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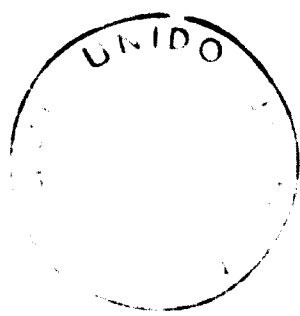
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REPORT OF MISSION TO BHUTAN  
(14 March - 3 April 1973)

TECHNICAL ASSISTANCE TO THE AUTOMOBILE  
REPAIR WORKSHOP DEPARTMENT IN BHUTAN

by

Mr. H.J. Fritz



We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards even though the best possible copy was used for preparing the master fiche

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1. Technical Assistance to the Automobile Repair Workshop Department

The purpose of the writer's presence was to participate as a team member in the multi-disciplinary UNDP Mission, to analyse the request of the Government of Bhutan - "Establishment of New Automobile Workshops and Strengthening of Existing Ones in Bhutan", following the "Terms of Reference of the Project Development Mission to Bhutan 1973" (Attachment I), prepared by the Resident Representative in India, Dr. John McDiarmid, who was Head of the delegation.

The names of the participants of the mission are given in Attachment 2 and a detailed Itinerary and Schedule of Work is shown in Attachment 3.

As can be seen from the Itinerary, a detailed survey was made from 17 March until 24 March when workshops were visited in Samdrup Jongkhar, Sirbhang, Gylephug, Phuntsholing and Thimphu. Attachment 4 reflects the findings of this survey which was jointly undertaken by the writer and his counterpart, Mr. Y. T. Lepcha, Mechanical Engineer, Chief of the Thimphu Workshop Department.

The findings were discussed in Thimphu on 28 March 1973, a Confidential Note and Record of the Discussions is enclosed as Attachment 5. These discussions formed the basis for the Draft Project Document which was prepared in Bhutan and has the full agreement of the Government of Bhutan from the substantive point of view. The Draft Project Document was discussed and finalized in New Delhi on 2 April 1973 in the Offices of the Resident Representative and is attached as Attachment 6.

The Office of the Resident Representative in New Delhi has a complete Draft Project Document for this project. The Office of the Resident Representative will edit and complete this document together with the other Project Documents which were drafted by other team members of the mission, and present them to the Government of Bhutan for their official submission to UNDP. It is anticipated that the Government of Bhutan will submit these Project Documents to UNDP by mid-April 1973. It is furthermore envisaged that UNDP will approve the documents or part of them at the latest by June 1973. The Time Schedule of the Draft Project Document has been developed under the assumption that our Technical Co-operation Division will initiate as soon as possible, advance recruitment action for the post of Automotive Workshop Co-ordinator (mechanical engineer), (Job Description of which is already approved by the Government of Bhutan), and that our Technical Equipment, Procurement and Contracting Office will also in advance, ask for quotations for equipment items which have also been approved by the Government of Bhutan.

The Resident Representative, Dr. J. McDiarmid, has prepared a report on the UNDP Mission which will be forwarded to UNDP Headquarters and all U.N. Agencies involved. In addition, the Office of the Resident Representative will prepare a Post Report of Bhutan which will also be forwarded to all Agencies and UNDP Headquarters.

**B. General Observations related to other future UNIDO activities in Bhutan**

**1. Vegetable Oil Survey (SIS) - 2-3 months**

At various occasions, discussions were held with Dr. T. Tobgyel, Secretary General, Ministry of Development, regarding UNIDO's possible assistance in the above mentioned field. The successful project which was carried out by UNIDO in Nepal was mentioned. Dr. Tobgyel was very interested in a survey in this field. It was agreed that UNIDO should prepare a short summary of the findings in Nepal as background information. In addition, a draft Job Description should be prepared

for one expert who would make a thorough assessment of the country's present status based on which recommendations can be formulated. The above mentioned Nepal summary and the draft Job Description should be sent to the Resident Representative in India, Dr. McDiarmid with the request to forward them to Dr. T. Totgyel for his consideration.

2. UNIDO Proposal for the Establishment of a Pilot Engineering Workshop for the Manufacture of Simple Agricultural Tools, Implements and related Steel and Sheet-metal Products (Financed partly through the IPP and partly through G.T.F.)

The Minister of Foreign Affairs discussed this project with the writer and at first glance found the proposal very suitable for the country. The proposal will be studied in detail by the Government of Bhutan and the results will be communicated thereafter through official channels. The writer recommended that this project should, if finally found suitable, be scheduled to commence not earlier than 1976, the time at which, more techno-economic parameters and more locally trained staff will be available and also both sides, the Government of Bhutan and UNIDO will have gained some experience in working with each other through the project, "Technical Assistance to the Automobile Repair Workshop Department". This view was shared entirely, not only by the Minister of Foreign Affairs but also by Mr. J. H. Lascelles, Senior Industrial Development Field Adviser (UNIDO) who was informed about the mission's outcome on 2 April 1973 in New Delhi.

The Report is to be submitted to:

- Dr. J. McDiarmid, Resident Representative in India (2 copies)
- Mr. J. H. Lascelles, Senior Industrial Development Field Adviser
- Mr. N. K. Grigoriev, Director, Industrial Technology Division
- Mr. S. Quijano-Caballero, Director, Technical Co-operation Division
- Mr. A. A. Afifi, Deputy Director, Industrial Technology Division  
and Chairman, Committee on Voluntary Contributions
- Mr. E. G. Rothblum, Deputy Director, Technical Co-operation Division
- Mr. A. E. Saenger, Deputy Director, Technical Co-operation Division
- Mr. M. A. Siddiqui, Chief, Section for Asia and the Far East, TCD
- Mr. D. C. Newton, Chief of Technical Equipment, Procurement and  
Contracting Office
- Mr. M. Mautner, Chief, Light Industries Section, ITD
- Mr. J. Cyranski, Chief, Engineering Industries Section, ITD
- Mr. H. J. Fritz, Engineering Industries Section, ITD

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ATTACHMENT I

PROJECT DEVELOPMENT MISSION TO BHUTAN - 1973

TERMS OF REFERENCE

I. Background

Following the admission of Bhutan to membership of the United Nations on 21 September 1971, Bhutan became eligible to receive assistance under the United Nations Development Programme. It should be recalled that both the General Assembly and the Governing Council of the UNDP have recommended that special efforts be made to assist the least developed countries, of which Bhutan is one. At the invitation of the Royal Government of Bhutan, the Resident Representative in India visited Bhutan in March 1972. His report was sent to U.N. Agencies in August 1972 and should be familiar to all members of the mission.

Since the Resident Representative's visit, ten official requests for UNDP assistance have been put forward covering several economic and social sectors. These requests require on-the-spot appraisal and to this end, with the agreement of the Royal Government of Bhutan, a multi-disciplinary mission headed by the Resident Representative in India, will visit Bhutan during the period 18 March - 1 April including travel time to Bhutan from Delhi.

For most of the members of the mission, they would be expected to spend one day in New Delhi for discussions with the Head of the Mission, Dr. John McDermid, before proceeding to Bhutan. Some specific requests, however, may require more extensive field visits in Bhutan than others and the mission period of two weeks may be inadequate in such cases. Where the agencies concerned believe this would be the case, they might propose that their specialised member proceed to Bhutan ahead of the other members of the mission joining the mission in Thimphu on the day of the general mission's arrival there. The Resident Representative in India will try to make arrangements for such advance field visits with the Bhutan Government.

## II. Objectives

The prime objective of the mission will be to review on the spot the requests for assistance received from Bhutan (Bhutan/72/002 through Oll), considering such aspects as eligibility for UNDP assistance, precise needs and possibilities, Bhutanes and UNDP inputs, etc., and to make concrete recommendations as to the assistance which might be rendered by UNDP. Where possible, draft project documents should be prepared in consultation with the Bhutanes authorities so that final decisions on assistance to be rendered can be expected.

## III. Programme in Bhutan

In Bhutan, it is envisaged that most of the first week will be spent by specialist members of the mission in visiting project sites and in project appraisal. The second week will probably be spent in Thimphu in discussions with, and hopefully drafting project documents with, Government officials.

In drawing up project documents, particular attention should be paid to the following aspects:

- i) the relevance of proposed projects to the national development plan, and especially the relationship to other assistance programmes, particularly the Indian bilateral programme;
- ii) the relevance of the proposed project to the particular goal to be met including the appropriateness of the proposed UNDP input to accomplish the goal;
- iii) the conformity of proposed projects to the Governing Council criteria for projects which are entirely, or chiefly, for equipment;
- iv) availability of counterpart funds, especially for construction;
- v) origin of existing equipment, and availability of spare parts, and best sources of additional equipment requested;

- vi) availability of counterpart personnel (Bhutanese, or in some cases, Indian nationals who are on extended service in Bhutan);
- vii) ability to install, maintain and properly utilize equipment items;
- viii) in the light of findings under (vi) and (vii), to consider the desirability of associating UNDP experts and fellowships with the provision of equipment.

In cases where project proposals seem inappropriate to meet goals, or where goals raise questions in the light of the situation as found, mission members should feel free to discuss alternatives with the Government officials concerned.

Members of the mission will no doubt wish to use the opportunity afforded by the mission to gather material on the Bhutanese economy in general and on the sectors of their specialisation in particular. While this will obviously be useful, it is emphasized that the mission is for the development of specific projects. Requests to Government officials for unpublished information or for the compilation of data should be confined to matters directly affecting project requests. Any broader requests for information should be made only through, or after agreement with, the Leader of the Mission, Dr. McDiarmid.

#### IV. Reporting

Clearly, the mission must avoid any commitment of UNDP assistance to Bhutan. The mission's report, signed by the Head of the Mission, will be made to the Administrator of UNDP as soon as possible after the completion of the mission. For that purpose members of the mission will be expected to stay in Delhi for one or two days after returning from Bhutan.

Before leaving Bhutan, however, the mission will be expected to have informal discussions with Bhutan officials, indicating provisionally the major lines of the mission's findings and recommendations in order that the official report can take into account the views of the Bhutan Government.

APPENDIX 2

Members of the Mission to Bhutan

Dr. John McDiarmid    U.S.A.            UNDP Office, New Delhi  
Mr. Paul Matthews    British  
Mr. K.V.R. Moorthy    Indian

Project No.	Field	Agency	Consultant's name	Nationality
BHU/72/002	Forestry	FAO, Rome	Mr. C. L. Lerche	Finnish
003	Vocational Training	ILO, New Delhi	Mr. A. D. Granger	British
004	Visual Aids	UNESCO, New Delhi	Mr. A. Plenal	French
005	Automobile Workshop	UNIDO, Vienna	Mr. H. J. Fritz	German
006	TB Programme	WHO, New Delhi	Dr. B.G. Prasad	Indian
007	Paro Cement Plant	UNIDO, Vienna	Mr. A. Madson	Danish
008	Printing and Block Making	UNESCO, New Delhi	Mr. A. Plenal	French
009	Road Works Machinery	U. N. New York	Mr. R. V. Harris	U. S. A.
010	Sheep and Wool	FAO, Rome	Mr. A. Demiraran	Turkish
011	Wireless and Telecommunications	ITU, Geneva	Mr. J. D. Shannon	British

ATTACHMENT 3

ITINERARY AND SCHEDULE OF WORK

14 March 1973

Departure from Vienna at 22.05

15 March 1973

Arrival in New Delhi at 14.30

Discussions with Deputy Resident Representative, Mr. Paul Matthews,  
in the UNDP Office, New Delhi 15.00 - 16.00

16 March 1973

UNDP Office, New Delhi.

Briefing Session. 10.30 - 12.15

Short discussion with Mr. J.H. Lascelles, Senior Industrial  
Development Field Adviser (UNIDO).

Luncheon invitation from the Resident of Bhutan in India 13.00 - 14.30.

Departure from New Delhi at 16.45

Arrival in Calcutta at 18.15

(together with Mr. A.D. Granger, ILO New Delhi and Dr. B.G. Prasad,  
WHO New Delhi)

17 March 1973

Departure from Calcutta 6.00

Arrival in Guwahati 7.15

received by Bhutnese Government authorities 8.00

Arrival in Sandrup Jongkhar 11.00

Departure for Devothan 15.00

Arrival in Devothan 16.00

Visit of the project Polytechnical Institute in Devothan.

Return to Sandrup Jongkhar 19.45

Discussions with counterpart Mr. Y.T. Lepcha, Mechanical Engineer,  
Chief of the Thimphu Workshop Department. 20.15

18 March 1973

Sundrup Jongkhar

- i. Visit to "Bhutan Government Transport Services" 9.00  
-selected site for new workshop
- ii. Visit to wheel rethreading complex 11.00
- iii. Discussions with counterparts, Mr. Y.T. Lepcha 13.00

19 March 1973

- Departure from Sundrup Jongkhar at 13.00  
Arrival in Sarbhang at 19.00

20 March 1973

- Departure from Sarbhang 8.00  
Arrival in Gaylephug (visited workshop) 8.45  
- Mr. C.K. Roka  
Departure from Gaylephug  
Arrival at Sarbhang 13.00  
Visit to the repair and maintenance workshop of  
the Public Works Department - Mr. Mishra. 15.30 - 17.30  
Meeting with Mr. S.K. Pradhan, Executive Director,  
Public Works Department, Sarbhang 19.00 - 20.15

21 March 1973

- Departure from Sarbhang 8.00  
Arrival in Phuntsholing at 12.00  
Visit to Don Bosco Technical School 15.00  
(Father Philips - see detailed  
separate report) 17.00

22 March 1973

Phuntsholing

- i. Visit to Automobile Repair Shop 9.00 - 12.00  
Mr. S.S. Rawat, Mechanical Engineer
- ii. Visit to Bhutan Government Transport Services 15.00 - 17.00  
(Body building department)  
Mr. P.K. Sarkar, Chief. Mr. J.B. Rocca in charge  
of maintenance
- iii. Visit to tyre rethreading plants 17.00 - 18.00  
Wangdi tyres;  
Lovely tyres (indian side)  
Simla tyres (indian side)

23 March 1973

Photoboling to Thimphu 10.30 - 17.00  
Met Mr. Maurer, Swiss Transport Adviser  
and General Manager (Ministry of Finance)  
Mr. T. Sangyal, on route. Discussions  
(for one hour)

24 March 1973

Thimphu  
Visit to Automobile Workshop 14.00 - 17.00

25 March 1973

Thimphu  
Preparation of Summary of Findings 17.00 - 22.00

26 March 1973

Thimphu  
Reception Ceremony of the UNDP Team with  
His Royal Highness, Her Royal Highnesses  
and all Ministers 9.30 - 11.00  
Discussions with Dr. McDiaruid and Mr. Matthews }  
on the Summary of the Mission's Findings } 11.30 - 12.15  
dated 25 March 1973 }  
Preparation of part of Project Document 13.00 - 18.00  
Dinner with Minister of Foreign Affairs 19.00 onwards

27 March 1973

Thimphu  
Discussions with Her Royal Highness, the  
Minister of Foreign Affairs, Mr. Sumanathan,  
and Dr. McDiaruid. 9.00 - 10.45  
Invitation to lunch with the King's Mother 12.00 - 14.00  
Drafting of Project Document and discussions  
with Mr. Lopez. 15.00 - 18.00  
Invitation to cocktails with Minister  
of Development 18.30 - 21.30

28 March 1973

Thimphu

Drafting of Project Document.

Visit to Workshop/Public Works Department

Dinner with Representative of India in Bhutan 19.00

29 March 1973

Thimphu

Drafting of Project Document and discussions with  
Mr. Lepcha

Cocktails with Financial Adviser, Ministry of Finance  
Mr. Swaminathan 18.30

30 March 1973 - Thimphu

Final meeting with the Government (complete  
UNDP Team) 9.00 - 11.00

Dinner with Dr. T. Tobgyel, Secretary General,  
Ministry of Development 19.00 - 21.00

31 March 1973

Departure from Thimphu at 10.00

Arrival at Phuntsholing at 16.40

1 April 1973

Travel from Phuntsholing to Bagdogra 8.30 - 13.00

Travel from Bagdogra to Calcutta 13.50 - 14.40

Travel from Calcutta to New Dehli 18.30 - 21.30

2 April 1973

Final Discussions with Resident Representative - 9.30 - 11.00

Mr. Lascelles - 11.30 - 12.30

Mr. P. Matthews } Finalization of the - 12.30 - 13.00

Mr. P. Matthews } Project Document - 14.30 - 15.30

Discussions with Dr. J. McDiarmid, Resident  
Representative - 17.00 - 18.00

3 April 1973

Departure from New Dehli 02.00

Arrival in Vienna 11.00



ATTACHMENT 4

AUTOMOBILE WORKSHOP PROJECT

SUMMARY of Mission's findings as at 25 March 1973

1. Content of request:

Provision of equipment to strengthen the existing workshops in Thimphu and Phuntsholing, totalling to \$57,000 each, i.e. \$114,000 and provision of equipment for the establishment of 2 new repair shops, one in Gaylephug and the second in Sandrup Jongkhar, totalling \$55,600 each, i.e. \$111,200: Grand Total \$ 225,200.

2. Findings of workshop visits

The following workshops and proposed future sites have been visited:

2.1. Sandrup Jongkhar

The selected site is most suitable for the establishment of a new workshop. However, this site belongs to the Bhutan Government Transport Services which undertakes at present, minor service work and garages transport vehicles. The site itself allows to accommodate both, the Bhutan Government Transport Services (B.G.T.S.) needs and the space needs for the establishment of a new repair shop.

2.2. Workshop in Gaylephug

This workshop is a provisional repair and maintenance unit which belongs to the B.G.T.S. The B.G.T.S. owns a large enough area to allow in addition to its own needs for garaging and servicing of vehicles, for the establishment of a new workshop which would be most suitably located.

2.3. Workshop in Barbheng

This is a small repair and maintenance station belonging to the Public Works Department (P.W.D.) which undertakes repair and maintenance activities for road-building machinery.

2.4. Automobile Workshop in Phuntsholing

This is at present the biggest workshop in the country belonging to the Workshop Department. The workshop is an independent working, profit-making and strongly profit-oriented entity which is naturally grown to cope with the repair demands.

It is felt to be necessary that the repair flow be examined in detail to upgrade repair quality and improve the efficiency and output of the workshop. In addition, some additional equipment is needed which is suggested to be specified in detail and placed properly after the above mentioned detailed study.

#### 2.5. Garage, repair-service and body-building workshops in Phuntsholing

This shop is owned by the B.G.T.S. Besides garaging, servicing and body-building, the B.G.T.S. also undertakes repair of engines, overhauls, gearbox repairs etc.

It is felt that all repairs should be carried out by the Automobile Workshop and that the B.G.T.S. should limit its activities to service and maintenance. An appropriate stock of engines, dynamos, starters, etc. should be at the disposal of the B.G.T.S. in order to make the transport fleet ready for the road at the shortest possible time. The repairs should be carried out in the Phuntsholing Workshop. By doing as mentioned above, duplication of efforts, man-power etc. can be avoided.

It is furthermore felt that the body-building section should be examined in detail with a view to making it more effective.

Some minor additional amount of investment for equipment will be needed. Furthermore, the mission found that the B.G.T.S. has no well-established preventive maintenance programme. In order to avoid unexpected breakdowns and with a view to increasing the lifetime of vehicles it is essential to establish a preventive maintenance programme.

#### 2.6. Automobile workshop in Thimphu

The workshop in Thimphu is owned by the Workshop Department, was established in 1971, and is today so congested that it has to be expanded. This expansion includes equipment and buildings. The detailed plans for this expansion scheme have not been worked out but there is an urgent need for it.

#### 2.7. Workshop of the Public Works Department

This workshop has not yet been visited by the mission.

3. Background information regarding plans for the establishment of the two proposed new workshops

So far there are no layouts in existence for the establishment of the two new workshops. The mission was informed that the present Thimphu plans are intended to be transplanted to Gaylenhug and Sundrup Jongthar. According to the mission's view, this is not at all advisable.

4. Present staff position

..... Attached is a manning table which reflects the present situation of the staff, broken down for each workshop, total staff and separately the Bhutanese staff (Annex I)\*. As can be seen, the majority of the staff is of Indian nationality. It is felt very important that progressively the local skill has to be developed. It is suggested that planned in-plant training programmes be developed.

5. UNDP/UNIDO assistance

5.1. Expert component

It is suggested that an Automobile Workshop Co-ordinator (Mechanical Engineer) - draft job description of which is attached (Annex II)\* be recruited at the earliest possible time for a period which is yet to be defined.

5.2. Fellowship component

There is a need for some local technicians to get training abroad. The number of trainees and the fields of trade are yet to be defined.

5.3. Equipment component

Attached is a revised tentative list of equipment (Annex III)\* needed for the expansion of the existing automobile workshops in Phuntsholing and Thimphu broken down in equipment available in India and such equipment which has to be procured outside of India.

UNDP is requested to decide as to whether or not the equipment component of the project or part of it qualifies for UNDP financing.

6. Suggestions to the Government

6.1. It is a necessity that the Government nominates a counterpart to the UNDP Automobile Workshop Co-ordinator.

\*Note: The final version of the Job Description, Manning Table and Final List of Equipment, are appended as Annexes to the Draft Project Document.

6.2. It is strongly recommended that all repairs for B.G.T.S. and for heavy vehicles and road-building machinery of the P.W.D. be made by the relevant workshops in order to avoid duplication of efforts.

7. Relationships to other I.M. projects

7.1. Mr. Harris' project

Preventive maintenance and service within the competence of the P.W.D. - repair within the competence of the Workshop Department.

7.2. Mr. Granger's project (Don Boice)

Vocational training for auto-mechanics, technicians, tenters and welders, upholstery, tin and blacksmiths within the competence of this project, which will be the major source of recruitment for the workshops.

ATTACHMENT 5

CONFIDENTIAL NOTE  
AND RECORD OF THE DISCUSSIONS HELD IN THE  
CHAMBER OF THE HONORABLE FINANCE MINISTER  
AT 9 AM ON THE 28TH MARCH, 1973

SCHEME: TECHNICAL ASSISTANCE TO THE  
AUTOMOBILE REPAIR WORKSHOPS

Present:

U.N.D.P.: Dr. J. MacDiarmid, U.N.D.P. New Delhi  
Mr. P. Mathews, U.N.D.P. New Delhi  
Mr. H.J. Frits, UNIDO Vienna  
Mr. R. Harris, UN Expert on Road Works

Royal Government of Bhutan:

HRH Ashi Sonam Wangchuck  
Honorable Finance Minister  
Honorable Foreign Minister  
Mr. Ishering Wangdi  
Mr. Y.T. Lepcha  
Mr. V. Swaminathan

Mr. Frits opened the discussions by saying that he has visited all the workshops existing in Southern Bhutan and in Thimphu, including those run by B.G.T.S. and P.W.D. He said that at present there was an overlapping of activities between the Government Workshops, B.G.T.S. and P.W.D. leading to avoidable duplication of efforts. There was, therefore, a need to clearly demarcate the respective roles of each of these institutions. In his opinion, the B.G.T.S. should concentrate its efforts on replacing defective parts quickly by installing new ones and putting the vehicles back on the road rather than wasting its energy in undertaking complicated major repair jobs. Similarly, the role of the P.W.D. workshops should be to attend to preventive maintenance and routine servicing and not to undertake major repair works.

Mr. Fritz further pointed out that the Thimphu Workshop was badly congested and urgently needed additional buildings and machinery. He also mentioned that the Phuntsholing Workshop has grown naturally, without any pre-planning. Taking all these factors into consideration, he was of the opinion that there was need for a detailed technical in-plant study to assess the existing flow of repair works, to suggest re-organisation of the existing workshops, to assess and co-ordinate manpower requirements, to determine the dividing lines in the areas of operations of the various workshop units run by the Government Workshop Department, B.G.T.S. and P.W.D. and to plan in-plant training programme for the local technicians.

With these aims in view, the U.N.D.P. wanted to depute an Automobile Expert who will be there for a period of at least one year (extendable to two years at the option of the Royal Government of Bhutan). During his stay, the expert will advise the Government regarding the re-organisation of the existing workshops at Thimphu and Phuntsholing, provision of in-plant training facilities, demarcation of the respective roles of the Government Workshops, B.G.T.S. and P.W.D. in maintenance and repair jobs, preparation of suitable plans for the establishment of the two new workshops at Gaylephug and Samdrup Jongkhar and installation of the UN supplied machinery in all the workshops. With these tasks in view, a "job description" has already been prepared for recruiting a suitable expert. If this was approved, advance recruitment action can be taken by UNIDO so as to position the expert in Bhutan at least by the beginning of 1974.

Mr. Fritz further said that, because of the many tasks to be performed by the expert, his scheme also provided for the services of special consultants, in case the Royal Government of Bhutan wished to utilise their services.

Mr. Fritz went on to say that they have drawn up a tentative list of equipments needed for the Thimphu and Phuntsholing workshops, based on our request and on their own independent findings. The more detailed inventory specifications will, however, be prepared by the expert who will arrive by January 1974.

Dr. MacDiarmaid intervened to say that, while the machineries to be imported from outside India will pose no problem, there were certain difficulties in providing for equipments that could be purchased in India. He went on to say that, as the workshops at Thimphu and Phuntsholing were independently managed and were self supporting, there could be an objection on policy grounds to finance the supply of the machineries through an outright grant. He wondered whether the equipments available in India could not be purchased through rupee loans to be obtained from the Government of India or some other agency. On behalf of the Royal Government of Bhutan, it was pointed out by Lyonpo Dawa Tsering and Mr. V. Swaminathan that the suggestion to finance the procurement of additional equipments through loan funds was not practicable for the following reasons: -

- a) The present workshops were not commercial concerns in the real sense. They were essentially service institutions, providing basic minimum service facilities;
- b) The profits of the Thimphu and Phuntsholing Workshops were of the order of about Rs 15,000 and Rs 55,000 respectively and such marginal profits cannot service any loans taken for additional machineries;
- c) The workshops were required to stand on their own legs only for the reason that there were constraints on the resources of the Government which did not permit substantial additional investments. In order, therefore, to introduce a measure of discipline in their working, the two workshops were required to find their own resources to meet their running expenses. There was, however, no question of the capital expenditure on additional investment also being met by the workshops out of their own "profits".
- d) Equipments were not the only needs of the workshops which could be met out of loan funds or Government support. The Government inputs by way of buildings were, in any case, the burden of the Government and the Government cannot take additional responsibilities towards procurement of equipment also, without any U.N. assistance.

- e) It was the policy of the Royal Government of Bhutan to utilize the marginal profits of the workshops to provide training facilities to Bhutanese technicians or to open new automobile repair units in places not presently served by such units.
- f) The main clientele of the workshops was the Government itself, the number of private vehicles being negligible. If, therefore, in an effort to be self supporting the workshops raised the tariffs, it will only push up the cost of maintenance of Government vehicles, thereby correspondingly reducing the funds available for actual developmental efforts.
- g) The workshops should be basically looked upon as potential training centres to train Bhutanese technicians. The Technical School at Kharbadi equipped its students only with a very basic working knowledge in certain trades of automobile engineering. As intensive training in all aspects of automobile engineering was not available in the Don Bosco Technical School, there was a need for providing in-plant or in-service training to the employees in the workshops. With the additional machineries now proposed to be added to the workshops, they can serve as adequate training centres to train Bhutanese technicians and to replace the large number of expatriates who now work there.

Dr. MacDiarmid agreed that the training aspect of the scheme will be emphasized in his report so that the scheme is acceptable to the UN Headquarters.

It was urged on behalf of the Royal Government of Bhutan that if, for any reason, funds were not available under the IPF to meet the cost of the entire equipments, efforts should be made to provide the funds out of the Capital Development Fund.

Mr. V. Swaminathan also pointed out that the incomplete project document that was available did not make any mention about the requirements of the Gaylephug and Samdrup Jongkhar workshops and enquired whether the cost of the needed equipments will be included in the ultimate Project Document.



The initial reaction of Dr. Mac Liaraid was that a proper assessment of the cost of the equipments needed by the Gaylephug and Samdrup Jongkhar workshops should be made by the expert to arrive in January 1974 and that the matter can be processed thereafter. Mr. V. Swaminathan pointed out that unless the whole programme was taken as a package and the U.N.D.P. assistance was committed for the new workshops as well, the Government of Bhutan may not be able to proceed with the construction of the new workshop buildings at Gaylephug and Samdrup Jongkhar. To this, Mr. Paul Mathews agreed that a provision regarding Gaylephug and Samdrup Jongkhar workshops can also be included in the Project Document subject to later revision on the basis of the expert's advice.

The question of provision of training fellowships as part of the UN programme was thereafter discussed. Lyonpo Dawa Tsering pointed out that it was the view of the Royal Government of Bhutan that, as far as possible, training facilities available in India should be utilised so that the hard currency assistance under the IPF can be more profitably utilised elsewhere. It was, therefore, agreed that, while the UN component of the programme will provide for training fellowships in countries outside India for dealing with imported vehicles, the basic training needed otherwise and available in India will be left out of the scheme.

Circulated

(V. Swaminathan)  
Financial Adviser  
28.3.1973

ATTACHMENT 5

DRAFT PROJECT DOCUMENT

UNITED NATIONS DEVELOPMENT PROGRAMME

Project of the Royal Government of

BHUTAN

Title: Technical Assistance to the Automobile Repair  
Workshop Department

Number: BHU/72/005/A/01/37                      Duration: Four years

Sector: Industry

Sub-sector: Establishment and Extension of  
Industries

Government  
Co-operating  
Agency: Ministry of Finance

Executing  
Agency: United Nations Industrial  
Development Organisation  
(UNIDO)

Date of  
submission: April 1972

Starting  
Date: January 1974

Government  
Contributions: Rs. 2,824,904.-  
(US\$ 375,000.-)

UNDP  
Contributions: US\$ 320,000.-

Approved:

\_\_\_\_\_ Date: \_\_\_\_\_  
on behalf of the Government

\_\_\_\_\_ Date: \_\_\_\_\_  
on behalf of the Executing Agency

\_\_\_\_\_ Date: \_\_\_\_\_  
on behalf of the UNDP

## I. BACKGROUND AND SUPPORTING INFORMATION

### A. Justification for the Project

The Government of Bhutan has, since the first national development plan, given a very high priority to the development of a road network in the country. To date there are approximately 1,400 Km. of roads in existence which will be extensively expanded in the years to come. As a result of road development, domestic road traffic has developed and is going to be further strengthened in the future. To date there are 831 vehicles in the country. In addition to these vehicles consisting of trucks, buses, jeeps, scooters and motor cycles totalling to approximately 260 are plying in the country. The Annex No. II presents a detailed breakdown of the existing vehicles in types and makes, number, location and ownership. As can be seen, out of the total 831 vehicles, 501 are government owned vehicles belonging to various government departments out of which 136 vehicles are owned by the Bhutan Government Transport Services (B.G.T.S.) Department which is administered by the Ministry of Finance, whereas the remaining 330 are privately owned vehicles.

In addition to the above mentioned vehicles, the Public Works Department (P.W.D.) - Government organization which is administered by the Ministry of Development - is to construct new roads in the order of 40 Km. per year and in addition to that maintain the existing road network. To fulfil this task the P.W.D. presently owns road-building machinery consisting of bulldozers, graders, road-rollers, compressors, crushers etc. totalling approximately 150 units altogether, spread over the country.

Together with the road-building activities and the growth of traffic, a beginning was made to establish some service maintenance and repair facilities to meet the minimum requirement for such vehicles.

Nearly all repairs in particular for vehicles plying on the roads Chirung, Sarbhung, Tongsa, Gaylephug and Mongar, Tashigang - Samdrup Jongkhar, have to be carried out in India, mainly in Ranjia, Gauhati, Bongaigaon, Kokrajhar.

The existing repair and maintenance facilities in the country are as follows:

Phuntsholing	- Workshop Department (all types of repairs)	- Ministry of Finance
Phuntsholing	- B.G.T.S. (garages, repairs, body-building, servicing)	- -do-
Thimphu	- Workshop Department (all types of repairs)	- -do-
Thimphu	- B.G.T.S. (garages, servicing, repairs)	- -do-
Thimphu	- P.W.D. (repairs, servicing)	- Ministry of Development
Gaylephug	- B.G.T.S. (garages, repairs, servicing)	- Ministry of Finance
Sarbhung	- P.W.D. (repairs, servicing)	- Ministry of Development
Samdrup Jongkhar	- B.G.T.S. (garages, repairs, servicing)	- Ministry of Finance.

The Government has decided to expand the existing repair workshops under the Workshop Department - Ministry of Finance - and establish two new workshops, one in Gaylephug and the second in Samdrup Jongkhar, with a view to coping and concentrating effectively with the repair needs of the country in the above mentioned places, upgrading and training local skills, establishing a clear line of competence between the various Government Departments in order to avoid duplication of investment, manpower, etc.

It is therefore essential that the activities of the B.G.T.S., the Workshop Department and the P.W.D. be revised and redirected in a more efficient and practical direction.

After a thorough in-depth study it was found that the UNDP requested assistance in the form of expertise, training and equipment is the bare minimum to meet the country's requirements.

## B. Institutional Framework

The project will be carried out within the institutional framework of the Automobile Repair Workshop Department under the Ministry of Finance. Directly under the Minister of Finance, a General Manager is in charge of all the existing and future workshops of the Automobile Workshop Department and the Bhutan Government Transport Services (B.G.T.S.).

At present there are two workshops in existence - one in Phuntsholing and one in Thimphu - which are operating organizationally under the Automobile Repair Workshop Department. In addition, there are garages, repair workshops and service stations in Phuntsholing, Thimphu, Galeyphug and Sundrup Jhongkar, administratively under the Bhutan Government Transport Services, all of which are independent working, marginal profit-making entities (net profit of Workshop Department Thimphu - US\$ 2,100 per annum; net profit of Workshop Department Phuntsholing - US\$ 1,000 per annum), which present their accounts yearly to the General Manager and/or the Minister of Finance respectively.

All shops are headed by Mechanical Engineers in the case of automobile repair workshops or officers-in-charge of departments in the case of workshops belonging to B.G.T.S. respectively.

In addition to the above mentioned activities, administered under the Ministry of Finance, small repair and maintenance units are existing in Thimphu, Serbhung which operate under the institutional framework of the Public Works Department, Ministry of Development.

The project is to strengthen and expand the existing automobile repair workshops in Thimphu and Phuntsholing, advise and prepare plans and provide equipment for the establishment of two new repair workshops to be constructed in Sundrup Jhongkar and Galeyphug. All these repair workshops are to undertake repair work for road transport vehicles such as trucks, buses, jeeps, cars for the public and private sector as well as repairs for road-building machinery whereas the B.G.T.S. and the workshops of the P.W.D. unit will limit their activities to preventative maintenance and minor repairs (project BHU/72/009/A/01/01 refers).

C Provision for Government follow-up

It is anticipated that upon completion of the project, the Repair Workshop Department will have successfully strengthened, streamlined and upgraded the existing two repair shops in Phuentsholing and Thimphu, introduced methods to upgrade repair quality, quantity and progressively replaced expatriates through local skilled staff.

It is further envisaged that the basis is laid so that the two new repair shops to be established in Samdrup Jongkhar and Gaylephug can be successfully implemented with some additional UN inputs in the form of experts and fellowships to be determined at the mid-term review.

The Finance Ministry has adequate budgetary provisions for its current activities. As reflected in Annex III the present staff of the activities consists mainly of Indian nationals. It is of prime importance to the Government that with this project progressively local labour will replace expatriates and fill posts which will be needed for the new workshops.

There are budgetary provisions for all counterpart facilities mentioned in this request. Long term staffing and financing is secured.

In addition the Government intention is to plough back any profit which may be made by its workshops to provide in-plant training so as to progressively replace expatriates with Bhutanese staff.

D. Other related activities

The Government is expected to receive UNDP assistance under the project BNU/72/009 for an expanded road construction programme consisting of the supply of heavy road construction machinery, experts and fellowships to secure proper use, service and maintenance of the road building machinery.

The Government also expects to receive UNDP assistance under projects BHU/72/003/A/01/11 and BHU/73/002/A/01/11 in vocational training which will be the only local recruitment sources of Bhutanese engineers and technicians such as auto-mechanics, auto-electricians, welders, tenters, tin and blacksmiths and the upholstery trade.

E. Future UNDP assistance

There will be a need for further UNDP assistance during the construction and operational phase of the new workshops to be established in Samdrup Jongkhar and Ghyelephug as well as in long term planning of additional workshops envisaged to be established in the North-Eastern and central regions of the country (Tashigang, Tongsa). The exact additional UNDP/UNIDO assistance requirement will be determined by the UNDP/UNIDO automobile workshop co-ordinator and finalised at the occasion of the mid-term review scheduled for April 1975.

## II. OBJECTIVES OF THE PROJECT

There is as yet no Bhutanese Country Programme.

### A. Long-range objectives

Road construction and transport and directly inter-linked with it and its development, is the establishment of well organized and efficiently working repair workshops in the country which have a high priority in the national development plan and a direct bearing on the industrial development of the country.

It is anticipated that upon completion of this project the foundation is laid to cope effectively with the future repair needs for road transport vehicles of the country. It is envisaged that this project will also be a nucleus for other industrial projects in the metalworking industry in the country.

### B. Immediate objectives

The immediate objectives are as follows:

- i) Assist in strengthening and expanding the existing repair workshops in Thimphu and Phuntsholing by effectively utilizing existing machinery, equipment and manpower;
- ii) Assist in drawing up a clear dividing line of activities to be undertaken by the workshops of the P.W.D. and those of the B.G.T.S. on the one side, both activities of which should limit their operations strictly to services and maintenance and the activities of the repair workshops on the other side, in order to avoid duplication of investment, manpower, etc.
- iii) Assist in the preparation of detailed specifications for equipment and tools to be additionally installed and provided in the repair workshops in Thimphu and Phuntsholing after detailed elaboration of the respective expansion schemes. A tentative list of equipment needed for the two repair workshops is attached as Annex IV.
- iv) Assist in the formulation and implementation of a preventative maintenance programme for all B.G.T.S. vehicles with a view to extending the life-span of the vehicles and their components.



- v) Define fellowship programmes for Burmese trainees.
- vi) Assist in the preparation of detailed layouts for the two new repair shops to be established in Sandrap Jongthar and Gylephag and specify the exact equipment and manning requirements. A tentative list of equipment needed for each of the two repair workshops is attached as Annex V.
- vii) Develop recruitment and training schemes for the existing and proposed new repair shops.
- viii) Co-ordinate recruitment programmes, arrival and installation dates for equipment, fellowship programmes with construction work of buildings.

### III. WORK PLAN

#### A. Description of project activities

1. Preparatory activities to be carried out by the Government to ensure the timely implementation of the projects:  
Nomination of an adequate local counterpart for the UNDP/UNIDO Automobile Workshop Co-ordinator (Mechanical Engineer) before commencement of the project.

2. Activities to be undertaken during the projects:

<u>Project activities</u>	<u>Location</u>	<u>Proposed duration and starting date</u>
Recruitment of automobile workshop co-ordinator (Job Description already approved by Government. Annex VI)	Vienna	January 1974 to January 1976
Procurement of non-Indian equipment already specified and approved by Government (Annexes VII and VIII) for Workshop Thimphu and Phuntsholing.	Vienna	Arrival date April/May 1974
Procurement of non-Indian tools and equipment not yet specified, for Workshop Thimphu and Phuntsholing.	Thimphu/ Vienna	Arrival date November 1974/ July 1975
Placement of fellows	Thimphu/ Vienna	1974-1975
Procurement of Indian equipment for workshops Thimphu and Phuntsholing	Vienna	November 1974 - December 1975
Recruitment of consultant (if required)	Vienna/ Thimphu	November-December 1974
Mid-term review (specify additional UN inputs for new workshops Gyalephug and Sandrup Jongkhar)	Thimphu	April 1975 (3 weeks)
Procurement of Indian and non-Indian equipment for new workshops Gyalephug and Sandrup Jongkhar.	Vienna	October 1976 - December 1977

B. Description of UNDP inputs

1. Assignment of International staff

	<u>Location</u>	<u>Starting date</u>	<u>Duration</u>
a) Automobile Workshop Co-ordinator (Mechanical Engineer)	Thimphu	Jan. 1974	One year (with possibility of extension for one more year)*
* (subject to mutual agreement of Government, UNDP and UNIDO. Please see Government approved Job Description Annex VI.)			
b) Special Consultant		To be defined by the Co-ordinator	2 months

2. Provision of sub-contractual services

Not applicable.

3. Training provisions

The fellowships are planned to be recruited from the existing workshops and the technical training school, Don Bosco.

Five fellowships each for a period of 6 months have been identified - two scheduled to undergo training in Japan, one in the Federal Republic of Germany and two either in the United States of America or Australia, all of them to be placed in 1974. The envisaged training will be to familiarise Bhutanese mechanics with the vehicles originating from the above mentioned countries (Toyota, Japan; Volkswagon, F.R.G.; and International Harvester, USA or Australia).

For 1975 four additional fellowships each for a period of 6 months and two each for a period of 3 months are envisaged to be placed outside of India.

The fellowship holders will be selected by the Workshop Department, Ministry of Finance, in close co-operation with the UNDP/UNIDO Automobile Workshop Co-ordinator.

4. UNDP provided supplies and equipment

a) Non-expendable equipment

<u>Item</u>	<u>Quantity</u>	<u>Delivery Date</u>	<u>Cost (US \$)</u>
<u>Non-Indian Equipment</u>			
i) For repair workshop, Phuntsholing:			
* Crankshaft grinding machine	1	April 74	17,000
Special tools for servicing and repair of vehicles imported from outside of India		Dec. 74/ July 75	1,500
* (The supply of the crankshaft grinder includes one fellowship for two months and one technician to install the machine at project site and demonstrate its operation)			<u>18,500</u>
ii) For repair workshop, Thimphu:			
Recovery van	1	April 74	20,000
Special tools for servicing and repair of vehicles imported from outside of India		Dec. 74/ July 75	1,500
			<u>21,500</u>
Total for (i) and (ii) above			<u>40,000</u>

Indian Equipment

i) For repair workshop, Phuntsholing (for items see Annex)		Oct. 74/ Dec. 75	14,500
ii) For repair workshop, Thimphu		Oct. 74/ Dec. 75	29,500
Total for (i) and (ii) above			<u>44,000</u>

Non-Indian Equipment for Gaylephug and Sandrup Jongkhar

i) For Gaylephug (see Annex)		Oct. 76/ Dec. 77	18,500
ii) For Sandrup Jongkhar (see Annex)		Oct. 76/ Dec. 77	1,500
Total for (i) and (ii) above			<u>20,000</u>

Indian Equipment for Gaylephug and Sandrup Jongthar

<u>Item</u>	<u>Quantity</u>	<u>Delivery Date</u>	<u>Cost (US \$)</u>
i) For Gaylephug (see Annex)		Oct. 76/ Dec. 77	50,000
ii) For Sandrup Jongthar (see Annex)		Oct. 76/ Dec. 77	50,000
Total for (i) and (ii) above.			<u>100,000</u>

GRAND TOTAL - Non-Indian Equipment .....	US\$ 60,000
Indian Equipment .....	US\$ 144,000
	<u>US\$ 204,000</u>

b) Expendable Equipment

Not applicable.

(Together with the supply of machinery replacement for wearing parts and standard tools for 2 years, 1 shift operation is included. Refer to General Technical Regulations, Annex IX.)

C. Description of Government inputs

1. Pre-requisite activities

Not applicable. Assignment of counterpart prior to commencement of project.

2.a) Assignment of national staff

The Honourable Finance Minister will appoint a national counterpart to the UNDP/UNIDO Automobile Workshop Co-ordinator (Mechanical Engineer) whose functions will be as under.

- i. To do the general co-ordination work related to the project with other Government departments.
- ii) To assist the co-ordinator in strengthening the existing workshops in Thimphu and Phuntsholing by effectively utilizing existing machinery and equipment, in installing additional equipment and by introducing training programmes for local man-power development.
- iii) To assist in the preparation of layouts of the two new workshops at Sandrup Jongkhar and Gaylephug, in the construction of buildings and in the installation of equipment.
- iv) To specify equipment and tool requirements which are not yet defined.
- v) To define fellowship programmes for Bhutnese trainees abroad.
- vi) To assist in supervising the construction of the new workshops and in the installation of the equipment there.

2.b) Secretarial Assistant

One Secretarial Assistant will be provided in order to secure the optimal efficiency of the project.

2.c) Draftsman

One Draftsman will be provided for drawing and estimating of layouts of the new workshops, if and when required.

2.d) Driver

One Driver will be provided to drive the project vehicle.

2.e) Peon

One Peon will also be provided for the office.

3. Building, Supplies and Equipment

As the existing buildings both at Thimphu and Phuntsholing workshops are not spacious enough to accommodate the present volume of work hence there is a programme for annexing extension to the present buildings. Further two new workshops at Samdrup Jongkhar and Gaylephug are to be set up with UNDP assistance. All financial inputs for the extension of the existing workshops and its functioning, the provision for buildings, utilities and staffing of the new workshops is secured by the Government of Bhutan.

Suitable and proper storage and security provisions will be provided for the equipment to be supplied by UNDP.

Expendable Equipment and Supplies

The necessary provision for the periodical maintenance and repair of the buildings and equipment has been made.

Non-expendable Equipment

There is already equipment at Thimphu, Phuntsholing and Gaylephug workshops, valued at about US\$ 75,000, as per Annexes I, XI, XII, and XIII.

4. Miscellaneous

An office has to be maintained to carry out the work assigned for which the provision for office building accompanied by furniture, typewriter and stationery articles has been made. Residential accommodation for the expert as well as for the national staff to be appointed, will be provided with the requisite amenities admissible in the rules. The provision for a vehicle has also been made to carry out the project work.

WORK PLAN - BAR CHART

UNDP Inputs	m/m	1973	1974	1975	1976	1977
<u>Experts</u>						
Automotive Workshop Co-ordinator (mechanical engineer)	24					
Consultant	2					
<u>Mid-term Review</u>						
<u>Fellowships</u>	60					
<u>Equipment</u>						
<u>Non-Indian Equipment for Tumabu and Puntsholing</u>						
Crankshaft grinder (Inner VII of P.D.)						
Recovery van (Inner VIII of P.D.)						
Special tools						
<u>Indian Equipment for Tumabu and Puntsholing</u>						
<u>Equipment (Indian and non-Indian) for Garloping and Sirup Jomdhar</u>						

XXXXXXXXXXXXXXXXXXXX

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2 Japan

2 Australia/US..

1 F.R.G.

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Project Budget Covering UNDP Contribution  
(in US Dollars)

Country:	Expend									
Project No.	883/72/005/A/01/37									
Title:	Technical Assistance to the Automotive Repair Workshop Department									
		TOTAL	1974	1975	1976	1977	u/s	u/s	u/s	u/s
		u/s	u/s	u/s	u/s	u/s				
10	<u>PROJECT PERSONNEL</u>									
11	<u>Experts</u>	24	60,000	12	30,000	12	30,000			
11-01	Automobile Workshop Co-ordinator	2	5,000	2	5,000					
11-02	Consultant									
19	Component Total	26	65,000	14	35,000	12	30,000			
30.	<u>Training</u>									
11	<u>Fellowships</u>									
11-01	Auto-mechanic - Transmission and Engine (Toyota - Japan)	6	3,700	6	3,700					
11-02	Auto-mechanic - Body, chassis and suspension (Toyota - Japan)	6	3,700	6	3,700					
11-03	Auto-mechanic - Engine and transmission and suspension (V4 - FIC)	6	3,700	6	3,700					
11-04	Auto-mechanic - Diesel engine and transmission (Intern. Mr.vester, USA or Australia)	6	3,700	5	3,700					
11-05	Auto-mechanic - chassis and suspension (I.H. USA or Australia)	6	3,700	6	3,700					
11-06	Auto-mechanic and/or Auto-technician (unspecified)	6	3,700	6	3,700					
11-07	" " " "	6	3,700	6	3,700					
11-08	" " " "	6	3,700	6	3,700					
11-09	" " " "	6	3,700	6	3,700					
11-10	" " " "	3	2,350	3	2,350					
11-11	" " " "	3	2,350	3	2,350					
19	Component Total	60	38,000	30	18,500	30	19,500			

Project Budget Covering UNDP Contribution  
(In US Dollars) (Continued)

	<u>TOTAL</u> m/m US\$	<u>1974</u> m/m US\$	<u>1975</u> m/m US\$	<u>1976</u> m/m US\$	<u>1977</u> m/m US\$
<b>40. EQUIPMENT</b>					
41 Expendable equipment	-	-	-	-	-
42 Non-expendable equipment	60,000	37,000	3,000	-	20,000
a) Non-Indian equipment	144,000	14,000	30,000	20,000	80,000
b) Indian equipment	-	-	-	-	-
43 Premises	-	-	-	-	-
49 Component Total	204,000	51,000	33,000	20,000	100,000
99 <b>GRAND TOTAL</b>	307,000	104,500	82,500	20,000	100,000

13,000 (to be distributed in Resident Representative's office, Delhi)

**Rec.**

Project Budget covering Government Contributions in Kind  
(in local currency)

Country: **Egypt**  
 Project Number: **EM/72/005/A/01/37**  
 Title: **Technical Assistance to the Automobile Repair Workshop Department**

		<u>TOTAL</u>		<u>1974</u>		<u>1975</u>		<u>1976</u>	
		a/s		b.		a/s		b.	
<b>10. PROJECT PERSONNEL</b>									
Technical Personnel									
Co-ordinator	24	36,000	12	18,000	12	18,000			
<u>Non-Technical Personnel</u>									
Secretarial Assistant	24	12,000	12	5,000	12	5,000			
Draftsman (if and when required)	6	3,000	3	1,500	3	1,500			
Driver	24	7,000	12	3,500	12	3,500			
Peon	24	3,200	12	1,600	12	1,600			
<b>19</b>	<b>Component Total</b>	<b>102</b>	<b>61,200</b>	<b>51</b>	<b>30,600</b>	<b>51</b>	<b>30,600</b>		
<b>30. TRAINEES</b>									
31 Fellowships									
Mechanic for specified fellowships	28	22,400	20	16,000	8	6,400			
Maintenance of trainees									
Mechanic for unspecified fellowships	12	2,600	-	-	12	600			
<b>30</b>	<b>Component Total</b>	<b>10</b>	<b>32,000</b>	<b>20</b>	<b>15,000</b>	<b>20</b>	<b>15,000</b>		

Project Budget Covering Government Contribution in Kind  
(in local currency) - continued

	TOTAL		1974		1975		1976	
	m/m	Rs.	m/m	Rs.	m/m	Rs.	m/m	Rs.
<b>40. EQUIPMENT</b>								
41 Expendable Equipment								
Operation, maintenance of								
Equipment and Buildings		20,000				20,000		
42 Non-expendable Equipment		562,500		562,500				
43 Premises -								
Existing Thimphu and				1,060,200				
Phantsholing Workshops								
Extension Thimphu and		150,000		150,000				
Phantsholing Workshops		375,000		375,000		375,000		
New workshop at Gaylephag		375,000						375,000
New workshop at Samdrup Jongthar								
<b>49 Component Total</b>		<b>2,542,700</b>		<b>1,772,700</b>		<b>395,000</b>		<b>375,000</b>
<b>50. MISCELLANEOUS</b>								
51 Operation and maintenance of								
equipment								
- Operation and maintenance		44,000		22,000		22,000		
of project								
53 Sundry: Rent for office,								
residential quarters		145,004		110,002		35,002		
and other utilising								
furniture and fixtures		189,004		132,002		57,002		
<b>59. Component Total</b>		<b>2,824,904</b>		<b>1,951,302</b>		<b>498,602</b>		<b>375,000</b>
<b>99 GRAND TOTAL</b>								

(in US\$ - 375,000)

**LIST OF VEHICLES REGISTERED AT BANGALORE OFFICE IN APRIL - (Including Vehicles of P.O.P.S.)**

Plate	Jeep	2WD Truck	Intern. license Petrol	Intern. license Diesel	4/Wheel	Motor cycle	Jeep	Motor cycle	Auto	Motor cycle	Auto	Motor cycle	Auto	Motor cycle	Auto	Motor cycle	Auto	Motor cycle
Thappa	120	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0
P/imp.	36	20	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jeep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/4wheel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barbans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Surfacing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boothang	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sambal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>120</b>	<b>20</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Jeep :- Made in India under license from Daimler Benz by Mahindra & Mahindra Limited, Bangalore. Serial number, 1000001, 1.

2WD Truck :- Tata Motors made in India. Model : L/112 4 ton & L/120 5 ton.

20 :- Tata Motors made in India. Model : L/112 & L/120.

2/4wheel :- Made in India by Mahindra Motors & Bedford Trucks :- Made in India under license from Chrysler Corporation USA by Premier Automobiles Ltd, L. A. Bharti, Bangalore - 70 (AD).

Boothang :- Made in India under license from Fiat, Italy by Premier Automobiles Ltd, Bangalore.

Sambal :- Made in India under license from GM, Germany.

LIST OF ASSETS      VALUABLE ITEMS IN ACCOUNT OF THE      INDIAN

Place.	Jeep	200 Truck.	Charvot Truck.	Badge	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Total.
Philips	60	20	-	2	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	111
Frankelberg	14	20	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40.
Puro	20	20	-	-	-	1	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	60.
Smithy/Smithy	7	10	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.
Capling	0	20	-	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.
Smithy	-	0	0	-	-	0	-	0	-	0	-	0	-	-	-	-	-	-	-	-	-	24.
Smithy	2	7	-	0	-	10	-	10	-	10	-	10	-	-	-	-	-	-	-	-	-	24.
<b>Total</b>	<b>100</b>	<b>120</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>200.</b>

**PLANS AND TYPES OF VEHICLES SUPPLIED BY USA - (Part of Government Vehicles)**

Station	MB Truck	MB Bus	International Patrol	International diesel	Jeep	Car Ambassador	Swiss Bus	id. B. Bus	Design P/C	Total
Phonothology	10	10	3	25	4	-	2	0	-	74
Theraps	14	0	0	0	1	1	-	1	1	30
South	1	1	-	-	-	-	-	-	-	2
Switzerland	0	0	-	1	-	-	1	-	-	6
Germany	0	0	-	-	1	-	-	-	-	12
Switzerland	7	0	-	-	-	-	-	-	-	12
<b>GR.</b>	<b>20</b>	<b>20</b>	<b>11</b>	<b>27</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>128</b>

ANNEX III

Workshop's Manning Table as at March 1973

	Total	Out of which Bhutanese Nationals
Workshop Phantsholing (Admin 14 plus Tech. 75)	89	21
B.O.T.S. Body Building Phantsholing	16	2
(Other mechanics; engine, gearbox repairs, etc.)	12	-
Workshop Thimphu	61	19
B.O.T.S. Thimphu	5	2
P.W.D. Thimphu	10	3
B.O.T.S. Gnyelshing	15	3
P.W.D. Sarbbang	12	4
A.G.T.S. Samdrup Jongkhar	4	
Total staff	284	94



ANNEX IV

TEMPORARY LIST OF EQUIPMENT

Non-expendable equipment

Thimphu and Phuntsholing (for each workshop)

Item	To be purchased outside of India	To be purchased in India	Thimphu	Phuntsholing
	US\$	Rs		
1. Tyre retreading plant		70,000	X	
2. Crankshaft grinder	17,000			X
3. Automotive Electric Test Stand		19,500	X	X
4. Recovery van	20,000		X	
5. Generator 50 KVA (3 phases 50 cycles, 440 volts)		60,000	X	X
6. Special tools for servicing imported vehicles outside of India	1,500		X	X
7. Optical front wheel aligner		40,000	X	
8. Overhead crane system (10 ton)		15,000	X	
9. Chassis repair facilities		10,000		X
10. Unspecified tools		15,000	X	X

Total equipment for Thimphu, to be purchased from outside of India

.... US\$ 18,500

Total equipment for Phuntsholing, to be purchased from outside of India

.... US\$ 21,500

TOTAL

.... US\$ 40,000

Total equipment for Thimphu, to be procured in India

.... Rs 219,500 (\$29,500)

Total equipment for Phuntsholing, to be procured in India

.... Rs 104,500 (\$14,500)

TOTAL

.... Rs 3,4,000 (\$44,000)

ANNEX V

TENTATIVE LIST OF EQUIPMENT

Non-expendable equipment

Sandrup Jongkhar and Gaylephug (for each workshop)

Item	To be procured outside India Cost in US\$	To be procured in India Cost in Rs	S Jongkhar	Gaylephug
<b><u>MACHINE SHOP</u></b>				
1. Lathe CD 3050 mm CH 260 mm	17,000		X	X
2. Lathe CI 1090 mm CH 230 mm	7,500		X	X
3. Crankshaft Grinder	17,000			X
4. Cylinder re boring and honning machine	9,000		X	X
5. Pillar Drill	2,000		X	X
6. Bench Drill	2,000		X	X
7. Double ended Bench Grinder	1,500		X	X
8. Hydraulic Press	6,500		X	X
9. WOLF Hand drills small medium and heavy	1,500		X	X
10. Valve Refacer and Valve Seat Cutter	4,000		X	X
11. Gauges and Tools	2,000		X	X
<b><u>WELDING SECTION</u></b>				
1. Electric arc welding transformer type	8,000		X	X
2. Electric Gas welding set including gas cylinders and trolley	9,200		X	X
3. Flexible Shaft Grinder	1,000		X	X
<b><u>SERVICE SECTION</u></b>				
1. Hydraulic Truck hoist	9,000		X	X
2. Servicing equipment including high pressure greasing and lubricating equipment and car washer	10,500		X	X
3. Compressor	5,000		X	X

Item	To be procured outside India Cost in US\$	To be procured in India Cost in Rs	S/Jongkhar	Gaylephug
<b><u>PAINTING SECTION</u></b>				
1. Paint Spray Gun with all accessories		800	X	X
<b><u>VULCANISING SECTION</u></b>				
1. Tube and valve vulcaniser		1,500	X	X
2. Compressor		5,000	X	X
3. Tyre Pressure gauge (wall mounted type)		700	X	X
<b><u>UPHOLSTERY</u></b>				
1. Industrial type heavy duty sewing machine		1,000	X	X
<b><u>PUMP CALIBRATING SECTION</u></b>				
1. Diesel Fuel Pump Test Bench		16,500	X	X
2. Nozzle Grinding and Reconditioning Machine		7,000	X	X
3. Special Tools		1,500	X	X
4. Injector Nozzle Tester		500	X	X
<b><u>ELECTRICAL SECTION</u></b>				
1. Battery Charger 72 volts		6,000	X	X
2. Electric Test Bench for testing automotive starter, motor dynamo alternator, voltage regulator etc.		19,500	X	X
3. Spark Plug Tester and Cleaner		700	X	X
4. Special Tools		2,500	X	X
<b><u>GENERAL MOTOR MECHANICS SECTION</u></b>				
1. Garage Crane two ton capacity		4,000	X	X
2. Chain Pulley block 5 ton capacity		2,000	X	X
3. Special tools for different vehicles		10,000	X	X
4. Mechanics' hand tools		3,000	X	X
5. Other special garage tools		2,000	X	X
6. Special tools for imported vehicles		1,500	X	X

Item	To be procured outside India Cost in US\$	To be procured in India Cost in Rs	S/Jongkhar	Gaylephug
<b>MISCELLANEOUS</b>				
1. Generator 25 KVA (3 phase 50 cycles 440 volts)		45,000	x	x
2. Unspecified equipments		150,000	x	x

Total equipments for Samdrup Jongkhar  
to be purchased from outside India US\$ 1,500

Total equipments for Gaylephug to  
be purchased from outside India US\$ 18,500

Total US\$ 20,000

Total equipments for Samdrup Jongkhar  
to be purchased from India Rs 374,900 (US\$ 50,000)

Total equipments for Gaylephug to  
be purchased from India Rs 374,900 (US\$ 50,000)

Total Rs 749,800 (US\$ 100,000)

ANNEX VI

JOB DESCRIPTION

**TITLE:** Automotive Workshop Co-ordinator (mechanical engineer)  
**DUTY STATION:** Thimphu, with travel within Bhutan and India  
**DURATION:** One year, with possibility of extension for further one year  
**LANGUAGE:** English

**BACKGROUND INFORMATION:** The Government of Bhutan has given very high priority to the development of a road network in the country. To date there are approximately 1,400 km of road in existence which will be extensively expanded in the years to come. As a result of the road development, domestic road traffic has developed and is going to be further strengthened in the future. To date there are approximately 1,000 vehicles mainly consisting of trucks, buses and jeeps, among them some cars, in the country which have to be serviced, maintained and repaired. Some of these services are already locally provided in repair shops; one located in Thimphu, the other located in Phuntsholing. In addition to these two workshops a provisional workshop was established in Gaylephug. In order to meet the local repair and maintenance requirements for road transport vehicles with a view to becoming gradually more independent from Indian repair facilities and labour force, UNDP/UNIDO assistance has been sought to strengthen the existing repair units and assist in the establishment and running of two new repair workshops, one in Gaylephug and one in Sandrup Jongkhar. A UNIDO short-term mission to Bhutan has made an appraisal of the project and detailed information on the present status of vehicles, repair needs, training requirements, future plans, etc. are available.

**DUTIES:** The expert is required to work under the General Manager (Ministry of Finance) responsible for the Automobile Repair Workshops and the Bhutan Government Transport Services (B.G.T.S.) in very close co-operation with the Bhutanese Workshop Co-ordinator.

He is expected to fulfill besides general co-ordination work related to the project with other government departments the following specific tasks:

1. Assist in strengthening the existing workshops in Thimphu and Phuntsholing by effectively utilising existing machinery and equipment, installing additional equipment to fill requirement gaps, introduce in-plant training programmes for local manpower development in order to secure future demand in all required disciplines.
2. Assist in the preparation of layouts for the two new repair and maintenance workshops to be established in Samdrup Jongkhar and Gaylephug.
3. Develop recruitment and training schemes for the workshops.
4. Specify equipment and tool requirement which is not yet defined.
5. Prepare job descriptions for additional UNDP consultants, if required.
6. Define fellowship programmes for Bhutanese trainees abroad.
7. Prepare a manning plan to secure functioning of the workshops.
8. Co-ordinate recruitment programmes, arrival and installation dates for equipment, fellowship programme with construction work of the buildings.
9. Assist in the formulation and implementation of a preventive maintenance programme for all B.G.T.S. vehicles with a view to extend the life span of the vehicles and the components.

**QUALIFICATIONS:** Mechanical engineer with extensive practical experience in repair and maintenance of trucks, buses, jeeps and passenger cars. Besides his special knowledge in repair and maintenance the expert must possess overall planning and managerial capabilities.

ANNEX VII

**TECHNICAL SPECIFICATION FOR CRANKSHAFT GRINDER, ITEM No. 2  
(FRUNTSKOLING)**

Maximum distance between centres	approx.	1.500 mm
Maximum distance between chucks	approx.	1.400 mm
Maximum offset of centres	approx.	120 mm
Workhead spindle speeds	approx.	from 25 - 65 r.p.m.
Grinding wheel speed	approx.	1.000 r.p.m.
Grinding wheel width	approx.	25 mm

Complete with built-in cooling system all standard and special accessories necessary to regrind crankshafts varying between 450 and 1.400 mm. (Similar or equal to crankshaft grinder of A.M.C. Denmark, Model K 1500).

Notes:

1. The quotation is to be in accordance with the General Technical Regulations for submission of offers for project BHU/72/005/A/01/37.
2. The invitee is requested to quote separately the cost for one specialist to install the machine and demonstrate its function for a period of approximately one month and also indicate customers near Bhutan where the offered machine is in operation.

ANNEX VIII

SPECIFICATION FOR RECOVERY VAN, ITEM No. 4 (THUPTU)

One recovery van/truck suitable for recovery of damaged tracks (5 t.), buses and cars for use in very mountainous area with very steep hills. The van is to be equipped with a rear mounted winch, capacity approximately 10 tons and with the following equipment:

- 1 flame cutting set
- 1 arcwelding set engine-driven
- 1 hydraulic jack and standard recovery tools

Note:

1. The quotation is to be in accordance with the General Technical Regulations for submission of offers for project HNU/72/005/L/01/37.



ANNEX IX

General Technical Regulations for the Submission of Offers on Machinery and Equipment for the Project Technical Assistance to the Automobile Workshop Department BHTJ/72/005/A/ 1/37

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1. Scope of Offer

- (a) Each item, as per separate specification, must be complete and ready for operation;
- (b) The standard accessories;
- (c) The special accessories;
- (d) The standard tools for a 24 months one shift operation;
- (e) The necessary replacement and wearing parts for a two years one shift operation;
- (f) Protection clothing, if required;
- (g) Foundation bolts and wedges, if required;
- (h) The special labour and special tools needed for erection, commissioning and demonstrations;

The offer should also include:

- (i) Gross and net weights;
- (j) The number of packages and their main dimensions;
- (k) The shortest time of delivery;
- (l) Prospectuses and publications in English language, six copies of each.

2. Agents/Service in India

Mention must be made whether the tenderer is represented in India by an established agent and what kind of services can be rendered by this agent after the purchase order has been effected.

3. Technical Data

In case of an order, UNIDO/Government of Bhutan has to be supplied with the following documentation within two months after the award of the purchase order:

- (a) Instructions for operation and maintenance, six-fold in English;
- (b) Assembly drawings, switchboard diagrams, circuit diagrams, erection drawings, foundation drawings, drawings of all wearing parts, six-fold in English;

4. Accident Prevention

The machines must conform with all the latest regulations for accident prevention.

5. Painting

Painting of all machine tools to be made in grey.

6. Electrical Equipment

The complete electrical installation has to be supplied for 440 volts, 50 cycles, 3 phase supply. Control voltage other than mentioned above will be derived by built-in transformers.

Tropicalised insulation to be provided for a maximum ambient temperature of + 50 degrees Centigrade and humidity at saturation.

7. Measuring System

Measuring devices, tables, operating signs, etc. have to be laid out and marked according to the metric system and whenever necessary, explained in the English language.

8. Prices

Prices to be quoted include sea-worthy packing. CIF Thimphu (Bhutan) in accordance with INCOTERMS 1953.

9. Validity of Offer

The offer has to be valid for a period of six months.

ANNEX X

EXISTING LIST OF EQUIPMENT AT GOVERNMENT WORKSHOP THIMPHU

1. Cylinder Boring Bar Model Jai 944 - S Cylinder Boring Bar 2.2" to 4.6" with 10 depth speed RPM 344 with 1/4" SD A.C. Single Phase Motor complete	1 No.
2. Honing Machine Jai Bama Hand Operated Liver type complete with 1/3 H.P. AC Single Phase Motor 220/440 volts Range from 2.5/8 to 5.1/2	1 No.
3. Head Lathe 10' Having centre height 10" arrange for water drive complete with 3 phase 50 cycles AC pump supply	1 No.
4. Spark Plug Tester	1 No.
5. Air Compressor Machine 5 H.P. complete with standard equipment including belt	1 No.
6. Air Compressor Machine	1 No.
7. 60 tons capacity hydraulic press complete with standard fitting press	1 No.
8. Electric drill machine type S.C. 4 CA, AC/DC	1 No.
9. Lathe machine 6'	1 No.
10. Gas Welding Set	1 Set
11. Arc Welding Petrol driven set	1 No.
12. Portable Arc Welding Set	1 No.
13. Battery Charger	1 No.
14. Pillar Drill capacity 1.1/2" H.P. 2	1 No.
15. Crankshaft Grinder with all accessories (outdated model not functioning properly)	1 No.
16. Electric Drill machine portable type	1 No.
17. Valve Seat Grinding machine	1 No.
18. Valve Seat Cutter	1 No.
19. Vulcanising Machine	1 No.
20. Double ended Bench Grinder Machine	1 No.
21. Valve Refacing Machine	1 No.
22. High Pressure Greasing Machine complete with all accessories	1 Set
23. Bell Crank Hose Reel for grease for mounting on floor	1 No.
24. Tecalemit Reducing Valve	1 No.
25. Air operated Lower Pressure Pump	1 No.
26. Bell Crank Hose Reel for mounting on floor	1 No.
27. Reducing Valve Assy	1 No.

28. Double Drum High pressure Washing Machine 1 No.
29. Garage Crane 2 ton capacity with engine lifting bracket 1 No.
30. Trolley for carrying oxygen and acetylene cylinders 1 No.
31. Industrial type Sewing machine 1 No.
32. Blower No. 201 directly coupled with 1/2 H.P. winder electric motor SL. No. 21028 suitable for 400/440 - 3/50 A.C. and push button starter 1 No.
33. Portable Flexible Shaft Grinder 1 No.
34. Squirrel Cage Induction Motor 5 H.P. AC, 3 Phase, 50 cycles, 400/440 volts, 1500 RPM totally enclosed fan cooled type 1 No.
35. Pillar Drill Machine with driving electric motor and job vice 1 No.
36. Motor suitable for driving machine 1 No.
37. Light Bench Drill complete 1/2" 1 No.
38. Tyre and tube tread vulcaniser electrically heated, 220/1/50 cycles complete with 8 moulds 1 No.
39. Valve resoling unit 1 No.
40. Hydraulic Truck Hoist twin post free wheel type lifting capacity 8 tons 1 No.
41. Portable oil sprayer complete with all accessories 1 No.
42. Diesel Fuel Pump Test Bench six cylinders 1 No.
43. Chain pulley block super gear high lifting speed 1 No.
44. Twin Air Hose complete 1 No.
45. CROMPTON electric motor 5 H.P., 3 phase, 440 volts AC, 1450 RPM 1 No.
46. Paint spray gun 2 pint suction feed type working at 60 PSI air pressure 1 No.
47. Moisture separator cum air regulating valve 1 No.
48. Grinding machine heavy duty Grade 1 1 No.
49. Bench grinder self motorized size 12" x 1" 1 No.
50. Battery charger 1 No.
51. Spray gun gravity feed type 1 No.
52. Cylinder honing complete with 619/620 stone sets 1 No.

ANNEX XI

EXISTING LIST OF EQUIPMENTS AT GOVERNMENT WORKSHOP PUNTBHOLING

1. Lathe machine  
Length of bed 14' - 4"  
Distance between centre 115"  
Centre to bed 20"  
5 H.P. 440 volts motors, starter,  
switch and all standard accessories 1 No.
2. Tecalmit air operated high pressure  
grease pump with all servicing equipment 1 Set
3. Line boring machine having boring  
capacity 1.5/16" to 4.3/16" maximum  
boring length 5", maximum facing diameter  
4.1/2" complete with standard accessories 1 No.
4. Diesel fuel pump injection calibrating  
stand for testing multi-element diesel  
fuel injection pumps up to 6 cylinders 1 No.
5. Hand operated hydraulic press capacity 50 tons 1 No.  
Ram stroke 175 mm  
Horizontal gap 925 mm
6. Full circle tyre retreading and recapping  
mould machine suitable for 8.25 x 20,  
9.00 x 20 size tyres and 6.00 x 16 1 Set
7. Compressor machine with 30 H.P. motor 1 No.
8. Flexible shaft grinder type PP2D 1 No.
9. Electric welding set 1 No.
10. Portable electric hand drilling machine 1 No.
11. Valve seat grinding machine 1 No.
12. Double ended grinder 1 No.
13. Air compressor with 5 HP motor 1 No.
14. 25 KVA generating set 1 No.
15. Air compressor (COMAIR) 2 Nos.
16. Sewing machine (industrial type) 2 Nos.
17. Battery charger 230 volts 1 No.
18. Electric drill machine RSW 2070 1 No.
19. Heavy duty electric drill machine  
No. 6/49996 type MD60B 1/2" 1 No.
20. Double ended bench grinder 2 Nos.
21. Valve refacer 2 Nos.
22. Crankshaft grinding attachment with accessories  
(for operation on centre lathes) 1 No.
23. Pillar drill machine  
with 2 HP motor 1 No.

- |   |       |
|---|-------|
| 24. Kottler boring bar  | 1 No. |
| 25. Lathe machine CH 450 mm<br>CD 1000 mm                                       | 1 No. |
| 26. Supercraft lathe machine<br>centre height 200 mm<br>centre distance 1500 mm | 1 No. |
| 27. Shaping machine with 5 HP motor   | 1 No. |
| 28. Milling machine (universal type)  | 1 No. |
| 29. Electric welding set  | 1 Set |

ANNEX XII

LIST OF EQUIPMENT HELD BY N Y BUILDING SECTION OF D.O.T.S.  
AT PHILADELPHIA

1. Electric welding transformer	1 No.
2. Petrol operated electric welding generator	1 Set
3. Electric drill machine	3 Nos.
4. Flexible shaft electric grinder	1 No.
5. Industrial type sewing machine	1 No.
6. Hand operated table drilling machine	1 No.
7. Gas welding set with all accessories	2 Sets
8. Electric operated sawing/planning/jointer machine	1 Set
9. Air operated Avex pneumatic riveting equipment	2 Sets
10. Iron Anvil	1 No.
11. Hand operated air blower	1 No.

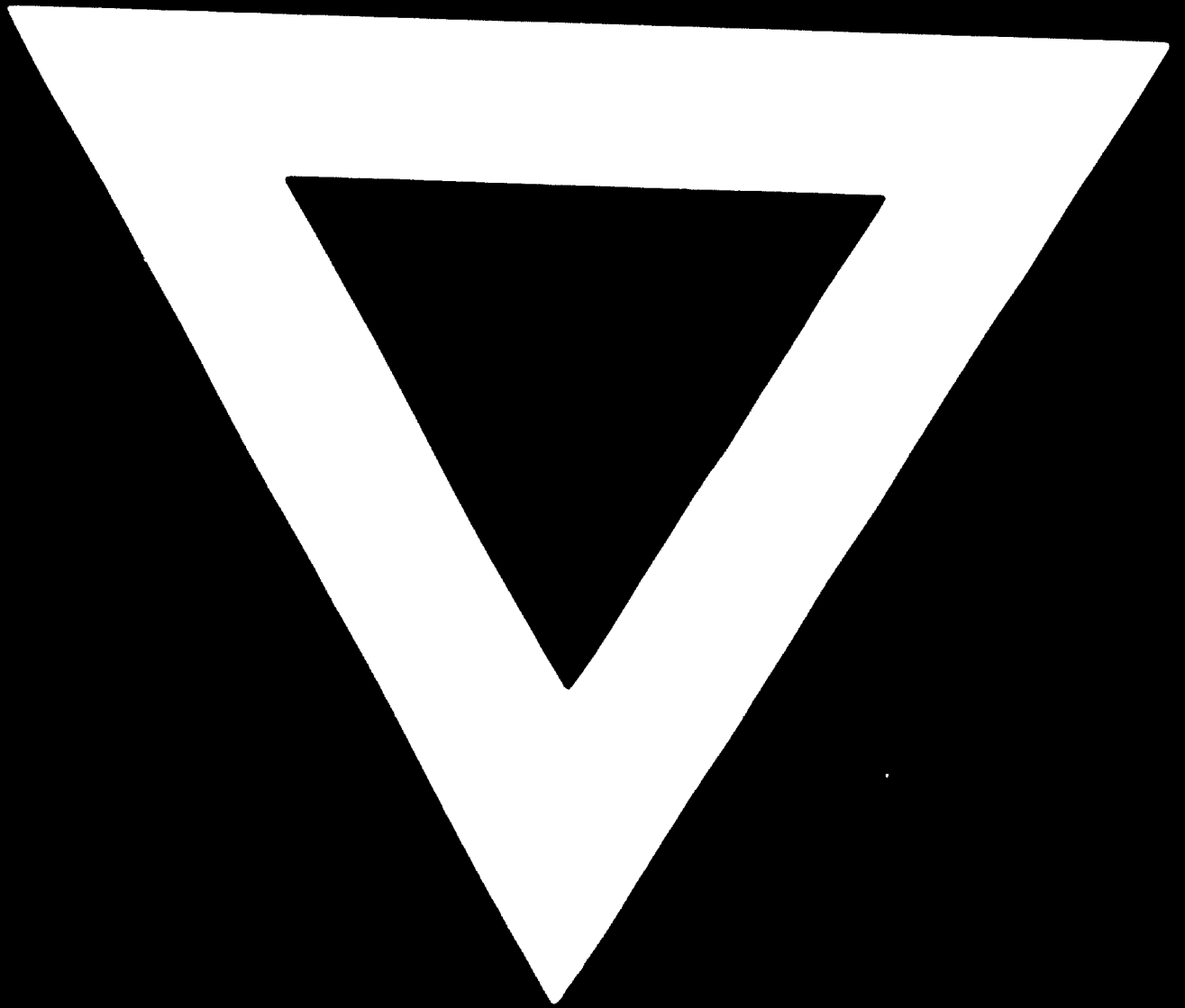
ANNEX XIII

EXISTING LIST OF EQUIPMENT AT B.G.T.S. WORKSHOP IN GAYLEPHOO

- |  |       |
|--|-------|
| 1. Battery charger<br>32 - 45 volts 25 amps                            | 1 No. |
| 2. Air compressor working capacity 20 Cfm<br>working pressure 1010 PSI | 1 No. |
| 3. Electric arc welding set<br>Range 25<br>250 amps                    | 1 Set |
| 4. Gas welding set   | 1 Set |
| 5. Hand tools  |       |







**76.02.09**