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid program provides a recipient country with non-

reimbursable funds needed to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under the principals in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

(2) Exchange of Notes (E/N)
Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, 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 the one fiscal year in which the Cabinet approves the Project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

(4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.
When both Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of the third country. However the prime contractors, namely, consulting contracting 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.)

(5) Necessity of "Verification"
The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification is deemed necessary to secure accountability to Japanese taxpayers.

Undertakings required of the Government of 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 and to clear, level and reclaim the land prior to commencement of the construction.

b) To provide facilities of the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.

c) To secure buildings prior to the procurement in case the installation of the 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 facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the 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 should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payment in Japanese yen to cover the obligations incurred by the 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.

Necessary Measures to be taken by the Government of Kenya

Following necessary measures should be taken by the Government of Kenya on condition that the Grant Aid by the Government of Japan is extended to the project:

1. To provide data information necessary for the Project;

2. To bear commissions to a bank of Japan for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commission;

3. To ensure prompt unloading, tax exemption, customs clearance before entering in Kenya and prompt internal transportation therein of the materials and equipment for the Project purchased under the Grant Aid;

4. To exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Kenya with respect the supply of the products and services under the verified contracts;

5. To accord Japanese nationals whose services maybe required in connection with the supply of the products and services under the verified contract such facilities as may be necessary for their entry into Kenya and stay therein for the performance of their work;

6. To provide necessary permissions, licenses and other authorizations for implementing the Project, if necessary;

7. To assign appropriate budget and staff for proper and effective use of equipment and instruments provided under the Grant Aid;

8. To maintain and use properly and effectively the equipment and instruments provided under the Project; and

9. To bear all the expenses, other than those to be borne by the Japan's Grant Aid within the scope of the Project.