

スリ・ランカ

適正技術研究開発センター

アフターケア調査団報告書

平成 3 (1991) 年 8 月

国際協力事業団

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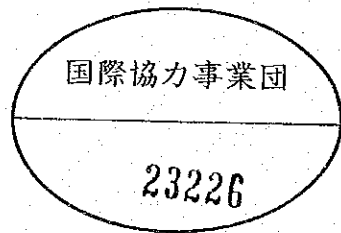
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## 序 文

スリ・ランカ政府は、中小工業分野における適正技術の開発・普及および農村地域の中小工業振興を図るため、「適正技術研究開発センター」を設立することを計画し、我が国に対しプロジェクト方式技術協力を要請してきた。

これを受けて我が国は、昭和57年1月7日から4年間にわたる協力を開始し、1年余りのフォローアップを経て、昭和62年3月31日に協力を終了した。

この間6名の長期専門家、12名の短期専門家、14名の研修員受入れ、総額約1億4000万円の機材供与を実施した。

今回のアフターケア調査団は、プロジェクト終了後4年を経過していることを考慮し、協力終了後の同センターの活動状況を確認・評価すると共に、既供与機材の修理・スペアパーツの供与を主なT/Rとするアフターケア協力の詳細内容を協議するために派遣されたものであり、本報告書はその調査・協議結果を取りまとめたものである。

ここに、今回の調査実施に際し、ご協力いただいた関係各位に対し、心から感謝の意を表する次第である。

平成3年8月

国際協力事業団

理事 田 守 栄 一







ミニッツ署名

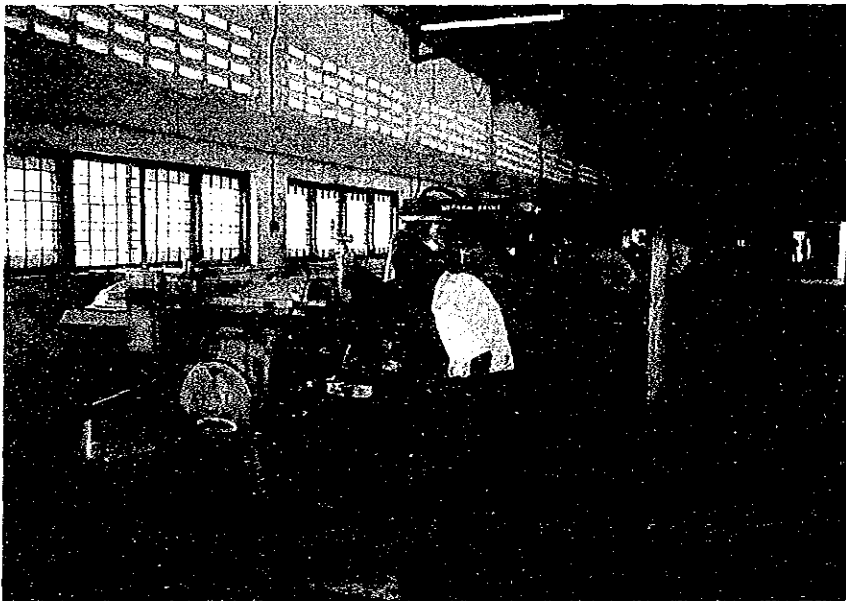


管理棟前にて





技術訓練コース実施状況



技術訓練コース実施状況



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別添一 1. ミニッツ

2. A4フォーム (アドバンス)
3. ATRDCスタッフリスト
4. 供与機材チェックリスト

(クエスチョネアに対する「ス」側回答)

## I. アフターケア調査団の派遣

### 1. 調査団派遣の経緯

昭和57年（1982年）1月7日から4年間にわたって実施された本事業は、農機具開発分野における遅れを取り戻すため、1年余りのフォローアップを行い、昭和62年（1987年）3月31日に終了した。

その後スリ・ランカ事務所より、本センターは観光地方産業開発省の傘下にはいり、職業訓練的の性格を強めながらも、研究開発も継続している旨報告を受けている。

しかしながら、協力終了後4年が経過し、供与機材の痛み、スペアパーツの不足等が予想されるので、アフターケア協力を実施し、プロジェクトの効果を一層高めることとする。

### 2. 本プロジェクトの内容と成果

#### (1) 内容

農村地帯の中小工業の発展を目的として成立された本センターに対し、次の各分野における技術協力を行った。

- ① 金属加工分野における適正技術の研究・開発
- ② 開発機器の製造および使用者に対する技術普及
- ③ 金属加工関連企業に対する技術指導

#### (2) 成果

次の各機器を試作・生産し、その技術を移転した。

- ① 手農具（鋏・鋤）
- ② 農機（捲種機・除草機・犁）
- ③ 風力利用発電機
- ④ 燃料ガス発生装置

また周辺の技能者に対し、一般機器部品製作の技能訓練を実施した。

### 3. 調査団の構成

	担当	氏名	所属先
団長	総括	植原 康之	JICA関東支部
団員	機材計画	柴田 安雄	海外コンサルティング企業協会 嘱託
団員	協力計画	足立 正美	JICA鉾工業開発協力部鉾工業開発技術課

4. 調査日程

	月 日	行 程	調 査 内 容	(宿泊地)
1	7月27日 (土)	成田→→→→バンコク 11:00 (TG641) 15:30	往路	(バンコク)
2	28日 (日)	バンコク→→→コロンボ 10:40 (TG307) 12:25	往路	(コロンボ)
3	29日 (月)		JICA事務所・大使館打合せ、外国援助局・観光地方産業開発省表敬	(コロンボ)
4	30日 (火)		ATRDC (適正技術研究開発センター) 視察・協議	(ネゴンボ)
5	31日 (水)		ATRDC協議	(ネゴンボ)
6	8月 1日 (木)		ATRDC協議	(コロンボ)
7	2日 (金)		産業開発局 (IDB) 協議	(コロンボ)
8	3日 (土)		団内打ち合わせ	(コロンボ)
9	4日 (日)		資料整理	(コロンボ)
10	5日 (月)		産業開発局 (IDB) 協議 ミニッツ署名	(コロンボ)
11	6日 (日)		JICA事務所・大使館報告	(コロンボ)
12	7日 (水)	コロンボ→→→バンコク 13:25 (TG308) 18:15	復路	(バンコク)
13	8日 (木)	バンコク→→→→成田 11:00 (TG640) 19:00	往路	



5. 対処方針

項 目	現状—事務所の報告等	対処方針・調査事項	調査結果
<p>1. ス側の受け入れ体制</p> <p>a. ATRDC の位置付け</p> <p>b. 予算措置</p>	<p>①工業科学省より観光地方産業開発省に移管された (1986.2)</p> <p>②県レベルの職業訓練校と位置付けられている</p> <p>③研究開発は工業科学省傘下のCISIR (セイロン科学技術工業研究所) の方に重きが置かれている</p> <p>ATRDCの予算は十分ではなく運営費の捻出に苦心している (1991年度予算Rs1,852,650)</p>	<p>①②観光地方産業開発省はATRDCをどう位置付けているか (国家計画におけるプライオリティ)</p> <p>*金属加工センター構想</p> <p>③CISIRとのデマケはどうか</p> <p>アフターケア実施に必要な経費 (機材引取り諸掛が) は確保できるか。予算の内訳を確認</p>	<p>II. 調査結果の1.-(1)</p> <p>(2) 参照</p> <p>1-(3) 参照</p>
<p>2. ATRDCの現状</p> <p>a. 人員配置状況</p> <p>b. 活動状況</p>	<p>現在職員26名 (氏名リスト入手済)</p> <p>研究スタッフが不足している</p> <p>①適正技術の研究開発・普及…協力終了後見るべき成果は少ない</p> <p>②中小企業への技術訓練…木工・金属加工分野で地</p>	<p>最新の組織図の確認 (協力期間中の専門家・日本研修と現在のスタッフとの関係)</p> <p>協力期間中に移転した技術はどの程度継承されているか</p> <p>①今後研究開発には力を入れるのか</p>	<p>2-(1) 参照</p> <p>2-(2) 参照</p>

	域の職業訓練センターとして機能している 卒業生は88年65名 89年72名	②職業訓練中心の活動は今後も続くのか	
c. 既供与機材の状況		使用頻度、保存状況を調査。修理・スペアパーツの必要なものはあるか	2-(3) 参照
3. 協力計画の検討		上記1.2.の調査の結果、必要に応じ協力計画を検討。 例：スペアパーツ供与、 専門家は派遣しない	
a. 機材供与のスペック	ス側の要請機材 1. Building facilities ・Rest room, Class room, Visiting room etc. 2. Equipments for test lab. ・Room air-conditioner ・Personal computer ・Video system ・Test equipments ・Complete unit for spray painting ・SLIP Gauges 3. Training facilities ・Video tapes ・Overseas training facilities for the technical staff	①原則として修理部品・スペアパーツを供与 必要に応じて新規機材も供与。あくまでR/Dの範囲とする ②Facilitiesは供与しない (機材の範疇外) ③Overseas training が日本研究を意味するなら実施しない (アタケア の範疇外) 強い希望があれば聞き置くにとどめる ④出来ればA4フォームを取り付けてくる	3-(1) 参照
b. 短期専門家	ス側要請	機材修理・据え付けの専門	3-(2) 参照

のT/R	農機具の製造において実際 的な経験を持つ専門家 /	家を派遣 必要によって補完的技術移 転も行う	
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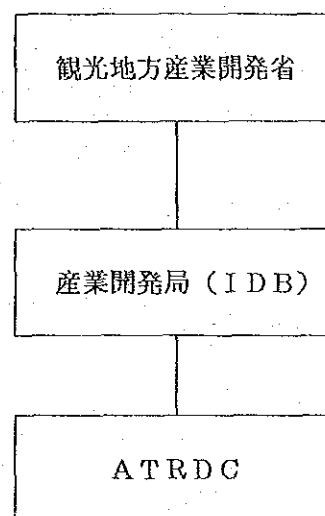
## II. 調査結果

### 1. ス側の受け入れ体制

#### (1) 適正技術研究開発センター（ATRDC）と上部機関との関係

- ・観光地方産業開発省の一局として産業開発局（IDB: Industrial Development Board）があり、ATRDCを統括している。
- ・アフターケアの実施機関はIDBである。

（IDBおよびATRDCの組織図は資料-1参照）



#### (2) ATRDCの位置付け

- ・地方の中小企業（町工場レベル、手工業機械）に対する技術指導、研究開発を担当。
- ・セイロン科学技術工業研究所（CISIR）は中央の大企業（大型機械）に対する技術指導、研究開発を担当。

#### (3) 予算措置状況

- ・機材引き取り経費等ローカルコストは負担できる旨先方より回答があった。
  - ・最近の予算金額及びその内訳は資料-2、3参照。
- 人件費に大部分が割かれており、研究開発・技術普及分野には十分な予算はついていない。

## 2. ATRDCの現状

### (1) 人員配置状況

- ・現有スタッフのうち協力期間中に在籍していたC/Pは資料-4参照。
- ……12名残存。
- 日本研修を受けた後退職したC/Pは資料-5参照。

### (2) 活動状況

- ① ス側としては、研究開発も技術訓練も同様に実施したい希望を持っているが、研究開発を行うには人材と資金に乏しいため、事実上技術訓練にウエイトが置かれている。
  - ② 過去6か月間の活動状況については資料-6参照。
- そのうち技術訓練のコースプログラムは資料-7参照。

今後6か月間の活動計画については資料-8参照。

③ 技術訓練分野

……各コースとも盛況のうちに運営され、受講生も熱心であった。

(金属加工(溶接・鍛冶・旋盤)、木材加工)

④ 研究開発分野

……限られた予算の中で細々ながらも継続されている様子であった。

A) これまでの研究開発の経過

風力発電装置については本技術がATRDCよりElectricity Boardに移転され、現在も開発が進行中である。

農業機械・器具の分野ではくわの生産技術がWeloda(Gampaha District)の鍛冶屋に移転されて、生産が継続されているようである。ハンドトラクタ用作業機のすきや除草機については、すでにスリランカ国内でハンドトラクタとその作業機が国内生産されているので、この研究開発の妥当性が示されたと言えよう。

小工場の鍛造機械であるベルトハンマーはその後も時々注文生産を継続しており、調査中にも1台を生産中であった。

B) 研究開発の現状

代替エネルギー分野ではソーラードライヤの開発が行われていた。これは開発途上国に多く見られる集熱部と乾燥部に分解できる木製の箱型構造のもので、試作品のテストが継続中である。

農業機械・器具ではハンドトラクタ用すき先が開発中である。これは軟鋼板を侵炭したもので、日本側の技術移転した熱処理技術が見事に発揮されている例である。

中小工場用機材として、パイプベンダー、レザースカイビングマシン、ココナツ繊維用ロープより機等の計画がある。これらは中小工場の生産技術の向上や国内に豊富にある牛皮、ココナツ繊維の加工工場の生産性向上を目的としている。これらの開発テーマはプロジェクト協力期間中のものより小型化しているが、スリランカの国情を良く反映したものと言える。

(3) 供与機材の状況

ワークショップ内の機材の活用や保守管理は良好と判断された。その理由は次のとおりである。

- ・機材本体の破損は少ないが、摩耗や破損による使用困難な切削工具が増加している。
- ・多くの機材の修理は自ら行っている。(ただしスペアパーツの入手や、その製作にふさわしい材料の入手に困難なため、修理に限界がある。)

- ・訓練等のために多くの機材が運転されている。
- ・工具等の管理状況は良好であった。(整理・整頓、清掃が行き届いている)。

### 3. 協力計画の策定

#### (1) 供与機材

- ・第一プライオリティ…スペアパーツ・付属品

第二プライオリティ…検査室用エアコン

検査用機材

技術普及用ビデオ・ビデオテープ 他

(ミニッツ別添 EQUIPMENT LIST 参照)

- ・第二優先の小規模機器は、A T R D Cの活動を更に充実させるために供与する。
- ・現在、A T R D Cでは管理棟内に検査室を設置中である。
- ・少なくともスペアパーツ・付属品をすべて予算内で購入できる見通しである。
- ・A-4フォーム(アドバンス)を取り付けた。(別添-2参照)。
- ・Building Facilitiesはス側で対応することで合意した。
- ・Overseas Training についてはス側は日本研修を意図していたが、アフターケアの範囲外であることを説明してス側も了解した。
- ・Personal Computer は時期尚早としてリストから外すことで合意した。

#### (2) 短期専門家

- ・スペアパーツ・小規模機器とも専門家の派遣は必要ないと思われるが、「必要ならば」教人の専門家を派遣する。(分野は修理・メンテ)

### 4. その他

- ・先方より協力隊の派遣要請があった。調査団としては、アフターケアとはスキームが違うものの、A T R D Cの現状を考慮すると協力隊の派遣は適当であると思われたので、事務所と引続き調整するよう述べた。(事務所・大使館も同様の見解であった)

### 5. 調査団所感

「ス」国の厳しい財政状況とそれに起因する人材不足に悩みながらも、全体としては「ス」側カウンターパートの熱意によりセンターは順調に運営されていた。本センターは「ス」国の地方中小企業に対する人材の供給と技術指導において重要な役割を果たしている。

今回アフターケア協力を実施することで、センター活動がさらに活性化し、企業への技術指導がより充実するだけでなく、研究開発分野での活動にもはずみがつくことが期待される。

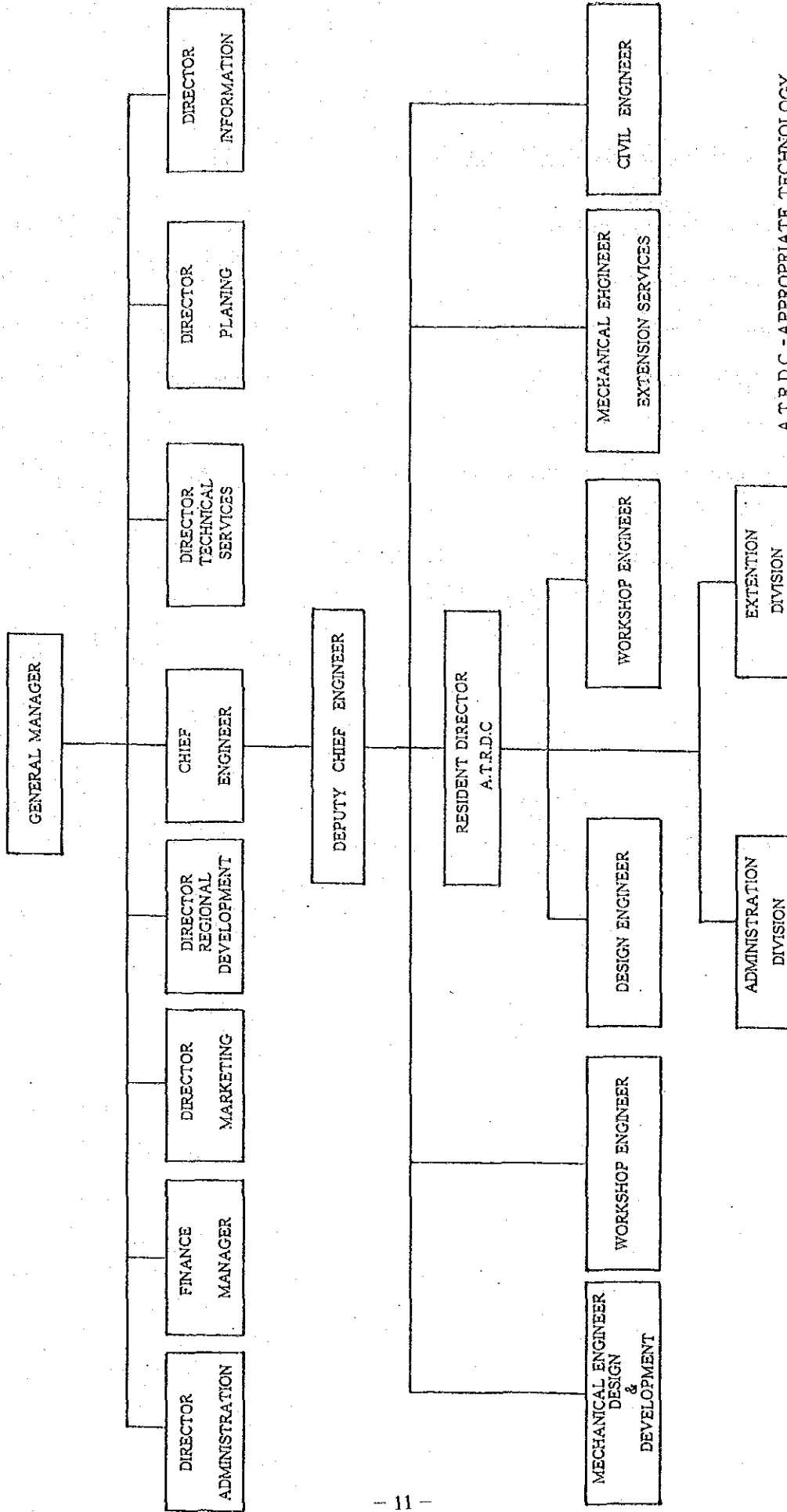
## 資 料

1. IDB-ATRDC組織図
2. ATRDC1991年度予算
3. ATRDC1987年度予算
4. 協力終了後もATRDCに残っているC/P
5. 日本研修後ATRDCを退職したC/P
6. 1991年1月～6月の活動実績
7. 技術訓練コース・プログラム
8. 1991年7月～12月の活動計画





# INDUSTRIAL DEVELOPMENT BOARD OF CEYLON



ORGANIZATION CHART

A.T.R.D.C. - APPROPRIATE TECHNOLOGY  
RESEARCH & DEVELOPMENT  
CENTER.

## (ATRDC 1991年度予算)

BUDGET ALLOCATION TO ATRDC FOR THE FINANCIAL YEAR 1991.

1.	Staff remuneration	-	Rs. 1,588,350.00
2.	Staff expenses	-	Rs. 44,500.00
3.	Establishment & administration	-	Rs. 161,800.00
4.	Repair & maintenance	-	Rs. 56,000.00
5.	Promotional expenses	-	Rs. 2,000.00
6.	Experiment, research & machinery development (for the Engineering Division)	-	Rs. 40,000.00
7.	Engineering raw materials, tools etc. (for the Engineering Division)	-	Rs. <u>1,450,000.00</u>
	Total	-	Rs. <u>1,852,650.00</u>

\* Total は1.~5.の合計。

\* 6.7.はIDBのEngineering Division全体の予算。

\* 5.はセミナー開催、技術普及の予算。

\* 1987年度の予算(資料-3)と比較されたい。

## (ATRDC 1987年度予算)

BUDGET ALLOCATION TO ATRDC FOR THE FINANCIAL YEAR 1987.

1.	Staff remuneration	- Rs.	780,000.00
2.	Staff expenses	- Rs.	48,000.00
3.	Establishment and administration	- Rs.	119,000.00
4.	Repair & maintenance	- Rs.	65,000.00
5.	Promotional expenses	- Rs.	2,000.00
6.	Experimen, research and machinery development	- Rs.	
	(for ATRDC)		5,000.00
	(for the Engineering Division)		30,000.00
7.	Engineering raw materials, tools, spares etc.	- Rs.	1,045,000.00
	(for the Engineering Division)		
			<u>-----</u>
	Total	- Rs.	<u>1,019,000.00</u>

EMPLOYEES OF I.D.B. CONTINUE TO WORK AT A.T.R.D.C. AFTER  
TERMINATION OF JAPANESE CO-OPERATION ON 31ST MARCH, 1987.

	<u>Name</u>	<u>Post</u>	<u>Remarks</u>
1.	D.D. Kumarasinghe	Assistant Director	Trained in Japan.
2.	M.M. Abeywansa	Technical Assistant	Trained in Japan.
3.	G.W. Even Noil	Blacksmith	Trained in Japan.
4.	R.A.A. Ranasinghe	Machinist	
5.	A.M. Ariyadasa	Electrician	
6.	A.P.S. Chandrasiri	Machinist	
7.	L.W.D.J. Wimalaweera	Carpenter	
8.	W.A.K. Jayatilake	Stenographer	
9.	U.R. Sarathchandra	Store-man	
10.	D. Nandasena	Driver	
11.	J.L.S.C. Jayasinghe	Labourer	
12.	J.A. Keerthisena	Labourer	

\* 協力期間中A T R D Cに在籍し、現在も在籍しているカウンターパート。  
 現在の全カウンターパートのリストは別添-3を参照。

LIST OF NAMES OF THE EMPLOYEES WHO LEFT  
ATRDC AFTER TRAINING ABROAD.

<u>Name</u>	<u>Designation</u>	<u>Place</u>
1. Mr. P.I.N.A. Fernando	Resident Director	Japan
2. Mr. L.M.S. Sisira Kumara	Actg/ Resident Director	Japan
3. Mr. C.W. Wanasinghe	Actg/ Resident Director	Japan
4. Mr. R.P.S.P. Randunu	Industrial Extension Officer	Japan
5. Mr. P.K. Pathirana	Technical Assistant	Japan
6. Mr. K.A. Ariyadasa	Welder	Japan

\* Place は海外研修場所を示す。

Japan はJICA研修。

Progress of Work Performed by ATRDC for the last six months  
(January 1991 to June 1991)

1. Research and Development

Completed the manufacture of following items:-

- a. Plough share
- b. Polythene cutter
- c. Pipe bender - Model 01  
Pipe bender - Model 02
- d. 'O' Ring machine
- e. 'D' Buckle punching machine
- f. Solar drier

2. Training:-

<u>Training Course</u>	<u>No. of Trainees</u>
a. Machining/Fitting	08
b. Fitting/Welding	04
c. Welding/Blacksmithy	02
d. Carpentry	11
e. Industrial training	03
f. Village level blacksmithy	04

3. Extension

- a. Field test
  - plough share - 02 (Giriulla, Hettipola)
  - wood turning lathe 01 (Makandura)
  - pedal operated grinder 01 (Sandalankawa)
- b. Exhibition participated
  - Kobeigane - Janasaviya programme
  - Silver Jubilee - BMICH, (IDB)
  - Gam Udawa '91 - Kamburupitiya
- c. Mobile Secretariat participated
  - Anuradhapuraya (Presidential)
  - Polonnaruwa (Ministrial)
  - Badulla (Ministrial)

DETAILS OF TRAINING COURSES CONDUCTED AT A.T.R.D.C.

<u>Training Course</u>	<u>Course Duration</u>	<u>No of Trainees per Course</u>	<u>Subjects (Theory and Practical)</u>
1. Machining/Fitting	06 months	10 trainees per course	* lathe operation * milling operation * shaper operation * slotter operation * tool and cutter grinding * general fitting practice, (filling, chipping, drilling, tapping etc).
2. Fitting/Welding	06 months	06 trainees per course	* AC/DC Arc welding * gas welding * general fitting work (filling, chipping, drilling, tapping etc).
3. Welding/Blacksmithy	06 months	06 trainees per course	* forging, forge welding, heat-treatment practice, AC/DC Arc welding, gas welding, spot welding.
4. Advanced Mechanized Carpentry (by the Department of Small Industries)	06 months	15 trainees per course	* wood craft technology * Carpentry Maths * carpentry drawing * mechanized carpentry * practical training
5. <u>Industrialist Training</u> a) Lathe	03 months	02 trainees	* side and face turning, boring, thread cutting, taper turning, knurling, working between two centres, 3 jaw and 4 jaw chucks.

\*1.~3.はTechnical Collage卒業生向け。

4.はCarpenter School卒業生向け。

5.は企業からの研修生向け。

<u>Training Course</u>	<u>Course Duration</u>	<u>No. of Trainees per Course</u>	<u>Subjects (Theory and Practical)</u>
b) Milling	02 months	02 trainees	* side and face milling, key way & slot cutting, milling operation, horizontal, vertical and angle cutting operations, spur gears, helical gears, bevel gears, worm wheel cutting operations.
c) Arc welding	01 month	02 trainees	* A/C, D/C horizontal, vertical and over head welding, ferrous and non-ferrous metal welding.
d) Gas welding	01 month	02 trainees	* Oxy acetylene welding and cutting, ferrous and non-ferrous metal welding.



Work Programme from July 1991 to December 1991.Research and Development

1. Rotary blades for two wheel tractor (by using carburizing powder)
2. Leather skiving machine
3. Coir twisting machine

Training

1. Machining/Fitting 10 Nos.
2. Fitting/Welding 06 Nos.
3. Welding/Blacksmithy 06 Nos.
4. Carpentry training 15 Nos.
5. Industrialist training 05 Nos.

Extension

1. Seminars/workshops - 03 Nos. (Badulla, Horana) to be decided)
2. Field test
  - Plough shear - 02 Nos.
  - Rotary blades - 02 Nos.
  - Solar drier - 01 No.
3. Participations
  - Mobile Secretariat - 04 Nos.
  - Exhibitions - 03 Nos.



別 添

1. ミニッツ
2. A-4フォーム (アドバンス)
3. ATRDCスタッフリスト
4. 供与機材チェックリスト

(クエスチョネアに対する「ス」側回答)

※我が方よりクエスチョネアの一部として  
機材チェックリストを作成し、「ス」側  
が作動状況、メンテナンス状況等を書き入  
れたもの。



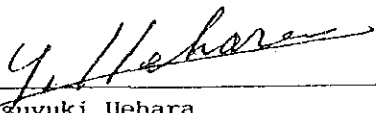
MINUTES OF DISCUSSIONS  
ON THE AFTERCARE PROGRAM  
FOR THE JAPANESE TECHNICAL COOPERATION PROJECT  
ON THE APPROPRIATE TECHNOLOGY RESEARCH AND DEVELOPMENT CENTER  
IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA


The Japanese Aftercare Survey Team ( hereinafter referred to as " the Team " ) organized by the Japan International Cooperation Agency ( JICA ) and headed by Mr. Yasuyuki Uehara, has visited the Democratic Socialist Republic of Sri Lanka from July 27 to August 8, 1991 for the purpose of working out the details of the aftercare program for the Japanese Technical Cooperation Project on the Appropriate Technology Research and Development Center in the Democratic Socialist Republic of Sri Lanka ( hereinafter referred to as " the Program " ).

During its stay in the Democratic Socialist Republic of Sri Lanka, the Team has conducted a field survey and held a series of discussions with the authorities concerned of the Government of the Democratic Socialist Republic of Sri Lanka in respect of the desirable measures to be taken by both Governments for the successful implementation of the above-mentioned Program.

As a result of the survey and discussions, the Team and the authorities concerned of the Government of the Democratic Socialist Republic of Sri Lanka agreed to recommend to their respective Governments the matters referred to in the document attached hereto.

Colombo, August 5, 1991

  
\_\_\_\_\_  
Mr. Yasuyuki Uehara  
Leader,  
Aftercare Survey Team,  
Japan International Cooperation  
Agency,  
JAPAN

  
\_\_\_\_\_  
Capt. Arnold Gunapala Devendra  
Chairman,  
Industrial Development Board,  
The Democratic Socialist Republic  
of Sri Lanka

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN BOTH GOVERNMENTS

1. The Government of Japan and the Government of the Democratic Socialist Republic of Sri Lanka will cooperate with each other in implementing the Program, for the purpose of furthering the effect of the Japanese Technical Cooperation Project on the Appropriate Technology Research and Development Center (hereinafter referred to as "the Project") through the aftercare program of technical cooperation and thus contributing to the development of the small and medium scale industries in rural areas.
2. The Program will be implemented in accordance with the Tentative Schedule of Implementation which is given in Annex I.

II. DISPATCH OF JAPANESE EXPERTS

1. If necessity arises, in accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense services of the Japanese experts (in the field of repair and maintenance of the equipment) as listed in Annex II through the normal procedures under the Technical Cooperation Scheme of the Government of Japan.
2. The Japanese experts referred to in 1. above will be granted in the Democratic Socialist Republic of Sri Lanka the privileges, exemptions and benefits no less favourable than those accorded to experts of third countries or of other international organizations performing similar missions in Sri Lanka.

III. PROVISION OF EQUIPMENT

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense such equipment, spare parts and other materials ( hereinafter referred to as " the Equipment ") necessary for the implementation of the Program as listed in Annex III through the normal procedures under the Technical Cooperation Scheme of the Government of Japan.
2. The Equipment will become the property of the Government of the Democratic Socialist Republic of Sri Lanka upon being delivered c.i.f. to the Sri Lankan authorities concerned at the ports and/or airports of disembarkation, and will be utilized exclusively for the implementation of the Program in consultation with JICA office in Sri Lanka.

IV. TRAINING OF SRI LANKAN PERSONNEL IN JAPAN

Training of counterpart personnel in Japan is not included in the scope of the Program.

V. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

1. The Government of the Democratic Socialist Republic of Sri Lanka should make necessary arrangement for requesting the dispatch of Japanese experts and the provision of the Equipment as mentioned in II . and III . above by submitting the application forms ( A-1 Form and A-4 Form ) as soon as possible through the proper channel.
2. In accordance with the laws and regulations in force in the Democratic Socialist Republic of Sri Lanka, the Government of the Democratic Socialist Republic of Sri Lanka should take necessary measures to provide at its own expense supply of tools or movement of equipment, instruments, tools, spare parts and any other materials necessary for the implementation of the Program other than those provided through JICA under III . above.
3. In accordance with the laws and regulations in force in the Democratic Socialist Republic of Sri Lanka, the Government of the Democratic Socialist Republic of Sri Lanka should take necessary measures for tax exemption, custom clearance, and internal transportation of the Equipment as mentioned III. above as soon as it arrives at the ports and /or airports of disembarkation.
4. In accordance with the laws and regulations in force in the Democratic Socialist Republic of Sri Lanka, the Government of the Democratic Socialist Republic of Sri Lanka should take necessary measures to meet all running expenses necessary for the implementation of the Program.
5. The Government of the Democratic Socialist Republic of Sri Lanka should allocate the necessary numbers of suitably qualified personnel corresponding to each Japanese expert to be dispatched by the Government of Japan as specified in Annex II for the effective and successful transfer of the technology under the Program.
6. The Government of the Democratic Socialist Republic of Sri Lanka should make any other necessary arrangement to contribute positively to the convenience of the successful implementation of the Program.

VI. CLAIMS AGAINST JAPANESE EXPERTS

The Government of the Democratic Socialist Republic of Sri Lanka undertakes to bear claims, if any arises, against the Japanese experts mentioned in II. above engaged in the Program resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Democratic Socialist Republic of Sri Lanka except for those arising from the wilful misconduct or gross negligence of the Japanese experts.

VII. TERM OF COOPERATION

The technical cooperation for the Program mentioned in this Attached Document will be implemented before the end of March 1993 (within the Japanese fiscal year 1992).





ANNEX I TENTATIVE SCHEDULE OF IMPLEMENTATION

CALENDER YEAR	1991	1992												1993						
MONTH	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
DISPATCH OF THE SURVEY TEAM	—																			
PROVISION OF THE EQUIPMENT	*****																			

Note:

1. A few Japanese experts on repair and maintenance of the Equipment will be dispatched if necessity arises.
2. The dispatch of the Japanese expert and the provision of the Equipment are subject to the recruitment of the expert and the budgetary condition of JICA.




ANNEX II JAPANESE EXPERTS

If necessity arises, a few Japanese experts will be dispatched to render such technical guidance as follows.

1. Short-term experts in the field of:

Repair and maintenance of the equipment provided by the Government of Japan

2. Scope of technical guidance:

Repair and maintenance

To train the Sri Lankan counterpart personnel and transfer necessary technology for the operation, maintenance, check-up and repair of the Equipment provided by the Government of Japan.

ANNEX III PROVISION OF THE EQUIPMENT

The Equipment to be provided by the Government of Japan through JICA is shown in the Equipment List attached hereto.

The Equipment will be provided within the budgetary limitation of JICA according to the priority indicated in the Equipment List, and will be subject to the procurement condition in Japan.

THE EQUIPMENT LIST

A. SPARE PARTS AND ATTACHMENTS

Priority	Equipments provided by the Japanese Side	Spare Parts, Attachments or Remarks
1	Center Lathe	Grinding Attachments, Some Bits
2	Shaping Machine	Cable, Cutting Tools
3	Upright Drilling Machine	Working Lamps, Drill Bits
4	Slotting Machine	Cutting Tools
5	High Speed Cut-Off Machine	Cutting Disks
6	Universal Tool & Cutter Grinder	Cutting Tools
7	Engine Welder	Oil Filters, Fuel Filters
8	Argon Arc Welder	Welding Torch, Cutting Torch, Electronic Circuit (if necessary)
9	Spot Welder	Holding Disks
10	Shearing Machine	Shearing Cutters
11	Press Brake	Punches, Die
12	Plate Bending Roller	Oil Cup, Grease Cup
13	Pipe Bender	Bending Tools
14	Edge Folding Machine	Blades
15	Band Sawing Machine	Blades
16	Automatic Planing Machine	Necessity of Replacement
17	Multi-purpose Machine	Necessity of Replacement
18	Disc Grinder	Necessity of Replacement
19	Hammer Drill	Necessity of Replacement
20	Orbital Sander	Rubber Pad, Belt
21	Photocopy Machine	Necessity of Replacement

22	Drawing Machine	Light Stands
23	Calculator	Necessity of Replacement
24	Slide Projector	Lamps
25	OHP	Glass and Lamps
26	Interphone	Necessity of Replacement
27	Hardness Tester	Lens
28	Two Wheel Tractor	Necessity of Replacement
29	Grass Cutter (Portable)	Necessity of Replacement
30	Air Compressor	Engine Service Kits
31	Engine Generator	Input Voltage Regulator
32	Kerosene Engine	Repair Kits, Starter Rope

B. NEW EQUIPMENTS

Priority	Name of Equipments
33	Air Conditioner for Test Lab.
34	Testing Equipments 34 -1. Weld Defect Testing Equipments 34 -2. Rockwell Hardness Tester 34 -3. Metal Structure Analyser 34 -4. Depth Gauge 34 -5. Go/No Go Gauge 34 -6. Slip Gauge
35	Video System -VHS (Camera, Record Player and Monitor)
36	Video Tapes for Technical Extension
37	Surface Grinder
38	Welding Transformer for Workshop
39	Metal Band Saw

Form A 4.  
(1962 Revision)

THE COLOMBO PLAN  
COUNCIL FOR TECHNICAL CO-OPERATION IN SOUTH AND SOUTH-EAST ASIA  
Equipment for Training or Research Institutes and for Equipment accompanying Experts

APPLICATION

By the Government of DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

from JAPAN  
(Country)

Notes.— (a) This Form has been devised for the general guidance of co-operating countries in order to facilitate the supply of relevant information and data necessary to afford an adequate appreciation of the nature of the technical co-operation required. The careful completion of this application form will avoid much reference back and lead to speedier action. Separate forms A4 should be used for requests for equipment for each individual institute or project.  
(b) The requisite number of copies of the Form A4, including a copy for the Colombo Plan Bureau, duly endorsed by the appropriate Foreign Aid Department of the requesting government should be forwarded to the donor government concerned through the appropriate channels.

1. Background Information

Please describe as concisely as possible the general outlines of the project for which the equipment is required, indicating whether the latter is (a) for use by an expert in the performance of his duties (b) for a training scheme or institution or (c) for a research institution. If either (b) or (c) please say whether the equipment is for the establishment of a new institution or the expansion or re-organisation of an existing one (e.g., by the provision of a new department, &c.). The name and exact location of the institution, its approximate cost and the authority responsible for it should be stated. Where appropriate details should be given of the availability of any services required for the operation of the equipment. This would include operation by electricity (i.e. type of current, periodicity, voltage and any variations, phases, frequency etc. and if DC is the only current available please give full details), water reticulation or steam gas, etc. Details of similar equipment already in use should be given.

The machinery and equipment listed in Annexures 1 and 2 are required to be used for operation and maintenance of plant and machinery at the Appropriate Technology Research and Development Centre at Pannala, Sri Lanka. This institution undertakes Research work in the field of Appropriate Technology and it develops light machinery and equipment for the small and medium scale industries. In addition to the above activities, this Institute provides skilled training for employees attached to the local industries and to Technical College leavers. These equipment, machinery and spares are required to expand the activities of the Centre. At present, this Centre is attached to the Ministry of Tourism & Rural Industrial Development. The approximate cost to the above project is about US\$ 942500. The Centre has electrical power supply of 440 volts 50 Hz. A/C and a single phase power supply of 220 volts 50 Hz.

2. Description of equipment required. Please give a full description of each item and general specifications where possible. The manufacturer and estimated cost of each item if known together with details of the proposed end use of item should be given. Where applicable, give details of any special packing or tropic proofing required and indicate whether hand-books or instruction data supplied in English will suffice. If appropriate, please indicate any required priorities or phasing of deliveries and advise whether adequate facilities exist for maintenance and servicing of the type of equipment requested. (If lengthy, detailed lists should be annexed. It would be convenient to have separate annexures for (a) films; (b) books and (c) other equipment.)

The description of machinery, equipment and spare parts required is indicated in the annexure 01 as per the recommendation made by the Aftercare Survey Team of JICA.

( Also, please refer to the additional list of spare parts for the vehicle provided under the project and a new dual purpose vehicle ( diesel engine driven) to be used for industrial extension work. Facilities for maintenance and servicing are available ).

3. Has this equipment request already been directed to any other Agency or Colombo Plan country and if so to whom was it addressed and with what result?

No

4. Has the list of equipment already been discussed with representatives of the supplying country/ies? If so, please indicate what stage the discussions have reached

An agreeent was signed by the Chairman of the Industrial Development Board and the Leader of the After care Programme to supply the items mentioned in the Annexure 01. However, the team leader agreed in principle to recommend to the Govt. of Japan to donate the items listed in Annexure 02.

5. Furnish full particulars in respect of—

- (a) Consignee;
- (b) Official to receive documents and enquiries; and
- (c) Clearing agent at port of entry.

(  
The Chairman,  
Industrial Development Board of Ceylon,  
615, Galle Road, Katubedda, Moratuwa, Sri Lanka.  
do


6. Where equipment is required for use by an expert Please indicate—

- (a) The country or agency from which the expert has been requested or obtained
- (b) His duties and length of secondment (a reference to the relative Form A. 1 will suffice when the expert is being provided by the country to whom the equipment request is addressed)

Not applicable

Not applicable

<p>(c) What use is proposed for the equipment when the expert's period of secondment terminates?</p>	
<p>(d) By what date is the equipment required?</p>	
<p><b>7. Where equipment is required for Training or Research Institutions</b></p>	
<p>Please indicate---</p>	
<p>(a) Nature and standard of training or research to be undertaken.</p>	<p>Research work is undertaken in the field of Appropriate Technology and Development. Machinery is also carried out accordingly. Skilled training is provided at this Centre in the field of Metal Fabrication. The trainees are recruited from the Industries as well as from Technical College leavers.</p>
<p>(b) Total number of students to be accommodated from within the country or from elsewhere in the Region, the qualifications for admission, the duration of courses, and the annual output of trainees.</p>	<p>Total Number of about 100 students are trained per annum. The duration of training courses vary from 06 months to 01 year</p>
<p>(c) Whether there is already a similar institute(s) in existence in the country. If so, please give details.</p>	<p>There is no any other similar Institute to carry out Research and Development in the field of Appropriate Technology and Small Scale Machinery development. However, there are other Institut which conduct training courses for trade apprentices, namely</p>
<p>(d) Whether buildings are already available. If not has construction started and when is it expected to be completed?</p>	<p>National Apprenticeship and Industrial Training Authority, Labour Dept. German Technical Training Institute. Yes</p>
<p>(e) Whether qualified staff to handle the equipment has been recruited or is proposed to be recruited locally.</p>	<p>Yes, staff is available at the Institute</p>
<p>If not is it proposed ---</p>	
<p>(i) to recruit foreigners under aid-programmes?</p>	
<p>(ii) to train locally recruited personnel abroad in handling equipment? (the reference numbers of any Forms A.1 or A.2 relating to such requests should be quoted)</p>	
<p>(f) Taking into account the answers to (d) and (e) above, what is the date by which the equipment is required and the date on which training or research work is to commence.</p>	<p>During year 1992</p>
<p>(g) Whether any assistance in drawing up the Scheme has been obtained from outside experts? [Any specialist reports or Government surveys--(e.g., Educational Committee Reports, &amp;c.), bearing on the request should be provided if possible]</p>	<p>No - Assistance obtained only from JICA Mission which visited Sri Lanka from 29th July - 5th August 1991</p>
<p><b>8. Correspondence</b></p>	
<p>Name, Postal and Telegraphic Address of official to whom correspondence regarding this application is to be forwarded.</p>	<p>Chairman, Industrial Development Board, 615, Calle Road, Katubedda, Moratuwa, Sri Lanka.</p>

Signed:  CHAIRMAN  
INDUSTRIAL DEVELOPMENT BOARD

on behalf of the Government of.....Sri Lanka.....

Date: ..... 6 AUG 1991.....

For use only by Donor Government

Application accepted/rejected/withdrawn

on behalf of the Department of.....

Date: .....

## THE EQUIPMENT LIST

## A. SPARE PARTS AND ATTACHMENTS

Priority	Equipments provided by the Japanese Side	Spare Parts, Attachments or Remarks
1	Center Lathe	Grinding Attachments, Some Bits
2	Shaping Machine	Cable, Cutting Tools
3	Upright Drilling Machine	Working Lamps, Drill Bits
4	Slotting Machine	Cutting Tools
5	High Speed Cut-Off Machine	Cutting Disks
6	Universal Tool & Cutter Grinder	Cutting Tools
7	Engine Welder	Oil Filters, Fuel Filters
8	Argon Arc Welder	Welding Torch, Cutting Torch, Electronic Circuit (if necessary)
9	Spot Welder	Holding Disks
10	Shearing Machine	Shearing Cutters
11	Press Brake	Punches, Die
12	Plate Bending Roller	Oil Cup, Grease Cup
13	Pipe Bender	Bending Tools
14	Edge Folding Machine	Blades
15	Band Sawing Machine	Blades
16	Automatic Planing Machine	Necessity of Replacement
17	Multi-purpose Machine	Necessity of Replacement
18	Disc Grinder	Necessity of Replacement
19	Hammer Drill	Necessity of Replacement
20	Orbital Sander	Rubber Pad, Belt
21	Photocopy Machine	Necessity of Replacement

22	Drawing Machine	Light Stands
23	Calculator	Necessity of Replacement
24	Slide Projector	Lamps
25	OHP	Glass and Lamps
26	Interphone	Necessity of Replacement
27	Hardness Tester	Lens
28	Two Wheel Tractor	Necessity of Replacement
29	Grass Cutter (Portable)	Necessity of Replacement
30	Air Compressor	Engine Service Kits
31	Engine Generator	Input Voltage Regulator
32	Kerosene Engine	Repair Kits, Starter Rope

B. NEW EQUIPMENTS

Priority	Name of Equipments
33	Air Conditioner for Test Lab.
34	Testing Equipments 34 -1. Weld Defect Testing Equipments 34 -2. Rockwell Hardness Tester 34 -3. Metal Structure Analyser 34 -4. Depth Gauge 34 -5. Go/No Go Gauge 34 -6. Slip Gauge
35	Video System -VHS (Camera, Record Player and Monitor)
36	Video Tapes for Technical Extension
37	Surface Grinder
38	Welding Transformer for Workshop
39	Metal Band Saw



BPARE PARTS REQUIREMENT FOR NISSAN PATROL JEEP SER. NO. 31 SRI 9785

DONATED TO APPROPRIATE TECHNOLOGY RESEARCH AND DEVELOPMENT CENTRE

PANNALA BY J I C A

01. SPECIFICATION:

MODEL - NISSAN PATROL  
ENGINE - SD 33 - 135392  
CHASIS NO - VRG 160 - 693566  
CAPACITY - 3246CC  
YEAR OF  
MANUFACTURE - 1982

02. SPARE PARTS REQUIREMENT

	01.	ENGINE OVERHAUL KIT	-	01 NO.
01	02.	CYLINDER LINER (Standard Size)	-	06 Nos.
	03.	Cylinder Pistons(Standard Size)	-	06 Nos.
	04.	Piston Rings (Standard Size)	-	06 Sets
	05.	Fuel pump	-	01 No.
	06.	Fuel Injector Nozzles	-	06 Nos.
	07.	Clutch Plate	-	01 No.
	08.	Pressure Plate	-	01 No.
	09.	Clutch Bearing	-	01 No.
	10.	Hub Oil Seal 40227 - C 6000	-	01 No.
	11.	Brake Shoe Kit 41060 - T 6026	-	01 No.
	12.	Brake Shoe Kit 44060- T 0425	-	01 No.
	13.	Flasher Unit 25520 - T 3400	-	01 No.
	14.	Brake Master Cylinder Complete	-	01 No.
	15.	Clutch Master Cylinder Complete	-	01 No.
	16.	Brake Wheel Cylinder repair kit rear	-	01 NO.
	17.	Brake Wheel Cylinder repair kit front	-	01 NO.
	18.	Front Shock Absorbers	-	02 Nos.
	19.	Rear Shock Absorbers	-	02 Nos.
	20.	Front Suspension repair kit (ball joint)	-	01 Set
	21.	Tie rod ends	-	01 Set

../2.

22.	Flywheel ring gear	-	01 No.
23.	Universal joint	-	01 Set
24.	Alternater (Complete)	-	01 No.
25.	Rear Signal Light left	-	01 No.
26.	Rear Signal light right	-	01 No.
27.	Wheel cup kit D 1100-C 6027	-	01 No.
28.	Wheel Cup kit D 4100 C 6025	-	01 No.
29.	Bulb	26717 - C 7100	- 04 Nos.
30.	Bulb	26722 - C 9900	- 04 Nos.
31.	Starter Motor	-	01 NO.

LIST OF EMPLOYEES ATTACHED TO A.T.R.D.C., PANNALA.

	Name	Designation	Grade
01	Mr. A.G. Sumanaratne	Resident Director	III
02	Mr. W.W.V. Wewala	Mechanical Engineer	IV
03	Mr. S.K. Dabey	Asst. Engineer Mechanical	V
04	Mr. D.D. Kumarasinghe	Asst. Director - Extension	IV
05	Mr. M.M. Abeywansa	Technical Assistant	I
06	Mr. H.M.K Herath	Technical Assistant	I
07	Miss. A.G. Renuka Kumari	Draughtsman	III
08	Mr. P.G. Gnanadasa	Asst. Store-keeper	III
09	Mr. J.R.N. Karunaratne	Clerk	II
10	Mr. D. Atapattu	Cost Clerk	II
11	Mr. T.M.N. Chandrasiri	Clerk	III
12	Mr. W.A.K. Jayatilake	Stenographer (English)	III
13	Miss. A.M. Nendanie Goonawardene	Stenographer (Sinhala)	IV
14	Mr. D. Nandasena	Driver	IV
15	Mr. R.A.A. Ranasinghe	Machinist	II
16	Mr. A.P.S. Chandrasiri	Machinist	III
17	Mr. A.M.A.P. Perera	Fitter	III
18	Mr. H.C.W. Nimal Siri	Fitter	III
19	Mr. K.P. Chandragutha	Fitter	III
20	Mr. G.W. Even Noil	Blacksmith (Semi-skilled)	II
21	Mr. H.A. Gamini Wasantha	Welder (Semi-skilled)	II
22	Mr. L.W.D.J. Wimalawera	Carpenter (Skilled)	III
23	Mr. A.M. Ariyadasa	Electrician	II
24	Mr. U.K. Sarathchandra	Store-man	-
25	Mr. J.A. Keerthisena	Unskilled Labourer	-
26	Mr. J.L.S.C. Jayasinghe	Unskilled Labourer	-

## CHECK-LIST OF THE EQUIPMENTS PROVIDED BY THE JAPANESE SIDE

No.	NAME	SPECIFICATION	OPERATION (*1)	MAINTENANCE (*2)	PROBLEMS IF ANY e.g. necessity of repair, necessity of spare parts
MACHINE SHOP MACHINES					
1	Center Lathe	Wasino:LR-55A	A	A	
2	do	Wasino:LE-19K	A	A	
3	do	HMT (India):LTM 20/100G	A	B	Necessity of repair.
4	do	HMT (India):LTM 20/150G	A	C	Gear wheels need replacement
5	Horizontal Milling (2 Nos.)	Hitachi Seiki: 2MF-P	B	A	
6	Vertical Milling Machine	Takeda TK-V53-A V53	B	A	
7	Universal Milling Machine	Hitachi Seiki: 2MF-U	E	A	
8	Shaping Machine	Hokuetsu: NF-AK	A	B	Necessity of repair, and operation and maintenance manuals, and catalogues (English).
9	Upright Drilling Machine	Kiwa: KUD-550FP	A	A	
10	Slotting Machine	Nakabo: SL200	A	A	
11	Bench Drill	Hitachi: B-13	A	A	
12	High Speed Cut-off Machine	Hitachi: H-16B	A	A	Necessity of operation and maintenance manuals, and catalogues (English)

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(operating now)  
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No.	NAME	SPECIFICATION	OPERATION (*1)	MAINTENANCE (*2)	PROBLEMS IF ANY e.g. necessity of repair, necessity of spare parts
13	Hydraulic Sawing Machine	Murahashi: Kilser-200	A	A	
TOOL GRINDERS					
14	Bench Grinder	Hitachi: GR26	B	A	Necessity of operation and maintenance manuals and catalogues (English).
15	do	Star Industries (Sri Lanka): 10"	A	C	Motor needs replacement and necessity of operation and maintenance manuals and catalogues (English).
16	do	Star Industries (Sri Lanka): 10"	A	A	
17	do	Star Industries (Sri Lanka): 15"	A	A	
18	Drill Grinder	Fujita: DG36A	B	A	Necessity of operation and maintenance manuals and catalogues (English)
19	Universal Tool & Cutter Grinder	Hitachi Seiki:	B	A	
20	Tungsten-Carbide Tool Grinder	Waida: DW-31S	A	A	
WELDING EQUIPMENT					
21	AC Arc Welder	OTC: KRA-300	A	A	
22	do	Wijeya Bros. (Sri Lanka) :300A	A	A	
23	Engine Welder	Denyo: DCD 270S	B	A	

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24	Argon Arc Welder	National TIG-cut 300	B	B	Cutting not possible.
25	Spot Welder (air operated)	Daiden: SL-AJ-400	B	B	Current regulated disk needs replacement.
26	Spot Welder (foot operated)	Daiden: SU-10	B	B	Necessity of repair.
27	Gas Welding Tools		A	A	
28	Welding Rod Dryer	Matsumoto: HSN-50	A	A	
SHEET METAL AND PIPE WORKING MACHINES					
29	Shearing Machine	Yamashita: NSS 606-S	A	B	Necessity of repair, and operation and maintenance manuals and catalogues (English).
30	Press Brake	Yanzshitz: TY-1220	B	B	Necessity of operation and maintenance manuals and catalogues (English)
31	Plate Bending Roller	(Hydraulic/Electric) Kawai: 2000 × 6.4	A	A	Necessity of opera tion and maintenance manuals and cata logues (English)
32	Flange Roll	Osaka Kanebo: FW-2	A	A	Necessity of opera tion and maintenance manuals and cata logues (English)
33	Notching and Punching Machine	Takejia: S-505N	A	A	
34	Pipe Bender	Taiyo: TB-D1	B	B	Necessity of repair ***
35	Pipe Threading & Cutting Machine	Rex: 80 A80-ADX	B	A	

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No.	NAME	SPECIFICATION	OPERATION (#1)	MAINTENANCE (#2)	PROBLEMS IF ANY e.g. necessity of repair, necessity of spare parts
	(Manual)				
36	Foot Shearing Machine	Osaka Kaneko: WFS 130	B	A	**
37		do : RBM(125)	A	A	**
38	Bending Roller	do : 1250×63	B	A	**
39	Edge Folding Machine	do : 500×0.5mm	B	B	** Plate needs replacement.
40	Beading Roll	do : 180mm	B	B	** Necessity of minor repair
41	Hand Former	do : MSH-MST	A	A	**
42	do	do : MST	A	A	**
BLACKSMITHY EQUIPMENT					
43	Belt Hammer	Fukuda: No.4	A	A	**
44	Muffle Furnace	Wild Barfield (UK) MI 355	B	A	
WOOD WORKING MACHINE					
45	Band Sawing Machine	Iida: BS-650	A	C	** Blade needs replacement

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No.	NAME	SPECIFICATION	OPERATION (#1)	MAINTENANCE (#2)	PROBLEMS IF ANY e.g. necessity of repair, necessity of spare parts
46	Circular Sawing Machine	Tokiwa: SB-400	A	A	**
47	Planing Machine	Tokiwa: FM-250	A	A	**
48	Automatic Planing Machine	Star Industries (Sri Lanka): 12"	A	B	Necessity of repair.
49	Multi-Purpose Machine	Star Industries	B	C	Necessity of major repair
50	Hollow Chisel-Mortiser	Tokiwa: HM-30 (A)	A	A	**
PORTABLE MACHINES					
51	Electric Drill	Hitachi Koki: D-10C	A	A	
52	do	do : DM-13A	A	A	
53	do	do : PU-PM3	A	A	
54	do	do : DWB-30			Not available.
55	Disc Grinder	do : PDA-10GB	A	C	Cannot be repaired; needs replacement.
56	do	do : PDH-130C	A	A	
57	Hand Shear	do : CE-29	B	A	

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No.	NAME	SPECIFICATION	OPERATION (#1)	MAINTENANCE (#2)	PROBLEMS IF ANY e.g. necessity of repair, necessity of spare parts
58	Electric Hand Plainer	Hitachi Koki: P-35Y	A	B	Necessity of minor repair
59	do	do : P40	B	A	
60	do	do : F-20A	A	A	
61	Router	do : TR-12	B	A	
62	Hammer Drill	do : DH 38 YC	B	C	** Necessity of major repair
63	Orbital Sander	do : SV 12Y 1	A	B	** Necessity of spare parts and repair
64	JIG Saw	do : CJ 65V	B	A	**
65	Circular Saw with Brake	do : C 7 BA	B	A	**
MEASURING INSTRUMENTS					
66	Anemometer	Nakaasa: AC-11	B	A	**
67	do	3 Cup Type	B	A	**
68	do	do	B	A	**
69	DC Power Counter	Koshin: IWH-IM6H	B	A	**

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No.	NAME	SPECIFICATION	OPERATION (#1)	MAINTENANCE (#2)	PROBLEMS IF ANY, e.g. necessity of repair, necessity of spare parts
70	Micro Recorder	Hioki: 8201-11	B	A	**
71	do	do : 8202-11	B	A	**
72	Tacho-Hi Testerr	do : 8402	B	A	**
73	Wood Moisture Meter	Kett: MT-8A	B	A	**
74	Radiation Pyrometer	Minolta: IR-630	B	A	**
75	Desital Thermo El- ectric Thermometer	Tsuruga: TDT-949	B	A	**
76	Vernier Calipers Micrometers etc.		A	A	
OFFICE & COMMUNICATION EQUIPMENT					
77	Photocopy Machine	Ricoh: DT-5200	A	C	** Necessity of spares and repair
78	do	Cannon: NP-155	A	B	Necessity of minor repair
79	Type Writer (Portable, Manual)	Brother: JP 7-413	A	A	**
80	do (Electric)	Cannon: AP-150	A	A	**
81	Drawing Machine Sets (2 Nos.)	Uchida	A	B	** Necessity of spare parts and repair

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82	Calculator	Casio: FX-702-P	A	B	**
83	Microfiche Reader		B	A	**
84	Video Set	Sony: SL-2000, SVC-2500, KX-20P52, etc.	B	B	** Needs service
85	Slide Projector & Screen	Cabin: AF-250, TB-180	B	B	** Needs service
86	OHP & Screen	Gakken: EPJ-729W	B	C	** Needs spares
87	Interphone	Aiphone	A	C	** Necessity of repair and a voltage regulator
88	Wireless Micro- phone & Amplifier	National: WX-480AS WX-801CS	B	A	**
89	Electric Megaphone	National: WD-370	B	A	**
MODEL AT EQUIPMENT					
90	Two Wheel Tractor	Yanmar: YZP 2N	B	B	** Needs service
91	do	do : YTA 600 S-R	B	B	** Needs service
92	Plough	Matsuyama: MR 44 N	B	C	Worn-out; not in use
93	do	Takakita: 292	B	C	Worn-out; not in use

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94	Seeder	Sukigara	C	A	
95	Weeder	Yanmar-Wado	B	C	Necessity of repair
96	Mower (Portable)	Hitachi Koki: CG 26 ER	A	C	** Necessity of repair and spare parts (carbulator)
97	Animal Ploughs	2 Models	C	A	
98	Hoes, Sickles etc.		B	C	Not in use
99	Wind Generator	Hinomaru Pro	B	C	Not in use
100	Fuel Gas Producer (Charcoal Model)	Kyusyu Univ.:S-2	B	C	Not in use
101	Fuel Gas Producer (Hybrid Model)	Kyusyu Univ.:S-9	B	C	Not in use
MISCELLANEOUS EQUIPMENT					
102	Air Compressor	Meiji: H-5	A	B	Needs minor repair
103	Engine Generator (10KVA)	Denyo: DCA-70S	B	C	Necessity of repair
104	Engine Generator (600VA)	Honda: EGK 600 :300A	B	A	**
105	Kerosene Engine	Robin: EY 150K			Not available

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106	Kerosene Engine (3 Nos.)	Robin: FY 20 DK	B	B	** Necessity of repair
107	Centrifugal Pump	Jināsena: T203	B	B	Necessity of repair
108	do	do : 200JF	B	B	Necessity of repair
109	do (2 Nos.)	do : 200SF	B	B	Necessity of repair
110	Generator	Robin: R6K-121-C	B	A	**
111	Hand Pallet Truck (2 Nos.)	Hanshin: 150kg	A	B	
112	Hand Truck	do : 300kg	A	A	
113	do	do : 500kg	A	A	
114	Hand Operated Winch	do : G4-10	B	A	
115	Chain Block	do : 1 ton	B	A	
116	do	do : 2 ton	B	A	
117	Four-wheel-drive Vehicle	Nissan: Patrol VR6 1600 GSUC			
118	Truck	Isuzu: TLD 544 A	A	B	**

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