

REPORT
OF
THE MINE SAFETY EQUIPMENT
COMMITTEE



MINISTRY OF LABOUR AND EMPLOYMENT
GOVERNMENT OF INDIA
FEBRUARY 1961

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CONTENTS

Summary of Observations and Recommendations	1—12
I. INTRODUCTORY	PARAGRAPHS
	1—4
Background	1
Appointment of Committee	2
Terms of Reference	3
Work of the Committee	4
II. GENERAL CONSIDERATIONS	5—11
'Capital Equipment' and 'Consumable Material'	7
Spares	8
Assessment made by Coal Council	9—10
Approximate Price and Life of Safety Equipment	11
III. REQUIREMENTS OF COAL MINES	12—16
Explanatory Notes	13
Assumptions	14—15
Total Annual Requirements	16
IV. REQUIREMENTS OF METALLIFEROUS MINES	17—19
Assumptions	18
Requirements	19
V. INDIGENOUS MANUFACTURE	20—36
'Permitted' Explosives etc.	22
Flame-proof Equipment	23
Winding Equipment	24
Chains	24·2
Annealing Facilities	24·3
Telephones etc.	25
Haulage Equipment	26
Wire Ropes	27
Mine Support	28
Pumps etc.	29
Lighting Equipment	30
Ventilating Equipment	31
Fire-resistant Brattice Cloth etc.	31·2
Equipment for Dust Control, Fire-fighting and Rescue etc. ..	32
Protective Equipment	33
Medical Equipment	34
Survey Equipment	35
VI. THE PROBLEM OF SPARES	37—40
Most spares to be imported	39
Indigenous Manufacture of Spares	40
MIL&E—1	

	PARAGRAPHS
VII. IMPORT OF MINE SAFETY EQUIPMENT	41—53
Procedure for importing equipment	43—45
Delay in issue of Import Licences	46
Import of equipment manufactured indigenously	47
Certifying Authority for Mine Safety Equipment	48
Other difficulties	49—50
Spare Parts	51
Import Trade Policy	52-53
VIII. MINE SAFETY EQUIPMENT ADVISORY BOARD	54—56
IX. MISCELLANEOUS	57

No.	Appendices	PAGES
A.	List of Safety Equipment and Material (Coal Mines) ..	32
B.	List of Safety Equipment and Material (Metalliferous Mines)	34
C.	Sub-Committee (of the Production and Preparation Committee of the Coal Council of India) on the Requirements for mining Machinery and Equipment during the Third Five Year Plan—Composition and terms of reference	36
D.	Assessment made by Coal Council Sub-committee in respect of requirements of underground mining machinery and equipment for a standard unit of one million ton annual production	37
E.	Assessment made by Coal Council Sub-committee in respect of requirements of opencast mining machinery and equipment for a standard unit of 2.5 to 3 million tons annual production.	42
F.	Approximate prices and life of some Safety Equipment and Material	43
G.	Requirements of Mine Safety Equipment and material for a unit of one million ton annual Coal output (underground workings)	45
H.	Requirements of Mine Safety Equipment and material for a unit of one million ton annual coal output (opencast workings)	48
I.	Estimated annual requirements of Coal Mines for Safety Equipment and Material (1961 & 1965)	49
J.	Copy of letter dated 17th January 1961 from Director (Mineral) of the Planning Commission	54
K.	Requirements of Mine Safety Equipment and Material for a unit producing one million ton of Mineral ore annually from opencast workings	55
L.	Estimated annual requirements of Metalliferous Mines for Safety Equipment and Material (1961 & 1965).. .. .	56
M.	Total Estimated Annual Requirements for Mine Safety Equipment and Material (1961 to 1965)	59

(iii)

	PAGES
N-A. List of Items still imported for the manufacture of Electric Safety Lamps	63
N-B. Estimated Production of Spares for Electric Safety Lamps	65
N-C. Quantity of spare parts actually manufactured Annually since start of Plan	66
O-A. Summary of some requirements for fire-proofed Brattice Cloth	68
O-B. A Note on Fire-proofing Jute	70
P. Fire-fighting equipment under manufacture in India—Names of indigenous manufactures.. .. .	71
Q. Extract from Government of India, Ministry of Commerce and Industry Import Trade Control Policy for the Licensing period April-September 1960 (Established Importers)	75
R. Extract from Government of India, Ministry of Commerce and Industry Import Trade Control Policy for Licensing period April-September 1960 (Actual Users)	78

SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

Assessment of Requirements

1. It is extremely difficult to assess the requirements of mines still to be opened, for mine safety equipment, to any degree of accuracy. All that is possible is to make 'an inspired guess'.

(Paragraph 5)

2. The Committee has confined itself only to such equipment and material as are required for ensuring safety in mines. For purpose of assessment, the various items have been broadly classified into items which are consumed from day to day (*i.e.* Consumable Material) and those which are provided at only infrequent intervals (*i.e.* Capital Equipment).

(Paragraphs 6 and 7)

3. After making certain assumptions with regard to projected outputs of mineral ores and to the requirements of standard units of mines, the total requirements for safety equipment and material are worked out at Appendix I (Coal Mines), Appendix L (Metalliferous Mines) and Appendix M (All Mines).

(Sections IV and V)

Indigenous Manufacture

4. The existing programmes for indigenous manufacture should be scrutinised, and suitably revised and expanded, so as to ensure that the country becomes self-sufficient as regards its requirements of safety machinery and equipment of a basic industry like mining. The only exceptions are those items whose manufacture is highly specialised or whose demand is not sufficient for economic production within the country.

(Paragraphs 20 and 36)

The Problem of Spares

5. Easy availability of spares of the right specifications forms an important aspect of the whole problem. 'Spares' are vital not only to increased production but also to the maintenance of existing production levels. This is particularly so, in respect of safety material and equipment—which has often to be of approved design and standard.

(Paragraphs 8, 37 and 38)

(vi)

2. As most of the machinery already in use in Indian mines is of foreign manufacture and most of the spares and parts are of proprietary design, these parts would have necessarily to be imported.

(Paragraph 39)

7. Indigenous manufacture of spares can only be undertaken under licence of the original makers and only in case of standardise equipment and in case of parts whose requirements are fairly high. In any programme of indigenous manufacture of safety equipment, however, adequate capacity for manufacturing spare parts should be provided right from the beginning.

(Paragraph 40)

Problems of Import

8. In order to ensure that safety of persons employed in the most hazardous of peace-time industries is not jeopardised due to non-availability of safety equipment and material, it is vital that the mining industry's requirements for import of safety equipment and of spare parts are met in *full* and in *time*.

(Paragraphs 42 and 52)

9. Imports of safety equipment and material should be allowed without undue delay, even in case of material manufactured indigenously, if

(a) the standard of indigenous manufacture has not been established to the satisfaction of safety authorities; or

(b) the delivery date is too long or has been unduly postponed; or

(c) the range of indigenous manufacture does not cover the actual requirements.

(Paragraph 47)

10. The Certifying Authority (for recommending Import applications) for Mine Safety Equipment should be the office of the Chief Inspector of Mines.

(Paragraph 48)

11. Most of the requirements for spares should be permitted to be imported through Established Importers, so that spare parts are readily available on open sale.

(Paragraphs 51 and 52)

12. A Standing Mine Safety Equipment Advisory Board should be set up to constantly review, and to advise on, the availability of mine safety equipment.

(Paragraphs 55 and 56)

APPENDIX A

LIST OF SAFETY EQUIPMENT AND MATERIAL (COAL MINES)

	<i>Items of Capital Equipment</i>	<i>Items of consumable material</i>
1. Explosives	Approved Exploders	Permitted and Eqs. Explosives.
2. FLP equipment etc.	Motors Switchgear. Transformers. Armoured Cables. Telephonic and Signalling equipment.	Shot-firing Cables. Trailing Cables. Signalling Cables.
3. Winding	Safety Hooks. Distribution plates. Chains, D-Links. Automatic Contri- vances. Continuous Speed Re- corders. Depth Recorders. Keys.	
4. Haulage	Inter-coupled run- away switches & stop blocks.	Fire-resistant Con- veyor belting.
5. Wire Ropes etc. ..	Rope Cappels	Guide Rope. Winding Rope. Haulage Rope. Flexible Rope.
6. Mine Support ..	Prop Withdrawers	Timber. Steel for Mine Support.
7. Pump & Watering ..	Pumps Pipes.	Alkathene Pipes.
8. Lighting etc. ..	Fixed lamps. Electric Cap Lamps. Flame Safety Lamps.	
9. Ventilation	Mine Fans. Continuous-recording Water Gauges. Continuous Speed Re- corders. Anemometers & Hy- grometers etc. Gas Analysing Appa- ratus.	Fire-resistant Brattice- Cloth. Air Ducting. Gas-Indicator tubes (Calorimetric).

- | | | |
|---|---|---|
| 10. Dust Control, Fire-fighting & Rescue etc. | Self-contained Breathing Apparatus.
Resuscitating Apparatus.
High Pressure Pumps.
Gas masks.
Fire-Extinguishers.
Fire Pumps (Trolley-mounted)
Ball Mills. | Water Hose Pipes
Incombustible dust. |
| 11. Protective Equipment | Safety Belts & Accessories. | Hard Hats.
Miners' Boots. |
| 12. Medical Equipment .. | Ambulance Vans | First Aid Kits. |
| 13. Surveying equipment | Theodolites.
Miners' Dials.
Dumpy Levels.
Accessories. | |

APPENDIX B
LIST OF SAFETY EQUIPMENT AND MATERIAL
(METALLIFEROUS MINES)

	<i>Item of Capital Equipment</i>	<i>Item of consumable material</i>
1. Communications ..	Telephonic & Signaling Equipment.	—
2. Winding Equipment ..	Safety Hooks. Distribution plates. Chains, D-Links. Automatic Contrivances. Continuous Speed Recorders. Depth Recorders. Keys.	—
3. Haulage Equipment	Inter-coupled run-away switches & stop-blocks.	Fire-resistant Conveyor belting.
4. Wire Ropes etc. ..	Rope Cappels.	Guide Rope. Winding Rope. Haulage Rope. Flexible Rope.
5. Mine Support ..	Prop Withdrawers.	Timber. Steel for Mine Support.
6. Pumps	Pumps. Pipes.	—
7. Lighting etc. ..	Fixed Lamps. Portable lamps. (Carbide, electric cap etc.)	—
8. Ventilation	Mine Fans. Continuous-recording Water Gauges. Continuous Speed Recorders. Anemometers & Hygrometers etc. Gas Analysing Apparatus. Self-contained Breathing Apparatus.	Fire-resistant Brattice Cloth Air Ducting. Gas-indicator tubes (Calorimetric)
9. Fire-fighting & Rescue etc.	Fire Extinguishers. Fire Pumps (trolley-mounted).	

10. Protective Equipment	Dust Masks; Respirators.	Safety Belts and Accessories. Hard Hats. Miners' Boots. Eye-shields, Gloves, Leg-guards etc. First Aid Kits.
11. Medical	Ambulance Vans.	
12. Surveying Equipment	Theodolites. Miners' Dials. Dumpy levels. Accessories.	—

APPENDIX C

SUB-COMMITTEE (OF THE PRODUCTION AND PREPARATION COMMITTEE OF THE COAL COUNCIL OF INDIA) ON THE REQUIREMENTS FOR MINING MACHINERY AND EQUIPMENT DURING THE THIRD FIVE YEAR PLAN

Composition

Chairman

1. Shri B. K. Ghosh Deputy Coal Controller (Production)

Members

2. Shri S. S. Grewal Chief Inspector of Mines.
3. Shri B. R. Tooley Chief of Planning Section, National Coal Development Corporation.
4. Shri H. R. Dewan Director, Indian Bureau of Mines.
5. Shri K. J. Welsh } Representing Indian Mining Association.
6. Shri S. C. Ghosh }
7. Shri S. N. Mullick Representing Indian Mining Federation.
8. Shri B. C. Shah Representing Indian Colliery Owners' Association.

Secretary

9. Shri S. S. Garga Secretary to the Coal Controller.

Terms of Reference

- (1) To draw up a complete list of mining machinery and equipment, and to indicate the items which should be fabricated and manufactured in the country;
- (2) To examine the existing manufacturing capacity in the country of each of the items of machinery & equipment and to estimate additional annual production capacity required for each item taking into account.—
- (a) a tentative target of production of 100 million tons in the Third Five Year Plan period;
- (b) the number of new and fully mechanised mines that may be opened; and
- (c) the possibility of an increased degree of mechanisation in the existing mines.

APPENDIX D

**ASSESSMENT MADE BY COAL COUNCIL SUB-COMMITTEE IN
RESPECT OF REQUIREMENTS OF UNDERGROUND MINING
MACHINERY AND EQUIPMENT FOR A STANDARD UNIT
OF ONE MILLION IN TON ANNUAL PRODUCTION**

(Comprising four Collieries)

<i>Item</i>	<i>Number</i>	<i>Explanatory notes</i>
1. Coal Cutters		
(a) Coal-Cutters FLP	30	Allowance has been made for
(b) Gate End Boxes	45	spare coal cutters and gate-end boxes to allow for break-downs and overhauls.
2. Loaders	12	The fact that expansion in the public as well as the private sector will demand this item has been taken into account. Adjustments can be made between these sectors for actual requirements.
3. Conveyors		
(a) Chain Conveyors	60	The demand for this will not be great in the private sector.
(b) Belt Conveyors	22	Allowance has been made for the expected increase in the demand from the private sector and for the new collieries, and also for replacement and mechanisation of old collieries. Belt Conveyors will be required by various other industries also.
4. Locomotives	4	This low figure has been estimated taking into account the use of endless haulages in lieu.
5. Haulages and Clips		
(a) Endless Haulages	8	Allowance has been made for replacement and also for the requirements of new mines.
(b) Direct Haulages	12	Assumption has been made that coal seams would be of normal gradients and that ordinary 40 cft. coal tubs would be used.
(c) Rope clips	16	

<i>Item</i>	<i>Number</i>	<i>Explanatory notes</i>
6. Electric Winders, cages winding pulleys and head gear structures.		
(a) Electric Winders ..	8	The size of the winding engine will depend on the depth of shaft and amount of coal to be wound.
(b) Headgears	8	Assessment made in conformity with the requirements of winding engines.
(c) Pulleys	20	
(d) Cages	20	
7. Main mine ventilating fans with motors.	5	During the next 3 or 4 years, fans will be required in increasing numbers. The motors to be used with the mine fans should be of synchronous type for power factor improvement.
8. Booster fans	12	
9. Pumps		
(a) Main pumps (Large capacity)	12	
(b) Dip pumps	16	
(c) Face pumps	32	
10. Crushers (for stone dust)	8	Crushers will be required for various uses in addition to crushing material for stowing e.g., crushing coal to size. The old mines may also require some crushers.
11. Ball Mills	10	Assumption has been made that stone dusting will be introduced more and more in mines in the near future.
12. Sand pumps with separators and slushers.	16	A large number of sand pumps is likely to be required during the Third Five Year Plan as extraction of coking coal in the Jharia field will increase and the sand supply schemes of Coal Board will be implemented. (100 set of internal replacement parts should be provided for every 1 m. tons of coal).
13. Suspension Gear		
(a) Safety hooks ..	22	
(b) Suspension chain sets	25	Use of manganese steel for cage suspension gear is recommended.

<i>Item</i>	<i>Number</i>	<i>Explanatory notes</i>
(c) Rope cappels ..	25	
(d) Bell Boxes	20	
14. Cage keps (Sets)	8	
15. Steel props and pit prop withdrawers.		
(a) Steel props	50	
(b) Pit Prop Withdrawers ..	80	
16. Drills, Drill bits, etc.		
(a) Coal Drills (Electric)	45	
(b) Coal drill bits ..	2,000	
(c) Drill Rods	100	
17. Air Compressors & Rock drills.		
(a) Air Compressors ..	8	Will be required for new shafts, quarrying and workshops etc., and also for coal mining where pneumatic picks are used.
(b) Compressed air drills (complete with rods & 2 bits per drill).	80	
18. Equipment for preventing over winding and over speeding.	12	
19. Switchgear F.L.P.		
(a) H.T. switches FLP (oil-immersed).	33	
(b) L.T. Switches ELP (oil-immersed).	45	
(c) Air break switches FLP.	60	
20. Transformers, motors		
(a) H.T. Power Transformers.	4	
(b) Mining type Transformers.	8	
(c) Industrial type Transformers.	8	
(d) Drilling transformers FLP.	48	
(e) Lighting transformers FLP.	20	
(f) Motors	200	75% (or 150) FLP
21. Screens	5	
22. Vibrators	4	

<i>Item</i>	<i>Number</i>	<i>Explanatory notes</i>
23. Ropes		
	Feet	
(a) Non-spin winding ropes (1", 1-1/8", and 1-1/4").	14,000	
(b) Guide ropes ..	35,000	
(c) Haulage ropes (1/2" to 1").	160,000	
(d) Flexible ropes ..	200,000	
24. Safety Lamps		
(a) Electric Cap Lamps	5,000	
(b) Oil Lamps	800	
25. Cables		
(a) PILC DWA Cables ..	60,000	
(b) Trailing Cables for coal-cutting machines.	14,000	
(c) Trailing cables for drills.	34,000	
26. Rails and Joists	—	Indigenous capacity exists.
27. Mines Cars, tipplers tub wheels and axles.		
(a) Mine Cars (with tapered roller bearings).	4,000	
(b) Coal tubs	1,000	
(c) Tub wheels	2,000	
28. Pipes Fittings		
	Feet	
M.S. Pipes 8"	2,000	
7"	2,200	
6"	8,000	
5"	7,000	
4"	30,000	
3"	30,000	
2"	20,000	
1"	20,000	
3/4"	30,000	
1/2"	30,000	
29. Methanometers, Anemometers, Automatic recorders, other meters and ganges.		
(a) Methanometers ..	12	
(b) Water Gauges (Automatic recording).	12	
30. Workshop Equipment		Assessed separately—list not attached here.
31. Underground lighting units for faces.	600	

<i>Item</i>	<i>Number</i>	<i>Explanatory notes</i>
32. Mine Safety Equipment		
(a) Self-contained Breathing Apparatus.	100	
(b) Resuscitating Apparatus.	20	
(c) High Pressure gas pumps.	5	
(d) Hard hats	4,000	
(e) Fire-fighting equipment.	50	
(f) Hose pipe	6,000 ft.	
(g) Gas masks	10	
(h) Gas analysis apparatus	2	
33. Underground Bells and Telephones.		
(Signalling equipments).		
(a) Telephone cables ..	4,000 ft.	
(b) Signalling Bells (Intrinsically safe)..	100	
(c) Telephones (Intrinsically safe).	100	
(d) Shaft signalling equipments.	10 sets	
34. Survey Instruments		
(a) Miners' dials	8	
(b) Theodolites	8	
(c) Dumpy levels	5	
35. Shot-firing apparatus (approved type).		
(a) Single-shot	20	
(b) Multi-shot	20	
36. Spare parts	15 % on tonnage basis.	
37. Weight-bridges	4	

APPENDIX E

ASSESSMENT MADE BY COAL COUNCIL SUB-COMMITTEE IN RESPECT OF REQUIREMENTS OF OPEN CAST MINING MACHINERY AND EQUIPMENT FOR A STANDARD UNIT OF 2.5 TO 3 MILLION TONS ANNUAL PRODUCTION.

<i>Item</i>	<i>Numbers</i>
1. 25 cyd. Dragline	1
2. 15 cyd. Dragline	1
3. 6/8 cyd. Shovel	5
4. 4 cyd. Shovel	3
5. Dumper Shovel	60
6. Dumpers	21
7. Crawler tractor dozers	15
8. Wheel type dozers	6
9. Rotary blast hole drills	9
10. Rotary coal drills	6
11. Motor graders	3
12. Road rollers	3
13. 40 ton bottom dumpers	28
14. Towing units for item 13 above	12
15. 30/40 ton cranes	3
16. 5 ton wrecker cranes	3
17. Pneumatic jack-hammers and picks	30
18. Scrapers with towing units	6
19. Low-bed trailers	3
20. 250/300 cft. compressors (portable)	6
21. Jeeps	9
22. Pick-ups	6
23. 5 ton Trucks	12
24. Pumps (1000 ghm capacity, with 200 ft. and 400 ft. heads)	12
25. Flexible non-spin galvanised rope (1" to 1 1/2" diam.)	4,00,000 ft.
26. Spares for the II and III Plan machinery including shovel and dragline teeth.	25% by weight.

APPENDIX F
APPROXIMATE PRICE AND LIFE OF SOME ITEMS OF
SAFETY EQUIPMENT AND MATERIAL.

<i>Explosives etc.</i>	<i>Approximate price</i>	<i>Approximate life</i>
High explosives ..	Rs. 1.60 to Rs. 1.75 per lb.	
Detonators ..	Rs. 450 to Rs. 475 per 1,000.	
Exploders ..	Rs. 250 for single shot Rs. 725 for six-shot A 6-shot exploder battery costs about Rs. 100 when brought out by sea.	
Cables		
Armoured cable ..	Rs. 6 per ft. (for 0.04" size).	7 years
Trailing cable (coal-cutting machine).	Rs. 15-16 per ft.	2 years
Trailing cable (drills)	Rs. 5 per ft.	2 years
Shotfiring cable ..		5-7 years
Communications		
Telephones ..	Rs. 600 per telephone	3 years
Bells ..	Rs. 200 each. A bell transformer costs about Rs. 400.	
Winding Equipment		
Suspension gear ..	About Rs. 3,000 per cage	10 years (Statutory)
Automatic Contrivance	Rs. 80,000.	
Conveyors		
PVC belting ..	About Rs. 26 per ft. (for 26" wide belt).	18 months
Belt joints ..	About Rs. 54 per box	
Ropes		
Guide Rope ..	From Rs. 2.36 per ft. (for 1" size) to Rs. 3.04 per ft. (for 1½" size).	5 years
Winding Rope ..	From Rs. 3.03 per ft. (for 1" size) to Rs. 4.35 per ft. (for 1½" size)	3½ years (Statutory).
Haulage Rope ..	From Rs. 0.91 per ft. (for 5/8" size) to Rs. 1.08 per ft. (for ¾" size) to Rs. 1.59 per ft. (for 7/8" size).	

<i>Explosives etc.</i>	<i>Approximate price</i>	<i>Approximate life</i>
Flexible Rope ..	From Rs. 0.70 per ft. (for $\frac{1}{2}$ " size) Rs. 1.11 per ft. (for $\frac{5}{8}$ " size) to Rs. 1.44 per ft. (for $\frac{3}{4}$ " size).	
Safety Lamps		
Elec. Cap Lamp ..	Rs. 155—160 each	Head piece : 5 years Cables and Batteries— 18 months Bulbs: 3 months
Flame Safety Lamp ..	Rs. 70—75 each	
Flame Safety Lamp gauges. ..		1 year
Flame Safety Lamp glasses—		2 years (on the average).
Ventilation Equipment		
Flexible air duct ..	Rs. 8 per ft.	
Brattice cloth ..	Rs. 105 per 100 yds.	
Anemometer ..	Rs. 700 each	
Whirling hygrometer ..	Rs. 200 each	
Dust and Fire-fighting Equipment		
Incombustible dust ..	Rs. 80—100 per ton	
Fire Extinguisher ..	Rs. 400 each	
Alkathene pipe ..	Rs. 2.17 per metre ($\frac{3}{4}$ " size).	2 years*
Protective Equipment		
Safety Belt		5 years in underground mines, 2 years in opencast mines.
Hard Hat	Rs. 12—15 each	5 years
Miners' Boot	Rs. 18—25 each	1 year
Medical		
Ambulance Vans ..	—	10 years
Station First Aid Kit ..	—	4 years
Officials' FA Kit ..	Rs. 30—36	2 years

APPENDIX G
**REQUIREMENTS OF MINE SAFETY EQUIPMENT & MATERIAL FOR A UNIT OF ONE
MILLION TON ANNUAL COAL OUTPUT (UNDERGROUND WORKINGS)**

	Capital equipment		Consumable Material	
1. <i>Permitted Explosives etc.</i>	Exploders : Single-shot	20	Permitted explosives	50 tons
	Multi-shot	20	Eqc. explosives	60 tons
Substitutes			Electric Detonators (all types)	0.5 million
			Shotfiring cable	50,000 metres
2. <i>FLP Equipment</i>	FLP Motors (of different h.p.)	150	Multi-shot Exploder batteries	60
	Gate-end boxes	40	Cables: Armoured	45,000 ft.
			Trailing (for c.c. machines)	10,000 ft.
			Trailing (for drills)	30,000 ft.
			Telephone	4,000 ft.
	Switchgear: H.T.Oil-immersed	33		
	L.T.Oil-immersed	45		
	Air break	60		
	Transformers : Mining type			
	(Power)	8		
	Drill type	40		
	Lighting	20		
	FLP Lighting fittings	00		
	Telephones (Intrinsically safe)	60		
	Shaft signalling equipment	8		
Signal bells (Intrinsically safe) with transformer	50			
Cable vulcanisers	4			

		Capital equipment	Consumable Material	
3. <i>Winding Equipment</i>	..	Safety Hooks	10	
		Distribution plates	} sets (for two cages each)	
		D-Links etc.		
		Chains (about 1" diam.)	1,000 ft.	
		Keps	10	
		Automatic Contrivances	10	
	Depth Recorders	10		
	Continuous Speed Recorders (including for fans).	15		
4. <i>Haulage equipment</i>	..	Haulage clips	32	Fire-resistant Conveyor belting 50,000 ft.
		Inter-coupled runaway Switches and stop blocks,	12	
5. <i>Wire Ropes etc.</i>	..	Winding Rope Cappels	20	Guide Ropes 35,000 ft.
		Haulage Rope Cappels	20	Winding Ropes 14,000 ft.
				Haulage Ropes 160,000 ft.
				Flexible Ropes 200,000 ft.
6. <i>Mine Support</i>	..	Prop Withdrawers	40	7,500 tons 50 tons
7. <i>Pumps & Watering</i>	..	Pumps: Main	12	Alkathene Pipes 20,000 ft.
		Dip	16	
		Face	32	
		Pipes: 5"-8"	20,000 ft.	
		2"-4"	70,000 ft.	
	1/2"-1"	60,000 ft.		
8. <i>Lighting</i>	..	For FLP light fittings	See item 2	Cap Lamp Batteries 3,000
		Electric Cap lamps	5,000	Cap Lamp Bulbs 20,000
		Oil Safety lamps	800	Safety Lamp gauzes 800 Safety Lamp glasses 400

9. <i>Ventilation</i>	Main Fans	5	Fire-retarding Brattice Cloth	10,000 yds.	
	Booster Fans	5	Flexible air ducting	5,000 yds.	
	Face Fans	25	Gas-indicator tubes	Emergency equip- ment require- ment cannot be estimated.	
	Continuous Recording Water Gauges	12			
	Methanometers	12			
	Gas analysis apparatus	5			
	Anemometers	12			
	Hygrometers	12			
	10. <i>Dust Control, Fire-fighting and Rescue Equipment</i>	Ball Mills	4	Incombustible dust	2,000 tons
		Fire extinguishers (of different types).	100	Fire-Hose	6,000 ft.
Self-contained fire pumps		5			
Breathing apparatus		12			
Resuscitating apparatus		5			
High-Pressure Gas pumps		1			
11. <i>Protective equipment</i>		Safety Belts & Accessories	15	Hard Hats	5,000
			Miners' Boots	5,000	
			Station First Aid Kits	100	
12. <i>Medical</i>	Ambulance Vans		Officials' First Aid Kits	250	
13. <i>Surveying</i>	Theodolites	5	Plus other surveying and plotting equipment		
	Miners' Dials	10			
	Dumpy Levels	5			

APPENDIX H

REQUIREMENTS OF MINE SAFETY EQUIPMENT AND MATERIAL FOR UNIT OF ONE MILLION TON ANNUAL COAL OUTPUT (OPENCAST WORKINGS)

	Capital equipment		Consumable Material
1.	<i>Wire Ropes etc.</i>		Haulage Ropes .. 20,000 ft. Flexible Ropes .. 20,000 ft.
2.	<i>Fire-fighting etc.</i>	25	Hose Pipe .. 1,000 ft.
	Fire extinguishers	2	
	Fire Pumps etc.		
3.	<i>Protective Equipment</i> ..		Safety Belts .. 50 Manilla ropes .. 5,000 ft. Hard Hats .. 500 Miners' Boots .. 500
4.	<i>Medical</i>	1	Station First Aid Kits .. 20 Officials' First Aid Kits .. 150
	Ambulance Van		
5.	<i>Surveying</i>	1	
	Theodolites	4	
	Dials	2	
	Dumpy Levels		

APPENDIX I

ESTIMATED ANNUAL REQUIREMENTS OF COAL MINES FOR SAFETY EQUIPMENT AND MATERIAL (1961 and 1965)

	1961			1965			Remarks
	For new mines opened during the year	For old mines	Total	For new mines opened during the year	For old mines	Total	
1	2	3	4	5	6	7	8
1. Permitted Explosives etc. (in respect of gassy mines only):							
Permitted explosives (tons)	—	—	900	—	—	1,700*	
Sq. S. explosives (tons)	—	—	1,080	—	—	2,040*	
Elec. Detonators (millions)	—	—	90	—	—	170	
Shotfiring Cable (million metres) ..	—	—	9	—	—	17	
Approved Exploders :							
Single-shot	—	—	80	—	—	80	
Multi-shot	—	—	80	—	—	80	
Multi-shot Exploder batteries			1,080			2,040@	

*In addition, about 3,500 tons (in 1961, rising to 4,300 tons in 1966) of non-permitted high explosives would be required for non-gassy mines (excluding the requirements of open-cast mines) plus detonators and shot-firing cable for the same.

@ The actual demand may be smaller, due to the expected use of continental type (battery-less) multi-shot exploders.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2. FLP Equipment (for gassy mines only, except where otherwise stated)								
FLP motors		—	—	600	—	—	600	
Gate end boxes		—	—	160	—	—	160	
Switchgear :								
H.T. Oil immersed		—	—	132	—	—	132	
L.T. Oil immersed		—	—	180	—	—	180	
Air break type		—	—	240	—	—	240	
Transformers :								
Mining type		—	—	32	—	—	32	
Drill type		—	—	160	—	—	160	
Lighting		—	—	80	—	—	180	
FLP light fittings		—	—	1,600	—	—	1,600	
Telephones (Intrinsically safe; as well as ordinary mining type for use in non-gassy mines)	360	240	600	360	1,440	1,800		
Shaft Signalling equipment (Sets)	48	20	68	48	68	116		Assuming 5 yr. life.
Signalling Bells (Intrinsically safe, as well as ordinary mining type for use in non-gassy mines)	300	120	420	300	420	720		Assuming 5 yr. life.
Cable (in 1000 ft.: (for all underground mines)								
Armoured	270	260	530	270	390	660		
Trailing (C.C. Machines)	60	200	260	60	580	640		
Trailing (drills)	180	600	780	180	1,740	1,920		
Telephone	24	24	48	24	36	60		
Cable vulcanisers			24			24		
3. Winding equipment :								
Winding Rope Cappels	120	90*	210	120	120	240		*At present there are about 560

Safety Hooks	120	90	210	120	120	240	shafts deeper than 45 metres in coal mines.
Distribution Plates	120	90	210	120	120	240	
Chains (1,000 ft.)	6	4.5	10.5	6	6	12	**At present there are 100 shafts deeper than 150 metres. Many of these are still to be fitted with automatic contrivances.
Keys (sets)	60	45	105	60	60	120	
Automatic Contrivances	60	45**	105	60	60	120	
Depth Recorders	60	45	105	60	60	120	
Continuous Speed Recorders	90	70	160	90	90	180	
(including for fans)							
4. Haulage equipment :							
Haulage rope cappels	170	180	350	170	270	440	} Made locally.
Haulage clips	216	216	532	216	532	748	
Intercoupled Run-away Switches & Stop blocks	—	—	90	—	—	90	
Fire-resistant Conveyor belting (1000 ft.)	200	75@	325	200	300	500	Assuming that only 2/3 of the additional underground output would be conveyed.
5. Wire Ropes :							
Guide Rope (1000 ft.)	210	210	420	210	420	630	
Winding Rope (1000 ft)	84	126	210	84	252	336	
Haulage Rope (million ft.)	0.97	6.88	7.85	0.97	11.20	12.17	
Flexible Rope (million ft.)	1.2	2.2	3.4	1.2	7.0	8.2	
5A. Manila Rope (1000 ft.)	15	25	40	15	100	115	

@ About 60,000 ft. of belt conveyors are in use at present.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
6. Mine Supports :							
Prop Withdrawers	240	—	240	240	—	240	
Timber (1000 tons)	—	—	345	—	—	500	
Steel Supports (tons)	—	—	50	—	—	500	
7. Pumps etc.							
Main Pumps	72	28	100	72	42	116	
Dip Pumps	96	48	144	96	96	192	
Face Pumps	192	96	288	192	192	384	
Pipes 5"—8" (1000 ft.)	120	60	180	120	120	240	
2"—4" (1000 ft.)	420	210	630	420	420	840	
½"—1" (1000 ft.)	360	180	540	360	360	720	
Alkathene Pipes (1000 ft.)	120	400	520	120	600	720	
8. Lighting :							
Elec. Cap Lamps (1000's)	30	50*	80	30	80	110	*Including 30,000
Cap Lamp batteries (1000's)	—	—	70	—	—	250.	every year
Cap Lamp bulbs (1000's)	—	—	480	—	—	1,700	for supply to
Lamp Gauzes (1000's)	—	—	30	—	—	50	existing non-
Lamp Glasses (1000's)	—	—	15	—	—	25	gassy mines.
Oil Safety Lamp (1000's)	4·8	—	4·8	4·8	—	4·8	
9. Ventilation :							
Main Fans	—	—	30	—	—	30	
Booster Fans	—	—	30	—	—	30	
Face Fans	—	—	150	—	—	150	
Flexible air ducting (1000 yds.)	30	60	90	30	180	210	
Fire-resistant Brattice cloth (1000 yds.)	60	260	320	60	480	540	

<i>Continuous recording</i>									
Water gauges	..	..	..	—	—	72	—	—	72
Methanometers	..	..	..	72	28	100	72	100	172
Gas Analysis Apparatus	..	..	..	—	—	30	—	—	30
Anemometers	..	..	..	—	—	72	—	—	72
Hygrometers	..	..	..	—	—	72	—	—	72
Gas-indicator tubes (Emergency equipment requirements cannot be estimated)									
10. Dust Control, Fire-fighting and Rescue equipment :									
Fire Extinguishers	..	..	..	—	—	750	—	—	750
Fire Pumps	..	..	..	—	—	35	—	—	35
Hose Pipes (1000 ft.)	..	..	..	36	36	72	36	72	108
Self-contained breathing Apparatus									
Resuscitating Apparatus	..	..	..	—	—	72	—	—	72
High Pressure Pumps	..	..	..	—	—	30	—	—	30
Incombustible dust (1000 tons)	..	..	..	—	—	6	—	—	6
						36	—	—	84
11. Protective Equipment :									
Safety Belts etc.	..	..	..	240	360	600	240	1,160	1,400
Hard Hats (1000's)	..	..	..	32	48**	80	32	80	112
Miners' Boots (1000's)	..	..	..	32	200	232	32	350	382
**including 30,000 every year for supply to existing mines.									
12. Medical									
Ambulance Vans	..	..	..	10	5	15	10	8	18
Station FA Kits	..	..	..	700	990	1,690	700	1,700	2,400
Officials' FA Kits (1000's)	..	..	..	3.6	9.9	13.5	3.6	17.0	20.6
Assuming 10 year life.									
Assuming 4 year life.									
Assuming 2 year life.									
13. Surveying :									
Theodolites	..	..	..	33	17	50	33	17	50
Miners' Dials	..	..	..	66	34	100	66	34	100
Dumpy Levels	..	..	..	33	17	50	33	17	50

APPENDIX-J

COPY OF LETTER NO. I & M-25(1)/61, DATED 17th JANUARY 1961 FROM DIRECTOR (MINERAL), PLANNING COMMISSION

I am directed to refer to your letter No. 1060-62, dated the 9th January 1961 asking for information on the estimated production during 1960 and the target for 1965 in respect of every mineral including coal and petroleum and to say as follows :

Except in the case of coal, lignite and iron ore, targets have not been worked out in respect of other minerals. In regard to petroleum products, on the basis of the discussions in the Working Group on Fuel, an estimate has been made of the demand for the major petroleum products which could be met by 1965-66. In addition the Plan envisages the establishment of a copper smelting plant in the public sector for the production of 10,000 tons of electrolytic copper. The assessment of the mineral raw material requirements for the programme of industrial development envisaged in the Third Plan could not be taken up so far. This work is expected to be done before the plan is finalised, and the information furnished to you as soon it is ready. At the moment therefore we are in a position to furnish only the following information.

	Estimated production in 1960	Target for 1965-66
Coal	50 to 51 mil. tons	97 mil. tons.
Iron Ore	About 11 mil. tons	32 mil. tons
Crude petroleum	About 0.4 mil. tons	3 mil. tons.
Lignite	0.4 mil. tons	5.5 mil. tons
Manganese Ore	About 1.8 mil. tons	—
Ilmenite	0.3 mil. tons	—
Limestone	1.2 mil. tons	—
Copper Ore	0.5 mil. tons	—

APPENDIX K

REQUIREMENTS OF MINE SAFETY EQUIPMENT AND MATERIAL FOR A UNIT PRODUCING 1 MILLION TONS OF MINERAL ORE ANNUALLY FROM OPENCAST WORKINGS

(Based on assumption that the large units would be very highly mechanised while the smaller units would be worked manually)

	Capital	Equipment		Consumable	Material
1. Wire Ropes etc.	—			Haulage Rope	20,000 ft.
				Flexible Rope	20,000 ft.
2. Fire-fighting etc.		Fire extinguisher	25		
		Fire Pumps etc.	2		
3. Protective Equipment	—			Safety Belts	50
				Manila Rope	5,000 ft.
				Hard Hats	500
				Miners' Boots	500
4. Medical		Ambulance Vans	1	Station First Aid Kits	20
				Officials' First Aid Kits	150
5. Surveying		Theodolites	1		
		Dials	4		
		Dumpy Levels	2		

APPENDIX L
ESTIMATED ANNUAL REQUIREMENTS OF METALLIFEROUS MINES FOR SAFETY EQUIPMENT AND MATERIAL

(1961 and 1965)

(Items 1, 2, 5, 6, 7 and 8 are mainly for underground mines)

	1961			1965			Remarks
	For new mines opened during the year	For old mines	Total	For new mines opened during the year	For old mines	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Communications :							
Telephones (Mining type) ..	30	30	60	30	70	100	
Shaft signalling equipment (sets) ..	4	4	8	4	6	10	
Telephone Cables (1000 ft.) ..	2	2	4	2	2	4	
2. Winding Equipment :							
Winding Rope Cappels ..	5	30*	35	5	40	45	
Safety Hooks ..	5	30	35	5	40	45	
Distribution Plates ..	5	30	35	5	40	45	
Chains (1000 ft.) ..	0.5	3.0	3.5	0.5	4.0	4.5	
Keys (sets) ..	3	12	15	3	17	30	
Automatic Contrivances ..	3	3**	6	3	5	8	
Depth Recorders ..	3	3	6	3	5	8	
Continuous Speed Recorders ..	3	3	6	3	5	8	
3. Haulage Equipment :							
Haulage Rope Cappels ..	75	50	125	75	75	150	
Haulage Clips ..	80	60	140	80	80	160	
Intercoupled Runaway Switches and Stop blocks ..	50	—	50	50	—	50	

<i>Wire Ropes etc. :</i>								
@ Guide Ropes (1000 ft.)	..	..	17	23	50	17	33	60
Winding Ropes (1000 ft.)	..	..	7	43	50	7	53	60
Haulage Rope (1000 ft.)	..	..	240	480	720	240	960	1,200
Flexible Rope (1000 ft.)	..	..	200	400	600	200	800	1,000
4A. Manilla Rope (1000 ft.)	..	..	40	40	80	40	80	120
5. <i>Mine Support :</i>								
Prop Withdrawers	..	..	20	—	20	20	—	20
Timber (1000 tons)	..	..	—	—	50	—	—	60
Steel Supports (tons)	..	..	25	75	100	25	125	150
6. <i>Pumps etc. :</i>								
Main Pumps	..	..	6	6	12	6	9	15
Dip Pumps	..	..	8	8	16	8	12	20
Face Pumps	..	..	12	12	24	12	18	30
Pipes 5"—8" (1000 ft.)	..	..	10	5	15	10	15	25
2"—4" (1000 ft.)	..	..	35	15	50	35	20	55
1/2"—1" (1000 ft.)	..	..	30	15	45	30	20	50
Alkathene Pipes (1000 ft.)	..	..	5	2	7	5	3	8
7. <i>Lighting :</i>								
Carbide Cap Lamps (1000's)	..	..	2	3*	5	2	8*	10
8. <i>Ventilation :</i>								
Main Fans	..	..	3	7*	10	3	7	10
Face Fans	..	..	12	18	30	12	18	30
Flexible Air Duct (1000 yd.)	..	..	3	17	20	3	27	30
Water gauges	..	..	6	14	20	6	14	20
Gas analysing apparatus	..	..	2	2	4	2	2	4
Anemometer	..	..	6	6	12	6	6	12
Hygrometer	..	..	6	6	12	6	6	12

* At present there are 180 vertical shafts (deeper than 45 metres), fitted with winding engines in the metalliferous mines.

** At present there are 35 shafts deeper than 150 metres.

@ Mostly rigid guides are used.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
9. Fire fighting and Rescue etc. :								
Fire extinguishers		—	—	250	—	—	250	
Fire Pumps		—	—	20	—	—	20	
Hose Pipes (1000 ft.)		10	10	20	10	15	25	
10. Protective equipment :								
Safety Belts etc.		400	1,600	2,000	400	2,400	2,800	*Includes provision for supply to miners in existing mines.
Hard Hats (1000's)		6	9*	15	6	14*	20	
Miners' Boots (1000's)		6	9*	15	6	14*	20	
11. Medical :								
Ambulance Vans		—	—	9	—	—	9	
Station FA Kits		200	800	1,000	200	1,000	1,200	
Officials' FA Kits (1000's)		1.5	4.5	6.0	1.5	7.5	9.0	
12. Surveying :								
Theodolites		10	5	15	10	5	15	
Dials		40	20	60	40	20	60	
Dumpy Levels.. .. .		20	10	30	20	10	30	

APPENDIX-M

TOTAL ESTIMATED ANNUAL REQUIREMENTS FOR MINE SAFETY EQUIPMENT AND MATERIAL (1961 to 1965)

(All figures have been rounded off)

	In 1961	rising to	In 1965	Remarks
1. Permitted Explosives etc. (for gassy mines only)				
Permitted Explosives (tons) ..	900	—	@ 1,700	
EqS Explosives (tons) ..	1,100	—	@ 2,050	
Electric (copper)	90	—	170	
Detonators (Millions)				
Shot-firing Cable (m. metres)	9	—	17	
Approved Exploders				
Single shot ..	80	—	80	
Multi shot ..	80	—	80	
Exploder battereis	1,100	—	2,050	
2. FLP Equipment (for gassy mines only, except where otherwise indicated)				
FLP motors ..	600	—	600	
Gate-end boxes	160	—	160	
Switchgear : H. T.				
Oil immersed ..	140	—	140	
L.T.Oil immersed	180	—	180	
Air Bred type ..	240	—	240	
Transformers: Mining type ..	50	—	50	Suitably adjusted for non-gassy mines.
Drill type ..	250	—	250	
Lighting ..	125	—	125	
FLP light fittings	2,500	—	2,500	Do
Telephones ..	650	—	1,900	Do.
Shaft signalling equipment ..	75	—	115	Do.
Signalling bells ..	425	—	725	
Cables (1000 ft.)				
Armoured ..	530	—	660	Do.

@ An estimate of additional requirements of other mines is given below:

	tons	tons
High explosives for opencast mines ..	3,600	9,600
High explosive for underground mines ..	4,000	5,000

Plus necessary detonators and cables etc.

	In 1961	rising to	In 1965	
Trailing (c. c. machines)	260	—	640	
Trailing (drills)	800	—	1,900	
Telephone ..	50	—	65	Suitably adjusted for non-gassy mines.
Cable vulcanisers	25	—	25	Do.
3. Winding Equipment				
Wing Rope capps	250	—	300	
Safety Hooks ..	250	—	300	
Distribution Plates	250	—	300	
Chains (1000 ft.)	14	—	16.5	
Keps (sets) ..	120	—	150	
Automatic Contrivances ..	110	—	130	
Depth Recorders	110	—	130	
Continuous speed Recorders (including for fans)	166	—	190	
4. Haulage Equipment				
Haulage Rope Capps ..	475	—	600	
Haulage Clips ..	675	—	900	
Intercoupled Run-away Switches & Stopblocks ..	140	—	140	
Fire-resistant Conveyor belting (1000 ft.)	400	—	600	Suitably adjusted for open-cast mines.
5. Wire Ropes etc.				
Guide Rope (1000 ft.)	470	—	700	
Winding Rope (1000 ft.) ..	260	—	400	
Haulage Rope (mill. ft.) ..	8.5	—	13.25	
Flexible Rope (mill. ft.) ..	4.0	—	9.25	
5A. Manila Rope (1000 ft.) ..	80	—	235	
6. Mine Support				
Prop withdrawers	260	—	260	
Timber (1000 tons)	400	—	560	
Steel for Support (tons) ..	150	—	650	
7. Pumps etc.				
Main Pumps ..	110	—	115	
Dip Pumps ..	150	—	200	

	In 1961	rising to	In 1965
Fire pumps ..	300	—	400
Pipes 5'-8" (1000ft.)	200	—	265
2'-4" (1000 ft.) ..	680	—	900
½'-1" 1000 ft.)	500	—	800
Alkathene pipes (1000 ft.) ..	525	—	725
8. Lighting ..			
Elec. Cap Lamps (1000's) ..	85	—	120
Cap Lamp bat- teries (1000's) ..	70	—	275
Cap Lamp Bulbs (millions) ..	0.5	—	1.8
Oil Safety Lamps (1000's) ..	5	..	5
Safety Lamp Gauzes (1000's) ..	30	—	50
Safety Lamp Glass- es (1000's) ..	15	—	25
9. Ventilation			
Main Fans ..	40	..	40
Booster Fans	30	..	30
Face Fans ..	180	..	240
Flexible air-ducting (1000 ft.) ..	110	—	180
Fire-retarding brat- tice cloth (1000 yds.)	320	—	540
Continuous record- ing water gauges	95	—	95
Methanometers ..	100	—	172
Gas analysing ap- paratus ..	35	..	35
Anemometers ..	75	..	75
Hygrometers ..	75	..	75
Gas-indicator tubes	Emergency	equipment—	requirement cannot be estimated
10. Dust Control, Fire Fighting and Rescue Equipment			
Fire Extinguishers	950	..	950
Fire Pumps ..	50	..	50
Hose Pipe (1000 ft.)	95	—	120
Self contained breathing app.	75	..	75
Resuscitating appa- ratus ..	30	—	30
High Pressure Pumps ..	6	—	6
Incombustible Dust (1000 tons)	36	—	84

	In 1961	rising to	In 1965
11. Protective Equipment			
Safety Belts ..	2,600	—	4,200
Hard Hats (1000's)	95	—	125
Miners' Boots (1000's) ..	250	—	400
12. Medical			
Ambulance Vans	25	..	25
Station FA Kits (1000's) ..	2.6	—	3.5
Official's FA Kits (1000's) ..	20	—	30
13. Surveying			
Theodoliter ..	65	..	65
Miner's Dials ..	160	..	160
Dumpy Levels ..	80	..	80

APPENDIX N-A

LIST OF ITEMS STILL IMPORTED [BY OLDHAM & SONS (INDIA) PRIVATE LTD]

FOR THE MANUFACTURE OF ELECTRIC SAFETY LAMPS IN INDIA

Item	Qty. required for a set of 100 lamps	Remarks
<i>Section: 1</i>		
Miners' Cap lamp with battery: Headpiece Mouldings ..	100 'C'	Also correct grade moulding powder not available in India.
Lens + Rings	100 'C'	
Lock Barrels	100 'C'	
Lock Contracts	100 'C' & 'D'	
Switch Knobs	100 'A'	
Switch Blades with 3/16" Screws	100 'B'	
Switch Knob Washers ..	100 'A'	
Large Bulb Socket Assemblies	100 'A'	
Lock Barrel Wedges	100 'B'	
Headpiece glasses	100	Glass of a special armoured type. Not available in India. (B).
Large Bulb Switch Connections with conical spring & washer	100 'B'	
Large Bulbs 4 volts	100	These are bulbs filled with krypton gas and are of a type not manufactured in India. (B).
Reflectors	100	Efforts at indigenous manufacture are afoot but no successful sample has yet been manufactured as yet. 'A'.
Lock Springs	100	Indigenous potential suppliers have shown a disinterest in the manufacture in view of the small size and value of the item. 'B'.
Large Bulb Socket Screws	200 'A'	
Spring Washers	100 'B'	
Containers with filler plug and gaskets	100	Repeated attempts to have these manufactured in India have borne no fruit so far. Effort still continuing. 'A'
Battery Sealing Compound	2 lbs. 'B'	
Battery Terminal Compound	2 lbs. 'B'	
Separators (Compressed) ..	400 'B'	Balsa wood not available in India to our specification.
Vent Tubes	200 'C'	

Section: 2

Static Charger Parts

(1)	(2)	(3)
<i>Section: 3</i>		
<i>Charging Frame Parts</i>		
2BA Single Coil Washers	Spring	400 'B'
<i>Section : 4</i>		
<i>Tools and Testing Equipment</i>		
Keys for lens lock	2 'B' & 'D'
Keys for slotted screws	2 'C'
Photometer	1 'B'
Hydrometers	2 'B'
		Special beads required not available in India.
Special Key for cable glands	2 'B' & 'D'	
Torque Tester	1 'B'
Topping up syringes	1 'C'
Hand tool for applying metal gromets	1 'B'
'A'	Efforts being made to have the items manufactured indigenously but no successful sample has been produced so far.
'B'	Not available/manufactured in India. Have therefore to be imported by Actual Users.
'C'	Indigenous manufacture has been commenced but the progress has been very slow due to production difficulties and the actual production so insignificant that imports have still to be made in these items.
'D'	These have been earmarked for indigenous production in the near future.

APPENDIX N—B

ESTIMATED PRODUCTION OF SPARES FOR ELECTRIC SAFETY LAMPS [OF OLDHAM AND SON (INDIA) PRIVATE LIMITED]

<i>Item</i>	<i>Estimated Production for 1960-61</i>
Headpiece moulding	—
Lens Rings	—
Cable Outlet glands	1,500
Lock Pins	40,000
Large Bulb Socket Blocks	3,000
Headpiece gaskets Channel type	12,000
Switch Connections	6,000
Cap Hooks	3,000
Securing Screws	12,000
Cables complete	30,000
Terminal clamps with screws	60,000
Clips for fuse connections	12,000
Fuses	96,000
Clips for fuse and clamps	15,000
Cable glands	48,000
Cable locks	12,000
Compound cups	48,000
Belt loops	3,000
Lock Clamp & bush assemblies	9,000
Filler Plug gaskets	60,000
Screws for locking plates	30,000
Battery Insulators	48,000
Battery Covers partly assembled	6,000
Positive Groups	100,000
Negative Groups	100,000
Glass Separators	200,000
Cell Lids	100,000
Gasket Drains	100,000
Indicator lights with bulbs	600
Keys with nuts and washers	3,000
Clip Assemblies	1,500
Charge Indicator meters	3,000
Mining Accumulators	50,000

APPENDIX N-C

QTY. OF SPARE PARTS ACTUALLY MANUFACTURED ANNUALLY SINCE START OF PLAN
(BY OLDHAM AND SON (INDIA) PRIVATE LIMITED)

Item	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
Headpiece Moulding	—	—	—	—	—	527
Lens Rings	—	—	—	—	—	3,107
Cable Outlet Glands	125	18	264	491	785	750
Lock Pins	268	425	1,604	3,627	2,894	22,541
Large Bulb Socket Block	58	24	315	339	60	685
Headpiece Gaskets	—	—	—	—	—	—
Channel type	369	768	1,665	4,714	1,311	6,179
Switch Connections	149	12	235	711	824	3,249
Cap Hooks	20	39	85	90	342	864
Securing Screws	58	193	385	1,080	775	6,862
Cables complete	172	69	498	2,658	4,403	12,491
Terminal clamps with screws	544	986	1,618	6,853	10,566	29,234
Clips for fuse connections	144	36	1,339	1,268	1,233	6,443
Fuses	1,392	3,502	7,219	20,155	35,097	51,981
Clip for fuse and clamp	128	380	2,208	1,384	4,400	9,859
Cable Glands	323	307	2,502	6,498	9,862	24,244
Cable Locks	68	61	463	857	577	5,208
Compound Cups	118	122	1,019	2,563	3,363	19,118
Belt Loops	185	16	175	137	432	461
Lock Clamp & Bush assemblies	29	40	286	350	941	5,015
Filler Plug Gaskets	185	2,802	3,573	3,018	14,765	30,880
Screws for Locking Plate	124	204	1,290	5,125	3,260	16,432

Battery Insulators	236	946	2,959	3,771	11,372	27,568
Intercell Connections	610	2,100	2,554	5,318	11,776	50,248
Battery Covers partly assembled	32	3	87	261	154	4,088
Positive Groups	—	—	—	—	—	50,248
Negative Groups	610	2,100	2,554	5,318	11,776	50,248
Glass Separators	1,220	4,200	5,108	10,636	23,552	100,496
Plastic Trays	610	2,100	2,554	5,318	11,776	50,248
Cell Lids with Gasket Drains	610	2,100	2,554	5,318	11,776	50,248
<i>Static Charger Parts</i>						
Indicator Light Bulbs	42	12	70	—	11	178
<i>Charging Frame Parts</i>						
Keys with Nuts & Washers	4	22	246	196	1,391	1,932
Clip Assemblies	4	12	112	207	155	263
Charge Indicator Meters	30	67	74	229	697	984

APPENDIX O-A

SUMMARY OF SOME REQUIREMENTS FOR FIRE-PROOFED BRATTICE CLOTH

(A summary of requirements from the existing British and American specifications)

1.1. *Specification for cloths* : The weights of jute fabric constructions used vary but an average weight is of the order of 10 oz/lineal yard 40" wide.

1.2. *Specification for Brattice Cloth*: Plain weave, grey light 13 oz/sq. 11 porter double warp and 14 threads per inch, single weft. Width requirements are mainly 72", 48" and 36", most purchases being made in widths of 72".

2.1. *Fireproofing requirements*:

(a) According to most specifications, a fire-proofing treatment is satisfactory when it provides no after-flaming, less than 4 secs. after-glow, and char length of less than 4-5 inches by the vertical Bunsen burner test (A.S. T.M.D-626-55T).

(b) The amended U.S. Navy specification for heavy military fabrics called for as after-flaming of not more than 3 secs. an after-glow of not more than 180 secs. and char length of 4 inches maximum by vertical Bunsen Flame Test.

(c) Fire-resistance standard of the New Zealand Mines Dept.:

"A piece 3" x 3" when heated for one minute over a Bunsen burner having a flame 2" in height, the top of the burner being 2½" below the underside of the sample, shall not inflame and shall cease to smoulder beyond the already charred area, after the removal of the flame."

2.2. *Other requirements* :

(a) The fabrics are generally used in the natural state and the finish should maintain the natural colour of the fabric.

(b) A minimum effective add-on to avoid both excessive increase in weight of the fabric and imparting a poor hand to the fabric. Should not discolour the fabric. Non-toxic and no physiological action of the treatment of skin.

(c) Should penetrate (and not coat) the fabric uniformly and adhere firmly to the fabric.

(d) The breaking strength of the treated fabric before ageing shall not be less than that of untreated cloth. The breaking strength of the treated cloth after exposure in the accelerated weathering, shall not be less than 90% of untreated one.

(e) The treated fabric shall be approximately as flexible as the untreated one and shall show no apparent decrease in flexibility after exposure in the accelerated weathering test.

(f) The treated fabric shall not crease or crack when subjected to temperature from minus 20° F to minus 35° F for 6 hrs. and tested at that temperature by folding sharply upon itself.

(g) Laundered twelve times, loss in fire-resistance should be negligible. The fabric should also be unaffected by dry-cleaning.

(h) The finish shall be water-resistant when tested by spray test. As regards water-permeability, the leakage of water through the treated fabric shall not exceed 10 cc. and the leakage of water through the treated duck after subjection to accelerated weathering test should not exceed 250 cc.

(i) No appreciable decrease in porosity or permeability of the fabric as measured by both air and vapour transmission.

(j) Should not promote the growth of micro-organisms and the treated fabric shall be mildew-resistant.

(k) Should not be hygroscopic and have no deteriorating effect on materials with which it may be in contact during use.

(l) The finish should have a reasonable permanency under all usage conditions, ageing and storage.

APPENDIX O-B

A NOTE ON FIRE-PROOFING JUTE

(*British Jute Trade Research Association Patent*)

1. Recent research has shown that jute fabrics can be satisfactorily fire-proofed by a process substantially different from those now being proposed for the other fibres. According to B.P. 785,610 (British Jute Trade Research Association) effective fire-proofing is obtained by treating the jute material with an aqueous dispersion containing antimony ortho-phosphate and a chlorine-containing vinyl thermoplastic resin together with a suspending agent for maintaining the antimony ortho-phosphate uniformly dispersed. It is claimed that jute so treated is not only resistant to flaming but also to the after-glow which can be just as destructive as flaming. Also important is the fact that jute fabric so fire-proofed retains this characteristic after the fabric has been weathered outdoors for three months or more and after it has been immersed in sea water for a month or more.

2. A suitable treatment for securing this fire-proofed character consists of padding the jute fabric with the following aqueous dispersion:—

A chlorine-containing vinyl resin in the form of a 55% aqueous dispersion (the commercially available Geon 652 of British Geon Ltd. is suitable)	76%
Antimony ortho-phosphate (SbPO ₄)	12%
A 2% aqueous solution of sodium carboxymethyl-cellulose of medium viscosity (the suspending agent)	4%
Water	8%

Pressure in the padding mangle is arranged so that the fabric picks up 150% of liquor. The padded fabric is then dried—it is not necessary to cure fabric at a high temperature if the above designated type of vinyl resin is employed.

3. If the chlorine-containing vinyl resin is polyvinyl chloride, then the following padding liquor will be found suitable:—

Polyvinyl chloride (a 55% aqueous dispersion)	66%
Tricresyl phosphate (a 55% aqueous emulsion) as a softener	17%
Antimony ortho-phosphate	10%
A 2 per cent aqueous dispersion of sodium carboxymethyl-cellulose	7%

In this case, it is desirable to cure the padded and dried fabric jute for a few minutes at 130 to 150° C.

4. It may be recalled that during the war considerable use was made of a fire-proofing treatment in which there was applied to the textile material an aqueous dispersion containing antimony oxide and chlorinated paraffin wax. The idea behind such a treatment was that on application of heat the wax compound decomposed with liberation of hydrochloric acid which then combined with the antimony oxide to give antimony oxychloride which is well known to have the power to retard flaming but not after-glowing. To prevent after-glowing it is generally satisfactory to have a phosphates also present as indicated in the new process described above. The insoluble resin constituent will be responsible for rendering the fireproof character fast to leaching during weathering or immersion of sea water.

APPENDIX P

FIRE-FIGHTING EQUIPMENT UNDER MANUFACTURE IN INDIA—NAMES OF INDIGENOUS MANUFACTURERS

Sl. No.	Item of Manufacture	Names & Addresses of Indigenous Manufacturers	Type of Equipment manufactured	Remarks
(1)	(2)	(3)	(4)	(5)
1.	Chemical Fire Extinguishers ..	(1) M/s. Bengal Chemical & Pharmaceutical Works Ltd., Calcutta. (2) M/s. Kooverji Devshi & Co. Private Ltd., 164 Lohar Street, Bombay. (3) M/s. Minimax Ltd., Lalbazar Street, Calcutta. (4) New Associated Commercial Enterprises Private Ltd., 127/129 Modi Street, Bombay. (5) M/s. Oriental Metal Pressing Works Ltd., 131 Worli, Bombay. (6) M/s. Sur Enamel & Stamping Works Private Ltd., 24 Middle Road, Calcutta.	Soda acid, Foam, CTC, Dry-Chemical, Water & Co. 2, Frowave, Hand Chemical Extinguishers.	Sufficient indigenous manufacture to meet country's demand.
2.	Portable Units	(1) M/s. Bengal Chemical & Pharmaceutical Works Ltd., Calcutta.		

(1)	(2)	(3)	(4)	(5)
		(2) M/s. Minimax Ltd., Lal-bazar Street, Calcutta.	For use in Office Godowns & Cinemas 10/34 gallons per minute.	Sufficient indigenous manufacture to meet country's demand.
		(3) M/s. New Associated Commercial Enterprises Private Ltd., 127/129 Modi Street, Bombay.		
		(4) M/s. Oriental Metal Pressing Works Limited, 131 Worli, Bombay.		
3. Knap Sack Tanks	(1) M/s. New Associated Commercial Enterprises Private Ltd., 127/129 Modi Street, Bombay.		
4. Stirrup Pumps	(1) M/s. Kooverji Devshi & Co. Private Ltd., 164 Lohar Street, Bombay.		
		(2) M/s. Minimax Ltd., Lal-bazar Street, Calcutta.		
		(3) M/s. New Associated Commercial Enterprises Private Ltd., 127/129 Modi Street, Bombay.		
5. Pumps for Mounting on vehicles		(1) M/s. Delhi Garage Private Ltd., Con. Circus, New Delhi.	120/300 g.p.m.	
(1) Front		(2) M/s. Addison & Co., Mount Road, Madras.	250 g.p.m.	
(2) Rear		(3) M/s. Delhi Garage Private Ltd., Con. Circus, New Delhi.	120/300 & 350/350 g.p.m.	
		(4) M/s. Minimax Ltd., Lal-bazar Street, Calcutta.	150/1000 g.p.m.	

6. Trailer Pumps - (1) M/s. Minimax Ltd., Lal-bazar Street, Calcutta. 500 g.p.m.
 (2) M/s. Modi Brothers, Con. Circus, New Delhi.
7. (1) Fire-fighting Vehicles & Fire Engines (Built round vehicles manufactured indigenously). (1) M/s. Delhi Garage Private Ltd., Con. Circus, New Delhi.
 (2) M/s. Kooverji Devshi & Co. Private Ltd., 164 Lohar Street, Bombay.
 (3) M/s. Minimax Ltd., Lal-bazar Street, Calcutta. Includes Air field Crash tenders -1000/1500 g.p.m.
- (2) Accessories: (4) M/s. Delhi Garage Private Ltd., Con. Circus, New Delhi.
 (5) M/s. Kooverji Devshi & Co. Private Ltd., 161 Lohar street Bombay. Hydraulic valves, Branch pipes, D & C breaches Nozzles, Fire bells etc. Fire bells Stainers, Branch pipes D & C branches Diff. Nozzles, Delivery & hydraunt valves etc. Electrical Sirens.
 (6) M/s. Minimax Ltd. Lalbazaar Street, Calcutta.
 (7) M/s. P. S. G. & Sons Ltd., Peelamedu, Coimbatore.
 (8) M/s. Sur Enamel & Stamping Works Private Ltd., 24 Middle Road, Calcutta. Branch Pipes, D & C breaches, stainers etc.
- (a) Alax hoses (1) M/s. Jyshree Textiles Ltd., P.O. Rishra, West Bengal. Rubber Hoses of various sizes.
 (b) Other hose pipes (of rubber canvas) (2) M/s. National Rubber Manufacturing Limited, Bengal.
9. Industrial Safety Equipment .. (1) M/s. Josephs Lislie & Co., 105 Appolo Street, Bombay.

(1).	(2)	(3)	(4)	(5)
10.	Sprinkler System.			
	(i) Sprinkler heats			
	(ii) Pumps			
	(iii) Alarm gong			
	(iv) Automatic Valves.			
11.	Firedoor Accessories			
	(i) Fusable links			
	(ii) Alarm gongs			
	(iii) Automatic Valves			
12.	Escape & Rescue Equipments			
	(a) Ladders	(1) M/s. Delhi Garage Private Ltd., Connaught Circus, New Delhi.		
		(2) M/s. Famous Ladder Mfg. Co., Victoria Road, Bombay-27.		

APPENDIX Q

(Extract from Government of India Ministry of Commerce & Industry Import Trade Control Policy for the Licensing Period April.....September 1960)

ESTABLISHED IMPORTERS

16. *Definition.*—Established Importers are persons or firms who have been actually engaged in import trade of the articles comprised in any one serial number or sub-serial number as the case may be, of the I.T.C. Schedule during at least one financial year (1st April to 31st March) falling within the basic period as specified for the particular serial number or sub-serial number. The importers may choose the best year from the basic period for the purpose of obtaining *quota certificates certifying the value of their best year's imports*. A large majority of established importers have already in their possession quota certificates issued to them by the licensing authorities. In the recent past, these quota certificates have been issued on security paper, and during the previous licensing periods an attempt was made to replace the old quota certificates with fresh ones on security paper.

17. *Basic Period.*—The basic period out of which the established importers can select the best year for the purpose of calculating the quota in from 1st April 1951 to 31st March, 1952. In the case of Art Silk Yarn, the basic period will continue to be from 1st April 1945 to 31st March, 1951. The basic period has been extended to 1952-53, 1953-54, 1954-55, 1955-56, 1956-57, 1957-58 and 1958-59 in the case of a large number of items. The list of items for which the basic period has been extended will be found in Appendix IX. In respect of items which were covered by Open General Licences Nos. XLIV and XLV, dated 29th September, 1956 and which have now, been brought to quota licensing the basic period will be any financial year from 1952-53 to 1955-56 only provided that;

- (i) in the case of any such items included in lists, E, F and G of Appendix IX the basic period will be from 1952-53 to 1957-58 and 1952-53 to 1958-59 respectively; and
- (ii) in respect of composite Serial Nos./Sub-Nos, consisting of a number of items where certain specific item(s) was/were included in the said OGLs the basic period will be from 1951-52 to 1955-56.

18. With effect from the current licensing period the basic period has been curtailed to exclude the period commencing from 1945-46 to 1950-51. No applications for fixation/re-establishment of quotas will now be accepted in respect of past imports in any financial year from 1945-46 to 1950-51. Quotas already fixed in respect of imports during the period from 1945-46 to 1950-51 will continue to be accepted for the grant of quota licences.

19. *Procedure of calculating value of licences.*—Quota licences are given to established importers as a percentage of the total value of imports in any one financial year, out of the specified basic period of the importer's choice, as evidenced :

- (a) by valid quota certificates issued on security forms;
- (b) by registration numbers issued by J.C.C.I., Calcutta, or the licensing authority concerned in connection with the Quota Registration Scheme.

No other evidence need be tendered along with the application.

20. In para 20 of Section I of the Red Book for January-June, 1955, it was notified that with effect from the July-December 1955 licensing period, the old Quota Certificates will not be accepted for grant of import licences. However, such of the importers who had not received Quota Certificates on security forms, were advised to do so immediately and this concession had been extended upto July-December, 1956. With effect from January, June, 1957, the quota certificates, if any, on non-security paper will no longer be accepted for calculation of quotas.

21. It may be noted that in no case, will an import licence be granted on the basis of the old quota certificates (*i.e.* quota certificates not issued on security form).

22. If instead of obtaining the import licence on the basis of the quota certificate, the applicant desires for some good reason, to have his quota established afresh or revised he should submit an application to the licensing authority mentioned in column 3 of the policy statement in Section II. Previously, the application for the establishment of quotas used to form part of the application for the grant of a licence. In the interest of simplicity and despatch, applications for the establishment or revision of quotas should henceforward be made separately.

23. *Establishment* or refixation of quotas.—Applications for establishment or refixation of quotas should be made in form 'F' given in Appendix VI, and should be accompanied by :

- (1) the previous quota certificate, wherever it is sought to be revised;
- (2) a certified copy of the import licence, if any, received for the previous half-year;
- (3) a statement of basic year's imports in the forms prescribed in Appendix VI, supported by relevant documents mentioned in paragraph 25 of Chapter II of the Hand Book of Rules and Procedure, 1956;
- (4) a statement giving reasons to prove the necessity for the establishment or refixation of the quota.

24. Applications for establishment/refixation of quotas will be entertained in respect of items for which the basic period has been extended to include the financial year 1952-53, 1953-54, 1954-55, 1955-56, 1956-57, 1957-58 and 1958-59 or in cases in which the licensing authority is satisfied that the applicant has been unable, for some good reason, to prove his basic imports and to establish his quota in the previous licensing periods. The need for establishing fresh quotas will, for instance, arise in cases in which the item in question has been allotted a separate serial number, or the system of quota licensing has been introduced for the first time, or the applicant was unable, for some good reason (*e.g.* litigation or financial difficulties), to apply for facilities to participate in the import trade. If the licensing authority is satisfied that it is necessary to establish a fresh quota or revised the quota certificate, the basic imports will be determined, and the quota calculated in accordance with the prescribed procedure. In the case of imports at the port of Calcutta, the Customs Authorities were not issuing an extra copy of the Bills of Entry and instead Customs duty receipts were being issued; in such cases either the exchange control copy of the Bills of Entry or the Customs duty receipts together with the Bank Drafts, and the relevant invoices duty attested by the Customs Appraiser, may be accepted *in lieu* of the triplicate copy of the Bill of Entry. Since 14th May, 1952, the Customs authorities at Calcutta had, in addition

to the Exchange Control Copy of the Bill of Entry, started issuing to the importers an extra copy of the Bill of Entry, namely, the quadruplicate copy. With effect from 15th February, 1954, however, the Calcutta Customs authorities have modified the procedure and have started issuing to the importer a triplicate copy of the Bill of Entry together with the Exchange Control Copy. With effect from the dates specified above, therefore, the quadruplicate/triplicate copies of the Bill of Entry alone (and not the Exchange Control Copies) duly supported by the relevant invoices will be accepted. No application for fixation of quota for items which are under O.G.L. or are banned, need be made.

APPENDIX R

(Extract from Government of India, Ministry of Commerce & Industry Import Trade Control Policy for Licensing Period AprilSeptember 1960).

ACTUAL USERS

35. *Definition.*—Actual users have been defined as those who require raw materials or accessories for use in an industrial manufacturing process. For the period July—December 1952, an additional condition, limiting the scope of actual users to undertakings employing not less than 50 workers had been prescribed. The condition caused inconvenience in some cases, and, consequently, it was not enforced strictly during the period January—June 1953. The same practice will be continued during the period April—September, 1960. When making an application for an import licence in accordance with the procedure laid down below, due regard should be paid to the provisions of the Industries (Development and Regulation), Act, 1951. The applicant should satisfy himself that the undertaking is, if so required by the Act, duly registered or licensed.

36. *Application forms.*—The forms of application for use by Industrial undertakings applying for the grant of an actual users import licence are given in Appendix VI. The form (C) given in Appendix IV, is to be used by industrial firms borne on the registers of the Industrial Advisers (Development Wing, Ministry of Commerce & Industry, New Delhi), when applying for the import of materials, or accessories required for use in the industry registered with the Development Wing. *The form (B) given in Appendix VI should be used by all other actual Users.* In cases where the essentiality certificate obtained by the applicant from the certifying authority is attached with the application or is submitted to the Licensing Authority separately, the Essentiality Certificate should bear the following endorsement duly signed by the applicant :—

*“This essentiality certificate has been obtained by me from the _____ and the contents of the certificate (name of the certifying Authority) have not been changed or altered.

Signature of the applicant.”

SCHEDULED INDUSTRIES BORNE ON THE REGISTERS OF THE DEVELOPMENT WING

37. *Procedure for submission of applications for import licences or amendment of licences.*—Actual Users borne on the registers of the Industrial Advisers for a particular industry should in respect of the stores required for that industry apply to the Chief Controller of Imports through the Development Wing (Co-ordination). It is not necessary for such units to obtain any certificate from any other authority. These applications will be forwarded by the Development Wing with their recommendations to the Chief Controller of Imports, New Delhi, for necessary action.

38. Actual Users borne on the list of the Development Wing should observe the following procedure in submitting their application :—

- (i) In addition to the information furnished against column B(i) of form 'C', the applicants should in their covering letter indicate precisely :—
 - (a) the name of the particular industry for which the stores are to be imported; and
 - (b) the total c.i.f. value in rupees.
- (ii) Envelopes should be superscribed "Import applications" and addressed to Assistant Director (Co-ordination-II), Development Wing, Ministry of Commerce and Industry, New Delhi.
- (iii) The applicants should ensure that the applications are posted in time to reach the Development Wing by the due date; applications sent by post and received in Development Wing after the due date are likely to be summarily rejected.
- (iv) It should be noted that the bulk applications for raw materials should not include spare parts of machinery. Separate applications should be made for import of spare parts of machinery.

39. Requests for increase in the quantity or value of the licence or for any addition in the items licensed should also be routed through the Industrial Adviser concerned.

40. *I.T.C. Classification of raw materials.*—The Actual Users Borne on the registers of the Industrial Advisers (Development Wing) are required to show the I.T.C. classification of the individual items in their applications. It is noticed that this requirement has not been complied with in a number of cases. It is therefore again impressed on the intending applicants that they should invariably show the I.T.C. classification of the individual items in their applications failing which the Development Wing will refuse to entertain such applications. The applicants should also enclose 10 copies of the list showing the details of items sought to be imported together with their value, quantity and I.T.C. classification with the application.

41. *Delay in submission of applications.*—It has come to notice that Actual Users borne on the registers of the Industrial Advisers submit their application for import licences to the Industrial Advisers just before the last date prescribed for the submission of applications. This is done presumably on the understanding that the more the stock of raw materials is depleted the larger will be the quantity to which the applicant will be entitled. This is not however correct on the other hand, the above practice results, in the rush of applications at the last stage and hampers the progress of disposal. It is hereby clarified that the Industrial Advisers will take into consideration only the stock expected to be held with the applicant in the middle of the licencing period irrespective of the date of application. Actual Users are, therefore, advised that they should not delay the submission of their applications and all applications should preferably be made in the beginning of the licensing period, giving the stock of the raw materials held at the time of application.

SCHEDULED INDUSTRIES NOT BORNE ON THE REGISTERS OF THE DEVELOPMENT WING AND NON-SCHEDULED INDUSTRIES—OTHER THAN SMALL SCALE INDUSTRIES

42. *Certifying Authorities.*—Actual Users who are (i) not borne on the registers of the Industrial Advisers (Development Wing) or (ii) borne on the

registers of the Industrial Advisers (Development Wing) but not for the particular industry in respect of which the application is proposed to be made, should submit their applications to the licensing authority shown against the item concerned in column 3 of the Policy statement given in Section II. The application should be accompanied by an essentiality certificate in the form given in Appendix VI from the certifying officer concerned. The officers who are authorised to issue the certificates of the essential requirements of actual users are :—

- (a) the Director of Industries of the State where the factory is located for industries other than those detailed below;
 - (b) the Textile Commissioner, Bombay, in the case of Textile Industry, other than jute, hemp and silk;
 - (c) the Chairman, Tea Board, Calcutta, for Tea garden requirements;
 - (d) the Chairman, Indian Coffee Board, for requirements in respect of the coffee industry;
 - (e) the Director, (Sugar Technical) Directorate of Sugar and Vanaspati, Ministry of Food, New Delhi, for requirements in respect of sugar industry;
 - (f) chairman, Indian Rubber Board, Kotayam, for requirements in respect of rubber estates;
 - (g) the Department of Mines and Fuel, Ministry of Steel, Mines and Fuel, New Delhi, for requirements of the Petroleum Industry;
 - (h) the Iron and Steel Controller, Calcutta, in the case of requirements of producers of iron and steel and rerolling mills;
 - (i) the Coal Controller, Calcutta, for requirements of collieries;
 - (j) the Central Water and Power Commission (Power Wing), Government of India, Bikaner House, Shahjahan Road, New Delhi, in the case of requirements of electricity undertakings;
 - (k) the Central Silk Board in respect of the requirements of the Silk Industry;
 - (l) the All India Handloom Board for requirements of the handloom factories;
 - (m) the Chief Director, Directorate of Sugar and Vanaspati, Ministry of Food, New Delhi, for requirements of Vanaspati industry;
 - (n) the Chairman, Coir Board, Ernakulam, for the requirements of coir industry;
 - (o) the Director General of Shipping, Bombay, for the requirements of Shipping Industry/Shipping Companies (in respect of sea going vessels);
- The requirements in respect of inland steam and motor vessels will be certified by the Principal Officer, Mercantile Marine Department of the area concerned.
- (p) the Directorate of Marketing and Inspection, Ministry of Food and Agriculture, Department of Agriculture, New Delhi, for requirements of fruit and vegetable preservation industry;
 - (q) Jute Commissioner, Calcutta, for the requirements of Jute Industry; and
 - (r) the Director, Indian Bureau of Mines, Nagpur, for the requirements of mines (other than collieries).

43. *Basis and scope of Licensing.*—(a) The licences for raw materials will, ordinarily be issued on the basis of certified requirements for six months' consumption; but the certified requirements will be scrutinised by the licensing authority and an appropriate reduction will, where necessary, be made after taking into account :—

- (i) the stock held on the date of application and the expected arrivals against licences in hand;
- (ii) the quantum of import likely to be available through the commercial channels;
- (iii) the quantum of similar goods or substitutes likely to be available from indigenous sources; and
- (iv) the past imports of the item in question by the Actual Users.

(b) Normally the applications from Actual Users who are applying for the first time would be rejected. In the case of Actual Users who have been making imports of the items in question against Actual Users licences granted to them against earlier periods licences in excess of their average past imports will not normally be granted. However, in hard cases where the Actual User is unable to obtain his requirements from the open market the port licensing authority may in his discretion issue a licence to meet the Actual Users requirements subject to the availability of the foreign exchange and on the special recommendation of the certifying authorities.

(c) The items licensable to Actual Users have been indicated in the appropriate column of the Policy statement in Section II of this Book. A consolidated list of these items has been given in Appendix IV. Applications from Actual Users for items which are not shown as licensable to Actual Users in Section II of the Red Book will not ordinarily be entertained. Requirements for such items should be met either by using indigenous substitutes, or by purchases from internal stocks against import through established channels.

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