

3. IMPLEMENTATION PLAN

3.1 Implementation Plan

3.1.1 Implementation Concept

(1) Basic Items

The Project is to be implemented in one phase.

- 1) The Exchange of Notes (E/N) for the Grant Aid Project shall be concluded between the Japanese Government and the Government of Tanzania after the cabinet meeting and decision by the Japanese Government.
- 2) With the E/N, Japan shall commit itself officially to assist and initiate specific action.
- 3) After the above-mentioned conclusion, a consultant contract shall be concluded between a consultant of Japanese nationality and the Government of Tanzania and detailed design and supervision services shall be started immediately.

(2) Detailed Design Stage

- 1) For the detailed design, full details of facilities and equipment in the Basic Design should be carefully confirmed and discussed with the implementation agency.
- 2) The consultant shall discuss the technical issues through meetings with the relevant authorities in Japan and Indonesia during the detailed design stage.
- 3) The detailed design will probably require approximately 2 months to be completed after the agreement of the E/N.

(3) Tender

- 1) The tender shall be conducted in accordance with JICA guideline.
- 2) The tender is normally called for Japanese trading companies for supply of equipment.
- 3) The consultant will assist the implementing agency for the contracting of the construction

contract in accordance with the guidelines of JICA.

(4) Procurement and Installation of Equipment

1) Equipment Procurement

Almost all the equipment planned in this project is imported. The procurement is to be done in Japan and Tanzania, while the countries of origin of products are from several third countries. The machine tools, which need the after sales services, are to be selected from the products manufactured in Japan and third countries having agents in Tanzania with channel to procure the spare parts and consumables for them.

2) Transportation and Installation

The transportation to Dar es Salaam port is available for general and container shipment. The transportation from Dar es Salaam to Mtwara is available both by land and ocean. The travel period in the Project will be during the rainy season in Tanzania and the road transport from Dar es Salaam to Mtwara is suspended due to flooding river. Thus, the ocean transportation by vessel is recommended for traveling from Dar es Salaam to Mtwara.

Many items needed for installation works such as machine tools and dust collectors are included in the equipment of the Project. The arrangement of forklifts and cranes for installation and the ascertainment of technical staff with enough experience and skill are required.

3) VAT exemption for local procurement

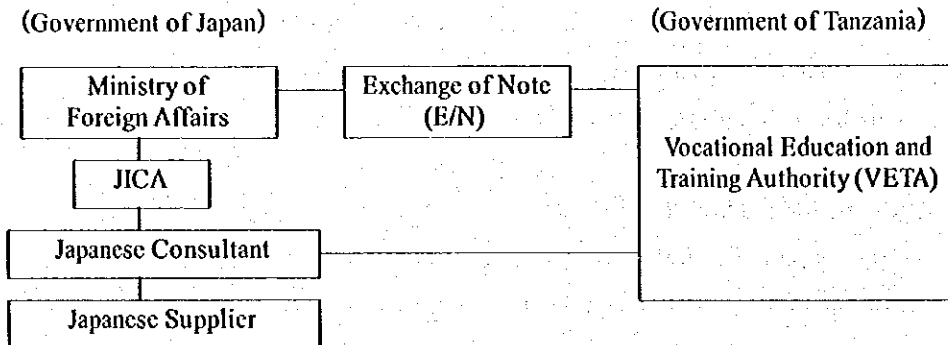
VAT exemption for local procurement is available for application by the Government, Governmental organizations, public corporations and international organizations. The VAT exemption procedure is relatively simple. If the filled application form covering required items will be submitted with the certificate of the subjected authority to Tanzania Revenue Authority of Ministry of Finance, the permission for exemption will be given in a week. If this procedure is done ahead of time, the commodity may be procured without VAT.

4) Exemption of import tax

The filled application form covering required items, the certificate from subjected authority and shipping documents need to be submitted to the port custom in each port. According to the custom office, it takes generally a week to get the permission for tax exemption, however the long storage of cargo at port will be avoided if the procedure will be done before the arrival of cargo.

(5) Implementing Agency

The implementing agency who is responsible for the decision making in the Project for Tanzanian side for Grant Aid is the Vocational Education and Training Authority (VETA). The implementing relationship among the Tanzanian side, the Japanese consultant and supplier is as follows.



3.1.2 Implementation Conditions

In implementing the Project, the following points should be noted.

- (1) The implementation period (installation) is during rainy season, consequently the temporary storage area should be secured in the Mtwara RVTSC and any wet cargo should be avoided during the installation.
- (2) The Mtwara RVTSC was constructed using the budget of Tanzanian side and no machinery such as machine tools was installed. The scope of work should be clarified to facilitate efficient and smooth progress of work. As for the Tanzanian side, they are responsible for the utility work, while on the Japanese side, they are responsible for the supply and installation of equipment.
- (3) Effective technical support from the agents in Tanzania during implementation will create a system of technical service for Mtwara RVTSC after the handover of equipment.

3.1.3 Scope of Works

For the implementation of the Project the scope of works assigned to Tanzanian side and Japan side are described on the following table.

Table 3-1 Major Undertaking to be taken by Each Government

Contents of Work	Responsibility of Japan Side	Responsibility of Tanzanian Side
<input type="checkbox"/> Equipment		
--Procurement	○	
--Installation work	○	
--Performance test	○	
--Operation instructions and Maintenance training	○	
<input type="checkbox"/> Facilities Provision		
--Removal of existing dust ducts		○
--Installation of dust ducts and collectors	○	
--Improvement of Cooking facility		○
--Partition for welding		○
--Pit works (digging pits for installation)		○
--Construction of wall for Masonry and Wood Carving workshops		○
--Reinforcement of floor in the workshop		○
--Utility within the site	○	○
--Drop wiring and internal wiring	○	
--Air-conditioning and ventilation work		
<input type="checkbox"/> Securing the room for the equipment		○
<input type="checkbox"/> Transportation and custom clearance		
--Internal transportation to the site	○	
--Custom clearance and tax exemption		○
--Tax exemption measures		○
<input type="checkbox"/> Banking arrangement and payment of Commission		○
<input type="checkbox"/> To accord Japanese nationals whose service may be required in connection of the Project under the verified contract such facilities as may be necessary for their entry into Tanzania and stay therein for the performance of their work		○
<input type="checkbox"/> To maintain and use properly and effectively the equipment procured under the Grant		○
<input type="checkbox"/> Permission procedures necessary for the project implementation		○
<input type="checkbox"/> To bear all expense, other than those to be borne by the Grant, necessary for procurement as well as the transportation and installation of the equipment		○

3.1.4 Consultant Supervision

In supervising the implementation of the Project, a concrete plan of consultant supervision shall be formulated, based on sufficient discussion of details with VETA and equipment supplier, concerning the

3.1.7 Undertakings of Recipient Country

The Undertakings of Tanzania in the Project are described below:

(1) Tax exemption measures

To take tax exemption measures concerning the tariff on imported equipment that are procured from Japan and third countries.

To take tax exemption measures concerning VAT on procured equipment in Tanzania.

(2) Banking Arrangement and Authorization to Pay

To take necessary steps to open a bank account in Japanese Bank and issue Authorization to Pay, and bear the necessary expenses.

(3) Facilitation of the procures at entry into/stay in/departure from Tanzania of personnel related to the Project

To facilitate the permission and shorten the procedure necessary for entry into/stay in/depart from Tanzania for consultants and supplier at work for the Project.

(4) Bearing expenses not included in the Grant Aid, but related to the Project

To bear the expenses, not included in the grant, for construction work and installation as well as procurement or purchase of related equipment.

The undertakings by Tanzanian side related to the facilities are as follows;

Table 3-3 Undertakings by Tanzanian side

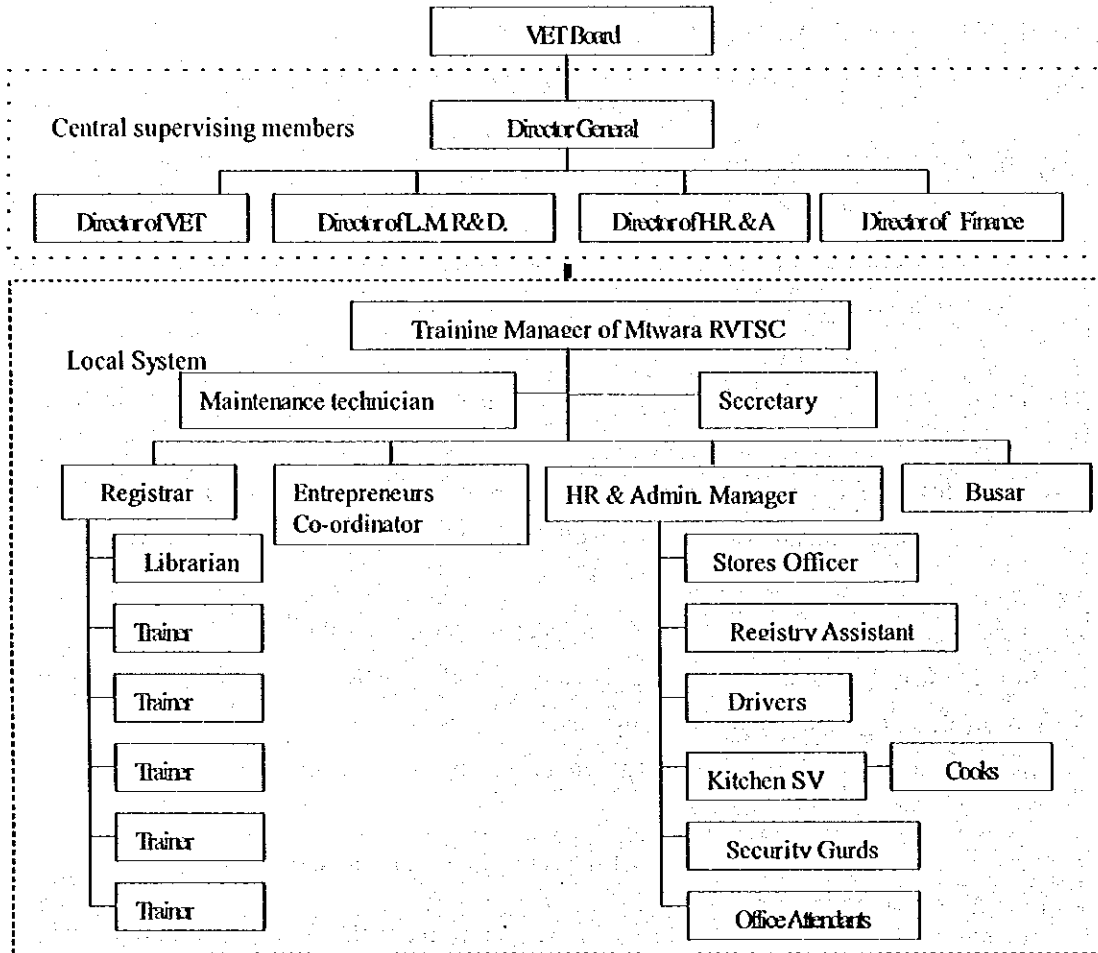
Content	Cost(Tsht)
Removal of dust ducts in Welding & Fabrication and Welding & Fabrication Workshop.	250,000
Partition work in Welding & Fabrication Workshop	1,050,000
Digging a hole in the floor for slide slip tester and brake tester.	70,000
Reinforcing the floor for Carpentry & Joinery, Plumbing & Fitting, Auto Mechanics and Auto Electrician.	0 (reinforced floor)
Partition, walls, door, windows, floor finishing, ceiling and utilities of water, drainage, electrical wiring, lighting, ventilation, etc., for cooking and food processing in the kitchen for short course.	5,000,000
Construction of walls for opened workshop in Masonry & Brick and Woodcarving Workshop.	450,000
Total	6,820,000

3.2 Operation and Maintenance Plan

3.2.1 Operation and Maintenance Cost

(1) Operation and Maintenance System

The operation for the Project is handled according to organization plan set by VETA as follows:



The Regional Board is not yet established in Mtwara Region and also Zone Head Office is still not set up in Mtwara Zone. Therefore, Mtwara RVTC will get the instruction directly from central project committee in VETA

Each trainer is responsible for the maintenance of equipment in the workshop where he is assigned. The trainer have to check and confirm the quantity and condition of equipment each time it is utilized by trainees using record book in and out of equipment. He is also responsible for safe keeping in the storage room.

Each trainee has to clean the equipment before returning to the trainer and report if he find any

damage on it.

For the training machinery, after training of the day, all trainees have to clean and maintain under the supervision of trainer. If damage will be found, all trainers collaboratively have to repair, produce and exchange spare parts.

This maintenance system is introduced to any training centre in VETA and further, collaboration among centres are done for making spare parts and repair.

For Mtwara RVTSC, a maintenance technician will be allocated at the maintenance workshop so that making spare parts and repair may be available in the Centre. The necessary qualification and duties of maintenance technician are as follows;

Necessary Qualification

Holder of Advanced Diploma (Technical College) with Trade Test Grade I and at least 3 years experience in the field.

Duties

- 1) Coordinate mechanical maintenance works with emphasis on preventive maintenance.
- 2) Use trainers and instructors in carrying out routine corrective and preventive mechanical maintenance works in their respective workshops.
- 3) Carry out regular inspections of machines and equipment and undertake repairs in the maintenance workshop including the production of spares.
- 4) Conduct tailor made short courses on mechanical maintenance programmes.
- 5) Develop maintenance awareness programmes for trainees so as to enable them to start up and sustain own production activities.
- 6) Undertake other mechanical maintenance and training duties as may be assigned to each trainer by the Training Manager from time to time.

(2) Maintenance and Operation Cost

Maintenance and operation cost consists of personnel expense, operation cost such as electricity, water, fuels, etc., expenses to purchase spare parts, expendable, maintenance/repair cost, etc.

Mtwara RVTSC has just opened in July, 1999 and no fixed budget for that particular year was allocated. Rather allocation were dependent on necessary. For year 2000 until 2001, the budget is shown in Table 2-6. Further, budget for maintenance and operation directly related to the training in Mtwara RVTSC in 2000 and 2001 is showed below.

Table 3-4 Main Maintenance and Operation Cost for Mtwara RVTSC

Unit:1000Tshs

Item	2000	2001
Workshop Materials	14,400	40,800
Workshop Equipment	1,500	300
Workshop Repair & Maintenance	2,000	2,000
Vehicle Insurance	960	3,200
Vehicle Repair	2,008	2,875
Vehicle Fuel	3,000	3,380
Electricity	14,400	18,000
Water	2,000	2,400
Building Repair & Maintenance	0	2,000
Total	40,268	74,955

Source : VETA

There is no budget for the cost of equipment maintenance because they are done within the center.

1) Fuel Charge

Fuel charge for existing vehicles of 1 unit and new vehicles of 2 units in the Project will be included.

Existing vehicles

4WD Diesel Vehicle x 1 unit

General purpose

Annual mileage: 10km x 200 days x 1 units =2,000km

Annual operation hours: 0.5 hour x 200 days x 1 units = 100 hours

New vehicles in the Project

Minibus

Total annual mileage/year: 12,000km

Total operation hours/year: 800 hours

2ton Diesel Truck

Annual mileage : 78km x 180days + 14km x 40 weeks =14,600km

Annual operation hours : 3 hours x 180 days + 1 hour x 40 weeks =580 hours

Light oil of fuel for diesel vehicle is sold at maximum of 500 Tsht per litre and the mileage per litres is about 5 km on minibus and 2 ton diesel truck, and about 8 km on 4WD diesel vehicle according to the field survey.

- ① 4WD Diesel Vehicle x 1 units
500Tsht/litre x 250 =125,000Tsht
- ② Minibus
500Tsht/litre x 2,400 =1,200,000Tsht
- ③ 2ton Diesel Truck
500Tsht/litre x 2,920 = 1,460,000Tsht

Total 2,785,000Tsht

The amount above is lower than the budget for 2001 by 595,000 tsht so the operation is truly sufficiently.

Besides the fuel charge, the insurance charge and the repair cost of vehicle will be needed and the budget for 2001 are 3,200,000 tsht and 2,875,000 tsht respectively. Every RVTSC has been operating these within the budget in the past, so the operation in Mtwara RVTSC is also possible.

2) Water

The expense of water that came from the pipe and purchased is 600 Tsht per ton.

- Water pipe

Daily intake is between 8 tons and 10 tons on average 9 tons.

$$9 \text{ tons} \times 365 \text{ days} \times 600 \text{ Tsht} = 1,971,000 \text{ Tsht}$$

- Purchasing water

Purchasing water will be 6 tons per day in dry season only.

$$6 \text{ tons} \times 180 \text{ days} \times 600 \text{ Tsht} = 648,000 \text{ Tsht}$$

Total 2,619,000 Tsht (including water for staff houses)

Above amount is over the budget for Mtwara RVTSC for year 2000 by 219,000 tsht but the water charge for staff houses is separately budgeted, so the operation in Mtwara RVTSC is conceivable.

3) Electricity

Annual Electric Power Consumption necessary for operation of equipment in the Project is as follows:

Table 3-5 Calculation of Electric Power Consumption

No.	Code	Course	Power Consumption (kW)	Operation hour per day (hr)	Annual Operation days(day)	Annual Power Consumption (kWH)
1	CJ	Carpentry & Joinery	37.50	2.00	200	15,000.00
2	MR	Masonry	14.95	2.00	200	5,980.00
3	ST	Secretary & Computer	17.30	2.00	200	6,920.00
4	TR	Tailoring	7.00	2.00	200	2,800.00
5	PP	Plumbing & Pipe Fitting	10.30	2.00	200	4,120.00
6	AM	Auto Mechanics	68.90	2.00	200	27,560.00
7	AE	Auto Electrician	11.00	2.00	200	4,400.00
8	WF	Welding & Fabrication	181.15	2.00	200	72,460.00
9	EL	Electric Installation	5.40	2.00	200	2,160.00
10	WC	Wood Carving	16.40	2.00	200	6,560.00
11	CH	Chemical Laboratory	11.50	1.00	200	2,300.00
12	PL	Physics Laboratory	2.20	1.00	200	440.00
13	MW	Maintenance Workshop	24.10	2.00	200	9,640.00
14	CM	Commercial	0.00	2.00	200	0.00
15	GC	General Classroom	0.00	1.00	200	0.00
16	AV	Audio Visual Equipment	3.00	1.00	200	600.00
17	VII	Vehicles	0.00	2.00	200	0.00
18	SC	Equipment for Short Courses	3.40	0.20	80	54.40
Total			414.10		3,480	160,994.40

The following electric charge will be applied.

Power Consumption Charge

1~100 unit	24.00 tsht
101~500 unit	38.74 tsht
501~2,500 unit	88.50 tsht
<u>2,500 unit ~</u>	<u>165.50 tsht</u>

Remark : 1unit=1kwh

Monthly average power consumption

$$160,994.00 \text{ kwh} \div 12 \text{ months} = 13,416.17 \text{ kwh}$$

Monthly power charge	100.00 kwh x 24.00 tsht	=	2,400.00 tsht
	+400.00 kwh x 38.74 tsht	=	15,496.00 tsht
	+2,000.00 kwh x 88.50 tsht	=	177,000.00 tsht
	<u>+10,916.17 tsht x 165.50 tsht</u>	=	<u>1,806,626.14 tsht</u>
Total		=	2,001,522.14 tsht
Annual power charge	2,001,522.14 tsht x 12 months	=	24,018,265.68 tsht
Discount for Governmental facilities 20%		=	-4,803,653.17 tsht
<u>Actual annual power charge</u>		=	<u>19,214,612.51 tsht</u>

The total cost for power is higher than the budget for the year 2001 in the Mtwara RVTSC by 7%, however the further discount for Governmental facilities is scheduled from 2000 so the operation can still be supported.

4) Purchasing training materials

The budget in purchasing training materials varies in each RVTSC and in all the courses but the operation can be done within the budget.

Annual necessary maintenance and operation cost after implementation of the Project was calculated based on above 1) to 4) as follows:

Table 3-6 Cost for maintenance and operation

Unit: Tsht

Item	Cost	Remark
Electricity	19,214,612	
Water	2,619,000	including purchasing water
Maintenance of Equipment	1,774,076	
Fuel for Vehicles	2,785,000	repairs to be done in the centre
Total	26,392,688	

Remark: Cost for purchasing training materials as per table3-3

4. PROJECT EVALUATION AND RECOMMENDATION

4.1 Project Effect

The following are the expected direct effects of the Project.

① Upgrading vocational training function and capacity

In the Mtwara RVTSC, 5 courses of Tailoring, Carpentry and Joinery, Plumbing and Pipe Fitting, Masonry, and Secretary and Computer are presently opened and 90 trainees are being trained. However the training equipment are not provided particularly, thus it is almost impossible to provide training based on the curricula. If the training equipment will be provided through the implementation of the Project, all of 11 projected courses will be opened and it will be possible to conduct the training based on the curricula. Finally formal training courses will be provided to about 200 trainees every year. Simultaneously, if the short courses of 86 units in 4 fields will be opened, the training for approximately 1,000 trainees will be done every year.

② Developing youth in southeastern area in Tanzania into skilled labour

The Mtwara and Lindi Regions are located at the southeastern part of Tanzania. They are respectively 14th and 19th out of 20 regions in Tanzania in terms of GDP ratio in average from 1980 to 1984. The southeastern part is the most underdeveloped area in Tanzania. Only one well-equipped private vocational training centre, which is too small in scale for every youth aiming for the skills training exists in these two regions. It is disturbing largely the development of skilled labours in the regions. If the function and capacity of Mtwara RVTSC will be improved through the implementation of the Project, about 200 skilled labours who will have the appropriate techniques, will be trained in the formal courses every year. The conduct of short courses, which do not need entry qualification, will contribute widely to improve the skill and income of the people in the regions.

③ Promoting self-entrepreneurship of people in Mtwara area.

According to the questionnaires answered by the existing trainees, almost all respondents (75 respondents out of 80 trainees) intend to start self-entrepreneurship in their home area after training. The job placement trend in the training centres in VETA, according to data of VETA, is 10% for formal employment and the rest of the graduates go into self-entrepreneurships. However, based on records, self-entrepreneurship do not always go well for the reason of difficulty of initial cost arrangement and the hard competition in the market.

In southeastern area in Tanzania, the well-equipped training centre is only one which is private and the number of trainees trained in this centre is very small due to the policy of the able minority, thus the number of skilled labours is not enough.

The number of enterprises and self-employment in the field in the Project is not so many, therefore the acceptability in the Mtwara market for self-entrepreneurship may be higher than that in other areas. In case their living base is located at home area, they have an advantage to start a business to supplement his income using obtained skills. The possibility of self-entrepreneurship to succeed in the market is expected to be high in the future several years.

If the vocational training function and capacity will be improved through the implementation of the Project, it will be possible to assist the entrepreneurship of trainees entirely covering all of 11 formal courses. If the short courses will be opened, it will be possible to train the people in the regions and to promote self-employment of graduates from the centre.

The Mtwara and Lindi Regions are famous for migration, especially of the youth to the urban. However, it is expected that the youth in the regions will stay at home area to work toward the future development of community.

The following are the expected indirect effects of the Project.

① Complementing formal education

The shortage of facilities for secondary education, which is one of the main reasons deterring the improvement of enrollment in Tanzania, is very serious. The percentage of pupils who go on to secondary education stands at a low rate of about 15 % based on the 1998 data from the Ministry of Education and Culture thus it is estimated that the gross enrollment ratio is also lower than 10%. The vocational training in VETA is not a part of formal education but many youth who cannot go to secondary school against their will, tend to regard VETA vocational training as formal education and apply to the VETA training centre.

The qualification for entry test to Technical Secondary School upper course (FTC) is given after passing trade test I upon graduation from VETA training centre without graduation certificate of Technical Secondary School Form IV. Thus, VETA training system may be returned to formal education since it is performing an important supplementary function to formal education.

② Supporting local industry

The equipment introduced through the Project are to be used mainly for training but some for production activity and tie-up with local enterprises, for the retraining of employees and for the rental of workshops etc., The equipment through effective use in the future will enable to produce some products, which can not be locally produced at present, due to lack of equipment. It is also expected that these activities will widely contribute to upgrading products quality, improvement of productivity and cutting down of production cost. Besides the indirect effect through vocational training, the influence to the local enterprises will be wide. This activity will also contribute to income generation in Mtwara RVTSC.

Under the circumstances, the provision of equipment for Mtwara RVTSC through the Project will give large impact directly and indirectly to the southeastern area of Tanzania and particularly to the rural area. The Project will contribute to the regional development and the improvement of living standards in southeastern area in Tanzania.

4.2 Collaboration with other donors and Technical Cooperation

VETA intends to request the dispatch of Japan Overseas Cooperation Volunteer (JOCV) as well as Japanese experts in support for the training service.

Mtwara RVTGSC will support not only the self-entrepreneurship of graduates but also the development of local industry as one of the services for enterprises. The support of self-entrepreneurship and industrial development by Japanese experts will be effective due to accumulation of know-how necessary for them to succeed in VETA.

Assistance is given by DANIDA and GTZ to VETA head office, Dar es Salaam RVTSC and Morogoro VTTC but not for Mtwara RVTSC and there are no future schedule for assistance to Mtwara RVTSC.

4.3 Recommendation

The Mtwara RVTSC was established as the last RVTSC in Tanzania and the project area covers Mtwara Region and Lindi Region, which is one of the most underdeveloped areas of the industrial sector in Tanzania.

Mtwara RVTSC is a newly developed centre and have no experience in operation unlike the other RVTSCs. The trainers and staff do not have enough experience in operating vocational training centre and training trainees.

For effective vocational training and efficient operation of the centre, the following matters should be taken into consideration.

(1) Training of trainers and staff

The trainees, who are newly employed and have no training experience in vocational training centre under VETA, should be retrained in the existing centres. The staff who does not have enough know-how in operation and management of a vocational training centre, should be given guidelines and instructions from VETA headquarter.

(2) Preparation of New Curriculum

Given that the curriculum for vocational training is currently being revised by VETA, new syllabus and guideline for instruction should be prepared in accordance with the new curriculum for effective training. In addition, for better performance of the newly established Mtwara RVTSC, guidance by VETA is essential. The training in the existing centres is based on the standard curriculum of VETA but through some modification and improvement of the curriculum, they have succeeded in providing effective training to achieve better results.

Therefore, it is advisable for the trainers in Mtwara RVTSC to be trained in the existing centres. The staff of the department of vocational education and training or trainers in the existing centres should be dispatched to train trainers at Mtwara RVTSC. This will ultimately contribute in the upgrade of training skills in Mtwara RVTSC.

(3) Income generation

According to the new policy of VETA, each centre is required to earn 40% of the operation cost through income generation activities. As part of the training, the existing centres obtain money through sales of trainee's products and repair of vehicle and machinery for the private sector.

Mtwara RVTSC has several issues and problems like it does not have enough connection with local enterprises and few enterprises are established as the projected area depends mainly on the agriculture. It is very difficult for Mtwara RVTSC to meet the same level of operating cost with other existing centres. Long term financial assistance from VETA is indispensable for Mtwara RVTSC.

(4) Maintenance of Equipment

It is a VETA policy that each centre has the responsibility to maintain the facility and procured equipment. In the existing centres under VETA, the trainer and technician in each field has been maintaining and repairing using their knowledge from experience. In newly established Mtwara RVTSC where the trainer and technician may lack of technical experience, it may be difficult to keep maintenance level as high as existing centres. It is recommended that Mtwara RVTSC employ an exclusive technician for maintenance, repair and production of spare parts and accessories of equipment and facilities. He should be able to effectively utilize the maintenance workshop.

Appendix 1 Member List of the Survey Team

1.1 Field Study of the Basic Design Study

Mr. Mitsuaki FURUKAWA	Leader	Deputy Resident Representative, JICA Tanzania Office, JICA
Mr. Fumihide AIKAWA	Technical Adviser	International Cooperation Division Human Resources Development and Planning Department, Employment and Human Resources Development Organization (BHDO)
Mr. Makiko WATANABE	Project Coordinator	First Project Management Division Grant Aid Management Dept., JICA
Mr. Soichi TAKAI	Chief Consultant/ Vocational Training Planner	INTEM Consulting, Inc.
Mr. Kenzo MIYOSHI	Equipment Planner I	INTEM Consulting, Inc.
Mr. Masatake ODA	Equipment Planner II	INTEM Consulting, Inc.
Mr. Noboru ANDO	Facility Planner	INTEM Consulting, Inc.
Mr. Takayuki KOJIMA	Procurement/Cost Estimation	INTEM Consulting, Inc.

1.2 Briefing of Draft Basic Design Report

Mr. Mitsuaki FURUKAWA	Leader	Deputy Resident Representative, JICA Tanzania Office, JICA
Mr. Makiko WATANABE	Project Coordinator	First Project Management Division Grant Aid Management Dept., JICA
Mr. Soichi TAKAI	Chief Consultant/ Vocational Training Planner	INTEM Consulting, Inc.
Mr. Kenzo MIYOSHI	Equipment Planner I	INTEM Consulting, Inc.

Appendix 2 Itinerary of the Field Survey and Draft Explanation

2.1 Itinerary of Field Survey of the Basic Design Study

(From Oct., 2 to Oct., 30, 1999: 30 days)

No. of Days	Date			Contents of the Survey
1	Oct 2	Sat		Narita 12:00 (SR169)– Zurich 17:25 and left 21:00 (SR292)
2	3	Sun		Dar es Salaam 07:35
3	4	Mon		Meeting with JICA Office and Courtesy call on Embassy of Japan, Discussion with VETA(Explanation of I/R,Questionnaire and Scheduling)
4	5	Tue		Moved to Mtwara/ Visited Mtwara RVTSC and explained I/R
5	6	Wed		Visited Mtwara Regional Office/ Discussion with Mtwara RVTSC Surveyed facilities and existing equipment of Mtwara RVTSC Visited and discussed with Mtwara Port Authority
6	7	Thur		Visited and discussed with Lindi Regional Office and Labour Office Visited and surveyed former Lindi VTC Visited and surveyed Ndanda Vocational Training Centre
7	8	Fri		Discussion with Mtwara RVTSC Visited and discussed with RIPS Office/ Moved to Dar es Salaam
8	9	Sat		Discussion on the Minutes of Meeting with VETA Surveyed equipment agent (3 Consultants only)
9	10	Sun		Inner meeting
10	11	Mon		Discussion on the Minutes of Meeting with VETA Surveyed equipment dealer and agent (3 Consultants only) Courtesy call on Ministry of Labour and Youth Development Discussion with GTZ and DANIDA
11	12	Tue		Signing of Minutes/ Moved to Mtwara(Consultants only)
12	13	Wed		Courtesy call on Mtwara Regional Office and Mtwara Urban Office Discussion with Mtwara RVTSC and survey of facilities
13	14	Thur		Survey of Mtwara RVTSC's facilities Survey of Mtwara Port Authority and Port Custom, Forwarding Agents Survey of Chamber of Commerce, TANESCO, UWSA and SIDO Collected data and information from Mtwara Regional Office
14	15	Fri		Mtwara RVTSC, discussed and collected data and information Moved to Dar es Salaam
15	16	Sat		Meeting with VETA
16	17	Sun		Inner meeting and documentation
17	18	Mon		Moved to Moshi
18	19	Tue		Survey and discussion with Moshi RVTSC/Moved to Dar es Salaam Survey of Forwarding Agent and Equipment Agents
19	20	Wed		Meeting with VETA (equipment)
20	21	Thur		Inner meeting and documentation
21	22	Fri		Meeting with VETA (equipment)
22	23	Sat		Collecting procurement data
23	24	Sun		Documentation
24	25	Mon		Meeting with VETA (equipment) and collecting data and information
25	26	Tue		Moved Morogoro Teacher Training College Survey and discussion with Morogoro TTC/ Moved to Dar es Salaam
26	27	Wed		Meeting with VETA, Survey of SIDO, ILO and SIDA
27	28	Thur		Report JICA Office and Courtesy call on Embassy of Japan
28	29	Fri		Meeting with VETA, Left Dar es Salaam for Amsterdam 23:30 (KL569)
29	30	Sat		Amsterdam 07:45 and left 19:30 (JL412)
30	31	Sun		Narita 13:40

2.2 Itinerary of Draft Explanation

(From Jan., 10 to Jan., 23, 2000: 14 days)

No. of Days	Date	Contents of the Survey
1	Jan 10 Mon	Narita 12:00 (JL401) -- London 15:45 and left 22:45 (BA2067)
2	11 Tue	Dar es Salaam 13:25 Meeting with JICA Office, Courtesy call on Embassy of Japan
3	12 Wed	Discussion with VETA (Preparatory meeting)
4	13 Thur	Courtesy call on Ministry of Labour and Youth Development Discussion with VETA (Explanation of Draft Report)
5	14 Fri	Discussion with VETA
6	15 Sat	Discussion with VETA
7	16 Sun	Internal meeting, data analysis
8	17 Mon	Discussion on the Minutes of Meeting with VETA
9	18 Tue	Discussion on the Minutes of Meeting with VETA, Signing the Minutes
10	19 Wed	Report to Embassy of Japan and JICA Office Discussion with VETA (Specification of equipment) Official member left Dar es Salaam 17:45 (TC732) for Nairobi
11	20 Thur	Discussion with VETA (Specification of equipment)
12	21 Fri	Discussion with VETA (Specification of equipment) Meeting with JICA Office, Dar es Salaam Left 19:45 (BA2066)
13	22 Sat	London 04:45 and left 19:00 (JL402)
14	23 Sun	Narita 15:45

Appendix 3 List of Party Concerned in the Recipient Country

Embassy of Japan

Mr. Keitaro Sato

Mr. Yuzo Ota

Mr. Asahiko Taminami

Ambassador, Embassy of Japan

Minister, Embassy of Japan

Second Secretary, Embassy of Japan

JICA Tanzania Office

Mr. Shinya Nakai

Mr. Takehiro Susaki

Mr. Hiroyuki Takada

Resident Representative

Assistant Resident Representative

Assistant Resident Representative

Vocational Education and Training Authority(VETA)

Dr. A. Meru

Mr. Matayo H. Kiwayo

Mrs. B. N. Ndunguru

Mr. A. Athuman

Mr. J. R. Nkondokaya

Mr. G. G. Sabuwi

Mr. Gilbert Kwabwogi

Ms. R. M. Binamung

Ms. Vivian Brashemererwa

Director General

Director of Finance

Director of Vocational Education and Training

Vocational Training Adviser

Institutional Development Manager

Learning and Evaluation Specialist

Research and Planning Specialist

Curriculum Development Specialist

Staff in charge of GTZ

Ministry of Labour and Youth Development

Ms. R. Lugembe

Ms. M. Mecha

Mr. E. K. Ndimbo

Mr. G. K. Ngoi

Ms. Mpongiana

Permanent Secretary

SIO-Gender Coordinator

Ag. Asst Labour Commissioner

Principal Statistician

Principal Project Officer

Mtwara Regional Vocational Training and Service Centre (Mtwara RVTSC)

Mr. George S. Mhina

Mr. Deusdedit BM. Joseph

Mr. R.A Sebbo

Ms. E.M. Luanda

Mr. S. Shumbi

Mr. J. Maimu

Mr. M. Ntanga

Training Manager of Mtwara RVTSC

Registrar of Mtwara RVTSC

Trainer of Carpentry and Joinery

Trainer of Tailoring

Trainer of Secretary and English

Trainer of Masonry and Brick

Trainer of Plumbing and Pipe Fitting

Dar es Salaam Regional Head Office

Mr. Peter Mateso

Dar es Salaam Regional Director

Dar es Salaam Regional Vocational Training and Service (DES RVTSC)

Mr. A. Msuya

Ms. Violet Fumbo

Mr. Mwl, H. R. Kalima

Mr. H. B. Tesha

Mr.A.D.I Mkhomor

Mr. Abdulghafun

Mr. Frederick L. Lema

Mr. Y. Lenard

Mr. L. N. Nairo

Mr. F. A. Sillo

Trainer of Carpentry and Joinery

Trainer of Electric Installation

Trainer of Masonry and Brick

Trainer of Plumbing and Pipe Fitting

Trainer of Truck Mechanics

Trainer of Auto Electrician

Trainer of Welding and Fabrication

Trainer of Industrial Electrical Fitter

Trainer of Fitting Mechanics

Trainer of Engineering Science

Kirinda Regional Head Office
Mr. E. N. Ngowi

Kirinda Regional Director

Moshi Regional Vocational Training and Service Centre

Mr. G. S. A. Mtegwa
Mr. Kessy
Mr. Komba

Training Manager
Registrar
Accountant

Mtwara Regional Office

Mr. Co. K. Nsa-Kaisi
Mr. Alhaji Yahya F. Mbila
Mr. Robert N. Maganga
Mr. Hezron S. Kajange

Regional Commissioner
Regional Administrative Secretary
Natural Resources and Tourism Officer
Regional Town Planner

Tanzania Harbours Authority

Mr. Dunstan. S. Kisanga

Port Manager

Lindi Regional Office

Mr. F. Mchopa
Mr. Abudul Khalifa

Active Regional Administrative Secretary(RAS)
Labour Officer

Small Industrial Development Organization Mtwara (SIDO Mtwara)

Mr. Meena H.S.S.

Officer

TANESCO Mtwara

Mr. Matunga

Regional Acting Manager

Urban Water and Sewerage Authority Mtwara

Mr. M. Njovu

Managing Director

FINNAGRO – Rural Integrated Project Support-RIPS

Mr. Unto Akia, MBA
Dr. Wenbah Rashid

Financial Controller & Acting Manager

Mtwara Technical Teacher Training College

Ms. Isabela C. Nangomo

Deputy Principal

Mtwara Technical Secondary School

Ms. Bacari

Principal

DANIDA

Mr. Lars Hald

Chief Adviser

GTZ

Mr. Ewald Gold

Chief adviser

Mtwara Airport

Mr. Robert Mangase

Natural Resources Officer

Morogoro Vocational Teacher Training College

Mr. Frederick I. Mushi
Mr. Mgusa G. O. Prosper

Principal
Administrative Manager

Appendix 4 Equipment List


Equipment List

1. (CJ) Carpentry and Joinery
2. (MR) Masonry
3. (ST) Secretary and Computer
4. (TR) Tailoring
5. (PP) Plumbing and Pipe Fitting
6. (AM) Auto Mechanics
7. (AE) Auto Electrician
8. (WF) Welding and Fabrication
9. (EL) Electrical Installation
10. (WC) Wood Carving
11. (CH) Chemical Laboratory
12. (PL) Physics Laboratory
13. (MW) Maintenance Workshop
14. (CM) Commercial
15. (GC) General Classroom
16. (AV) Audio Visual Equipment
17. (VE) Vehicles
18. (SC) Short Course (Food Processing)

※ Criteria for quantity of equipment

Quantities of equipment are decided by the following criteria.

- 1G : Equipment for demonstration use
- 2G : Equipment used by 2 groups per class
- 4G : Equipment used by 4 groups per class
- 8G : Equipment used by 8 groups per class
- 16G : Equipment used by individual student
- C : Equipment for common use
- N : No justification for necessity

※  : Additional equipment

1. Carpentry and Joinery

CODE	EQUIPMENT	QUANTITY		REQUEST		EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation		
CJ- 1	Bench drill press	1	C	2	All	A	O	O	O	
CJ- 2	Tilted saw spindle type circular saw bench	1	C	1	2.1	A	O	O	O	Selected general-purpose grade
CJ- 3	Knife grinder	2	C	1	2.1	A	O	O	O	
CJ- 4	Cardless driver drill	2	C	2	All	A	O	O	O	
CJ- 5	Disc sander	2	C	2	All	B	O	O	O	
CJ- 6	Jig saw	2	2G	2	All	A	O	O	O	
CJ- 7	Bench grinder	5	C	2	2.1	A	O	O	O	
CJ- 8	Router machine table	1	1G	1	2.1	A	O	O	O	
CJ- 9 -1	Jointer(manual type)	1	C	1	2.1	A	O	O	O	
CJ- 9 -2	Combination planer	1	C	1	2.1	A	O	O	O	Selected general-purpose grade
CJ- 10	Tennon machine	1	1G	1	2.1	A	O	O	O	
CJ- 11	Endless abrasive belt machine	1	C	1	2.1	A	O	O	O	
CJ- 12	Pneumatic clamp machine	1	N	0	2.1	B	X	O	X	For welding purpose
CJ- 13	Lathe machine (1000mm)	1	C	1	2.1	A	O	O	O	Selected general-purpose grade
CJ- 14 -1	Portable saw	1	C	2	2.1	A	O	O	O	
CJ- 14 -2	Portable planer	1	C	2	2.2	A	O	O	O	
CJ- 14 -3	Portable sander	1	C	1	2.3	A	O	O	O	
CJ- 14 -4	Portable router	1	C	1	2.1	A	O	O	O	
CJ- 15	Arm saw machine	1	C	1	2.1	A	O	O	O	
CJ- 16	Radial saw	1	C	1	2.1	A	O	O	O	
CJ- 17	Spindle moulder	1	1G	1	All	A	O	O	O	
CJ- 18	Portable bench mortiser with mortising chisel bits	1	C	1	All	A	O	O	O	
CJ- 19	Manual mitre saw	1	C	1	All	A	O	O	O	
CJ- 20	Electric drill	5	4G	4	All	A	O	O	O	
CJ- 21	Air Compressor	1	C	1	All	A	O	O	O	
CJ- 22	Painting equipment	1	2G	2	2.1	A	O	O	O	
CJ- 23	Hand Press	1	C	1	2.1	A	O	O	O	
CJ- 24	Dust extractor	1	C	1	2.1	A	O	O	O	
CJ- 25	Tool for carpentry and joinery	40	16G	1 set	All	A	O	O	O	
CJ- 26	Safety equipment	40	16G	17	All	A	O	O	O	
CJ- 27	Drafting equipment	1	1G	1 set	All	A	O	O	O	
CJ- 28	Furniture for Carpentry and Joinery	1	1G	1 set	All	A	O	O	O	

2. Masonry

CODE	EQUIPMENT	QUANTITY		REQUEST		EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation		
MR-1	Mortar mixer	2	1G	1	All	A				
MR-2	Concrete mixing machine diesel engine driven	2	1G	1	All	A				
MR-3	Pocker vibrating machine	1	1G	1	2.1	A				
MR-4	Theodolite	3	4G	4	2.1	A				Selected general-purpose grade
MR-5	Terrazzo grinding machine	1	C	1	2.1	A				
MR-6-1	Pipe cutting machine	1	C	1	2.1	A				
MR-6-2	Pipe bending machine	1	C	1	2.1	A				
MR-7	Drilling press	1	C	1	---	---				
MR-8	Bench grinder	1	C	1	---	---				
MR-9	Arm saw machine	1	C	1	---	---				
MR-10	High speed cutting machine	1	C	1	---	---				
MR-11	Cart (heavy duty)	1	C	2	---	---				
MR-12	Tool for masonry and bricklaying	15	16G	1 set	---	---				
MR-13	Safety equipment	17	16G	17	All	A				
MR-14	Drafting equipment	1	1G	1 set	---	---				
MR-15	Furniture for Masonry	1	1G	1 set	---	---				

3. Secretary and Computer

CODE	EQUIPMENT	QUANTITY			REQUEST			EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation	O & M			
ST- 1	Electronic typewriter	16	16G	8	All	A						
ST- 2	Computer set	17	16G	17	All	A						
ST- 3	Photocopy machine	5	C	1	All	B						Selected general purpose grade
ST- 4	Air conditioner	1	C	2	All	A						
ST- 5	UPS	17	16G	17	All	A						
ST- 6	Diskettes & holders	17	—	—	All	A						
ST- 7	Typewriter	10	16G	8	All	A						
ST- 8	Voltage stabilizer for computer	17	16G	17	All	A						
ST- 9	Desk calculator	4	4G	4	All	A						
ST- 10	Radio cassettes	2	C	1	All	A						
ST- 11	Stop watches	2	4G	4	All	A						
ST- 12	Laptop computers	2	N	0	All	A						
ST- 13	Printing equipment	1	C	1	All	A						
ST- 14	Fax machine	2	N	0	All	A						
ST- 15	LCD projector	—	C	—	—	—						
ST- 16	Furniture for Secretary and Computer	—	—	1 set	—	—						

4. Tailoring

CODE	EQUIPMENT	QUANTITY		REQUEST			EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation	O & M		
TR- 1	Automatic spreading machine	1	N	0	2,1	A	X	X	X	X	For pure industrial use
TR- 2	Band knife	1	N	0	All	A	X	X	X	X	For pure industrial use
TR- 3	Straight knife(8")	2	N	0	All	A	X	X	X	X	For pure industrial use
TR- 4	Cloth drill	1	N	0	All	A	X	X	X	X	For pure industrial use
TR- 5	Compact fusing press	1	N	0	2,1	A	X	X	X	X	For pure industrial use
TR- 6	1-needle lockstitch machine w/an automatic thread trimmer control panel	14	N	0	2,1	A	X	O	X	X	For pure industrial use
TR- 7	1-needle lockstitch machine w/an automatic thread trimmer/control panel	2	N	0	(2,1)	A	X	O	X	X	For pure industrial use
TR- 8	1-needle, lockstitch, zigzag and embroidering sewing machine	1	N	0	(2,1)	A	X	O	X	X	For pure industrial use
TR- 9	High speed, 1-needle, lockstitch, standard zig-zag stitching machine	1	N	0	(2,1)	A	X	O	X	X	For pure industrial use
TR- 10	1-needle, lockstitch, zigzag and embroidering sewing machine	1	N	0	All	A	X	O	X	X	For pure industrial use
TR- 11	Superhigh-speed 3 thread overlook stitch machine/pneumatic side cutter/chain-off thread suction device	3	N	0	2,1	B	X	O	X	X	For pure industrial use
TR- 12	High-speed 4-thread overlook stitch machine/pneumatic side cutter/chain-off thread suction device	2	N	0	2,1	B	X	O	X	X	For pure industrial use
TR- 13	Superhigh-speed 5-thread safety stitch machine/thread flat cutter /chain-off thread suction device	3	N	0	2,1	B	X	O	X	X	For pure industrial use
TR- 14	High-speed 1-needle, unison-feed, lockstitch machine with a large hook and an automatic thread trimmer	4	N	0	2,1	B	X	O	X	X	For pure industrial use
TR- 15	High speed 2 needle, unison-feed, lockstitch machine with a large hook and an automatic thread trimmer	4	N	0	2,1	A	X	O	X	X	For pure industrial use
TR- 16	Multi-needle, cylinder-bed new super-auto-tucking machine for attaching pre-closed elastic to waist	1	N	0	2,1	A	X	O	X	X	For pure industrial use
TR- 17	3-needle, cylinder-bed top and bottom covering stitch machine for hemming	1	N	0	All	A	X	O	X	X	For pure industrial use
TR- 18	3-needle, flat-bed top and bottom covering stitch machine for collar/ette attaching	2	N	0	All	B	X	O	X	X	For pure industrial use
TR- 19	Vacuum board /electric steam iron	1	2G	2	All	A	O	O	O	O	For pure industrial use
TR- 20	1-needle, lockstitch buttonholing machine for knit fabrics	1	N	0	All	A	X	O	X	X	For pure industrial use
TR- 21	Computer controlled, high-speed bartacking machine	1	N	0	2,1	B	X	O	X	X	For pure industrial use
TR- 22	Computer-controlled, high speed, lockstitch button sewing machine	1	N	0	2,1	B	X	O	X	X	For pure industrial use
TR- 23	Vacuum board/Electric steam iron	2	-	-	All	B	-	-	-	-	
TR- 24	Air conditioner	12	N	0	All	A	X	X	X	X	
TR- 25	Electric power straight stitch sewing machine	-	2G	2	-	-	O	O	O	O	
TR- 26	Buttonholer machine	-	2G	2	-	-	O	O	O	O	
TR- 27	Zigzag sewing machine	-	2G	2	-	-	O	O	O	O	
TR- 28	Multi function sewing machine	-	10G	17	-	-	O	O	O	O	
TR- 29	Sewing tool set	-	10G	1 set	-	-	O	O	O	O	
TR- 30	Furniture for Tailoring	-	-	1 set	-	-	-	-	-	-	

5. Plumbing and Pipe Fitting

CODE	EQUIPMENT	QUANTITY			REQUEST			EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation	O & M			
PP- 1	Drill press	2	C	2	All	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 2	Vacuum pump	3	N	0	2,1	B	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	No purpose of utilization	
PP- 3	Bench grinder	5	C	2	2,1	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 4	Gas welder	1	C	1	2,1	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 5 -1	Shearing machine, hand bench type	1	1G	1	All	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 5-2	Bending machine, manual type	1	1G	1			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 6	Electric drill	1	C	2	All	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 7	Disc grinder	1	C	1	2,1	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 8	Power hacksaw	1	C	1	2,1	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Selected general purpose grade	
PP- 9	Power shearing machine	1	C	1	2,1	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 10	Hydraulic pipe bending machine	1	1G	1	All	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Manual type	
PP- 11	Centrifugal Pump	1	N	0	All	A	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	No purpose of utilization	
PP- 12	Submersible Sump Pump	1	C	1	All	A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 13	Pipe threading machine	1	1G	1			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 14	Impact driver	1	1G	1			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 15	Hammer driver	1	1G	1			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 16	Tool for climbing and pipe fitting	1	16G	1 set			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 17	Safety equipment	1	16G	17			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 18	Drafting equipment	1	1G	1 set			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
PP- 19	Furniture for Plumbing and Pipe Fitting	1		1 set			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		

6. Auto Mechanics

CODE	EQUIPMENT	QUANTITY		REQUEST			EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation	O & M		
AM- 1	Power steering assembly	2	TG	1	All	A					
AM- 2	Steering gear assembly with braking system	2	TG	1	All	A					
AM- 3	Dry single disc clutch (OHP transparent sheet)	2	TG	1	All	A					
AM- 4	Synchromesh transmission (OHP transparent sheet)	2	TG	1	All	A					
AM- 5	Clutch and Transmission	2	TG	1	All	A					
AM- 6	Ackerman steering system(OHP transparent sheet)	2	TG	1	All	A					
AM- 7	Ignition system(D-type animated board)	2	TG	1	All	A					
AM- 8	Alternator (Cut-away model)	2	TG	1	All	A					
AM- 9	Advanced mechanism (D-type animated board)	1	TG	1	All	A					
AM- 10	Chassis gasoline engine (cut-away)	1	TG	1	All	A					
AM- 11	Diesel engine model	1	TG	1	All	A					
AM- 12	Petrol engine model	1	TG	1	All	A					
AM- 13	Diesel rotating injection pump(cut-away)	4	TG	1	All	A					
AM- 14	Diesel injection pump(cut-away)	4	TG	1	All	A					
AM- 15	Live diesel engines on rotating stand	2	TG	1	2,1	A					
AM- 16	KE-Jetronic trainer	1	TG	1	2,1	A					
AM- 17	Sectioned turbocharger	1	TG	1	2,1	A					
AM- 18	Sectioned motorcycle 2 strokes, 1 cylinder engine	2	TG	1	All	A					
AM- 19	Automotive air conditioning demonstration unit	1	TG	1	2,1	A					
AM- 20	Diesel injection pump test bench	1	TG	1	2,1	A					
AM- 21	Fuel consumption meter	2	2G	2	2,1	A					
AM- 22	Wheel balance	2	TG	1	All	A					
AM- 23	Tyre changer	1	TG	1	All	A					
AM- 24	Tyre gauge	2	2G	2	All	A					
AM- 25	Chain block	3	2G	2	All	A					
AM- 26	Portable lubricator	3	2G	2	All	A					
AM- 27	Air compressor	2	C	1	All	A					
AM- 28 -1	Real engine of full set type, practical training(Gasoline)	1	TG	1	2,1	A					
AM- 29	Automotive education / training kit	1	TG	1	All	B					
AM- 30	Camber, caster, kingpin gauge	2	2G	2	All	A					
AM- 31	Wheel balancing weight	1			All	A					
AM- 32	Brake shoe grinder	1	TG	1	All	A					
AM- 33	Radiator cap tester	1	TG	1	All	A					
AM- 34	Crankshaft grinding machine	1	TG	1	2,1	A					
AM- 35	Cylinder head surfacing machine	1	TG	1	2,1	A					
AM- 36	Needle valve linding machine	1	TG	1	2,1	A					
AM- 37	Various types of injectors	1	N	0	2,1	A					
AM- 38	Safety equipment	32			All	A					
AM- 39	Cylinder head stand	5	2G	2	All	A					
AM- 40	Diesel compression tester	3	2G	2	All	A					
AM- 41	Diesel fuel pump timing kit	2	2G	2	2,1	A					
AM- 42	Cylinder leakage tester	2	2G	2	All	A					
AM- 43	Cooling system tester	2	2G	2	All	A					
AM- 44	Fuel injector pressure tester kit	5	2G	2	2,1	A					
AM- 45	Engine support beam	2	TG	1	All	A					
AM- 46	Pressure brake bleeder	2	TG	1	All	A					
AM- 47	Arc welder	2	C	1	All	A					

6. Auto Mechanics

CODE	EQUIPMENT	QUANTITY		REQUEST		EVALUATION CRITERIA			FINAL JUDGE	NOTES	
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation			O & M
AM- 48	Gas welder Set	2	C	1	All	A	O	O	O		
AM- 49	Plasma cutter	2	N	0	2,1	A	X	O	X		
AM- 50	2-post vehicle lift	1	1G	1	All	A	O	O	O		
AM- 51	Engine stand	5	4G	4	All	A	O	O	O		
AM- 52	Hydraulic press	2	C	1	All	A	O	O	O		
AM- 53	Platform truck	4	C	4	All	A	O	O	O		
AM- 54	Steel wall rack	5	C	4	All	A	O	O	O		
AM- 55	Car creeper	3	4G	2	All	B	O	O	O		
AM- 56	Angle grinder	3	C	2	All	B	O	O	O		
AM- 57	Dial test indicator (plunger type)	3	2G	2	All	A	O	O	O		
AM- 58	Drill press	2	C	2	All	B	O	O	O		
AM- 59	Combustion leakage tester	5	4G	4	2,1	A	O	O	O		
AM- 60	Catalyst back pressure tester	3	N	0	2,1	A	X	O	X		
AM- 61	Ultrasonic injector cleaner	3	N	0	2,1	A	X	O	X		
AM- 62	Brake disk lathe	2	1G	1	2,1	A	O	O	O		
AM- 63	Shop press	1	1G	1	2,1	A	O	O	O		
AM- 64	Diesel smoke meter	2	1G	1	2,1	A	O	O	O		
AM- 65	Automatic air inflator	2	1G	1	All	A	O	O	O		
AM- 66	Vertical boring machine	1	N	1	2,1	A	O	O	O		
AM- 67	Line boring machine	1	N	0	2,1	A	X	O	X		
AM- 68	Cylinder honing machine	1	1G	1	2,1	A	O	O	O		
AM- 69	Valve seat cutter	1	1G	1	2,1	A	O	O	O		
AM- 70	Cylinder liner puller	4	-	-	2,1	A	I	I	I		
AM- 71	Vulcanizing machine	3	1G	1	All	A	O	O	O		
AM- 72	Gasoline engine analyzer	1	1G	1	2,1	A	O	O	O		
AM- 73	Vacuum gauge for gasoline engine	2	1G	1	All	A	O	O	O		
AM- 74	Vacuum fuel pump gauge	2	2G	2	All	A	O	O	O		
AM- 75	Valve spring tester	1	1G	1	All	A	O	O	O		
AM- 76	Portable hydraulic jack	2	C	4	All	A	O	O	O		
AM- 77	Brake lining rivetter	1	1G	1	All	A	O	O	O		
AM- 78	Electric drill	2	C	2	All	A	O	O	O		
AM- 79	Piston ring groove cleaner	1	1G	1	All	A	O	O	O		
AM- 80	Battery hydrometer	2	2G	2	All	A	O	O	O		
AM- 81	Diesel timing and tachometer	5	2G	2	All	A	O	O	O		
AM- 82	Tripod stand(Stand for display board)	10	C	10	All	A	O	O	O		
AM- 83	Rack and pinion type of steering box	5	1G	1	All	A	O	O	O		
AM- 84	Torque gauge	1	1G	1	All	A	O	O	O		
AM- 85	Side slip tester	1	1G	1	All	A	O	O	O		
AM- 86	Brake tester	1	1G	1	All	A	O	O	O		
AM- 87	Speed meter tester	1	1G	-	All	A	I	I	I	With speed meter	
AM- 88	EGI (Electric Gasoline Injection) system animated board	2	1G	1	All	A	O	O	O	Included brake tester	
AM- 89	Gasoline engine, with 4-cylinder EGI system	2	N	0	All	A	O	O	O		
AM- 90	Nozzle tester	2	2G	2	2,1	A	O	O	O		
AM- 91	Bench electric grinder	1	C	1	All	A	O	O	O		
AM- 92	Compression gauge	1	1G	1	All	A	O	O	O		
AM- 93	Motor vehicle simulator	2	N	0	All	A	X	O	X	Low effectiveness	
AM- 94	Semi-high roof wagon	2	N	0	All	A	X	O	X	No reason of necessity	
AM- 95	7-ton truck	1	N	0	All	A	X	O	X	No reason of necessity	

6. Auto Mechanics

CODE	EQUIPMENT	QUANTITY		REQUEST			EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation	O & M		
AM-96	Mini truck (used car)	1	1G	1							
AM-97	4WD station wagon (used car)	1	1G	1							
AM-98	Sedan (used car)	1	1G	1							
AM-99	Painting equipment	4	4G	4							
AM-100	Tool for automobile	1 set	1BG	1 set							
AM-101	Safety equipment	32	16G	17							
AM-102	HC/CO tester	1	1G	1							
AM-103	Enginy crane	1	1G	1							
AM-104	Drafting equipment	1 set	1G	1 set							
AM-105	Furniture for Auto Mechanics	1 set		1 set							

7. Auto Electrician

CODE	EQUIPMENT	QUANTITY		REQUEST		EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation		
AE- 1	Electric wiring training board	1	1G	1	All	A	O	O	O	
AE- 2	Ignition system simulator	1	1G	1	All	A	O	O	O	
AE- 3	Automotive electrical chassis	1	1G	1	All	A	O	O	O	
AE- 4	Tacho / dwell meter	2	2G	2	2.1	A	O	O	O	
AE- 5	Engine tuner	2	2G	2	2.1	A	O	O	O	
AE- 6	Insulation tester	4	2G	2	All	A	O	O	O	
AE- 7	HC/CO tester	3	N	0	2.1	A	X	O	O	
AE- 8	Spark plug cleaner tester	2	1G	1	2.1	A	O	O	O	
AE- 9	Ignition system	1	1G	1	All	A	O	O	O	
AE- 10	Battery starter / charging circuit checker	2	1G	1	All	A	O	O	O	
AE- 11	Headlight tester	1	1G	1	All	A	O	O	O	
AE- 12	Beam setter	3	N	0	2.1	A	X	O	O	Substituted by AE-11
AE- 13	Battery drop tester	3	1G	1	All	A	O	O	O	
AE- 14	Starter charger	2	2G	2	All	A	O	O	O	
AE- 15	Ignition tester	3	2G	2	All	A	O	O	O	
AE- 16	Coil and condenser ohm tester	2	2G	2	All	A	O	O	O	
AE- 17	Disc grinder	1	C	1	All	A	O	O	O	
AE- 18	Silicon normal charger	1	1G	1	All	A	O	O	O	
AE- 19	Silicon quick charger with normal charge	1	1G	1	All	A	O	O	O	
AE- 20	Growler armature tester	1	1G	1	All	A	O	O	O	
AE- 21	Vacuum gauge for gasoline engine	1	1G	1	All	A	O	O	O	
AE- 22	Compression gauge	1	1G	1	All	A	O	O	O	
AE- 23	Hydraulic garage jack	1	C	1	All	A	O	O	O	
AE- 24	Bench drill press	1	C	1	All	A	O	O	O	
AE- 25	Distributor test bench	1	1G	1	All	A	O	O	O	
AE- 26	Starter generator test bench	1	1G	1	All	A	O	O	O	
AE- 27	Alternator modern type and old type each	4	4G	4	All	A	O	O	O	
AE- 28	Dynamo	4	--	--	All	A	O	O	O	Same to AE-27
AE- 29	Bench electric grinder	1	C	1	All	A	O	O	O	
AE- 30	Diesel timing and tacho tester	2	2G	2	2.1	A	O	O	O	
AE- 31	Air compressor	1	C	1	All	A	O	O	O	
AE- 32	Electric drill	2	C	2	All	A	O	O	O	
AE- 33	D.C.volt ampere meter	3	4G	4	All	A	O	O	O	
AE- 34	Ohmmeter	3	4G	4	All	A	O	O	O	
AE- 35	Battery hydrometer	2	2G	2	All	A	O	O	O	
AE- 36	Battery tester	2	2G	2	All	A	O	O	O	
AE- 37	Circuit tester	10	4G	4	All	A	O	O	O	
AE- 38	Hard plastic container for acid and distilled water	2	C	2	All	A	O	O	O	
AE- 39	Tool for auto-electrician	--	16G	1 set	--	--	O	O	O	
AE- 40	Safety equipment	--	16G	1 set	--	--	O	O	O	
AE- 41	Drafting equipment	--	1G	1 set	--	--	O	O	O	
AE- 42	Furniture for Auto Electrician	--	--	1 set	--	--	O	O	O	

8. Welding and Fabrication

CODE	EQUIPMENT	QUANTITY		REQUEST		EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation		
WF- 1	Sheet bending machine	1	1G	1	All	A	O	O	O	
WF- 2	Shear cutting machine	1	1G	1	All	A	O	O	O	
WF- 3	Mig welder	5	2G	2	2.1	A	O	O	O	
WF- 4	Tig welder	5	2G	2	2.1	A	O	O	O	
WF- 5	Bench grinder	5	C	4	All	A	O	O	O	
WF- 6	AC Arc welder	4	8G	8	All	A	O	O	O	
WF- 7	Power hacksaw	1	C	1	All	A	O	O	O	
WF- 8	Electric drill	3	C	4	All	A	O	O	O	
WF- 9	Gas welder set	8	8G	8	All	A	O	O	O	
WF- 10	Drilling press	2	C	2	All	A	O	O	O	
WF- 11	DC Arc welder	6	2G	2	All	A	O	O	O	
WF- 12	Oxy cutting machine	6	4G	4	All	A	O	O	O	
WF- 13	Gressel bending machine	1	1G	1	All	A	O	O	O	
WF- 14	Spot welding machine	1	1G	1	All	A	O	O	O	
WF- 15	Bending roller machine	1	N	0	All	A	O	O	O	
WF- 16	Folding machine	1	N	0	All	A	X	O	O	Substituted by WF-1
WF- 17	Angle grinder	2	C	2	All	A	O	O	O	
WF- 18	Work bench	16	-	-	All	A	O	O	O	
WF- 19	Fan and duct	-	C	1 set	-	-	O	O	O	
WF- 20	Engine welder	-	2G	2	-	-	O	O	O	
WF- 21	Vertical drilling machine	-	1G	1	-	-	O	O	O	
WF- 22	High speed cutting machine	-	C	1	-	-	O	O	O	
WF- 23	Compressor	-	C	1	-	-	O	O	O	
WF- 24	Painting equipment	-	2G	2	-	-	O	O	O	
WF- 25	Tool for welding and fabrication	-	18C	1 set	-	-	O	O	O	
WF- 26	Safety equipment	-	18G	1 set	-	-	O	O	O	
WF- 27	Drafting equipment	-	1G	1 set	-	-	O	O	O	
WF- 28	Furniture for Welding and Fabrication	-	-	1 set	-	-	O	O	O	

9. Electrical Installation

CODE	EQUIPMENT	QUANTITY		REQUEST		EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Criteria	Planned	Grade	Priority	Necessity	Installation		
EL- 1	Sectioned electric motors	2	1G	1	All	A				
EL- 2	Security alarm trainer	1	1G	1	All	B				
EL- 3	Variable transformer and power supplies	1	1G	1	All	B				
EL- 4	Basic electricity trainer	1	1G	1	All	A				
EL- 5	Oscilloscope	5	4G	4	All	B				
EL- 6	Multivoltage analogue insulation & continuity tester	10	8G	8	All	A				
EL- 7	Earth leakage clamp meter	10	8G	8	All	A				
EL- 8	Kit for the construction of a 3-phase motor	10	8G	8	All	B				
EL- 9	Digital tester	20	16G	16	All	A				
EL- 10	Kit for the construction of a 1-phase motor	10	8G	8	All	B				
EL- 11	Kit for the construction of 5 types	10	8G	8	All	A				
EL- 12	Manual coil winding machine	15	8G	8	All	A				
EL- 13	Stator and rotor tester	15	4G	4	All	A				
EL- 14	Arc welder for copper windings	15	8G	8	All	A				
EL- 15	Bench drill press	2	C	2	All	A				
EL- 16	Bench grinder	2	C	2	All	A				
EL- 17	Soldering iron	10	16G	16	All	A				
EL- 18	Electric drill	5	C	4	All	A				
EL- 19	Assorted voltmeters	5	4G	4	All	A				
EL- 20	Assorted ammeter	5	4G	4	All	A				
EL- 21	Multimeter (analog)	5	4G	4	All	A				
EL- 22	Wattmeter	20	8G	8	All	A				
EL- 23	Tools for electrical installation	1	16G	1 set						
EL- 24	Safety equipment	1	16G	1 set						
EL- 25	Drafting equipment	1	1G	1 set						
EL- 26	Furniture for Electric Installation			1 set						

10. Wood Carving

CODE	EQUIPMENT	QUANTITY		REQUEST		EVALUATION CRITERIA			FINAL JUDGE	NOTES
		Requested	Planned	Grade	Priority	Necessity	Installation	O & M		
WC- 1	Belt/disc sander	5	4G	4	2.1	A				
WC- 2	Table saw	5	N	1	All	A				
WC- 3	Bench mortiser	5	2G	2	All	A				
WC- 4	Scroll saw	5	4G	4	All	A				
WC- 5	Dust extractor	7	C	2	All	A				
WC- 6	Portable chip collector	7	C	2	All	A				
WC- 7	Wood sawing machine (10)	5	N	0	2.1	A	x		x	
WC- 8	Wood sawing machine (14)	5	N	1	2.1	A				
WC- 9	Wood finishing machine (37)	5	1G	1	2.1	A				
WC- 10	Wood working bit set	5	-	-	All	A				
WC- 11	Electric drill	5	C	2	-	-				
WC- 11	Precision meter saw	5	4G	4	2.1	A				
WC- 12	Log splitter	10	N	0	2.1	A	x		x	
WC- 13	Compressor	-	C	1	-	-				
WC- 14	Painting equipment	-	C	1	-	-				
WC- 15	Grinder	-	C	1	-	-				
WC- 16	Tool for wood carving	-	16G	1 set	-	-				
WC- 17	Safety gear	-	16G	1 set	-	-				
WC- 18	Drafting equipment	-	1G	1 set	-	-				
WC- 19	Furniture for Wood Carving	-	-	1 set	-	-				