

Chapter 2 Contents of the Project

2 - 1 Basic Concept of the Project

In 1999, Tanzania prepared the first Medium-term Expenditure Framework (MTEF) to allocate budget for strategic national development programs incorporating the assistance plans of donor countries and organizations in advance. Later in 2001, sector MTEFs were prepared as the guidelines for 3-year budget-making in 8 prioritized fields including AIDS, basic health, etc. This project is based on Tanzania's 3-year program for HIV control and 5-year EPI program promoted in accordance with these MTEFs. The HIV control program of Tanzania aims to strengthen VCT activities and reduce the risk of HIV infection associated with blood transfusion and the infection of STIs. The EPI program aims to prevent vaccine deterioration and to advance the effective immunization by improving on the cold chain, which is crucial for the implementation of the program. This project intends to support the achievement of the goals of these programs and to lower the morbidity of preventable infectious diseases by the procurement of the equipment needed for these programs.

2 - 2 Basic Design of the Requested Japanese Assistance

2 - 2 - 1 Design Policy

(1) Basic Policy

HIV Control Program

For the purpose of supporting the implementation of Tanzania's 3-year project for HIV control aiming at the prevention of the prevalence of HIV, this grant-aid provides the fund for procuring HIV test kits, laboratory equipment, equipment for the prevention of secondary infection to

medical workers, syphilis test kits, and drugs for the treatment of STIs. While Tanzania requested the assistance covering 3 years, it is considered appropriate to support equipment procurement for 3 years, because Tanzania's HIV control measures are formulated as a 3-year program, the USAID has been implementing a logistic system support project controlling the management and distribution of equipment based on the 3-year HIV program, and medium- to long-term assistance is necessary for nationwide establishment of this system. However, the procurement of HIV test kits and syphilis test kits under this project will be limited to 2 years, because it is supposed that the market for testing products will change, notably with development of increasingly new sensitive tests and withdrawal from the market of some old less sensitive tests, and finally there is strong possibility of major design change.

i) Target Area and Facilities

The target area is the whole country of Tanzania. Considering the coherence with the USAID's logistic system reconstruction project, this project in the first year will procure minimal HIV testing equipment for hospitals down to the level of districts. In the second year, equipment in needed quantities will be supplied to health centers and dispensaries to provide strong support to the HIV control program.

Hence, the target facilities in the first year will be 179 hospitals performing HIV testing of blood for transfusion, i.e., regional hospitals, district hospitals, and public hospitals (hospitals established by NGOs and religious corporations), as well as 119 VCT facilities and 24 antenatal clinics belongs to regional and district hospitals. The target facilities in the second year will be 162 VCT facilities including the health centers that are planned to complete counselor training in 2002.

ii) Items to be Procured

The items to be procured under the above project have been determined based on the HIV test

guidelines and STIs treatment manual of MOH. Table 2-1 compares the lists of equipment at the time of request, at the time of the Minutes of Discussions, and in the finalized plan.

Table 2 - 1 Comparison of Equipment Lists

Item No.	Request	Item No.	Minutes of Discussions	Item No.	Final
1	Capillus HIV1/HIV2 (20test/kit)	1	Capillus HIV1/HIV2 (20test/kit)	1	Capillus HIV1/HIV2 (100test/kit)
2	Capillus HIV1/HIV2 (100test/kit)	2	Capillus HIV1/HIV2b (100test/kit)	2	Determine HIV-1/2
3	Determine HIV-1/2	3	Determine HIV-1/2	3	ELISA Vironostika Uniform HIV 1/2 plus 0
4	ELISA Vironostika Uniform HIV 1/2 plus 0	4	ELISA Vironostika Uniform HIV 1/2 plus 0	4	ELISA Enzygnost HIV1/HIV2 plus
5	ELISA Enzygnost HIV1/HIV2 plus	5	ELISA Enzygnost HIV1/HIV2 plus 0	5	RPR Syphilis Test Kit
6	Western Blot Liatek HIV	6	RPR Syphilis Test Kits	6	Syphilis VDRL Carbon Antigen Test (5ml)
7	RPR Syphilis Test Kit	7	Syphilis VDRL Carbon Antigen tests (25ml bottle)	7	Lancets
8	Lancets	8	Lancets	8	Yellow tips (0-200 microlitre)
9	Yellow tips (0-200 microlitre)	9	Yellow tips (0-200 microlitre)	9	Vacuum blood collecting tube 5ml
10	Vacutainer tube 5ml	10	Vacutainer tubes 5ml	10	Vacuum blood collecting tube 10ml
11	Vacutainer tube 10ml	11	Vacutainer tubes 10ml	11	Vacutainer needles G21
12	Vacutainer needles G21	12	Vacutainer needles G21	12	Vacutainer Holders
13	Disposable Pasteur Pipette 3ml	13	Vacutainer Holders	13	Disposable Pasteur Pipette 3ml
14	Nunc Serum Tube 1.8ml	14	Disposable Pasteur Pipettes 3ml	14	Micro tube 1.8ml
15	Toniquets	15	Nunc Serum Tubes 1.8ml	15	Cryo Boxes 10 × 10 Formatted
16	Cryo Boxes 10 × 10 Formatted	16	Cryo Boxes 10 × 10 Formatted	16	Tourniquets
17	Latex Examination Gloves Size M	17	Tourniquets	17	Latex Examination Gloves Size M
18	Latex Examination Gloves Size L	18	Latex Examination Gloves Size M	18	Latex Examination Gloves Size L
19	Benzathine Benzylpenicillin 2.4MU	19	Latex Examination Gloves Size L	19	White overall with short sleeves L
20	Syringe with Needle 10ml	20	White overall with short sleeves	20	White overall with short sleeves M
21	Erythromycin 500mg tab	21	Biohazard Discard Bags (heat resistant for Auto)	21	Biohazard Discard Bag (heat resistant for Automatic)
22	Apron reusable	22	Biohazard Discard Bags (regular)	22	Biohazard Discard Bag (regular)
23	Biohazard Discard Bag (heat resistant for Automatic)	23	Sharps Containers (Hard Paper box)	23	Sharps Container (Hard Paper box)
24	Biohazard Discard Bag (regular)	24	Syringes with Needle 10ml	24	Syringe with Needle 10ml
25	Sharps Container (Hard Paper box)	25	Benzathine penicillin 2.4MU	25	Benzathine Benzylpenicillin 2.4MU
26	Clotrimazole 100mg Pessary	26	Erythromycin 250mg tablets	26	Erythromycin 250mg tab
27	Ciprofloxacin 500mg Tablet	27	Clotrimazole 100mg Pessaries	27	Clotrimazole 100mg Pessary
28	Doxycycline 100mg Capsule	28	Ciprofloxacin 500mg Tablets	28	Ciprofloxacin 500mg Tablet
29	Metronidazole 2g Tablet	29	Doxycycline 100mg Capsules	29	Doxycycline 100mg Capsule
30	Metronidazole 400mg Tablet	30	Metronidazole 400mg Tablets	30	Metronidazole 400mg Tablet
31	Ceftriaxone 250mg vial	31	Ceftriaxone powder (disodium salt) 250mg vials	31	Ceftriaxone 250mg vial
32	Oxytetracycline Eye Ointment 0.1% 5g Tube	32	Ceftriaxone powder (disodium salt) 125mg vials	32	Tetracycline Eye Ointment 1% 5g Tube
33	Erythromycin Eye Ointment	33	Oxytetracycline Eye Ointment	33	Erythromycin dry powder for

	0.5% 5g Tube		0.1% 5g Tubes		syrup 125mg/5ml
34	Ceftriaxone 150mg vial	34	Erythromycine Eye Ointment 0.5% 5g Tubes	34	Clotrimazole 1% Cream 20g
35	Erythromycin dry powder for syrup 150mg	35	Erythromycine dry powder for syrup 125mg/5ml	35	Spectinomycin 2g Vials
36	Clotrimazole 1% Cream 20g	36	Clotrimazole 1% Cream 20g Tubes	36	Co-trimoxazole 400mg/80mg tablets
37	Silver Nitrate 75% Single Use Tip	37	Podophyline 10% 60ml/bottle	37	Silver Nitrate 75% ~ 95% Single Use Tip
38	Water for injection 5ml (priced for 10ml)	38	Spectinomycin 1g vials	38	Water for injection 10ml
		39	Co-trimoxazole 400/80mg tablets		
		40	Silver Nitrate 75% Single Use Tip		
		41	Water for injection 10ml		

The HIV test kits to be procured will be the same products as those currently used in Tanzania because no other similar products to Capillus and Determine are available as rapid test. This is also because, regarding the ELISA method, procedures differ from different reagents, so that there is every possibility of confusion in laboratories if different reagents are introduced.

iii) Quantities to be Procured

The needed quantities of test kits have been determined as follows according to the purpose of use.^{Note3}

1. For Blood Transfusion

A	Estimated number of blood units needed in a year		130,000
B	Number of donors requiring tests	A x 1.1	143,000
C	Number of 1st tests using Capillus (75%)	B x 0.75	107,250
D	Buffer stock for 3 months	C x 0.25	26,813
E	Total	C + D	134,063
F	After addition of allowance for quality control and other purposes (10%) Note 4	E x 1.1	147,469
G	Number of 1st tests using ELISA (25%)	B x 0.25	35,750
H	Buffer stock for 3 months	G x 0.25	8,938
I	Total	G + H	44,688
J	After addition of allowance for quality control and other purposes (15%)	I x 1.15	51,391
K	Needed quantity of Vironostika reagent for ELISA method (95%)	J x 0.95	48,821
L	Needed quantity of Enzygnost reagent for ELISA method (5%)	J x 0.05	2,570

Note3 Reference: Ministry of Health, USAID, JSI et al, Preliminary Assessment of HIV/AIDS Commodity Needs and Logistics Capacity in Tanzania, Final Report, May 2001

Note 4 A part of the test kits are routinely used for the purpose of quality control to confirm the accuracy of test results. Such consumption of test kits for purposes other than actual testing has been assumed to be 10% for rapid methods and 15% for ELISA, RPR, and VDRL methods based on the statistics of the MOH, and additional quantities to supplement such consumption have been included in the planned procurement quantities.

2. VCT

A	Estimated number of persons receiving counseling (The number of target VCTs in the 1st year is 126 minus 7 covered by AMREF, that in the 2nd year is 162.)	No. of VCTs x 2 x 232 days	55,216
B	Number of 1st tests using Capillus	A	55,216
C	Buffer stock for 3 months	B x 0.25	13,804
D	Total needed quantity of Capillus	B + C	69,020
E	After addition of allowance for quality control and other purposes (10%)	D x 1.1	75,922
F	Number of 2nd tests using Determine (75%)	B x 0.75	41,412
G	Buffer stock for 3 months	F x 0.25	10,353
H	Total needed quantity of Determine	F + G	51,765
I	After addition of allowance for quality control and other purposes (10%)	I x 1.1	56,942
J	Number of 2nd tests using ELISA (25%)	B x 0.25	13,804
K	Buffer stock for 3 months	J x 0.25	3,451
L	Total	J + K	17,255
M	After addition of allowance for quality control and other purposes (15%)	L x 1.15	19,843
N	Needed quantity of Vironostika reagent for ELISA method (95%)	M x 0.95	18,851
O	Needed quantity of Enzygnost reagent for ELISA method (5%)	M x 0.05	992

3. Antenatal Clinics (Syphilis Surveillance)

A	Estimated number of pregnant women in 4 target districts		293,714
B	Estimated number of pregnant women receiving examination (95%)	A x 0.95	279,028
C	After addition of allowance for quality control and other purposes (15%)	B x 1.15	320,883
D	Estimated use of RPR (60%)	C x 0.6	192,530
E	Estimated use of VDRL (40%)	C x 0.4	128,353

4. Sentinel Surveillance (HIV + Syphilis Surveillance)

A	Number of target persons		6,600
B	Needed quantity of ELISA reagents		6,600
C	Buffer stock for 3 months	B x 0.25	1,650
D	Total	B + C	8,250
E	After addition of allowance for quality control and other purposes (15%)	D x 1.15	9,488
F	Number of 2nd tests assuming 16% positive rate	E x 0.16	1,056
G	After addition of allowance for quality control and other purposes (15%)	F x 1.15	1,214
H	Needed quantity of syphilis test kits (RPR)		6,600
I	Allowance for quality control and other purposes (15%)	H x 0.15	990
J	Total	H + I	7,590
K	2nd (confirmatory) tests assuming 8.5% positive rate (VDRL)	H x 0.085	561
L	After addition of allowance for quality control and other purposes (15%)	K x 1.15	645

Including other equipment, Table 2-2 indicates the quantities of HIV-related equipment to be procured and the basis for calculation.

Table 2 - 2 Quantities of Equipment to be Procured and Basis for Calculation

Phase 1

	Item	Planned Quantity		Locations			Basis for Planning and Calculation
				Regional and District Hospitals	VCT	Antenatal Clinics	
1	Capillus HIV1/HIV2 (100 tests/kit): Trade Name	2,235	Kits	179	119	0	About 130,000 units of test kits used for blood transfusion at 179 hospitals plus HIV test kits for 58,464 persons used at 126 VCTs belonged to hospitals.
2	Determine HIV-1/2 (100 tests/kit): Trade Name	570	Kits	0	95	0	HIV test kits for estimated 56,942 persons receiving 2nd tests at 95 VCTs
3	ELISA Vironostika Uniform II HIV 1/2 plus 0 (192 tests/kit): Trade Name	408	Kits	170	114	0	Test reagents used for blood transfusion (48,821 persons) and VCT (18,851 persons) at 170 hospitals in regions other than Mbeya, plus those used for surveillance (10,702 persons) in Mwanza, Tanga, and Lindi Regions.
4	ELISA Enzygnost HIV1/HIV2 plus (192 tests/kit): Trade Name	20	Kits	5	5	0	For blood transfusion (2,570 persons), VCT (992 persons), and surveillance (1,055 persons) at hospitals in Mbeya Region. Adjusted to the smallest packaging unit of 5 sets.
5	RPR Syphilis Test Kit	200,100	Tests	0	0	24	RPR syphilis test kits for 200,120 persons used for surveillance at the obstetrics departments of 24 hospitals in Mbeya, Mwanza, Tanga, and Lindi Regions. Adjusted to the smallest packaging unit of 300.
6	Syphilis VDRL Carbon Antigen Test	129,000	Tests	0	0	24	VDRL syphilis test kits for 128,914 persons used for surveillance at the obstetrics departments of 24 hospitals in Mbeya, Mwanza, Tanga, and Lindi Regions.
7	Lancets (200 sets/box)	715	Boxes	179	0	0	Used for testing before collection of blood for transfusion at 179 hospitals.
8	Yellow tips (0-200 microlitre) (1000 pieces/pack)	409	Packs	0	0	0	Used during ELISA syphilis test for 408,400 persons.
9	Vacuum blood collecting tube 5ml (1000 pieces/pack)	56	Packs	0	119	0	Used for blood collection during HIV test for 55,216 persons yearly at 119 VCTs.
10	Vacuum blood collecting tube 10ml (1000 pieces/pack)	286	Packs	0	0	24	Used during syphilis test for 285,628 pregnant women yearly.
11	Vacutainer needles G21	342,000	Pieces	0	119	24	Used with 342,000 5-ml and 10-ml vacuum blood-collecting tubes.
12	Vacutainer Holders	4,000	Pieces	0	119	24	The holder fixing the needle during blood collection using vacuum tubes. To be replaced after the use of 100 needles. Adjusted to the smallest packaging unit of 1,000.
13	Disposable Pasteur Pipette 3ml	55,000	Pieces	0	119	24	For serum collection at 119 VCTs, covering the estimated number of target persons.
14	Micro tube 1.8ml	105,000	Pieces	0	119	24	For serum collection during VCT and surveillance at 119 locations, covering the estimated number of positive persons: about 730 pieces for each location.
15	Cryo Boxes 10 × 10 Formatted	50	Pieces	0	42	8	For one-third of the VCTs and obstetrics departments performing the above tests.
16	Tourniquets	120	Pieces	0	119	0	Renewal of tourniquets for VCT.
17	Latex Examination Gloves, Size L (100 pieces/box)	1,490	Boxes	179	119	0	For 232 days, 2 persons/day, at 298 hospitals and VCTs. 5 boxes for each location.
18	Latex Examination Gloves, Size M (100 pieces/box)	1,490	Boxes	179	119	0	For 232 days, 2 persons/day, at 298 hospitals and VCTs. 5 boxes for each location.
19	White overall with short sleeves, Size L	600	Pieces	179	119	0	For 2 persons each at about 300 facilities.
20	White overall with short sleeves, Size M	600	Pieces	179	119	0	For 2 persons each at about 300 facilities.

21	Biohazard Discard Bag (heat resistant for Automatic) (100 pieces/box)	895	Boxes	179	0	0	For 232 days, 2 pieces/day, at 179 hospitals. 5 boxes for each facility.
22	Biohazard Discard Bag (regular) (100 pieces/box)	1,490	Boxes	179	119	0	For 232 days, 2 pieces/day. 5 boxes for each facility.
23	Sharps Container (Hard Paper box) (25 pieces/box)	480	Boxes	179	119	0	1 box/year for each VCT. 2 boxes/year for each hospital.
24	Syringe with Needle 10ml	120,000	Pieces	179	0	0	Based on the estimated annual 150,000 patients with STIs, quantities have been determined either according to the calculation methods specified in Tanzania's manuals or as the quantities actually procured by EU.
25	Benzathine Benzylpenicillin 2.4MU injection	100,000	Vials	179	0	0	
26	Erythromycin 250mg Tablet	3,000	Bottles	179	0	0	
27	Clotrimazole 100mg Pessary	30,000	Cases	179	0	0	
28	Ciprofloxacin 500mg Tablet	179	Bottles	179	0	0	
29	Doxycycline 100mg Capsule or Tablet	6,000	Bottles	179	0	0	
30	Metronidazole 400mg Tablet	3,000	Bottles	179	0	0	
31	Ceftriaxone 250mg vial	10,300	Vials	179	0	0	
32	Tetracycline Eye Ointment 1% 5g Tube	80,000	Tubes	179	0	0	
33	Erythromycin dry powder for syrup 125mg/5ml	6,000	Bottles	179	0	0	
34	Clotrimazole 1% Cream 20g tube	4,500	Tubes	179	0	0	
35	Spectinomycin 2g Vials	1,000	Vials	179	0	0	
36	Co-trimoxazole 400mg/80mg tablets	7,000	Bottles	179	0	0	
37	Silver Nitrate 75% ~ 95% Single Use Tip (100 pieces/pack)	30	Packs	179	0	0	
38	Water for injection 10ml	100,000	Pieces	179	0	0	

Phase 2

Item	Planned Quantity	Locations			Basis for Planning and Calculation
		Regional and District Hospitals	VCT	Antenatal Clinics	
1 Capillus HIV1/HIV2 (100 tests/kit): Trade Name	4,336 Kits	179	162	0	About 200,000 units of test kits used for blood transfusion at 179 hospitals plus HIV test kits for 150,336 persons used at 162 VCTs belonged to hospitals.
2 Determine HIV-1/2 (100 tests/kit): Trade Name	1,550 Kits	0	122	0	HIV test kits for estimated 112,752 persons receiving 2nd tests at 122 VCTs belonged to hospitals. .
3 ELISA Vironostika Uniform II HIV 1/2 plus 0 (192 tests/kit): Trade Name	715 Kits	170	121	0	Test reagents used for blood transfusion (79,063 persons) and VCT (51,326 persons) at 170 hospitals in regions other than Mbeya, plus those used for surveillance (8,250 persons) in Mwanza, Tanga, and Lindi Regions.
4 ELISA Enzygnost HIV1/HIV2 plus (192 tests/kit): Trade Name	35 Kits	5	5	0	For blood transfusion (3,953 persons), and VCT (2,701 persons) at hospitals in Mbeya Region. Adjusted to the smallest packaging unit of 5 sets.
5 RPR Syphilis Test Kit	205,800 Tests	0	0	24	RPR syphilis test kits for 205,703 persons used for surveillance at the obstetrics departments of 24 hospitals in Mbeya, Mwanza, Tanga, and Lindi Regions. Adjusted to the smallest packaging unit of 300.
6 Syphilis VDRL Carbon Antigen Test	133,000 Tests	0	0	24	VDRL syphilis test kits for 132,720 persons used for surveillance at the obstetrics departments of 24 hospitals in Mbeya, Mwanza, Tanga, and Lindi Regions.
7 Lancets (200 sets/box)	1,335 Boxes	179	0	0	Used for testing before collection of blood for transfusion at 179 hospitals.
8 Yellow tips (0-200 microlitre) (1000 pieces/pack)	482 Packs	0	0	0	Used during ELISA syphilis test for 481,570 persons.

9	Vacuum blood collecting tube 5ml (1000 pieces/pack)	150	Packs	0	162	0	Used for blood collection during HIV test for 150,336 persons yearly at 162 VCTs.
10	Vacuum blood collecting tube 10ml (1000 pieces/pack)	303	Packs	0	0	24	Used during syphilis test for 302,232 pregnant women yearly.
11	Vacutainer needles G21	453,000	Pieces	0	162	24	Used with 342,000 5-ml and 10-ml vacuum blood-collecting tubes.
12	Vacutainer Holders	5,000	Pieces	0	162	24	The holder fixing the needle during blood collection using vacuum tubes. To be replaced after the use of 100 needles. Adjusted to the smallest packaging unit of 1,000.
13	Disposable Pasteur Pipette 3ml	207,000	Pieces	0	162	24	For serum collection at 162 VCTs, covering the estimated number of target persons.
14	Micro tube 1.8ml	157,000	Pieces	0	162	24	For serum collection during VCT and surveillance at 162 locations, covering the estimated number of positive persons: about 840 pieces for each location.
15	Cryo Boxes 10 x 10 Formatted	100	Pieces	0	84	16	For one-third of the VCTs and obstetrics departments performing the above tests.
16	Tourniquets	520	Pieces	179	162	24	Renewal of tourniquets for VCT.
17	Latex Examination Gloves, Size L (100 pieces/box)	2,920	Boxes	179	162	24	For 365 days, 2 persons/day, at 365 hospitals and VCTs. 8 boxes for each location.
18	Latex Examination Gloves, Size M (100 pieces/box)	2,920	Boxes	179	162	24	For 365 days, 2 persons/day, at 365 hospitals and VCTs. 8 boxes for each location.
19	White overall with short sleeves, Size L	682	Pieces	179	162	0	For 2 persons each at 341 facilities.
20	White overall with short sleeves, Size M	682	Pieces	179	162	0	For 2 persons each at 341 facilities.
21	Biohazard Discard Bag (heat resistant for Automatic) (100 pieces/box)	1,432	Boxes	179	0	0	For 365 days, 2 pieces/day, at 179 hospitals. 8 boxes for each facility.
22	Biohazard Discard Bag (regular) (100 pieces/box)	2,728	Boxes	179	162	0	For 365 days, 2 pieces/day. 8 boxes for each facility.
23	Sharps Container (Hard Paper box) (25 pieces/box)	520	Boxes	179	162	0	1 box/year for each VCT. 2 boxes/year for each hospital.
24	Syringe with Needle 10ml	120,000	Pieces	179	0	0	Based on the estimated annual 150,000 patients with STIs, quantities have been determined as the quantities actually procured by EU according to the calculation methods specified in Tanzania's manuals.
25	Benzathine Benzylpenicillin 2.4MU injection	100,000	Vials	179	0	0	
26	Erythromycin 250mg Tablet	3,000	Bottles	179	0	0	
27	Clotrimazole 100mg Pessary	30,000	Cases	179	0	0	
28	Ciprofloxacin 500mg Tablet	1,030	Bottles	179	0	0	
29	Doxycycline 100mg Capsule or Tablet	6,000	Bottles	179	0	0	
30	Metronidazole 400mg Tablet	3,000	Bottles	179	0	0	
31	Ceftriaxone 250mg vial	10,300	Vials	179	0	0	
32	Tetracycline Eye Ointment 1% 5g Tube	80,000	Tubes	179	0	0	
33	Erythromycin dry powder for syrup 125mg/5ml	6,000	Bottles	179	0	0	
34	Clotrimazole 1% Cream 20g tube	4,500	Tubes	179	0	0	
35	Spectinomycin 2g Vials	1,000	Vials	179	0	0	
36	Co-trimoxazole 400mg/80mg tablets	7,000	Bottles	179	0	0	
37	Silver Nitrate 75% ~ 95% Single Use Tip (100 pieces/pack)	30	Packs	179	0	0	
38	Water for injection 10ml	100,000	Packs	179	0	0	

EPI

This grant-aid cooperation intends to provide the fund for procuring vaccine storage refrigerators and temperature monitoring equipment for use at vaccination sites across the country,

as well as vehicles and computers for use at the EPI department, for the purpose of supporting Tanzania's 5-year EPI program aiming at the improvement and strengthening of current immunization systems.

i) Target Area

According to the guidelines developed by the MOH for the implementation of the EPI, the target area of this project is defined as the whole country of Tanzania. The procurement of small gas-powered refrigerators will be conducted in the target area selected according to the gas conversion program. Kerosene-powered refrigerators in the selected target area, known to have a problem of unstable temperature control, will be replaced with gas-powered units. The equipment for this conversion will be procured sequentially over 2 years in coherence with the plan implemented by the recipient country.

ii) Items to be Procured

(a) Small gas-powered refrigerators

One small gas-powered refrigerator will be procured only for each vaccination site in the target area of gas conversion, where reliable continuous supply of LP gas is considered possible. Facilities using solar-powered refrigerators are not targets for gas conversion, because they are located in geographically less accessible places. The target area and the planned quantities are shown in Table 2-3.

Table 2 - 3 Number of Facilities in the Target Area of Gas Conversion

	Number of Vaccination Sites (1)	Number of Existing Units			Number of Gas- powered Refrigerators should be replaced (1) – (2)	Planned Quantities (Units)	
		Total No. of Refrigerators	Kerosene- powered Refrigerators*	Solar- powered Refrigerators (2)		Phase 1	Phase 2
Target Area							
Singida	134	136	125	11	123	3**(123-120)	
Ruvuma	164	181	162	19	145	145	
Iringa	253	255	228	27	226	226	
Sub-Total						374	
Arusha	257	237	207	30	227		227
Kilimanjaro	229	200	199	1	228		228
Mbeya	259	262	243	19	240		240
Sub-total							695

* Figures in parentheses indicate the number of old units that have been used for 12 years or more and require replacement.

** The 120 units have been procured by DANIDA.

Of the 9 provinces (Tanga, Dodoma, Pwani, Morogoro, Lindi, Mtwara, Arusha, Kilimanjaro, and Mbeya) initially included in the target area of gas conversion, 6 provinces (Tanga, Dodoma, Pwani, Morogoro, Lindi, and Mtwara) have already completed the conversion to gas-powered refrigerators. The remaining 3 provinces will be covered by the first year of this project. 3 provinces that are scheduled for the next stage of gas conversion program will be covered by the second year. Especially for Singida Province, 3 refrigerators that are still needed in this region in spite of the procurement of 120 refrigerators for the province by DANIDA last year (there were 120 sites at the time of request) will be procured under this project.

Because LP gas is used as the fuel, gas cylinders, regulators, and other accessory parts will also be procured. These accessory parts must be compatible with the standards of connections for filling gas and the brands currently used by the MOH.

Kerosene-powered refrigerators and gas conversion kits were included in the initial request. However, the Tanzania side wanted to change all of them to gas-powered refrigerators, and these items were deleted from the final request. While the use of conversion kits would decrease fuel efficiency, these kits enable a switch to kerosene-powered operation in the event of a failure of gas supply. The conversion kits have been used because of this reason. The MOH decided to use

gas-powered refrigerators, because they are assured of the stability of gas supply based on the performance records in the areas where gas conversion has been completed.

(b) Temperature Monitoring Equipment

Covering the vaccination sites in the whole country, items that are necessary for the temperature management of vaccines will be procured. Cold chain monitor cards and freeze watches will be procured in quantities sufficient for a year. The planned quantities are determined based on the EPI guidelines and the annual consumption as calculated from MSD inventory records (from February 2001 to February 2002). Chalkboards and vaccine trays will be procured in quantities to replenish the shortage reported from districts. Considering the storage space in the EPI equipment warehouse and the experience of distribution in the previous year, these items will be delivered over a period of 2 years.

(c) Vehicles and Laptop Computer

Vehicles will be supplied to the EPI Department for monitoring and surveillance purposes. Based on the use plan shown below (Table 2-4), 2 vehicles will be procured.

Table 2 - 4 Vehicle Use Plan

Vehicle #1

Activity	Area	Frequency of Activity	Annual Usage	One-way Trip	Round Trip	Distance	Total Distance
		Times	Days	km	km	km	km
1. Coordination and consultation among donors	Within Dar es Salaam City	1/week	50	20	40		2,000
2. Consultation and negotiation with local administrative agencies	Each District	4/year	56				
	5 Northern provinces	(x 14 days)		870	1,740	2,960	4,700
	3 Eastern province			970	1,940	1,920	3,860
	3 South-western province			1,330	2,660	2,060	3,860
	3 Southern province			1,100	2,200	2,140	4,360
	5 Eastern province			1,890	3,780	3,165	6,945
3. Monitoring and surveillance after vaccination	Each District	Shared with #2					
4. Guideline promotion and education activities	Vaccination Sites						
Annual Distance (km)		24,585					

Vehicle #2

Activity	Area	Frequency of Activity	Annual Usage	One-way Trip	Round Trip	Distance	Total Distance
		Times	Days	km	km	km	km
1. Monitoring of cold chain system	Vaccination Sites	1/month	168				
1) Gas refrigerators							
	5 Northern Regions			870	1,740	2,960	4,700
	2 Western Regions			740	1,480	1,050	2,530
	2 South-western Regions			880	1,760	1,540	3,300
	3 Southern Regions			1,100	2,200	2,140	4,360
2) Kerosene refrigerators							
	3 Northern Regions			1,590	3,180	2,150	5,330
	4 Eastern Regions			1,890	3,780	2,410	6,190
2. Guidance and education to medical workers	Vaccination Sites	Shared with #1					
3. Follow-up and monitoring concerning newly-introduced vaccines	Vaccination Sites						
Annual Distance (km)							26,410

The laptop computer will be supplied to the EPI Department for use in the field work of the officials responsible for the cold chain. Monitoring software will be supplied with the computer. The computer will be used mainly for the purposes of research on the operation of cold chain equipment, data collection and analysis, and the guidance and education to medical workers.

(2) Policies Concerning Natural Conditions

All equipment will be delivered to the MSD in Dar es Salaam, the capital of Tanzania. The annual average temperature of Dar es Salaam is 25.8 °C. Items that require temperature management and items with short expiration period, such as HIV and syphilis test kits, cold chain monitor cards, and freeze watches, should be transported by air. Vacuum blood collecting tubes should be made of glass, because plastic products are prone to deformation over 30 °C, as well as deterioration of coagulant coated in the tubes. However, because these tubes are still vulnerable to high temperature, they should be transported under appropriate temperature control in the same manner as test kits during inland transportation after landing to the site of delivery.

The refrigerators should be of the model that can always maintain the inside temperature of 0 to 8 °C when the ambient temperature is up to 43 °C.

(3) Policies Concerning the Use of Local Vendors

Considering the availability of spare parts and the convenience of repair, vehicles should be the products of a manufacturer having a sales agency in Tanzania. The computer should be selected so that technical support is available in Tanzania, and should be procured locally.

(4) Policies Concerning the Operation and Management Capabilities of the Implementing Organizations

Different models of HIV and syphilis test kits, as well as vacuum blood collecting tubes and other equipment used with these kits, have different specifications and require different methods of use. To avoid misoperation and confusion due to the difference of products, the equipment procured under this project should be standard products recommended by the MOH.

The conversion from kerosene- to gas-powered refrigerators involves alteration of maintenance procedures. Although training is conducted, additional measures should be taken to ensure proper operation and response to unexpected situations. The vehicles for monitoring and surveillance should be utilized for facilitating the research on the operation of cold chain equipment and the guidance on maintenance.

(5) Policies Concerning the Methods and Time of Installation Work and Procurement

No installation work is involved in this project.

The expiration dates of HIV and syphilis test kits are about 1 year after production. These are expected to expire about 6 months after the delivery to the sites of use. Hence, these items should be procured and delivered once in a quarter – not once in a year – to ensure sufficient length of time before the expiration date. Considering possible delay in transportation and losses during transportation, the quantities to be procured should include the buffer stock for 3 months.

2 - 2 - 2 Basic Plan

(1) Details of Equipment

The details of equipment have been planned as discussed below and summarized in Tables 2-5 and 2-6.

The initial request included HIV test kits (6 items), syphilis test kits (1 item), blood collecting tubes and other laboratory equipment (9 items), equipment for the prevention of secondary infection (6 items), and drugs and syringes for treating STIs (16 items), totaling to 38 items. At the time of the Minutes of Discussions, Western blot reagents for HIV confirmatory test were deleted according to the opinion of the MOH, while the following 4 items were added: Vacutainer holders (No. 13), podophyline solution (No. 37), spectinomycin (No. 38), and co-trimoxazole (No. 39), the latter 3 being the items for treating STIs.

Later, Capillus test kits (20 tests/kit), podophyline solution, ceftriaxone 125 mg, and erythromycine eye ointment were excluded, and oxytetracycline eye ointment was replaced with tetracycline eye ointment, because domestic study revealed that these items had problems of discontinued production or difficulty in procurement. The 4 excluded items could be replaced with other drugs. The change to tetracycline eye ointment involved no practical problems, since both oxytetracycline and tetracycline are tetracycline antibiotics with equivalent medical efficacy. EU already switched to the latter drug in 2000, and it has since been supplied and used widely in Tanzania.

Table 2-5 Details of HIV-related Equipment

No.	Equipment Item	Content (Number of Uses, Size), Purpose	Quantity (Phase 1)	Quantity (Phase 2)
1	Capillus HIV1/HIV2	HIV test kits for screening, classified as a rapid test. 1 kit for 100 tests (100 persons).	2,235 Kits	4,336 Kits
2	Determine HIV-1/2	HIV test kits for screening, classified as a rapid test. 1 kit for 100 tests.	570 Kits	1,550 Kits
3	ELISA Vironostika® Uniform II HIV 1/2 plus 0	Enzyme-linked immunosorbent assay reagents for HIV tests. 1 kit for 192 tests.	408 Kits	715 Kits
4	ELISA Enzygnost® HIV1/HIV2 plus	Enzyme-linked immunosorbent assay reagents for HIV tests. 1 kit for 192 tests.	20 Kits	35 Kits

5	RPR Syphilis Test Kit	Kits for serological diagnosis of syphilis. RPR cards, antigen, 0.03 microliter capillaries, dispensing syringes, positive and negative control sera, instructions, etc.	200,100 Tests	205,800 Tests
6	Syphilis VDRL Carbon Antigen Test	Kits for serological diagnosis of syphilis. VDRL carbon antigen, positive and negative control sera, disposable cards, disposable droppers, instructions, etc.	129,000 Tests	133,000 Tests
7	Lancets	Disposable lancets for blood collection. Stainless steel, sterilized, 200 sets/box. Used for HIV testing before collection of blood for transfusion.	715 Boxes	1,335 Boxes
8	Yellow tips (0-200 microlitre)	Tips for 0-200 microliter micropipettors. Used for serum collection and for reagents. 1,000 pieces/pack	409 Packs	482 Packs
9	Vacuum blood collecting tube 5ml	Glass vacuum tubes, 4 – 5 ml. Used for blood collection during HIV testing at VCTs. 1,000 pieces/pack	56 Packs	150 Packs
10	Vacuum blood collecting tube 10ml	Glass vacuum tubes, 9 – 10 ml. Used for blood collection during HIV testing at hospitals. 1,000 pieces/pack.	286 Packs	303 Packs
11	Vacutainer needles G21	Injection needles, 0.8 x 38 mm. Used with vacuum blood collecting tubes.	342,000 Pieces	453,000 Pieces
12	Vacutainer Holders	Holders for fixing vacuum blood collecting tubes and needles.	4,000 Pieces	5,000 Pieces
13	Disposable Pasteur Pipette 3ml	Disposable 3 ml Pasteur pipette with bulb. Used for HIV tests and syphilis tests (serum collection and reagents).	55,000 Pieces	207,000 Pieces
14	Micro tube 1.8ml	1.8 ml micro tube for storing sera.	10,5000 Pieces	157,000 Pieces
15	Cryo Boxes 10 x 10 Formatted	Used for refrigerated storage of micro tubes containing sera. Each box holds 100 tubes.	50 Pieces	100 Pieces
16	Tourniquets	Tourniquets used during blood collection.	120 Pieces	520 Pieces
17	Latex Examination Gloves, Size L	Sterilized latex gloves, size L, 100 pieces/box. For prevention of secondary transmission.	1,490 Boxes	2,920 Boxes
18	Latex Examination Gloves, Size M	Sterilized latex gloves, size M, 100 pieces/box. For prevention of secondary transmission.	1,490 Boxes	2,920 Boxes
19	White overall with short sleeves, Size L	White overall with short sleeves, size L, cotton mixed. Used in laboratories of VCTs and hospitals.	600 Pieces	682 Pieces
20	White overall with short sleeves, Size M	White overall with short sleeves, size M, cotton mixed. Used in laboratories of VCTs and hospitals.	600 Pieces	682 Pieces
21	Biohazard Discard Bag (heat resistant for Automatic)	Bag for wastes, about 300 x 380 cm, 100 pieces/box. For prevention of secondary transmission.	895 Boxes	1,432 Boxes
22	Biohazard Discard Bag (regular)	Bag for wastes, about 300 x 380 cm, 100 pieces/box. For prevention of secondary transmission.	1,490 Boxes	2,728 Boxes
23	Sharps Container (Hard Paper box)	Container for used needles, lancets, and other wastes. 25 pieces/box. For prevention of secondary transmission.	480 Boxes	520 Boxes
24	Syringe with Needle 10ml	Disposable syringe. Used for benzathine benzylpenicillin and other injections for treating STIs.	120,000 Pieces	120,000 Pieces
25	Benzathine Benzylpenicillin 2.4MU injection	Injection preparation containing 2.4 MU benzathine benzylpenicillin per vial. 50 vials/box. Used for treating genital ulcers due to syphilis and herpes.	100,000 Vials	100,000 Vials
26	Erythromycin 250mg Tablet	250 mg/tablet. 100 tablets/bottle (or can). Used when penicillin is not useful against syphilis.	3,000 Bottles	3,000 Bottles
27	Clotrimazole 100mg Pessary	Pessary. 5 tablets/case. For treatment of vaginitis due to candida, chlamydia, trichomonas, etc.	30,000 Cases	30,000 Cases
28	Ciprofloxacin 500mg Tablet	500 mg/tablet. Used for urethritis due to chlamydia, genital ulcers due to syphilis, herpes, etc.	179,000 Tabs	1,030,000 Tabs
29	Doxycycline 100mg Capsule or Tablet	100 mg/capsule. Used for urethritis due to chlamydia, genital ulcers due to syphilis, herpes, etc.	6,000,000 Tabs or Caps	6,000,000 Tabs or Caps
30	Metronidazole 400mg Tablet	400 mg/tablet. Used for trichomonas vaginitis, urethritis due to chlamydia, etc.	3,000,000 Tabs	3,000,000 Tabs
31	Ceftriaxone 250mg vial	Ceftriaxone disodium salt 250 mg/vial. Used for urethritis due to chlamydia, etc.	10,300 Vials	10,300 Vials
32	Tetracycline Eye Ointment 1% 5g Tube	Eye ointment containing 1% tetracycline. 5 g/tube. Used for neonatal conjunctivitis.	80,000 Tubes	80,000 Tubes
33	Erythromycin dry powder for syrup 125mg/5ml	Powder containing 25 mg erythromycin in 1 g (1 ml). Used dissolved in water to make syrup. For	6,000 Bottles	6,000 Bottles

		neonatal conjunctivitis.		
34	Clotrimazole 1% Cream 20g tube	Ointment containing 10 mg in 1 g. 20 g/tube. Used for vaginitis due to candida, chlamydia, trichomonas, etc.	4,500 Tubes	4,500 Tubes
35	Spectinomycin 2g Vials	1 g/vial. Used for urethritis due to chlamydia, genital ulcers due to syphilis, herpes, etc.	1,000 Vials	1,000 Vials
36	Co-trimoxazole 400mg/80mg tablets	Combination of sulfamethoxazole 400 mg and trimethoprim 80 mg in each tablet. 1000 tablets/bottle (can). Used for genital ulcers due to syphilis, herpes, etc.	7,000 Bottles	7,000 Bottles
37	Silver Nitrate 75% ~ 95% Single Use Tip (100 pieces/pack)	Pen-type (stick-type) topical silver nitrate preparation. 75 – 95% silver nitrate in each stick. 100 sticks/pack. Used for genital warts such as condyloma.	30 Packs	30 Packs
38	Water for injection 10ml	Water for injection in 10 ml plastic container.	100,000 Pieces	100,000 Packs

The details and sizes of EPI-related equipment are shown in Table 2-6.

Table 2-6 Details and Sizes of EPI-related Equipment

No.	Equipment Item	Purpose	Specifications	Quantity to be Procured		
				Phase 1	Phase 2	Total
1	Small Gas-powered Refrigerator	Storage of vaccines	Capacity 24 L. Gas/electricity double fuelled. Top open type.	374 units	695 units	1,069 units
2	LP Gas Cylinder	Fuel for above refrigerator	About 15 kg. Locally available common product.	1,870 pieces	3,475 pieces	5,345 pieces
3	LP Gas Regulator	Gas flow regulation for above refrigerator	Pressure 30 mbar, flow rate 1.2 – 1.3 kg.	374 pieces	695 pieces	1,069 pieces
4	LP Gas Hose Set	Connection between above refrigerator and cylinder	Each set contains 2-m hose and 2 clips.	375 sets	700 sets	1,069 sets
5	Cold Chain Monitor Card	Monitoring of vaccine refrigeration temperature	Range: +10 to +34	11,500 sheets	11,500 sheets	25,000 sheets
6	Freeze Watch	Monitoring of vaccine refrigeration temperature. Used for DPT (+Hep. B)	Range: 0	7,600 sheets	7,600 sheets	15,200 sheets
7	Wall-hung Chalkboard	Displaying inside temperature and maintenance status of refrigerator	About 60 x 90 cm, wood. 2 pieces/set.	330 sets	320 sets	650 sets
8	Vaccine Tray	Sorting and storage of vaccine vials	About 190 x 240 x 48 mm, with separating boards. 6 colors/set.	370 sets	365 sets	735 sets
9	Thermometer	Measurement and monitoring of temperature in refrigerator	With marking of appropriate temperature ranges: 0 to +8 / -15 to -25	400 pieces	700 pieces	1,100 pieces
10	Vehicle	Monitoring and surveillance in EPI activities	2000 cc or larger, 4WD, 5 seater.	2 units		2 units
11	Computer Set	Monitoring of cold chain equipment in field work and OJT of medical workers	OS: Windows, with appropriate software installed, data logger for EPI, and portable printer.	1 set		1 set

(2) Distribution of Equipment

HIV-related equipment will be delivered from the MSD based on the quantities requested according to the number of patients and the number of items consumed at each facility. As the result of the discussion with the EPI Department, gas-powered refrigerators and related

equipment will be distributed according to the plan shown in Table 2-7.

Table 2 - 7 Plan for Equipment Distribution for EPI program

Target Area		Gas refrigerator	Gas Cylinder	Regulator	Hose Set	Cold Chain Monitor Card	Freeze Watch	Wall-hung chalkboard	Vaccine Tray	Thermometer
		Quantity (Units)	(Pieces)	(Pieces)	(Sets)	(Sheets)	(Sheets)	(Sets)	(Sets)	(Pieces)
Phase 1	Singida	3	15	3	3	402	268	22	37	3
	Ruvuma	145	725	145	145	492	328	9	0	145
	Iringa	226	1130	226	226	759	506	33	0	226
	Sub-total Phase 1	374	1870	374	374					374
Phase 2	Arusha	227	1135	227	227	771	514	58	66	227
	Kilimanjaro	228	1140	228	228	687	458	12	59	228
	Mbeya	240	1200	240	240	777	518	78	91	240
	Sub-total Phase 2	695	3475	695	695					695

Cold chain monitor cards, freeze watches, chalkboards, and vaccine trays will be distributed to the 6 provinces receiving gas-powered refrigerators, and also to other districts nationwide to supplement the shortage reported to the EPI Department.

2 - 2 - 3 Implementation Plan

2 - 2 - 3 - 1 Implementation Policy

The equipment will be procured from Japan, Tanzania, and third countries through open tendering assigning a Japanese firm as the supplier. The items procured from third countries will generally be subjected to pre-shipment inspection entrusted to an inspection agency. However, items requiring quality control, such as laboratory equipment and drugs, will be subjected to pre-shipment and pre-delivery inspections performed by the procurement supervisor.

The NACP and EPI Departments of the MOH are the organizations responsible for implementation. These departments should assume responsibility in the distribution and maintenance of equipment. Actual transportation of equipment will be conducted by the MSD.

2 - 2 - 3 - 2 Implementation Conditions

For the transportation of equipment requiring temperature control, it is necessary to avoid detrimental influence on the quality of equipment. It is necessary to ensure appropriate packaging and quick transportation, as well as to facilitate prompt pre-delivery inspection. It is desired that the Tanzania side take appropriate measures ensuring prompt customs clearance of items with short expiration period, enabling timely delivery to the MSD.

2 - 2 - 3 - 3 Scope of Works

Table 2-8 shows the division of procurement and installation work between Tanzania and Japan. No installation work is involved in this Project.

Table 2-8 Division of Work

Division	Content
Japan	Procurement of equipment Transportation of equipment to the site of delivery (MSD in Dar es Salaam)
Tanzania	Distribution of equipment from the site of delivery (MSD in Dar es Salaam) to target facilities

2 - 2 - 3 - 4 Consultant Supervision

Both during phase 1 and phase 2, 1 person from the supplier firm will be assigned as the on-site procurement supervisor and sent to Tanzania at the time of equipment delivery to take charge of inspection and delivery tasks.

2 - 2 - 3 - 5 Procurement Plan

The expected sources of main equipment items are as shown in Table 2-9.

Table 2-9 Sources of Equipment

No.	Equipment Item	Source (Country of Origin)		
		Tanzania	Japan	Third Country
1	Capillus HIV1/HIV2			
2	Determine HIV-1/2			
3	ELISA Vironostika® Uniform II HIV 1/2 plus 0			
4	ELISA Enzygnost® HIV1/HIV2 plus			
5	RPR Syphilis Test Kit			

6	Syphilis VDRL Carbon Antigen Test			
7	Lancets			
8	Yellow tips (0-200 microlitre)			
9	Vacuum blood collecting tube 5ml			
10	Vacuum blood collecting tube 10ml			
11	Vacutainer needles G21			
12	Vacutainer Holders			
13	Disposable Pasteur Pipette 3ml			
14	Micro tube 1.8ml			
15	Cryo Boxes 10 × 10 Formatted			
16	Tourniquets			
17	Latex Examination Gloves, Size L			
18	Latex Examination Gloves, Size M			
19	White overall with short sleeves, Size L			
20	White overall with short sleeves, Size M			
21	Biohazard Discard Bag (heat resistant for Automatic)			
22	Biohazard Discard Bag (regular)			
23	Sharps Container (Hard Paper box)			
24	Syringe with Needle 10ml			
25	Benzathine Benzylpenicillin 2.4MU injection			
26	Erythromycin 250mg Tablet			
27	Clotrimazole 100mg Pessary			
28	Ciprofloxacin 500mg Tablet			
29	Doxycycline 100mg Capsule or Tablet			
30	Metronidazole 400mg Tablet			
31	Ceftriaxone 250mg vial			
32	Tetracycline Eye Ointment 1% 5g Tube			
33	Erythromycin dry powder for syrup 125mg/5ml			
34	Clotrimazole 1% Cream 20g tube			
35	Spectinomycin 2g Vials			
36	Co-trimoxazole 400mg/80mg tablets			
37	Silver Nitrate 75% ~ 95% Single Use Tip (100 pieces/pack)			
38	Water for injection 10ml			
39	Small Gas-powered Refrigerator			
40	LP Gas Cylinder			
41	LP Gas Regulator			
42	LP Gas Hose Set			
43	Cold Chain Monitor Card			
44	Freeze Watch			
45	Wall-hung Chalkboard			
46	Vaccine Tray			
47	Thermometer			
48	Vehicle			
49	Computer Set			

Because the 4 types of HIV test kits are designated by the brand name, these will be procured from the manufactures of these brands. While syphilis test kits are not produced in Japan, these are produced in several other countries, and this project will procure these products from a reliable DAC member country. Lancets (small scalpels for blood collection

from finger tips) and disposable syringes are produced in Japan, and these will be procured from Japan. Procurement from third countries is considered for other equipment, because there are no or only a few Japanese manufactures. Drugs for treating STIs are not produced in Tanzania. For some of these drugs, there are no Japanese companies producing products with the same specifications. Although others are produced in Japan, these products do not have English labeling and are very expensive (e.g., while the estimated cost of clotrimazole pessary produced in DAC countries is about 11.0 yen per tablet, equivalent Japanese products cost 66.5 yen). Hence, procurement from third countries will be considered for these drugs. In order to insure the lowest level of quality of medicinal products, these items will be procured from manufacturers holding GMP^{Note 5} approval from respective countries.

Cold chain equipment will be selected from the products complying with the quality standards of WHO/UNICEF. Because no products in Tanzania or Japan satisfy these standards, these items will be procured from third countries. Vehicles will be procured from Japan. Although spare parts for vehicles can be obtained from sales agencies in Tanzania, such purchase can be time-consuming and costly beyond the limit of budget. Necessary spare parts will be procured in this project in quantities sufficient for operation in about 2 years. Spare parts for refrigerators will be procured according to the manufacturer's recommendation.

2 - 2 - 3 - 6 Implementation Schedule

The total project period will be 19 months, on the assumption that the E/N will be extended. Delivery of equipment will be completed in fiscal 2003. The implementation schedule is common to phases 1 and 2.

^{Note 5} GMP: Good Manufacturing Practice. Compliance to the GMP indicates that the manufacturer is adhering to appropriate practice in terms of production environment, raw materials, and product quality control.

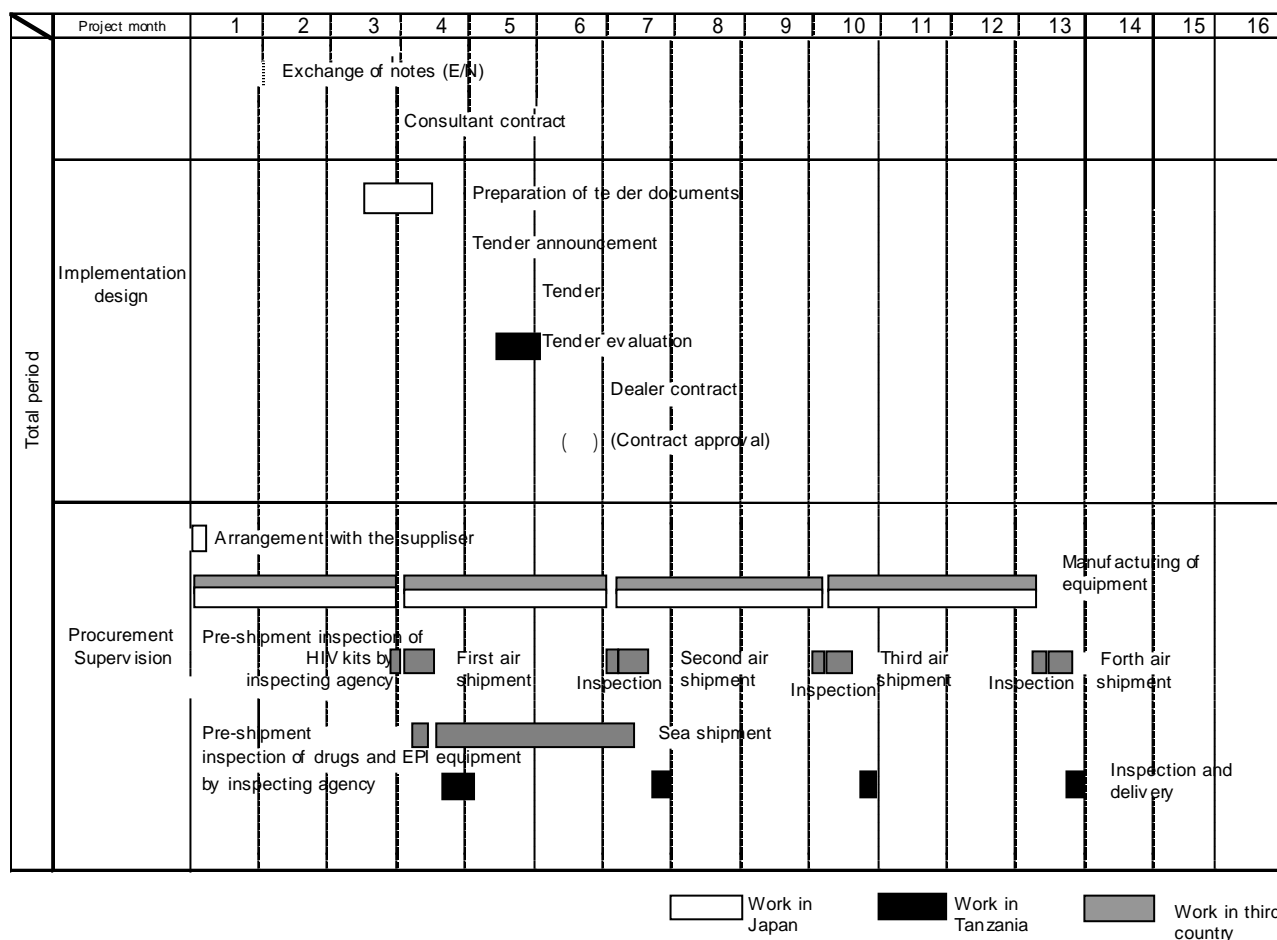
The implementation schedule is shown in Table 2-10.

Table 2-10 Implementation Schedule

Total period of work (from E/N to delivery) : 19.0 months

From E/N to dealer contract : 6.0 months

Time of delivery (from dealer contract to delivery) : 7.0 months



2 - 3 Obligations of the Recipient Country

In relation to the implementation of this project, the Tanzania side is requested to bear the following obligations:

To conduct appropriate and prompt customs clearance of procured equipment and materials.

To secure the warehouse needed for storage of procured equipment and materials.

To conduct prompt distribution of procured equipment and materials from the warehouse to

the final destinations in the country, and to keep close contacts with the MSD taking charge of transportation and the USAID taking charge of reconstruction of logistic system for MOH.

To bear the Authorization to Pay (A/P) notification fees arising from the Banking Arrangement (B/A) for the implementation of this project.

To make budgetary arrangements and secure manpower needed for appropriate operation and maintenance of procured equipment. To secure refrigerators for storing HIV test kits and syphilis test kits requiring refrigerated storage, and make the best efforts to maintain the quality of equipment.

2 - 4 Project Operation Plan

(1) HIV Control Program

The storage of HIV equipment and cold chain equipment and the transportation of these items to the sites of installation will be entrusted to the MSD.

USAIDS formulated a program for strengthening the maintenance of HIV control equipment in December 2000, and commenced the reconstruction of the MOH's systems for equipment procurement, management, and transportation. By January 2002, USAIDS formulated the program for the next term based on current situations and completed central-level personnel training. Since May 2002, it has been conducting a pilot study of procurement system reconstruction covering the distribution from the central level to districts, and it plans to improve the equipment transportation from districts to terminal facilities. By the time when the first cargo of the equipment procured under this project will arrive in March 2003, both the district-level personnel training and the pilot study on the transportation system are expected to be completed, and no problems are foreseen with respect to the formulation of distribution plans and the equipment management at the district level. However, we plan to deliver a limited set of

equipment in the first phase of this project. Then we plan to procure equipment in sufficient quantities in the second year, after the operation of the transportation system is verified and possible problems are dissolved. Because it has been decided that the cost of the transportation of HIV equipment will be covered by the budget of the MOH, no problems are considered to occur with respect to transportation cost. While shipping charges are invoiced by 1,000 kg unit, they also vary depending on the combination of shipped items. In the case of HIV test kits requiring the most complicated mode of transportation (air shipment to a local warehouse using cold boxes or other temperature management), the transportation cost for the 4 types of HIV kits in smallest packaging units would be between US\$2.2 and 6.1. The HIV kits procured in the first phase of this project are estimated to require about US\$11,899 for transportation to district-level facilities.

The final destinations of the equipment are regional and district hospitals and VCTs. As discussed in 2-1-3 “Technical Level,” these facilities are staffed with medical workers who have been organized and trained as HIV control personnel and these workers have sufficient experience. While many of the procured items are consumable supplies requiring expertise in the handling and quality control of test kits and medicinal products, no problems are expected to occur with respect to the maintenance and management of such products.

(2) EPI Program

Cold chain personnel in each province and district are conducting the repair and maintenance of equipment, as well as the training of medical workers. Daily check and maintenance at medical facilities is performed by trained nurses, medical assistants, etc. The need for spare parts at individual facilities is added up at the district level, and needed parts are supplied from the central government in response to request. Fuel cost to cover kerosene, gas, etc. is covered by a subsidy from the central government, and the procurement and distribution of fuels are managed by district health offices. While cold chain equipment and spare parts are procured using assistance

funds from donors, fuel cost and equipment transportation cost are covered by the national budget. In fiscal 2000, US\$904,207 was expended as fuel cost and US\$112,359 for the transportation of vaccines and other articles. The sum of these amounts corresponds to 57% of the national budget allocated for EPI and about 10% of the total EPI budget including the funds from donors. It has been confirmed that the fuel cost for the equipment procured under this project will also be covered by the national budget. Thus, it may be concluded that the operation and maintenance plan is adequate both in terms of the number of personnel and the level of technical capabilities.

Chapter 3 Project Evaluation and Recommendations

3 - 1 Project Effect

1) Direct Effect

HIV Control Program

- Blood donor testing, VCT, and STIs control measures will be strengthened and expanded on a nationwide basis.
- The number of patients receiving appropriate treatment of STIs will increase.

EPI Program

- The improvement of cold chain equipment will ensure appropriate vaccine transportation, resulting in the increase in the number of health centers and dispensaries where vaccines are stored and managed under appropriate temperature conditions.

2) Indirect Effect

HIV Control Program

- The risk of the prevalence of HIV infection associated with blood transfusion will decrease.
- Counseling will be conducted appropriately based on the HIV status (positive/negative) of patients.
- The risk of mother-to-child HIV infection will decrease.
- The nationwide implementation of VCT measures will facilitate fixing of the logistic system, which is supported by USAID as part of this project in Tanzania.

EPI Program

- The capability of immunization using vaccines stored under appropriate conditions is expected to lower the morbidity of infections among children.

3 - 2 Recommendations

While the MOH is considered to have a high level of capability for the implementation of this project, the following considerations are recommended:

- 1) While the use of gloves and other measures for the prevention of secondary infections are practiced in laboratory rooms performing HIV tests, many laboratories are not equipped with alcohol or other disinfectant to remove contamination of testing benches and tables. It should be ensured that appropriate disinfection is practiced in all laboratory rooms.
- 2) There is not a few case that used vacuum blood collecting tubes are washed and reused for collecting urine for biochemical tests in many facilities. Personnel education should be strengthened to avoid reuse, and at the same time, assistance should be given to the procurement of equipment for biological tests and other testing equipment.
- 3) While equipment for the prevention of secondary infections (overalls, gloves, etc.) will be procured under this project, it is necessary to install appropriate incinerators at hospitals lacking incineration facilities for infectious wastes and health centers accompanying VCT facilities.
- 4) Training of technicians should be promoted further, including technical guidance on the maintenance and repair of various types of equipment.