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ELEVEN INDUSTRIES EXEMPTED FROM LICENSING

PERIODICAL REVIEW PROPOSED TO ENLARGE THE LIST

The Government of India have decided to exempt the following eleven industries from the licensing provisions of the Industries (Development and Regulation) Act.

Sl. No.	Industry	Schedule No.
1	Iron and Steel castings and forgings...	1 A (3)
2	Iron and Steel Structural ...	1 A (4)
3	Electric Motors ... (not exceeding 10 horse power)	5 (2)
4	Pulp—Wood-pulp, pulp mechanical, chemical including dissolving pulp.	24 (5)
5	Power alcohol ...	26 (1)
6	Solvent extracted oils ...	28 (1)
7	Glue and Gelatin ...	32
8	Glass-other than hollow ware ...	33 (2) to (6)
9	Ceramic fire bricks ...	34 (1)
10	Cement and gypsum products	
	Portland Cement ...	35 (1)
	Insulating boards ...	35 (3)
	Gypsum boards, Wall boards and the like ...	35 (4)
11	Timber Products: Plywood ...	36 (1)

REGISTRATION

While it would no longer be necessary for entrepreneurs intending to set up units in any of the above 11 industries to apply for an industrial licence, these exempted industries would continue to be listed in the Act and the powers conferred on the Government under the remaining provisions of the Act would continue to be operative. In particular, for

purely statistical purposes, the industries will be requested to register themselves with the Director-General of Technical Development.

PERIODICAL REVIEW

It is stated that the exemption of the 11 industries from the licensing requirements announced is on an experimental basis and it is proposed to review the effect of this decontrol after a year or two and to take this review into account in the further formulation of policy. It is also proposed to examine the schedule of industries in the Act with a view to make further additions to the list of exemptions from time to time.

BASIC CONSIDERATIONS

Two basic considerations which have been kept in view in the preparation of the present list of eleven exempted industries are: (1) The items are those in respect of which there is no substantial import of components or raw materials and (2) Industries in respect of which protection to small and cottage industries is of importance have been left out. In considering more industries for exemption from the licensing procedure an additional factor that would be taken into account would be the need for accelerated development of industries with export potential.

RELAXATIONS IN THE PAST

As regards the specific control relating to the licensing of industries under the Industries (Development and Regulation) Act, 1951, over the past two years the Government have announced some relaxations. All Industries

with fixed assets not exceeding Rs. 25 lakhs were exempted from the licensing provisions of the Act in 1964. Some relaxations regarding diversification of production by manufacturers of 'new articles' by existing units and relating to 'substantial expansion' of the licensed capacity in cases not involving any foreign exchange expenditure were announced last year.

A CLARIFICATION

In a subsequent press note issued on the 18th May 1966, the Ministry of Industry clarified that the eleven industries which have been exempted from the licensing provisions

of the Industries (Development and Regulation) Act would have to obtain necessary sanctions if a project involved capital issue or import of capital equipment or foreign collaboration. There would be no need to obtain a licence under the Industries (Development and Regulation) Act.

The press note said that the entrepreneurs were advised in their own interest to satisfy themselves about the availability of raw materials, power, rail transport, water and other similar facilities at the site where the industry is to be located.

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ROLLERS, RLY. FITTINGS AND P.V.C. MOULDINGS.

WATER IN INDUSTRY

For some years now, civilised man has been finding that the water commonplace throughout the region in which he lives is in danger of lacking or at least is either bereft or no longer possessed of the qualities he calls for. A veritable turmoil follows, the daily press seizing on the subject, declaring in headlines inches thick that there is going to be a water shortage, or that distillation of seawater will be the cure-all for tomorrow, or that drinking water is dangerous, etc.

And yet, for over a century, the technicians have bent their efforts towards these problems and can very often bring to bear solutions enabling the difficulties created by man's negligence to be remedied.

However, hydraulics and water treatment are sciences which have never stimulated the imagination of the masses. Water, which is a gift of God, should cost nothing, and rain more than provided for its renewal. Mother nature took care of distributing this inexhaustible and featureless fluid to each and all.

The increasing industrialisation of every country and the concentration of men in certain places have obliged these problems to be recognised. Indeed, they are very often vital. In almost every industry, water acts as a veritable raw material. Its price is included cost prices, its quality influences the quality of the finished product and man expects water in

abundance, flowing away without any problem, for his own comfort.

Our purpose is to make a rapid examination of the uses of water in industry and more particularly the iron and steel industry and to attempt to evolve certain principles for creating suitable hydraulic facilities.

In a factory, water is employed for a multiplicity of purposes, some of which are listed as below :

- (1) Steam generation.
- (2) Manufacturing raw material.
- (3) Heat exchange.
- (4) Mechanical cleaning.
- (5) Gas purification and cooling.
- (6) Washing of products.
- (7) Drinking water.

We shall ignore the 7th application, which does not intervene directly in manufacture although very often the amounts required are not negligible and the quality requirements sometimes set problems which are difficult to solve.



By Mr. P. GUYARD
(Head of Fluid
Service of Sofresid)

and boreholes often yield high water, though generally the flow is small and often subject to seasonal variations. Wells may dry out, or suddenly become dry as a result of work in the region. In certain zones, the creation of new wells, any increase in the flows extracted is subject to administrative authorisation as a result of the increasing water shortage.

It should be forgotten that pumping is expensive and for many uses, chemical treatment must be set up to render the water fit for use.

Rivers and lakes often constitute an available resource. Clarification treatment renders the water comparable to water from other sources from the point of view of cost, is generally fairly cheap; it is very much less than raising the water by a pump. For a large plant, this is generally a good source, providing enough water without many difficulties. In general, the

quantity to be taken off is much higher than that which could be obtained from other sources.

These are the considerations which enable the types of circuits which will be built to be chosen.

Open or closed circuit: We shall now tackle one of the most controversial questions, in particular in iron and steel making: should a plant operate on open or on closed circuit? First of all, let us remind ourselves what these expressions mean.

Open circuit: The water taken from an inexhaustible reservoir (river or canal) undergoes a 'coarse' treatment, generally consisting of screening intended to retain the largest particles, and is only used once before being discharged. If needed, before being discharged, it is physically purified to limit the pollution of the river or canal in which it is to be evacuated.

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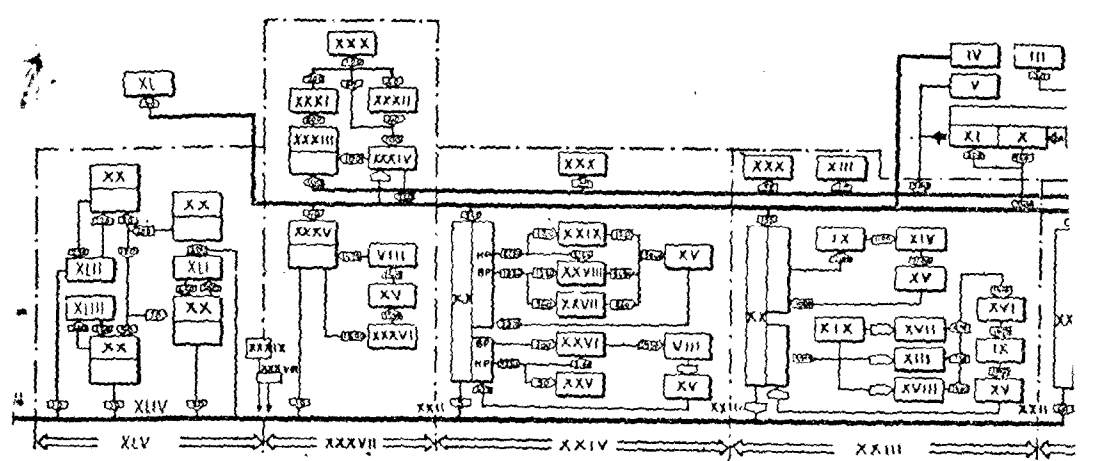
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THE USINOR WATER CIRCUIT AT DUNKIRK



- | | | |
|--------------------------|----------------------------------|------------------------|
| I The Bourbourg Canal | XVI Hydro-cyclone | XXXI Nozzle cooler |
| II Screening Station | XVII Descaling | XXXII Ferro product |
| III Liquid Air | XVIII Stands | XXXIII Soft water pi |
| IV Purified Water Tower | XIX Water tower | XXXIV Heat exchange |
| V Soft water tower | XX Pumping station | XXXV Purified water |
| VI Waterworks | XXI Strip mill | XXXVI Washing of co |
| VII Untreated water tank | XXII Deconcentration | XXXVII Steel mill |
| VIII Settling tank | XXIII Quarto slabbing mill | XXXVIII Rain water sto |
| IX Filter | XXIV No's 1 and 2 blast-furnaces | XXXIX Sewage water |
| X Purified water tank | XXV Sintering plant | XL E. D. F. |
| XI Water softening unit | XXVI Gas washing | XLI Slag granulation |
| XII Losses | XXVII Blast generating unit | XLII Casting machin |
| XIII Furnaces | XXVIII Cooling | XLIII Clinker granula |
| XIV Motor cooling | XXIX Sintering plant cooling | XLIV Sewer |
| XV Refrigerant | XXX Boiler | XLV Teeming machin |
| | | XLVI To Sea |

Conventional closed circuit: In this case, the water is re-used several times. Before each new use, it is cooled in an atmospheric cooling unit, purified and make-up of fresh water offsets the losses that have occurred in the cycle and limits the total concentration of dissolved salts to an acceptable figure.

We refer here only to the conventional closed circuit. Nonetheless, other types of

closed circuit can be built, some of which have recently been applied.

Other closed circuits: For example, a cooling circuit can be built without contact with the outside, the water only transferring the heat to the atmosphere.

Since the cooling is accomplished in an air-water heat exchanger, the circuit therefore resembles the cooling circuit. Alternatively, cooling is ensured through

steel mill and that the pig iron is raised to this height. This would appear unthinkable. However, this only involves a work of 200 tons per metre. But if, in another plant, all the water required is pumped 1 metre too high, nobody pays any attention and yet the work wasted is the same: 200 ton-metres.

Also, much is very often made of the greater difficulties of running a closed circuit.

It is true that a closed circuit must be watched over more closely than an open circuit and that treatment must be more accurate. However, on the other hand, the operation of the plant is improved and any incident immediately adopts greater importance since the management very quickly becomes unaccustomed to daily difficulties caused by water. Plant managers should understand the need to set up a single specialised water service instead of leaving each head of section to do his best. They would then have an effective means of controlling their cost price by eliminating unnecessary expenditures.

By the end of this report, it might well be concluded that we distinctly prefer closed circuits. However, this conclusion is not exclusive and some specific cases can be solved better by means of open or semi-open circuits.

A comprehensive study is required before any decision is made. It must be performed very objectively by independent and unbiased technicians and the problem will finally be decided by the financial and technical balance sheet.

Here are the main ideas which we consider should preside when drawing up projects for supplying a steel plant or even making improvements or transformations. As regards the latter, which obviously take place much more frequently than the construction of a new plant we should like to emphasise certain points which are of great importance.

Indeed, it would appear illogical to undergo a partial improvement or transformation without previously drawing up a programme for the entire plant.

This programme, which costs little to make, must first of all lay down the main lines of future development of the plant, establish present and future water requirements, examine the problem of supply and its evolution in the future and lay down a policy, for example to decide to close the circuits.

Thereafter, allowing for this policy, it will be possible during each transformation, to perform part of the work which has become unavoidable.

Hence, rather than set up a purifying station for a single workshop, it will be possible to build only part of a future station serving the entire plant, though located at once in the best position; also, certain sections of piping or sewers, built immediately in large diameter piping, will not have to be rearranged or doubled up a few years later; it will also be possible to locate certain pumps, and electricity boards will be provided with terminals of adequate capacity, etc.

This procedure will enable the entire plant to be modernised at less cost, by avoiding repair expenses which only serve to maintain a defective system in working condition.

Assuredly, help will often have to be obtained from outside, though this help offers the advantage of being completely independent and has full freedom to defend concepts which will sometimes be argued against for other than technical reasons within the plant.

Having said this, the studies should be performed as for a new plant, in accordance with the previously described procedure, and sometimes with the advantage of exact acquaintance of the water requirements and the quality of the residual waters.

(Courtesy: *French Technical Bulletin*, No. 11, '65.)

INDUSTRIAL UNITS WITH FOREIGN CAPITAL OR COLLABORATION

ANNOUNCEMENT BY RESERVE BANK OF INDIA

✓The Reserve Bank has announced a revised procedure for applications by persons and firms wishing to establish new industrial units with foreign capital and/or technical collaboration. The press note issued by the Exchange Control Department of the Reserve Bank, Bombay on 10th May 1966 says:

Persons or firms in India wishing to establish new industrial units or embarking on expansion with foreign capital participation and/or technical collaboration are at present applying to the Union Government in the Department of Industry.

The concerned administrative Ministries of the Union Government inform the applicants of the decisions while formal authorisations under the Foreign Exchange Regulation Act, 1947, are issued by the Reserve Bank.

To save time, in future, all such applications may be made direct (in quadruplicate) to the concerned administrative ministry and not necessarily to the Department of Industry.

The above procedure will apply to all industrial units whether new or embarking on an expansion, which entail foreign capital participation and/or technical collaboration involving payments of royalty, technical fees etc. to the foreign collaborator.

Where an existing Indian company, a part or whole of whose capital is owned by non-residents, wishes to issue fresh capital and to offer or allot new shares otherwise than as bonus shares, out of the fresh capital issue to its non-resident shareholders, the application for permission to issue the new shares to non-residents should be addressed to the concerned administrative ministry if the issue is for Rs. 25 lakhs or less in a period of one year.

If the issue is for an amount exceeding Rs. 25 lakhs in a period of one year, the application should be addressed simultaneously to the concerned administrative ministry and to the Controller of Capital Issue, Ministry of Finance (Department of Economic Affairs), New Delhi.

This procedure will not apply to purely Indian companies wishing to issue capital in excess of Rs. 25 lakhs, the whole of which is to be subscribed internally and where there is no foreign collaboration in respect of technical know-how.

Applications under this latter category will continue to be addressed to the Controller of Capital Issues. //

THE ROLE OF SMALL SCALE INDUSTRIES IN THE ORGANISATION AND DEVELOPMENT OF HOSPITALS

By Sri T. A. S. Balakrishnan, I.A.S.,

In the rapid development of Health and Medical Services in the country one important bottleneck was in the provision of Hospital furniture for Medical Colleges, Headquarters Hospitals, Primary Health Centres and other similar institutions. In the British era this expansion of facilities was at a very slow rate. Therefore there was no problem. As a result of planned development, the demand has been so great that practically whenever any medical institution is opened formally or inaugurated by an important dignitary, invariably it has been the complaint that the hospital has not been fully furnished. In Madras State in the Second and Third Plans, medical facilities improved beyond all recognition. One of the departmental Small Scale Industrial units specialised in Hospital furniture and equipment for a period of seven years and various types of furniture were made and shown and demonstrated to a large number of medical units. These approved samples are now being fabricated in large numbers in the Small Scale Industrial Sector.

This has also given a fillip to development in all privately owned units for the

manufacture of Hospital Equipments and Appliances.

A net work of Government units all over the State provides primary furniture to all medical units and undertakes repair and maintenance for hospital furniture all over the State. More than in any other place furniture and equipment have to be neat and clean in a Hospital. After the initial despatch, maintenance or repair is an absolute necessity. In the last 7 years hospital equipment worth over half a crore has been manufactured in the departmental and Small Scale Industrial units and supplied to all medical institutions. In the next plan period this will easily exceed one crore. Planning helps integrated development and this is an excellent example where the Industries and Medical Departments together have handled two important functions to be performed. The first is rapid manufacture and quick provision of medical units with furniture. The second is having it done at highly competitive rates; this has enabled medical units to purchase more furniture for the same money.

SCARCE MATERIALS CONTROL ORDER REPEALED

The Government of India have repealed the Scarce Industrial Materials Control Order with effect from 7th June 1966.

The order, which was issued under the

Defence of India Rules on September 14th last year imposed control on the distribution, price and consumption of non-ferrous raw materials like copper, zinc, tin and lead.

NEW RATES OF EXPORT DUTIES

Following the change effected in the par value of rupee, export duties are being imposed on the following items at the rates indicated against each.

Jute manufacture—Rs. 900 per metric tonne.

Hessians sacking, and all other sorts — Rs. 600 per metric tonne.

Tea — Rs. 2 per kg.

Coffee — 50 P per kg.

Black pepper, all sorts — Rs. 1.25 per kg.

Oil cakes other than copra cakes Rs. 125 — per metric tonne.

Tobacco unmanufactured (full excise rebate to continue) 75 P per kg.

Raw cotton — Rs. 1,000 per metric tonne.

Cotton waste — 30 P per kg.

Raw wool Rs. one per kg.

Mica all sorts — 50 P per kg.

Hides, skins and leather tanned and untanned all sorts, but not including manufacture of leather — 10 per cent advalorem.

Coir and coir manufactures — 10 per cent advalorem.

Simultaneously, downward adjustments are also being made in the effective rates of basic import duty on a large number of items covered by the Import Tariff Schedule.

Broadly speaking, the rates on machinery and primary raw materials are being revised to 27.5 per cent, advalorem, and on other raw materials and intermediates to 50 per cent, ad valorem. The basic rates of duty on most consumer goods as well as agricultural equipment, appliances remain unchanged.

The regulatory duties have been withdrawn for all items.

Foodgrains, fertilisers, books and journals, newsprint, family planning accessories, sulphur and rock phosphate will be entirely free of duty. On certain essential categories of steel, mainly plates and electrical steels sheets the basic duty has been brought down to 15 per cent. Countervailing excise duties, where leviable, will continue to be levied as hitherto on all items.

The specific duties on unmanufactured copper, zinc and lead remain unchanged.

Certain adjustments have also been made in the basic excise duties in respect of major petroleum products. Additional excise duties on these products are also being readjusted. The effect of these changes will be that the consumer prices of products like kerosene, diesel oils, furnace oil and motor spirit will remain unchanged.

Tariff values fixed for imported commodities are being suspended in most cases.

The export tax credit scheme is also being withdrawn, but provision is being made to ensure that the credits are issued in respect of foreign exchange already received and

accounted for in accordance with the provisions of the Foreign Exchange Regulation Act, 1947 and the rules made thereunder.

All these changes take effect from Monday, June 6, 1966.

RAW MATERIALS IMPORTS LIBERALISED

The Finance Ministry of the Union Government has announced the liberalisation of imports of raw materials and components, especially for those industries, which have been closed down partially or wholly for want of foreign exchange.

A press note issued by the Ministry on the 5th June 1966 said that all industrial units which had laid off labour partly or wholly, due to non-availability of imported raw materials, should apply immediately to the Director-General of Technical Development (or their respective sponsoring authorities) stating their requirements so that their cases could be considered without loss of time for giving necessary priority in the light of the proposed policy of liberalised imports.

The unutilised balance of import licences expressed in rupees, are also revised in order to facilitate payment of the same amounts of foreign exchange as originally intended.

The unutilised portion of all remittance permits, where such permits have been issued in terms of rupees for education abroad, for medical treatment and for business visits, will be deemed to be enhanced automatically by

57.5 per cent. It will not be necessary to send such permits to the Reserve Bank for formal endorsement and the various authorised dealers will be permitted to act on the permits straightaway.

As regards Kerosene and Diesel oil, larger quantities will be released and these will also be backed up by maintaining adequate stocks in the country.

Arrangements are being made to increase raw wool imports in order to facilitate necessary availability of clothing for the next winter.

Availability of newsprint will also be increased.

Universities, colleges, Technical institutes educational and research institutions and libraries will be granted licences freely to import books.

The availability of vegetable oils will be helped by import applications already made against PL-480 supplies and under the Soviet gift of sunflower oil. Besides, the State Trading Corporation is being authorised to import immediately additional quantities of copra.

RICE BRAN OIL INDUSTRY

Rice is not only one of the world's oldest crops, but it is the basic food for more people than any other cereal grain. India is an agricultural country with rice as one of the major crops playing a vital role in the economic uplift of the country. However, the bye products of rice milling industry are not properly utilised to the maximum extent. The commercial rice bran that is being marketed in India is an admixture of the bran, polish and some quantities of powdered hull. It is a very nutritious bye product of the rice milling industry on account of its high contents of water soluble vitamins, fat and protein. Recovery of oil is a possible remedy to meet the deficit in edible oil fats in India. Rice bran contains 10 to 20 per cent oil, 10-15 per cent protein and other chief constituents being carbohydrates.

India produces at present 2 to 3 million tons of rice bran which contains on an average 17% of oil. It can give edible oil to the extent of 3,00,000 tons which may be valued at over Rs. 40 crores and will enrich the present supply of edible oil by 14%. The production of paddy in 1960-61 was 504.2 lakh tonnes. According to the demand projections for agricultural commodities prepared by the Planning Commission, there will be an increase of 50% of food grains produced during the period 1960-61 to 1970-71. Therefore the estimated production of Rice Bran from 1970-71 will be as follows:—

Production of paddy: 756.3 lakh Tonnes.
(—) 12% for sowing.

= 665.6 lakh tonnes.

Production of Rice = 443.6 lakh tonnes.

It is assumed 50% of the rice is produced by hand pounding and the balance of 50% is processed in rice mills. It is also assumed that the production of bran will be 6% of the weight of the rice polished. Consequently the availability of the bran by 1970-71 would

be 18.8 lakh tonnes. The average yield of rice bran oil is 15% on the weight of the raw rice bran. The potential availability of rice bran oil would be 1,90,000 tonnes. The target proposed for the IVth plan period is to solvent extract 3.5 lakh tonnes of raw rice bran which would be equivalent to production of 50,000 tonnes of rice bran oil. This would represent hardly 27% of the total availability of rice bran resulting in the milling of paddy by the rice mills. As regards Madras State, the availability of rice bran by the end of IVth plan period as estimated by the National Council of Applied Economic Research is 1.8 lakh tons per annum and about 25% of it can be processed for extraction of rice bran oil by 1970-71. The rice bran available in Madras State area, has an average silica content of 10%. The silica content should not exceed 8% for export possibilities of de-oiled rice bran. To achieve this, the mill hulled rice bran is mixed with the bran from the hand pounded rice prior to export, to satisfy the stipulation. The quality of the bran is also dependant upon the mode of decortication or removal of the bran

from rice. The two common methods are by huller method and the sheller method. There are about 5,957 huller mills and 126 sheller mills distributed all over the Madras State. The bran produced in the huller and sheller mills, differ materially in their composition and characteristics. The huller rice bran contains greater portions of the hulls than produced in the sheller mills. The former is, therefore, coarse in texture, low in oil and protein and high in ash, sand and silica and also fibre. Therefore it is unsuitable for cattle feed and uneconomical for extraction. Sheller variety rice bran is fine in texture, high in oil and protein, quite suitable both as cattle feed and for oil extraction, by and large the sheller mills are always advantageous as they have larger capacities also. Sheller mills, from which about 250 to 300 tons of rice bran per day can be easily collected, would be ideally suited for starting economical units for extraction of rice bran oil.

Solvent extraction is the most promising method for removing oil from rice bran. Since the bran is bulky and usually contains less than 20% of oil; two solvents, hexane and Iso-propyl alcohol have been tried successfully for extraction of the oil. While the mineral solvent hexane is found to be more efficient than alcohol in extraction of the oil, the use of alcohol has the additional advantage of extracting the vitamins in the syrup as well as from the oil. Mostly the rice bran oil is brown coloured and utilised for soap industry rather than as an edible oil. In the case, when the extraction is done by the mixture of hexane and alcohol, the product is green coloured due to the extraction of Chlorophyll and finds a good market as an edible oil after refining. The presence of excessive amount of "fines" in rice bran also gives difficulties during extraction. For removal of "fines", a screw type of centrifuge called 'De sludger' is generally employed. Rice Bran Oil can be bleached and refined into a clear, light coloured oil. It has a good flavour, suitable for salad and

cooking oils. It is stable, odourless and neutral. Roughly speaking, it is comparable to peanut oil. Recently the continuous oil refining process using hermetic separators have been introduced with success. It has been proved that re-refining is also simple, only requiring two steps i.e., neutralisation and water washing. Bleaching and elimination of the chlorophyll content is appreciably achieved by using good quality of acid activate earth. For deodorisation of rice bran the continuous deodorisers are fabricated in stainless steel. Rice bran oil with about 20% F. F. A. it is recommended that 7% of high grade of acid activated bleaching earth be used. Bleaching temperature suggested is 110-115°C and the soft oil should be filtered at 70°C in shortest possible time to avoid oxidation.

There are 30 solvent extraction plants already erected and in operation in India for the production of mainly oils from oil cakes, especially from groundnut cake in various states. More are under erection or licensing. Some of these plants have produced rice bran oil on an experimental basis. In fact, there is one plant near Trichy area, exclusively producing rice bran oil, with a capacity consumption of 25 tons of bran per day. As rice bran oil extraction presents certain special problems, most of them are not taking up to the extraction of rice bran oil. As the rice bran contains a lipolytic enzyme (Sipse) of unusually high acidity, the bran cannot be stored for oil extraction purposes. On storage of the bran, the acidity is said to increase at the rate of 1% per hour. In view of the high acidity, super grade edible oil cannot be easily produced and hence the rice bran oil (usually of high acidity) finds use mainly in the soap industry. Therefore, to produce edible grade of oil, stabilisation of the oil in the bran is a pre-requisite. This also will ensure the proper development of the Industry. The only feasible method of deactivating the enzyme and stabilise the oil in the bran is to heat the

bran immediately after its production, at 105°C for about 2 hours. The oil technologists have experimented and also proved that the percentage of F. F. A. in the extracted oil from treated bran stored over a period of 50 days is only about 7% in comparison to the untreated material stored for the same period. Usually the acidity has even shown a tendency to rise upto 25% in the stored material without the pretreatment of stabilisation.

The normal selling price of Rice Bran from mills in Madras (Tanjore-Trichy Districts) State ranges from Rs. 5 to Rs. 6 per bag of 50 Kg. The crude high F. F. A. oil at present produced fetches a price of Rs. 1,400 per ton. In most cases the oil yield is reported to be ranging from 12-14%. Normally a solvent extraction plant may cost about Rs. 20 lakhs inclusive of land, buildings, and erection charges etc. with a capacity for 25 tons of bran per day. The following indigenous concerns are in a position to fabricate and supply batch solvent extraction plant, which could also be employed for rice bran extraction at competitive prices, besides the several well-known foreign makes like M/s. Schantang and Laval Group, West Germany.

1. Sri. T. V. P. Nambiar,
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2. Dr. W. A. Korde,
Express Mahal,
D1, Near Tram Terminus, Dadar,
Bombay-14.

3. M/s Ram-Bhog Company, Madras.
4. Richardson and Cruddoss,
Byculla Iron works,
P. B. No. 4503, Bombay-8.

The solvent hexane can be obtained from Esso at an approximate cost of Rs. 600/- per ton.

The major market (75%) to-day in the world for rice bran oil, is for edible purposes, particularly in the manufacture of oleo and cooking range of oils and popcorn oil. Refined and deodorised oil is reported to be superior for mayonnaise, salad dressings and other emulsified products. Rice oil is also being used by bakeries in various parts of world as a pan release. Rice Bran oil is also known to be used in small quantities as a carrier for insecticides, for making mesh bags etc. In the export market, the residual cake is supposed to fetch about £. 18/- per ton. Thus the oil and other bye-products of this Industry readily find a good market both in India and abroad.

With an increased target for production of paddy in the coming plan period, it may be possible that six or seven solvent extraction units can be set up in Madras State with a daily capacity of 25 tons of rice bran. Statistical data regarding Rice Bran production, number of mills, export of rice bran, the chemical composition of rice bran oil etc. have been compiled and given separately as Annexure.

Reference:

1. Chemical Age of India: Vol. 15; No. 2.
2. The Oils and Oil Seeds Journal: Vol. XVII. Nos. 10 & 11.

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HARVEYS OF MADURAI

STATEMENT I
ESTIMATED AND ACTUAL PRODUCTION OF RICE BRAN IN INDIA
(1958-59)

State	No. of Mills	Paddy Milled	Rice Bran production and Actually milled (Tons) Estimated	
Andhra Pradesh	481	8,74,452	43,723	2,53,050
Assam	76	148,590	7,430	1,15,500
Bihar	114	154,836	7,732	2,94,140
Kerala	5	1,770	89	61,670
Madhya Pradesh	176	221,222	11,051	2,28,480
Madras	273	212,378	10,619	1,30,860
Mysore	6	7,343	367	77,700
Uttar Pradesh	40	65,570	3,279	2,08,320
Orissa	91	113,195	5,660	1,40,520
West Bengal	386	881,763	44,088	2,83,710
Bombay	—	—	—	88,270
Others	—	—	—	1,08,180
Total		1,34,037	20,80,400	

(Details from the Directorate of Economics and Statistics, Ministry of Food and Agriculture).

STATEMENT II
NUMBER OF RICE HULLERS AND SHELLERS IN INDIA

State	Hullers / Huller Mills	Shellers / Sheller Mills
Andhra Pradesh	3,045 small hullers	916
Assam	246 mills	—
Bombay	3,229 mills	509
Bihar	146 huller mills	—
Iraq & Cochin	620 small shellers	2 sheller mills
	20 sheller mills	2 " "
	388 small shellers	—
Madhya Pradesh	312 huller mills	413 sheller mills
Madras	5,957 " "	126 " "
Mysore	1,768 " "	282 " "
Punjab	800 " "	20 " "
Orissa	88 " "	—
Uttar Pradesh	500 " "	Nil
	1,376 huller type	120 sheller type
West Bengal	386 huller type	7 " "
		& 8 sheller huller combined.

Source: Report of Rice Milling Committee 1958, Govt. of India, Ministry of Food & Agriculture.

STATEMENT III
STATEMENT SHOWING THE DETAILS OF RICE HULLER MILLS AND SHELLER MILLS IN MADRAS STATE AS ON 30-6-1965.

Sl. No.	District	Number of Rice Mills functioning in the district			
		Huller type	Sheller type	Combined Huller Sheller type	Total
1.	Madras	29	—	1	30
2.	Chingleput	884	—	3	887
3.	South Arcot	676	—	—	676
4.	North Arcot	943	1	—	944
5.	Salem	820	—	—	820
6.	Coimbatore	774	1	—	775
7.	Tiruchirapalli	723	—	105	828
8.	Thanjavur	1,645	12	—	1,657
9.	Madurai	682	—	—	682
10.	Ramanathapuram	608	1	—	609
11.	Tirunelveli	761	2	—	763
12.	Nilgiris	4	—	—	4
13.	Kanyakumari	228	—	—	228
Total		8,777	17	109	8,903

STATEMENT IV
EXPORT OF RICE BRAN FROM INDIA

Customs Zone	1957		1958	
	Quantity in tons	Value in Rs.	Quantity in tons	Value in Rs.
Kakinada & Vishakapatnam	723	1,01,532	3,910	5,51,381
Calcutta	321	45,191	1,497	2,19,444
Bombay	53	2,600	—	—
		1,097	1,56,323	5,407
				7,70,825

STATEMENT V

CHEMICAL CHARACTERISTICS OF CRUDE AND EDIBLE RICE BRAN OIL

Characteristics	...	...	Crude Rice bran oil	Edible oil Clean, delicious Taste mild flavour.
General Condition	...	...	Clear at 80°C.	
Colour	...	...	...	Levibond colour 5½ cell. Y-35-R-10
Maximum Moisture & Impurity	...	2.0 %		0.2 %
Unsaponifiable matter max.	...	7.0 %		4.5 %
Sp. Gr.	...	100°C / 40°C		30°C / 20°C
		0.845—0.875		0.915—0.919
Ref. Index at 30°C	...	—		1.470—1.473
Cold Test	...	—		0°C 15 min.
Acid value	...	—		1.0
Sap. value	...	180—195		180—195
Iodine value	...	92—112		92—115

Sources: (Particulars from an article by Sri S. D. Thirumala Rao & K. S. Murthy, O. T. I. Ananthapur).

STATEMENT VI

AVERAGE ANALYSIS OF RICE BRAN AVAILABLE IN MADRAS STATE

Sample	Dry matter-%	Protein-%	Oil-%	Carbohydrates-% Sehuble Fibre	Ash-%
Rice bran	90—7	13.0	15.6	41.6 8.5	12.1

Sources: A note book on Agricultural Facts & Figures 5th Edition (1952)—published by the Madras Agricultural Department.

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A Division of the
Department of Industries
and Commerce, Madras

SCIENCE NEWSLETTER

CUPROUS OXIDE BY ELECTROLYTIC METHOD PROCESS DEVELOPED AT KARAUKUDI

An electrolytic method for the preparation of cuprous oxide has been developed at the Central Electro-Chemical Research Institute at Karaikudi.

Samples of the cuprous oxide produced by this method have been reported to be satisfactory by the Indian Naval Dockyard Laboratory and various other user industries like paints, porcelain, red glaze and colouring glass etc.

The operating conditions have been standardised in the laboratory and a pilot plant capable of producing one pound of copper oxide an hour has been fabricated and operated successfully. Cuprous oxide is an important ingredient of anti-fouling paints and of fungicidal compositions used in horticultural operations.

Copper oxy-chloride and cuprous oxide are extensively used as substitutes for bordeaux mixture in operations against plant diseases in India. Tea, rubber, coffee and arecanut plantations - all these use cuprous oxide in various proprietary forms. To a minor extent, the compound is used in the production of copper salts in ceramics for the development of porcelain, red glaze and in the manufacture of ruby glass.

The bulk of the country's requirements of cuprous oxide is met by imports, since only a few firms are known to be manufacturing it and the quantity produced is not enough to meet the demand. About 35 to 40 tons of

cuprous oxide a year are needed by the anti-fouling paints industry. This demand is bound to increase with the development of our shipping industry.

TEA INDUSTRY

The tea industry consumes upto 750 tons a year, the bulk of it as cuprous oxide or copper oxy-chloride dusts, containing 4 to 6 to 12 percent, copper. Coffee, rubber and arecanut plantations require about 250 tons a year, while Government agencies for plant protection need about 50 tons a year.

The total annual requirement of the chemicals-cuprous oxide and copper oxy-chloride-in their 50 per cent wettable or dust form in the country has been estimated at 1,000 to 1,200 tons by the Directorate of Plant Protection Quarantine & storage.

The new patented process consists in using cast copper sheets as anodes in a divided cell, where sheet copper cathodes are used, the electrodes being separated by a cloth diaphragm.

ALKALINE SOLUTION

An alkaline solution of sodium chloride is used as the electrolyte. Heated brine is fed at a constant predetermined rate into the cathode compartments of the cell. Cuprous oxide formed near the anode is withdrawn with the electrolyte through the bottom of the cell.

The slurry is filtered free of cuprous oxide, and the clear filtrate run back into the cell after adjusting the composition.

The cake of cuprous oxide is washed, stabilised and dried, preferably under reduced pressure. Rotating electrodes may with advantage be used in place of stationary electrodes.

Special features developed in the process are the continuous circulation of the electrolyte, which prevents unnecessary build-up of the

alkali at the cathode and maintains an optimum and constant alkalinity at the anode, a condition favourable for the formation of cuprous oxide; and employment of equipment of a special design for feeding of the electrolyte at a constant pre-determined rate.

The raw material, namely copper scrap, is available in the form of rejected cables, wires etc. from electrical industry and from borings, clippings and turnings from the engineering and metal goods industries.

NEW CHEMICAL HELPS INCREASE WHEAT YIELD

A new chemical compound which shortens and strengthens wheat straw, while giving a greater yield of grain, is being tested in Britain and the Middle East. Known as Cycocel, or triple "C" for short, the chemical will be manufactured in Britain next year and will be available for export to Commonwealth countries. It was first developed at the University of Michigan, U. S. A.

In a recent BBC broadcast interesting points

about the new compound were explained. One of the most valuable results from the use of CCC had been increased wheat yields of up to 40 per cent.

The compound is applied as a spray at 1½ lb. to 2½ lb. per acre of wheat. It can also be used successfully in treating and increasing the yield of other crops, such as tobacco, cotton, grape-vine, potato, sugarcane, banana and tomato.

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PARTICLE BOARDS FROM WOOD WASTES

WITHOUT BINDER

A non-technical note on the small scale manufacture of Particle Boards from Wood Wastes without binder which gives an idea of the process, cost estimates and returns is published below for the benefit of the entrepreneurs. Interested parties may address the Small Industries Information Cell, Research Co-ordination, Industrial Liaison Extension Unit, Council of Scientific and Industrial Research, Rafi Marg, New Delhi-1 for further particulars in this regard.

The present production requirements of particle board in India is estimated at 40,000 M. tons and this is expected to increase to 50,000 M. tons by 1970. Most of the particle boards in India are at present being manufactured by using various binders like PF, UF and MF. The annual cost of resin at present imported is estimated to be of the order of Rs. 2 crores. Their cost is 50-100 per cent higher than in Europe and they are, therefore, increasing the cost of production apart from being a drain on foreign exchange. Besides the particle board industry utilizes firewood chipped and fibred by an elaborate method and then impregnated with an imported resin for processing it at suitable temperature and pressure. On the other hand, there are large resources of low grade wastes like raw dust, rice husk, bagasse, reed grass etc., which are at present being wasted. It is assumed that 0.5 million tons of such unused, organic material can be easily collected at regional centres provided suitable industrial output is found.

The Regional Research Laboratory at Jorhat has developed a special process for converting these low grade wastes into building boards or furniture boards which could be used for a variety of purposes. In this process, the binder used is only water. In the process studied in detail in the Laboratory, saw-dust and the like are subjected to thermo-mechanical treatment after suitable conditioning using water as the only binder. The boards have a tensile strength of 110-125 kg/sq. cm. and a shearing strength of 130-145 kg/sq. cm. At a slightly additional cost the boards can be rendered completely water proof and it could be used for a variety of purposes as roofing material, flooring tiles, panelling and furniture making. The cost of production of water proof boards is estimated at 0.30 P per sq. foot.

COST ESTIMATES FOR 3.2 TON CAPACITY PER DAY PARTICLE BOARDS FROM WOOD WASTES IN 3 SHIFTS, WORKING 300 DAYS A YEAR.

Equipments	Rs.
(i) 2 Nos. Hydraulic Press, 6 platan Total capacity 1.6 ton/day	3,00,000
(ii) 4 Nos. Hot oil circulating pump and 4 Nos. motors (2 motors and 2 pumps as spares)	12,000
(iii) Oil for heating at the rate of 5 litres a day at Rs. 200/- per 1000 litres	600
(iv) Purifier and mixing equipment 3 Nos. (one as a spare)	15,000
(v) Moulds, plates and cranes	10,000
(vi) Other accessories, Heaters, Wires, Cables, Shieves and Shakers	10,000
(vii) Transportation cost	10,000
Total cost of Equipments	3,57,600

The pulp cement sheets have been tested in the laboratory and were observed to satisfy the requirements of the Indian standard specification for roofing materials.

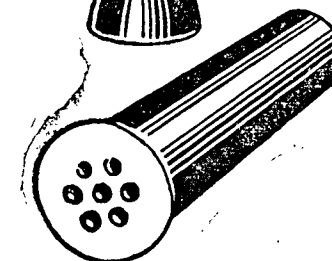
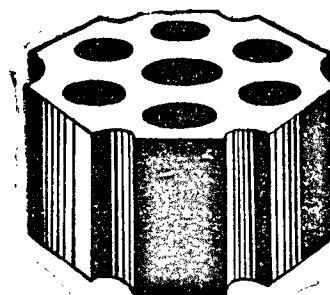
CAPITAL COST OF MANUFACTURE OF BAMBOO PULP CEMENT CORRUGATED SHEETS—10 TON PER 24 HR. DAY

I. Land		Rs.
One acre of land	...	50,000
II. Buildings (Assumed life 10 years)		ft.
1. Shed for cement storage 30 x 30	1,00,000	25,000
2. Shed for pulp storage 10 x 10		
3. Shed for manufacture of sheets, offices etc. 75 x 50		
4. Shed for stacking sheets 60 x 60		
5. Tank for curing sheets 100 x 100		
		1,25,000
III. Machinery		
1. Weighing machines 2 nos. (life 2 yrs.)	5,000	
2. Mixing stirrers of 250 lbs. capacity each 4 Nos. (life 1 year)	10,000	
3. Movable moulds 1,000 Nos. (life 5 yrs.)	25,000	
4. Fixed moulds 2 Nos. (life 5 yrs.)	5,000	
5. Hydraulic press 600 ton capacity 7 ft. x 4 ft. platen size (life 4 yrs.)	2,00,000	
6. Trolleys 50 Nos. (life 5 years)	30,000	
7. Laboratory equipment (life 10 yrs.)	50,000	
Total		3,25,000

PILOT PLANT SCHEME FOR MANUFACTURE OF BAMBOO PULP CEMENT CORRUGATED SHEETS FOR ROOFING MATERIAL—10 TON PER 24 HR. DAY

I. Materials				Rs.
Cement	150 bags	11 per bag	...	1,650
Pulp	1,000 lbs.	500 per ton	...	225
				1,875
II. Utilities				
Electricity	1000 units	0.20 per unit		200
				200
III. Services				Rs. per month
Manager	one	750	...	30
Shift Supervisors	three	300	...	36
Lab. assistant	three	300	...	36
Operators	three	200	...	24
Labourers	120	3 per day		360
				486
IV. Depreciation				
Buildings	1,25,000	5 %	...	25
Machinery	3,25,000	variable	...	348
				373
V. Interest				
Investment	5 lakhs	10 % Interest...		200
				200
Total of I to V			...	3134
Profit 20 %			...	626
				3760
Grand Total				3760
Rate per Sq. ft. for 6 mm. thick sheet				0.38

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	Rs.	Maintenance & Depreciation :	Rs.
Buildings :			
(i) Site preparations roads and drains ...	10,000	(i) Depreciation on equipments @ 10% (for Rs. 3,47,000) ...	34,760
(ii) One building ...	50,000		
(iii) Workshop equipments ...	20,000	(ii) Depreciation on Buildings @ 5% (for Rs. 95,000) ...	4,750
(iv) Laboratory equipments :			
(a) Equipments ...	10,000	(iii) Maintenance of plant 4% (for Rs. 4,42,000) ...	17,700
(b) Chemicals ...	5,000		
(v) Contingencies ...	10,000	(iv) Interest on Working Capital 7% ...	7,000
(vi) Land ...	Free		
Total cost of Buildings ...	1,05,000		
Working Capital ...	1,00,000	Total Depreciation cost ...	64,210
Total cost ...	5,62,600		

COST OF PRODUCTION, WORKING 300 DAYS ANNUALLY

Raw Materials :

	Rs.
(i) Wood wastes — 1000 tons @ Rs. 40 per ton to be supplied at the site ...	40,000
(ii) Water proofing material 1% i.e. 10 tons @ Rs. 1000 per ton ...	10,000
Total cost of raw materials ...	50,000

Utilities :

(i) Power @ 1 Unit/kg. for 1000 tons at Government rates ...	6,000
(ii) Water 5000 litres a day @ Re. 1 for 1000 litres ...	1,500
Total Utilities cost ...	7,500

Salaries & Wages :

(i) One plant Superintendent Rs. 1000 p. m. & 3 shift Supervisors Rs. 800 p. m. ...	40,800
(ii) 30 Operators, 10 for each shift @ Rs. 3 per day ...	27,000
Total salaries ...	67,800

(i) Total cost of production ...	1,89,500
(ii) Total quantity of Board produced ...	960 tons
(iii) Cost per ton of Board ...	198-00
(iv) Cost per sq. foot of Board ...	12 Paise.

PULP CEMENT CORRUGATED SHEETS

(SUBSTITUTE OF ASBESTOS CEMENT SHEETS)

A non-technical note on the small scale manufacture of Pulp Cement Corrugated Sheets (substitute of asbestos cement sheets) which gives an idea of the process, cost estimates and returns is published below for the benefit of the entrepreneurs. Interested parties may address the Small Industries Information Cell, Research Co-ordination, Industrial Liaison Extension Unit, Council of Scientific and Industrial Research, Rafi Marg, New Delhi-1 for further particulars in this regard.

PROJECT FOR IMPORT SUBSTITUTION OF ASBESTOS FOR USE AS ROOFING MATERIAL

To support the manufacture of asbestos cement products, considerable quantities of asbestos are imported. For the period April 1964 to March 1965, about Rs. 5.0 crores worth of asbestos was imported. The production in 1963 was 4,54,000 tonnes, and licences, have now been issued to increase the production during the Fourth Five Year Plan to 7,28,000 tonnes per annum. This would involve import of 69,000 tonnes of asbestos per year at a foreign exchange of Rs. 7 to 8 crores.

The indigenous variety of asbestos which is of the amphibole variety has not been preferred by the industry which is oriented to use "the imported chrysotile" variety. The former has shorter fibre length and, therefore, gives less strength. Some work which has been carried out at the Central Fuel Research Institute, Jealgora, has indicated that the indigenous varieties could be used provided they are pre-treated with suitable surfactants.

The Regional Research Laboratory, Jorhat, has been working on the problem of substitution of imported asbestos by other fibrous indigenous materials like bamboo pulp, hessian, etc. Preliminary experiments carried out by using bamboo pulp have given encouraging results. The cost of imported asbestos is estimated at Rs. 1,000 per tonne whereas unbleached bamboo pulp costs about Rs. 500 per tonne. The cost of production, therefore, would be less. Since the technique of making asbestos products is akin to paper making and since there is a programme of research already under way on paper making, this laboratory is well-suited to undertake this problem.

The Regional Research Laboratory, Jorhat, has developed a laboratory process for the manufacture of bamboo pulp cement corrugated sheets, where unbleached pulp has completely replaced asbestos. It is now proposed to set up a Pilot Plant to carry out detailed studies.

With a capital cost of Rs. 5 lakhs and a recurring annual expenditure of Rs. 6.50 lakhs, we can manufacture 1,25,000 sheets of 6 ft. x 3 ft. 6 in. x $\frac{1}{4}$ in. size. The cost of production with 20% profit works out to 38 paise per sq. ft. The details of cost analysis are enclosed. The sale price of asbestos cement sheet in the market is about 80 paise per sq. ft. which includes freight charges and dealer's commission. It is thus evident that apart from saving the foreign exchange requirement of Rs. 7 to 8 crores, the sheets will be significantly cheaper than the conventional asbestos sheets.

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ANCILLARY INDUSTRIES IN MADRAS STATE

An ancillary unit is defined as a unit having a fixed capital investment not exceeding Rs. 10 lakhs which produces products, components, sub-assemblies and tooling for supply against known or anticipated demand, of one or more large units manufacturing/assembling complete products and which is not a subsidiary to or controlled by a large unit in regard to the negotiations of contracts for supply of its goods to any large unit. This shall not, however, preclude an ancillary unit from entering into an agreement with a large unit giving it the first option to take the former's output.

The units which are set up primarily for replacement market also fall within the scope of the above definition. Manufacture of tools, dies, jigs and fixtures is also recognised as ancillary industry.

Small Scale Industries play a significant role in manufacturing and supplying large number of components and spare parts of stores required by the large undertakings both in the public and private sectors. Recognising the large potential of the ancillary industries, the Small Scale Industries Board at New Delhi took special interest to examine the ways and means of developing ancillary industries. For this purpose an Ancillary Industries Committee was appointed to examine and recommend various measures for development of these industries. Six Regional Committees were also set up in the States of Madras, Delhi, Maharashtra, Mysore, West Bengal and

Gujarat to assist the main Committee in recommending measures for the development of ancillaries.

The Ancillary Industries Committee has recommended the following industries for development of ancillaries at present :

1. Automobiles.
2. Radios and Electronic Equipments.
3. Locomotives and Rolling Stocks, Ships & Aircrafts.
4. Bicycles.
5. Industrial Machinery.
6. Agricultural and Earth Moving Machinery.
7. Machine Tools.
8. Electrical Machinery, Equipment and appliances.

9. Commercial Office and Household equipments.

10. Boilers and Steam generating plants.

11. Industrial, Scientific and Mathematical Instruments (Mechanical).

12. Steam Engines, Turbine and Internal Combustion Engines.

13. Telecommunication equipment.

14. Industrial equipments (electrical).

15. Air conditioners and Cold Storage Equipment including Refrigerators.

16. Mineral oil and Petroleum Industries.

CONCESSIONS TO ANCILLARY UNITS

The following facilities are admissible to Small Scale Ancillary Units:

1. Supply of machinery under Hire purchase scheme of the National Small Industries Corporation.

2. Technical and general assistance by the Small Industries Service Institute.

3. Allotment of factory sheds in Industrial Estates.

4. Enlistment under Central Government Stores Purchase Programme.

5. Exemption from payment of security deposit.

6. 15% Price preference over large undertakings for tenders invited by D. G. S. & D. and Railways.

7. Credit facilities from the State Bank of India and other sources.

ROLE OF SMALL INDUSTRIES SERVICE INSTITUTE, MADRAS

(a) Explores the possibilities of setting up ancillary units in the small scale sector for the supply of parts/ components to the large industries both in public and private sectors.

(b) Periodical inspection of the Small Scale units for checking up their progress both in respect of ancillary production and Government stores supply and assisting them suitably to enable them to keep up their delivery schedule.

(c) Explores the possibilities of Small Scale Units taking to production of stores for the Defence with their existing machinery and equipment and recommending them to the concerned authorities for placement of orders.

(d) Checks up the technical competence of the Small Scale Units and registering them.

There are two divisions in the ancillary section of this Institute one for collaboration between large scale and small scale sectors and the other for Central Government Stores Purchase Programme.

COLLABORATION BETWEEN LARGE SCALE AND SMALL SCALE SECTORS

1. Various large scale units in the State are visited by the officers of the Ancillary Section for studying their requirements of ancillary stores and for locating competent small scale units to cater to their needs. Many small scale units are also contacted in this regard and encouraged to take up the manufacture and supply of components required after taking into consideration the machinery and equipment available with them. At present, 169 small scale units have secured orders to the tune of Rs. 1,24,10,965.

2. M/s. Royal Enfield, Madras have made a beginning in the establishment of an Ancillary Industrial Estate for getting their components. Such ancillary industrial estates have been usually set up by public sector undertakings like the H. M. T. This new Ancillary Industrial

Estate, known as the K. R. Sundaram Industrial Estate, has made a beginning in this line. The High Pressure Boiler Plant, Tiruchirappalli, have also decided to have an ancillary industrial estate, for which the Government of Madras have already procured suitable land near their factory. M/s. Textool Industries, Coimbatore, have also a plan to start a private industrial estate, principally to manufacture the ancillary items for the textile industry.

GENERAL ITEMS SUPPLIED BY SMALL SCALE UNITS TO LARGE INDUSTRIES

1. Brass Forged components
2. Steel Forgings
3. Springs
4. Fabricated & Assembly items
5. Rubber items
6. Pressed components
7. Leather items
8. Ferrous & non-ferrous castings
9. Jigs, fixtures, dies & tools
10. Precision turned components
11. Machining and textile parts
12. Plastic items
13. Gauges
14. Packing materials
15. Winding, tapping & forming of field coils
16. Wooden boxes
17. Electroplating
18. Trimming of rubber gaskets
19. Cable Assembly
20. Electronic components
21. Polythene bags
22. Conversion of Black bars to bright bars
23. Chemical items like paints etc.
24. Glass items like mirrors etc.

CENTRAL GOVERNMENT STORES

PURCHASE PROGRAMME

The National Small Industries Corporation is the sponsoring authority for the processing of Government tenders to the Small Scale

units based on the recommendations of this Institute. In the case of units on whom orders are likely to be placed, certificates of competence in favour of the units are furnished and they are recommended to the National Small Industries Corporation after verifying the capabilities and production capacity. So far, orders to the tune of Rs. 66,94,825 have been placed on Small Scale Units for the first half year 1965-66.

A brief note on the progress achieved in the ancillary development programme is given in Annexure A.

DEFENCE PRODUCTION

Due to the present National Emergency, the demand for the defence stores continues. As many as 12 small scale units have secured orders to the tune of Rs. 14,18,089 for supply of various defence stores.

EXHIBITION OF SAMPLES OF PRODUCTS

MANUFACTURED BY SMALL SCALE UNITS

The ancillary section of the Institute has a show room where samples of various products manufactured by small scale units are exhibited. This helps the industrialists and buyers to locate manufacturers of parts and components similar to those exhibited.

IMPORTED COMPONENTS REQUIRED BY LARGE SCALE INDUSTRIES

At present about 100 samples of imported parts / components required by the large industries are collected along with the details of annual requirements etc. and are on exhibition for the benefit of small scale industrialists who may explore the possibilities of manufacturing these items indigenously.

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For Small Industries**

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Machine Tools at
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TURRET LATHES, H. M. T. CENTRE LATHE,
SLOTTING MACHINE, HEAVY DUTY
VERTICAL SURFACE GRINDER, HEAVY
DUTY PLANE MILLING MACHINE

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THE SUPERINTENDENT,

COMMON LEASE SHOP

INDUSTRIAL ESTATE,

GUINDY, MADRAS-32.



IND-COM JOURNAL

WEALTH FROM WASTE

For many years tips of blast furnace slag have been quarried for building and road making materials, but now the British Iron and Steel Research Association (BISRA) has developed a process by which an entirely new constructional material of high quality can be produced from slag. The RA calls this Slagceram.

Blast furnace slag consists of lime, alumina and magnesia. By adding extra sand to bring the silica content upto 45-65 per cent, a crude form of glass called 'Vitroslag' can be produced by the normal processes of glass making; that is to say by melting, forming and annealing. Like any other form of glass, "Vitroslag" is amorphous, but if it can be given a uniform crystalline structure it becomes an altogether superior material.

This has been achieved by adding to the melt an agent which will promote crystallisation. Oxides of elements such as vanadium, chromium, titanium and iron, as well as some fluorides and phosphates, are all effective at the job.

The production method is still the same as for glass, except that a carefully controlled heat treatment process takes the place of the usual annealing of the formed material. Fine or coarse grained material can be produced. The exact crystal size required will depend on what the material is to be used for, but, broadly speaking, the smaller and more uniform the crystals, the stronger it is.

The product of this process has been named Slagceram. It has high crushing strength and

abrasion resistance. It is much harder to scratch than good ceramic tiles. It is more elastic and heat resistant than glass, has very high electrical resistance and it does not discolour in the atmosphere. Neither will mould grow on it. An experimental panel of Slagceram tiles laid in a busy corridor of the BISRA building in Battersea has shown no noticeable wear, chipping or cracking after several months.

Slagceram may be polished, like granite, it may be cut by a diamond-edged saw. It can be mounted in conventional cements as well as in more expensive epoxy resins. Vitreous enamel can be applied before heat treatment, so that the enamel firing is done at the same time, which saves money. It is formed, like glass, by casting or pressing in sand or metal moulds and the method used will determine the surface texture. The BISRA scientists have also been looking at the possibilities of rolling Slagceram and adding different, bulk colours to the mix.

If the mix is allowed to settle in the furnace before forming takes place, it makes a dense product. But material taken directly from a rotating furnace contains bubbles, so lightweight Slagceram can be produced, too.

Most blast furnace slags in either the solid or the liquid state may be used in making slagceram although it is obviously preferable to save fuel during the melting operation by using the heat already present in molten slag.

APRIL — JUNE 1966

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PROJECT REPORT FOR GRAPHITE CRUCIBLE

The National Metallurgical Laboratory has issued a project report on the production of graphite crucible employing indigenous raw materials.

The industrial production of graphite crucible made with the technical know-how developed at the National Metallurgical Laboratory has been successfully undertaken by an Indian firm and the quality of the graphite crucibles compares most favourably with that of imported ones.

In its effort in finding substitute alloys and products, National Metallurgical Laboratory has also been engaged in developing a PVC coated steel sheet which can replace a zinc coated steel sheet for multifarious applications.

PVC plastisol coated steel strips employing black sheet have been made at National

Metallurgical Laboratory employing wholly indigenous raw materials. The corrosion resistance of PVC laminated coated black sheet is superior to that of galvanized steel sheet in different media, including atmospheric corrosion.

In overseas countries such as Japan, PVC coating is done on a galvanised or phosphated steel surface. At National Metallurgical Laboratory PVC laminated coating of black sheet, has been successfully developed with highly encouraging results.

National Metallurgical Laboratory has also done pioneering work on the smelting of pig-iron using low temperature carbonised coke. This has paved the way for the establishment of regional pig-iron plants. ★

GOLD REFINERY IN MADRAS

The jewellers and the general public in Madras State will have gold assaying facilities when a Co-operative gold refinery goes on stream at the Guindy Industrial Estate very shortly. The goldsmiths and others today use crude methods and the 'nitric acid' process to test gold purity for want of scientific assaying facilities. The new refinery will have a laboratory that will use the Indian Standards Institution specifications. This refinery will serve, besides the general public and manufacturers, the four multi-metal Co-operatives operating at Madras, Tiruchirapalli, Coimbatore and Madurai for the benefit of goldsmiths rendered idle by the gold control order. These multi-metal societies concentrate

on the manufacture of gem-set 14 carat jewels which are increasingly popular.

The new Co-operative refinery's capacity will be ultimately four kilograms per day but it will initially process one kilogram per day valued at about Rs. one lakh. Members numbering 119 have subscribed Rs. 76,000 to its share capital and orders for refining equipment have been placed. A chief assayer from Calcutta will assist in the setting up of the assaying laboratory and the chemists of the refining will be trained in assaying. The refinery will utilise a 2.5 per cent 10-year loan of Rs. Three lakhs from the Madras Industrial Co-operative Bank for its working capital. ★

HAND-MADE 5 SEATER CAR

A new hand-made four door five seater motor car has been designed and manufactured by the Arvind Automobiles of Trivandrum. Sri K. Balakrishna Menon, its main designer who has thirty years' experience in automobile

engineering, claimed it took him 780 man hours to produce this 11. H. P. car costing nearly Rs. 10,000 inclusive of all taxes. He said the overall weight of the car, which is now 1,100 kg. could be reduced by about 200 kg. if

mechanically pressed instead of hand-pressed. Excepting the speedometer, carburettor and the cylinder box, the car is cent per-cent indigenous. It has, however, been powered by a Fiat engine with expanded clutches to pull the heavy weight.

Sri. S. Nijalingappa, Chief Minister of Mysore, had a five minute drive around the Vidhan Soudha, on the 11th May 1966.

Sri. P. M. Reddy, General Manager of HAL who himself had developed a four-seater prototype in this works also had a drive along with the Chief Minister of Mysore.

"Highly comfortable and very pleasing" were the encouraging remarks Sri Nijalingappa made to Sri. K. Balakrishna Menon, the main designer. ★

STONE-POLISHING UNIT

The Government have sanctioned a stone-polishing unit at Veppanapatti in Krishnagiri taluk.

Fine grained black rock occurs in abundance

in this area. The black stone is now sent half-worked to Bangalore. There the pieces are finished and polished and largely exported. ★

LIME DEPOSIT IN COIMBATORE DISTRICT

The occurrence of cement grade crystalline limestone reserves to the extent of 2.4 million tonnes in Ethimadai-Walayar and Chavadipara areas in Coimbatore District, sufficient to sustain the requirements of a small scale cement plant of a daily capacity of 100 tonnes has been reported by the State Geological Branch of the Industries Department, Madras.

The bulk of the reserves, about 2 million tonnes, occurs in the Ethimadai area at a height of 3,500 feet above sea level for an

assumed depth of 30 feet. About 4 lakh tonnes and reserves occur in the Chavadipara area at a height of 1,200 feet above sea level for the same depth. About 25 representative samples of the reserves were collected for chemical analysis and it was found that the percentage of calcium oxide varied between 42.22 and 45.31.

The Geologist's report also referred to the availability of gypsum in the Udumalpet taluk or Ariyalur and clay locally. ★

UREA PRODUCTION IN NEYVELI

Production in the Urea Plant in the Fertilizer Factory of the Neyveli Project commenced on the 8th March, 1966. At present 225 tonnes are produced daily. It is expected that the plant will reach its capacity of 465 tonnes per

day by August of this year.

The first consignment of Urea fertilizers produced at this plant were despatched in 15 wagon loads to various places in the Thanjavur district during the second week of May, 1966. ★

THE PRIVATE INDUSTRIAL ESTATE AT COIMBATORE

The private industrial estate located on the 198 acre site in Kurichi village near Coimbatore is a good example of the entrepreneurial initiative obtaining in this part of the country.

The policy of organising industrial estates to give a fillip to the small-scale industries sector was first enunciated by the Government of India eight years after the advent of

independence. But the claim of Coimbatore for the establishment of a Government-sponsored industrial estate as in other parts of the State was not conceded as the objective of the Government was to provide them only in the industrially backward areas. In view however of the flourishing state of major industries in the Coimbatore area the need for aiding organised development of the small-scale industries sector has become imperative to reduce replacement costs and to foster efficiency in the existing industries.

The Industries Minister, who was anxious to keep alive the enthusiasm of the entrepreneurs, suggested that though the Government itself would not on principle set up an Industrial Estate in a highly industrialised area like Coimbatore, it could provide long-term financial assistance and moral support if the entrepreneurs of the area would establish one themselves and maintain it. Thus the private industrial estate in Coimbatore came into being in 1962. The first stage of development of this Rs. 2.75 crore

industrial estate was completed recently and the first series of units manufacturing motors and pumpsets, ceramic ware, tyre retreading machinery parts, stepdown transformers, etc., went into production according to schedule a year ago.

The first stage of construction of factory buildings, which will be placed in the hands of the Special Construction Division of the Department of Industries and Commerce, is to be undertaken shortly. The estate provides model factory buildings with all necessary amenities at a competitive rent of 10 paise per square foot of plinth area.

The estate has now announced the "Own your factory" scheme, under which buildings could be purchased by its occupants on an easy hirepurchase scheme extending over a period of 15 years. The services of a technical officer of the State Industries Department has been lent to this estate who has assumed charge as the Administrative Officer recently. ★

NOTIFICATION

EXEMPTION OF CERTAIN INDUSTRIES UNDER SECTION 29-B.

S. O. 1467/IDRA/29B/66/dated 13-5-66 In exercise of the powers conferred by sub-section (1) of section 29 B of the Industries (Development and Regulation) Act, 1951 (85 of 1951), the Central Government hereby exempts from the operation of sections 10, 11, 11 A and 13 of the said act and the rules made thereunder all industrial undertakings pertaining to such industries in the first schedule to the said Act as are mentioned below, namely:—

Any Industry engaged in the manufacture or production of:

(i) (a) Iron and Steel Castings and forgings falling under '3 Iron and Steel castings and forgings and (b) Iron and Steel structurals falling under (4) Iron and Steel structurals under the heading 1. Metallurgical Industries. A. Ferrous."

(ii) Electric motors (not exceeding 10 Horse Power) falling under (2) 'Electrical Motors' under the heading '5 Electrical Equipment.'

(iii) Pulp-Wood pulp, mechanical, chemical, including dissolving pulp falling under (5) pulp-wood pulp, mechanical, chemical, including dissolving pulp, under the heading '24

paper and pulp including paper products.'

(iv) Power Alcohol falling under '(1) Alcohol under the heading '26, Fermentation Industries'

(v) Solvent extracted oils falling under (i) vegetable oils, including solvent extracted oils under the heading '28 Vegetable oils and vanaspathi.'

(vi) Glue and gelatin falling under the heading '32. Glue and Gelatin.

(vii) (a) Sheet and plate glass falling under '(2) Sheet and plate glass' (b) optical glass falling under '(3) Optical Glass' (c) Glass wool falling under '(4) Glass Wool (d) Laboratory ware falling under '(5) Laboratory ware' and (e) Miscellaneous — ware falling under '(6) Miscellaneous ware' under the heading '33. Glass.

(ix) (a) Portland cement falling under (1) Portland cement. (b) Insulating boards falling under '(3) Insulating boards and (c) Gypsum boards, wall boards and the like, falling under the heading '35. Cement and Gypsum products' and

(x) Plywood falling under '(1) Plywood' under the heading '36, Timber Products.

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APRIL—JUNE 1966

(Continued)

Name and full address of the undertaking (and location)	Articles of manufacture and capacity (type of licence i.e. NU/SE/NA/COB/shifting)	Licence No. and Date
Schd. Ind. No. 23 (1)—Made Wholly or in part of cotton including cotton yarn, hosiery and rope		
M/s. Sri Anjaneya Cotton Mills (P) Ltd., 633/1, Subhas Road, Davangere, (Mysore State) (Mysore)	Spindles for the manufacture of cotton yarn [S. E.] ... 12,820	L/23(1)/1023/65— 9-11-65 Tex (H)
M/s. Cannanore Co-operative Spinning Mills Ltd., Chavva P.O., Cannanore, Kerala (Kerala)	do do ... 13,000	L/23(1)/1027/65— 17-11-65 Tex (H)
Schd. Ind. No. 23 (1)—Cotton Textiles		
Tiruchirapalli District Co-operative Spinning Mills Ltd., Karur (Madras State)	do do ... 13,000	L/23(1)/1030/65— 25-11-65 Tex (H)
M/s. North Arcot District Co-operative Spinning Mills Ltd., Vellore (Madras State)	do do ... 12,904	L/23(1)/1031/65— 25-11-65 Tex (H)
South Arcot District Co-operative Spinning Mills Ltd., Tindivanam (Madras State)	do do ... 12,904	L/23(1)/1032/65— 25-11-65 Tex (H)
Kanyakumari District Co-operative Spinning Mills Ltd., 26/B-A, Vellalar Colony, Ramavarnapuram, Nagercoil (Madras State)	do do ... 13,000	L/23(1)/1034/65— 25-11-65 Tex (H)
Thanjavur District Co-operative Spinning Mills Ltd., Mayuram, Thanjavur District (Madras State)	do do ... 12,904	L/23(1)/1035/65— 25-11-65 Tex (H)
Madurai District Co-operative Spinning Mills Ltd., Melur P.O., Madurai District (Madras State)	do do ... 13,000	L/23(1)/1036/65— 25-11-65 Tex (H)
Coimbatore District Co-operative Spinning Mills Ltd., Dharapuram, Coimbatore District (Madras State)	do do ... 13,000	L/23(1)/1033/65— 25-11-65 Tex (H)

(Continued)

(Continued)

Name and full address of the undertaking (and location)	Articles of manufacture and capacity (type of licence i.e. NU/SE/NA/COB/shifting)	Licence No. and date
Schd. Ind. No. 5 (1)—Equipment for Generation, Transmission and Distribution of Electricity including Transformers		
Kirloskar Electric Co. Ltd., Post Box No., 1017, Malleswaram, Bangalore-3. (Mysore)	Alterations — Approx from 1 KVA to 1,500 KVA unit for outputs p. a. [S. E.]	L/5(1)/118/EEI/65 18-11-65
Schd. Ind. No. 35 (1)—Portland Cement		
The India Cements Limited., Dhun Building, 175/1, Mount Road, Madras-2 (Sankarnagar, Talaiyuthu, Tirunelveli District. (Madras State)	Portland pozzolana cement [N. A.]	tonnes p. a. ... 200,000 L/35(1)/32/65—Cement 22-11-65
Schd. Ind. No. 25—Sugar		
Sarvaraya Sugars Ltd., Chellura, Ramachandrapuram P.O., East Godavary District, (Chellura, East Godavary District, Andhra Pradesh)	Increased crushing capacity by sugar cane [S. E.]	tonnes per day ... 500 L/25/N—150/65 3-12-65
Kothari Sugars & Chemicals Ltd., Oriental Building, Armenian Street, Madras-1. (Kattur, Lalgudy Taluk, Trichy District, Madras State)	do do	... 250 L/25/N—152/65 3-12-65
Schd. Ind. No. 19 (12)—Textile Auxiliaries		
M/s. Government Soap Factory, Bangalore (Bangalore, Mysore State)	Synthetic detergents [N. A.]	... 1,200 tonnes p. a. L/19(12) (1)/65/NA/— 17-12-65 CH—II

HOT-FORGED M.S. NUTS

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EP-NF-12

INDUSTRIAL LICENCES

LIST OF LICENCES ISSUED UNDER THE INDUSTRIES (DEVELOPMENT AND REGULATION) ACT, 1951 DURING THE MONTHS OF NOVEMBER AND DECEMBER, 1965

IN THE STATES OF MADRAS, ANDHRA PRADESH, KERALA, MYSORE AND PONDICHERRY

Name and full address of the undertaking (and location)	Articles of manufacture and capacity (type of licence i.e. NU/SE/NA/COB/Shifting)	Licence No. and date
Schd. Ind. No. 19 (1) - Inorganic Heavy Chemicals		
The Fertilisers & Chemicals, Travancore Ltd., Udyogamandal P.O., (Kerala)	Sulphur dioxide ... [S. E.]	tonnes p. a. ... 8,500 after expansion L/19(1)/2/65—L1 (I) 15-10-65
Schd. Ind. No. 23 (1) - Cotton Textiles		
Thiagarajar Mills, Kappalur, Thirumangalam P.O., Madurai. (Madras State)	Spindles for the manufacture of cotton yarn [S. E.]	... 3,080 L/23(1)/1014/65— 30-10-65 Tex (H)
Sri Lakshmi Saraswathy Textiles (Arni) Private Limited, 2nd Floor, Indian Chamber Buildings, Esplanade, Madras-1. (Madras State)	do do	... 13,000 L/23(1)/1015/65— 30-10-65 Tex (H)
Salem Co-operative Spinning Mills Ltd., Ammamet, Salem-3. (Madras State)	do do	... 12,760 L/23(1)/1020/65— 3-11-65 Tex (H)
Saroja Mills Ltd., Singanallur P.O., Coimbatore-5. (Madras State)	do do	... 4,920 L/23(1)/1022/65— 5-11-65 Tex (H)

(Continued)

**STATEMENT SHOWING THE LETTERS OF INTENT ISSUED DURING THE MONTHS OF
NOVEMBER AND DECEMBER, 1965 TO PARTIES WHO HAVE APPLIED FOR LICENCES
UNDER THE INDUSTRIES (DEVELOPMENT AND REGULATION) ACT, 1951**

Name and address of the undertaking (and location)	Articles of manufacture and capacity	Letter of Intent No. and date
Schd. Ind. No. 35—Cement and Gypsum Products		
M/s. Cement Corporation of India Ltd., 184, Jor Bagh, New Delhi, (Yerraguntha, Andhra Pradesh)	Portland Cement ... [N. U.]	tonnes p. a. ... 10,00,000 1-54/65—Cem. I 30-10-65
Schd. Ind. No. 25—Sugar		
M/s. Tungabhadra Sugar Works (Pvt.) Ltd., Post Box No. 2, Shimoga (Shimoga, Mysore)	Sugar ... [S. E.]	Capacity per drum after expansion (in tonnes) ... 1,500 No. 25(682) L.C./63 19-1-65
Schd. Ind. No. 35—Cement and Gypsum Products		
M/s. Associated Cement Companies Ltd., Cement House, 121, Queen's Road, Bombay-1. B.R. (Wadi, Gulbarga District, Mysore)	Portland cement ... [S. E.]	Capacity p. a. (in tonnes) ... 4,00,000 No. 1-60/65—Cem. I 15-11-65
Schd. Ind. No. 1 A—Metallurgical Industries: Ferrous		
Shri M. Somappa, Industrialist, M. G. Brothers, Yemmiganur, (Kurnool District) Andhra Pradesh. (Mysore or Madras State)	Malleable iron castings [N. U.]	tons p. a. ... 3,600 EEI-6 (32)/65 20-11-65
Schd. Ind. No. 19—Chemicals (Other than Fertilisers)		
M/s. Shalimar Paints Ltd., P.O. Box No. 2472, Calcutta-1. (Madras, Madras State)	1. Paints, enamels, varnishes 2. Synthetic resins ... [N. U.]	tonnes p. a. ... 5,000 ... 300 25(2)/65—LI (I) 24-11-65
Schd. Ind. No. 19—Chemicals (Other than Fertilisers)		
M/s. Western India Plywood Ltd., Baliapatnam P.O., Cannanore District, Kerala (Baliapatnam, Kefala)	Synthetic resin glue ... After expansion [S. E.]	... 204 ... 324 No. 6(6)/65—LI (I) 1-12-65

(Continued)

(Continued)

Name and address of the undertaking (and location)	Articles of manufacture and capacity	Letter of Intent No. and date
Schd. Ind. No. 30—Rubber Goods		
The Secretary, Ministry of Health, Government of India, New Delhi. (Kerala)	Condoms ...	million pieces p. a. ... 128 No. 30(29)/65—LI (II) 1-12-65
Schd. Ind. No. 8—C—Industrial Machinery: Other items of Industrial Machinery		
M/s. Alloys & Abrasives (Pvt.) Ltd., Uco Bank Buildings, 18, Kempegowda Road, Bangalore-9. (Mysore)	1. Shots and grits (excluding cut wire shots) ... 2. Grinding media and cylpeps ... [N. U.]	tonnes p. a. ... 1,800 ... 600 EI (M)—18(3)/65 17-12-65
Schd. Ind. No. 30—Rubber Goods		
M/s. Fenner, Cockill Ltd., Pandyan Building, West Veli Street, Madurai. (Madras State)	Synthetic rubber oil seals— Increase in capacity upto [S. E.]	nos. p. a. ... 15,00,000 30(42)/64—L. Ind. II 13-12-65

**STATEMENT SHOWING THE CHANGES EFFECTED IN THE NAMES OF OWNERS /
UNDERTAKINGS DURING THE MONTHS OF NOVEMBER AND DECEMBER, 1965**

Licence No. and date	Name of the original owner/ undertaking	Name of the new owner/undertaking
L/19(10)/NU-2/64— Pr. C 5-9-64 (N. U.) (Andhra Pradesh)	Licensee: Shri M. Krishnaswamy, Secunderabad.	Undertaking: M/s. Sapeic India Ltd., Hyderabad.

fty-nine priority industries included published below, raw materials, and spares required for production capacity for six months will be. This list, it will be observed, ny important export industries, ecting the common requirements le and above all capital building In the case of the other industries, will be made according to the ailable and the essentiality of the or all industries, licensing will form to the availability of foreign n different sources.

SMALL SCALE UNITS

industrial units making the same the priority industries will be e liberal facilities. Assessment ements by sponsoring authorities lay. It is, therefore, proposed n licences immediately to the e the rupee value of the licences 5. In the case of other small ort licences will be issued for e value of licences issued in

COPPER AND ZINC IMPORTS

copper and zinc will be made tual users and by the Minerals ding Corporation which will be ok after the requirements of stries in particular.

SPARE PARTS

In the recent years there has been a large increase in the output of spare parts for various industries. Many of these have, therefore, been banned for import. All the same there is a considerable volume of industrial, earthmoving, construction and other equipment which may not be fully utilised because of lack of adequate spare parts, which are not made in the country. It is, therefore, proposed to license freely both to actual users and traders the import from the U. S. A. of a wide range of spare parts other than those whose import is banned. The quotas for established importers from other sources are also being raised.

BOOKS AND DRUGS

An announcement on the liberalisation of imports of certain essential drugs and books was made on June 15. It has now been decided to liberalise further the imports of certain of these items through the trade. The established importers' quota for books s being raised and provision is being made for the free issue of supplementary licences for technical books and scientific books. Importers of books will be required to charge no more than the regular retail price expressed in rupees at the official rate of change and this is being made a condition of import. Established importers' quotas for drugs are also being increased.

RAISING PRODUCTION

These measures which may be supplemented hereafter should help to increase agricultural

and industrial production. It will be observed that there will be no liberalisation in the import of either capital goods or of less essential consumer goods.

LIST OF PRIORITY INDUSTRIES

The list of 'priority industries' for which imports have been liberalised are :—

1. Motor cycles.
2. Scooters.
3. Bicycles.
4. Mopeds.
5. Agricultural tractors.
6. Agricultural machinery and implements.
7. Pumps.
8. Fertilisers.
9. Pesticides.
10. Basic metal-iron and steel, copper, aluminium, zinc and lead.
11. Industrial and mining machinery.
12. Iron and steel castings, forgings, pipes and structures.
13. Internal combustion engines.
14. Machine tools and accessories.
15. Workshop machinery and equipment other than machine tools.
16. Small tools including cutting tools, power tools and other workshop tools.
17. Coated and bonded abrasives and polishing wheels.
18. Industrial furnaces.
19. Welding electrodes.
20. Ball and roller bearings.
21. Transformers, switchgears, motors, generators, power capacitors, rectifiers, relays and electric stampings.
22. Electrical cables and wires.
23. Storage batteries, dry batteries.
24. Electronic components.
25. Construction and earth moving equipment.
26. Cranes and hoist blocks.
27. Industrial fasteners.
28. Wire ropes.
29. Scientific and industrial instruments.
30. Cement.
31. Organic and inorganic heavy chemicals.
32. Fine chemicals.
33. Pulp, paper, and newsprint.
34. Synthetic rubber.
35. Tyres and tubes.
36. Industrial explosives.
37. Industrial gases.
38. Drugs.
39. Medical and surgical equipment and appliances.
40. Electro-medical and X-ray equipment.
41. Refractories, fire bricks and insulators.
42. Commercial vehicles including jeeps and three wheelers.
43. Automobile ancillaries.
44. Trawlers, dredgers and fishing boats.
45. Leather and leather goods.
46. Optical and laboratory glass and glass wool.
47. Jute textiles.
48. Tea.
49. Coffee.
50. Canned and preserved fish.
51. Sanitary cans.
52. Paints and varnishes and enamels.
53. Man-made fibres.
54. Matches.
55. Tele-communications equipment.
56. Wagons.
57. Industrial refrigeration equipment.
58. Sugar.
59. Cotton textiles.

For PAINTS, VARNISH & DISTEMPERS

— Contact —

METHA PAINT WORKS

C-15, Industrial Estate, Ambattur, Madras-50.

— Administrative Office: —

"Metha House"

15, VENKATACHALA MUDALI STREET, PARK TOWN, MADRAS-3.

INDUSTRIES BENEFIT BY IMPORT LIBERALISATION

STATEMENT SHOWING THE LICENCES REVOKED/SURRENDERED DURING THE MONTHS OF NOVEMBER AND DECEMBER, 1965

Licence No. and date	Name of the party	Articles of manufacture
L/1A(2)/N-11/63 27-9-63 (N. U.) (Mysore)	M/s. Electro Metallurgical Works (P) Ltd., Bombay.	Ferro—chrome.
L/34(2)/N-15/60 21-9-60 (N. U.) (Madras State)	M/s. Salem Magnesite Private Ltd, Bombay.	Basic refractories.
L/23(1)/659/64— Tex (B) 24-1-64 (S. E.) (Madras State)	M/s. Premier Mills (Cbe) Ltd., Pulankinar P.O., Udumalpet.	Cotton yarn.
L/7(5)/17/62—A.E.I. 22-8-62 (N. U.) (Madras State)	Shri K. L. Varadarajan, Coimbatore.	Carburettors for scooters and mopeds.
L/12/52/56 19-11-56 L/35(1)/50 (N. U.) (Andhra Pradesh)	M/s. India Cements Ltd., Madras.	Portland cement.
L/1A(7)/21/62 15-2-62 (N. U.) (Andhra Pradesh) (Surrendered)	M/s. Kamani Brothers Private Ltd., Bombay.	Structurals and transmission towers.
L/23(1)/147/59— Tex (B) 28-12-59 (N. U.) (Madras State)	M/s. Sree Meenakshi Mills Ltd., Madurai.	Cotton textiles—bleaching and finishing of.

SMALL UNITS GET BIGGER ALLOCATION

As many as fifty-nine priority industries stand to benefit by the liberalisation of imports announced by the Government of India on the 21st June, 1966. They would be provided with raw-materials, components and spare parts to enable them to work to their full capacity for six months.

Small scale industries making the same products as the fifty-nine industries would be given the same liberal facilities. They would be granted licences immediately to the extent of thrice the rupee value of import licences given in 1964-65.

Imports of copper and zinc by actual users and by the Minerals and Metals Trading Corporation, free-licensing of spares from the United States of America both by actual users and traders, import of earth-moving, construction and other equipment and liberalisation of essential drugs and books are all envisaged under this new policy.

It is also proposed to import by special arrangement large quantities of fertilisers, pesticides, sulphur and rock phosphate to support the rapid expansion of agricultural production.

Hides, skins and tanning substances needed primarily for export production are being put on Open General Licence valid for shipments upto March 31 next year. The Government

will make a separate announcement about other requirements of export industries which are to be accorded the highest priority.

Following is the text of the official Press Note on the subject:—

The Government of India recently announced its intention to liberalise imports of raw materials, components and spares in order to secure higher levels of production in agriculture and industry. As a first step, the following measures are announced.

Special arrangements are being made to import in large quantities fertilizers and pesticides, sulphur and rock phosphate in order to support the rapid expansion of agricultural production.

EXPORT INDUSTRIES

Certain raw materials needed privately for export production will be allowed to be imported on an Open General Licence which in the first instance will be valid for shipment upto March 31, 1967. These are raw hides and skins, tanning substances such as wattle bark and wattle extracts and cashewnuts. A separate announcement will be made about other requirements of export industries which will also be met as a matter of the highest priority.

APRIL—JUNE 1966

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SEMINAR ON CHALLENGE OF SELF-RELIANCE IN INDUSTRY

SERVICE PROJECT THAT YIELDED OUTSTANDING RESULTS

The Vocational Service Committee of the Rotary Club of Madras, led by its Director, Rtn. R. K. Swamy, decided to devote its activities for the Rotary year July 1965—June 1966, to furthering the agricultural and industrial productivity in the country, and giving a positive meaning and content to the National Productivity Year in 1966.

This idea was further strengthened by the onset of hostilities in the northern borders, which made it clear that India should be self-reliant in her economy, in order to measure up to any emergency that may arise in the future. So the Seminar, jointly sponsored by the Government of Madras, Rotary Clubs in Madras, Productivity Councils, Madras Institute of Management and the Chambers of Commerce, and held at the Children's Theatre between April 8 and 10, 1966, was attended by the leading industrialists of Madras, top Government officials and representatives from the Council of Scientific and Industrial Research and other research institutions in India.

Shri T. N. Lakshminarayanan, Secretary, Industries Department, Government of Madras, was the Seminar Chairman.

The three objectives of the Seminar were:

1. To bring together the Government, leaders in Science and Technology, and leaders in Industry and Business to

consider what approach could be made to self-reliance in industry.

2. To make specific recommendations for broad-basing the industrial structure in Madras State.
3. To create a nucleus or an organisation to carry out recommendations that would arise from the deliberations at the proposed seminar.

Presidential Address by the Hon'ble Shri R. Venkataraman

In his Presidential address, Shri R. Venkataraman, Minister for Industries, Government of Madras, outlined the industrial development of Madras during the Plan period and effectively pointed out the swift rate of growth industrially. The challenge of the hour, he called out, was to maintain this excellent rate of growth.

Mentioning some inhibiting factors standing in the way of smooth progress, he said that the indiscriminate application of the credit squeeze on those engaged in exports, among others, was fraught with dangerous consequences.

Another inhibiting factor was the licensing of new industries while the existing industries were being starved of foreign exchange.

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The need of the hour was to see that we increase the productive capacity of the country so that we are able to get the most out of our existing equipment.

Shri Venkataraman said that industries should export to maintain themselves and not just rest with despatching its surpluses abroad. He stressed that exchange-earning was equally the responsibility of industry.

Deploing the "international zoo of machines" in our factories, the Minister suggested the free licensing of industries, involving no foreign exchange, so that the industrialists may feel free to design indigenous technology and apply it to their industries.

Lastly, Shri Venkataraman said that it pays to make full use of the research institutes. He accepted the offer of Dr. H. Zaheer for a Technical Centre in Madras and promised all assistance to make its running a success.

Keynote addresses were delivered on four broad areas:

Import Substitution

Effective Utilisation of Men, Machines and Material

Exports and

Role of Science and Technology

From this point of view, nine specific groups were formed: namely, Food, Textiles, Inorganic Chemicals, Organic Chemicals, Transport, Mineral, Heavy Mechanical, Light Engineering and Electrical and Electronic Engineering Industries. Their deliberations yielded recommendations under the four main heads.

Inaugural Address by Shri S. G. Barve

Shri S. G. Barve, Member, Planning Commission, gave the inaugural address on April 8. Stating the problem as he saw it in industry, Shri Barve said that our current trade deficit is of the order of Rs. 450 to Rs. 500 crores. A

study of our trade statistics would show that we have cut our imports to the bone and that our exports are inelastic. Since our exchange needs would only grow in future, he saw clearly the need for a concerted effort to increase our foreign exchange potential to the greatest extent possible.

Firstly, we must make every effort to ensure that our current foreign exchange earnings are effectively used.

Secondly, we must gear our industry to create the necessary export potential to pay for our current deficits in foreign trade, and for future growth.

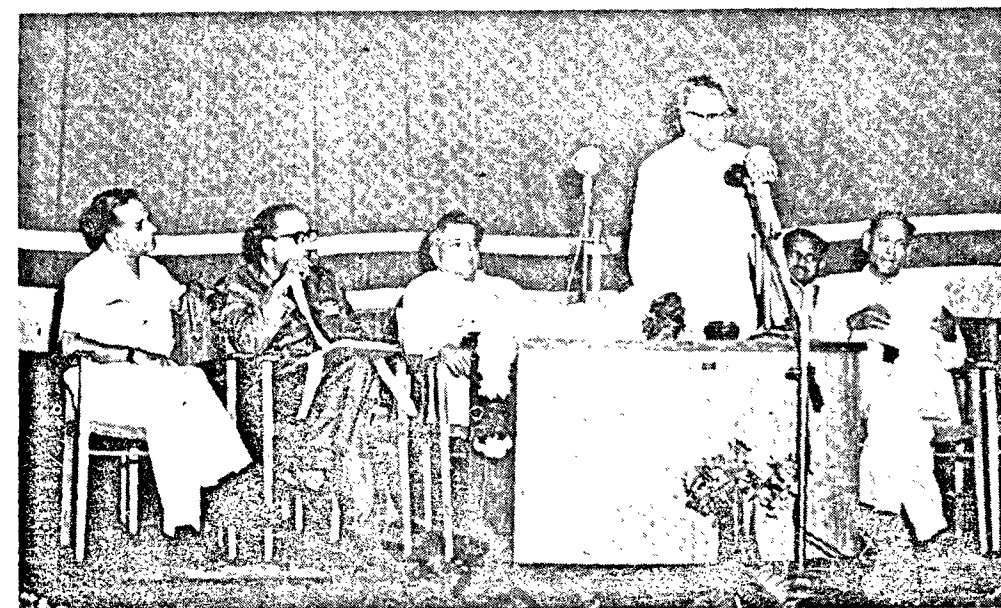
Thirdly, industry must work closely with our scientific and technological institutions to work out our own designs of plant and machinery, and plan our industrial projects ourselves even though we may import specific items to fill the gaps. Above all, we should develop our own standard specifications.

Fourthly, there must be effective utilisation of our existing resources in men, materials, machines and money all along the line—at the administrative level, the institutional level, in private industry and public management, through cost-oriented, efficient production and supply, all directed to maximum production at decreasing costs.

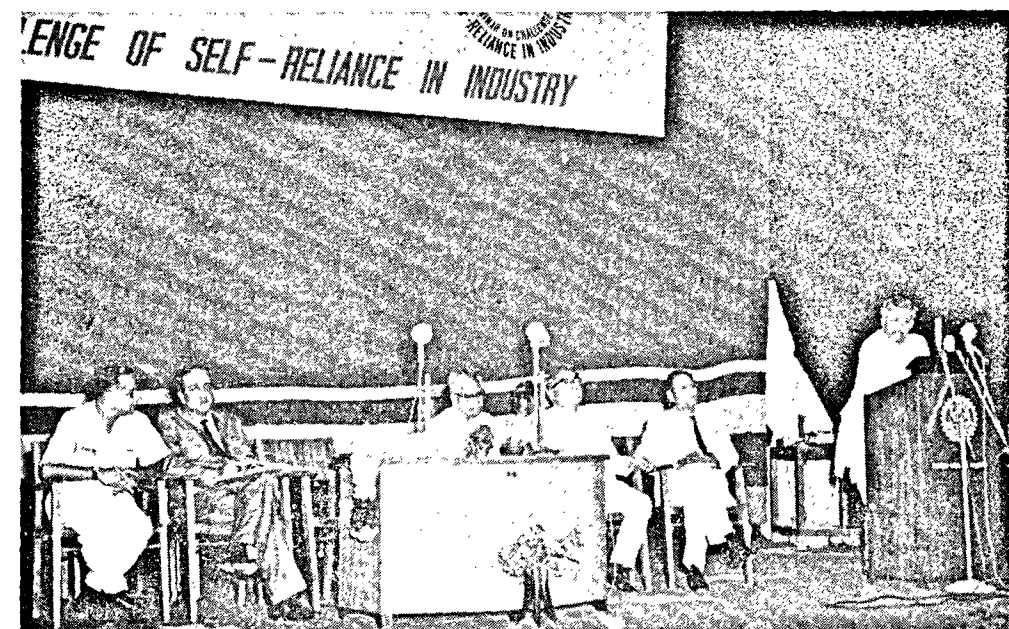
Finally, he warned us against the popular psychology that anything foreign, particularly in the field of machine tools, was superior. This psychology should be cleared through efficient production, and by creating a consciousness among our people of our need for self-reliance, and by highlighting the availability of creative talent in our midst to meet the challenge.

Import Substitution

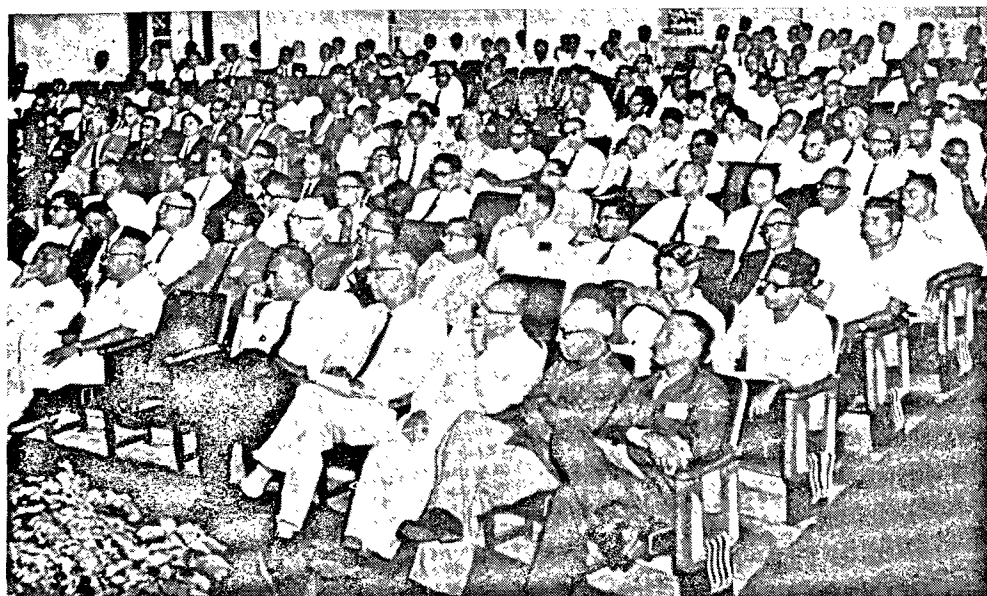
In his keynote address on Import Substitution, Mr. T. Swaminathan, Secretary, Department of Defence Supplies, New Delhi, said



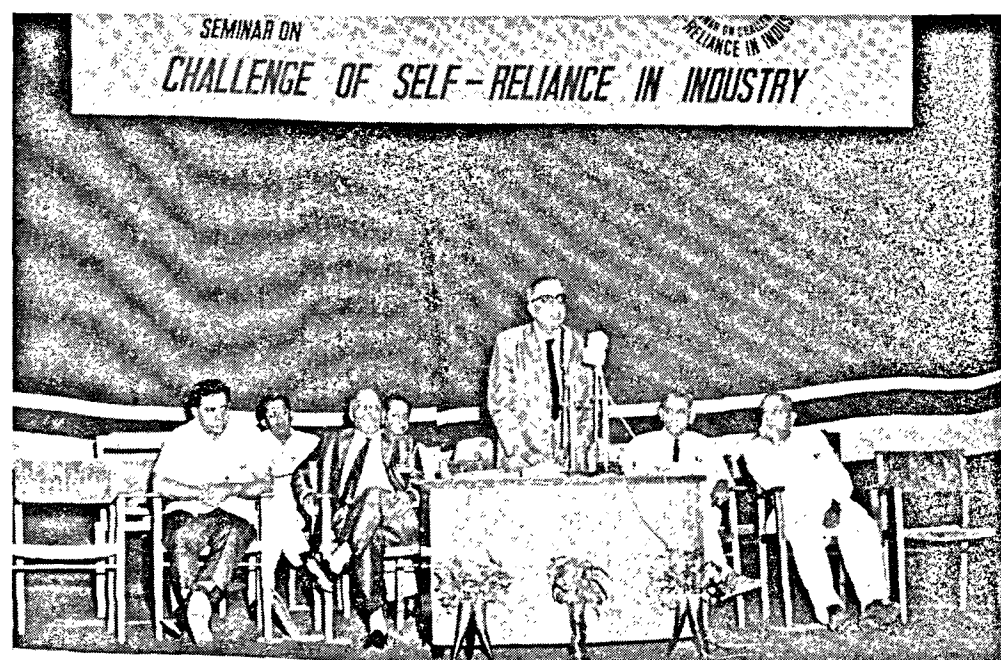
Sri R. VENKATARAMAN, Minister for Industries, delivers his presidential address



Sri S. G. BHARVE, Member, Planning Commission, delivering the inaugural address



A SECTION OF THE AUDIENCE



Sri T. N. LAKSHMINARAYANAN, I.A.S., Conference Chairman, winding up the Seminar

that industrial designers can help greatly by designing and redesigning equipment, thus making possible the utilisation of imports and components already made locally or the manufacture of which is relatively easy.

Mr. Swaminathan said that import substitution does not necessarily mean local substitution. He said that utilisation of existing capacities in new ways opened up immense possibilities.

In conclusion, Mr. Swaminathan said that the achievement of very high export targets was complementary to import substitution. Through greater exports we shall earn larger additional foreign exchange which will help to reduce the gap between our need for and the availability of external resources.

(In the unavoidable absence of Mr. T. Swaminathan, his speech was read out by Dr. Y. Nayudamma).

Recommendations on Import Substitution

The foreign exchange component in the Fourth Plan would be of the order of Rs. 7,000 crores as against our exports which are not expected to exceed Rs. 5,000 crores. A deficit of Rs. 2,000 crores will have to be met.

Several practicable suggestions were made relating to this problem, in the various spheres of our country's industrial activity—examples, reconsidering food zones to prevent mal-distribution; better storage facilities to minimise food losses; using cardboard and polyethylene bonded materials instead of

precious metal; development of man-made fibres; tapioca to replace maize; balancing coal-based energy and oil-based energy; turn-key projects indigenously designed and fabricated for new oil refineries; better methods of maintenance of vehicles, and better roads in the field of transport; studying new uses for scrap produced by the automobile industry; indigenous manufacture of special alloy and tool steel; greater exploration of the electronics industry.

Among developmental projects recommended were the recovery of sulphur, low temperature tar from Neyveli Lignite, indigenous development of textile machinery, and chlorinating rubber required by the paint industry.

A suggestion for setting up of a modern slaughter-house was made. This would earn Rs. 35 crores by effective utilisation of the slaughter-house products.

A Technological Clinic was recommended for implementing the suggestions, consisting of the CSIR, the Madras Government and Industry, and ably supported by a panel of experts.

Effective Utilisation

Speaking on Effective Utilisation of Men, Machinery and Materials, Dr. P.S. Lokanathan, Director-General, National Council of Applied Economic Research, New Delhi, warned that self-reliance does not mean self-sufficiency. Reluctance to buy or sell to other countries would only bring about unnecessary privation and distress, and stagnate our economy.

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He declared that self-reliance means a rethinking in terms of the materials we need, the equipment we import, the foreign technical and scientific personnel we employ, the foreign know-how we obtain, and similar imports. Indigenisation of all these aspects of imports should be our prime consideration. This combined with greater utilisation of our resources in men, machinery and materials would take us much farther towards our cherished ideal of a self-reliant economy.

(Since Dr. P. S. Lokanathan could not be present, his speech was circulated to the delegates separately).

Recommendations on Effective Utilisation

The recommendations in this sector were broadly outlined in the following manner:

1. Before licensing of new undertakings, the capacity of the existing units in the specific lines should be fully utilised.
2. Establishment of productivity cells in each industry for effective utilisation of plant, capacity, materials and man-power.
3. Greater stress should be laid on giving good practical training to technical graduates in their respective fields before they start serving any particular organisation. Teaching foreign languages to technical graduates should be considered.
4. The size of a new production unit in India should be conditioned to the availability of managerial talent available within the country.
5. For effective utilisation, the inputs into the various sectors should be made available within the country. Prime importance should be given to the manufacture of alloy steel, silicon steel, fertilizers, better seeds, pesticides, etc., without which effective utilisation of available productive resources is not possible.
6. The technical know-how available in the country by foreign collaboration and

indigenous research should be collected at a Central institution and be made available to needy industries.

Exports

In his keynote address on Exports, Mr. T. A. S. Balakrishnan, Director of Industries, Government of Madras, pleaded for greater co-ordination between Government and industry. He asked both parties to take a long-term view of exports and plan accordingly. This would necessitate a reappraisal of our traditional and non-traditional exports. It will also open up the possibility of exporting our technical expertise, which was respected and welcomed in under-developed countries.

Mr. Balakrishnan pointed out that talking the language of the export market was an important aspect of export promotion. He called for the formation of the Institute of Foreign Languages and also for the setting up of an Institute of Foreign Studies busying itself with the study of local peculiarities, marketing techniques, and the political stability of the various countries.

Recommendations on Exports

During 1965, export earnings were of the order of Rs. 808 crores while imports came to Rs. 1,383 crores.

Agricultural products would remain, for a long time to come, our main key of exports. It was felt that without increase in production and creation of surpluses in agriculture, the nation could not develop a healthy economy.

Among the various recommendations made to this purpose were:

1. A study team to make a thorough study and analysis of the export markets and distribution patterns.
2. Adequate incentives be given to offset losses incurred by export.
3. Care to be bestowed on packing, testing and quality control.

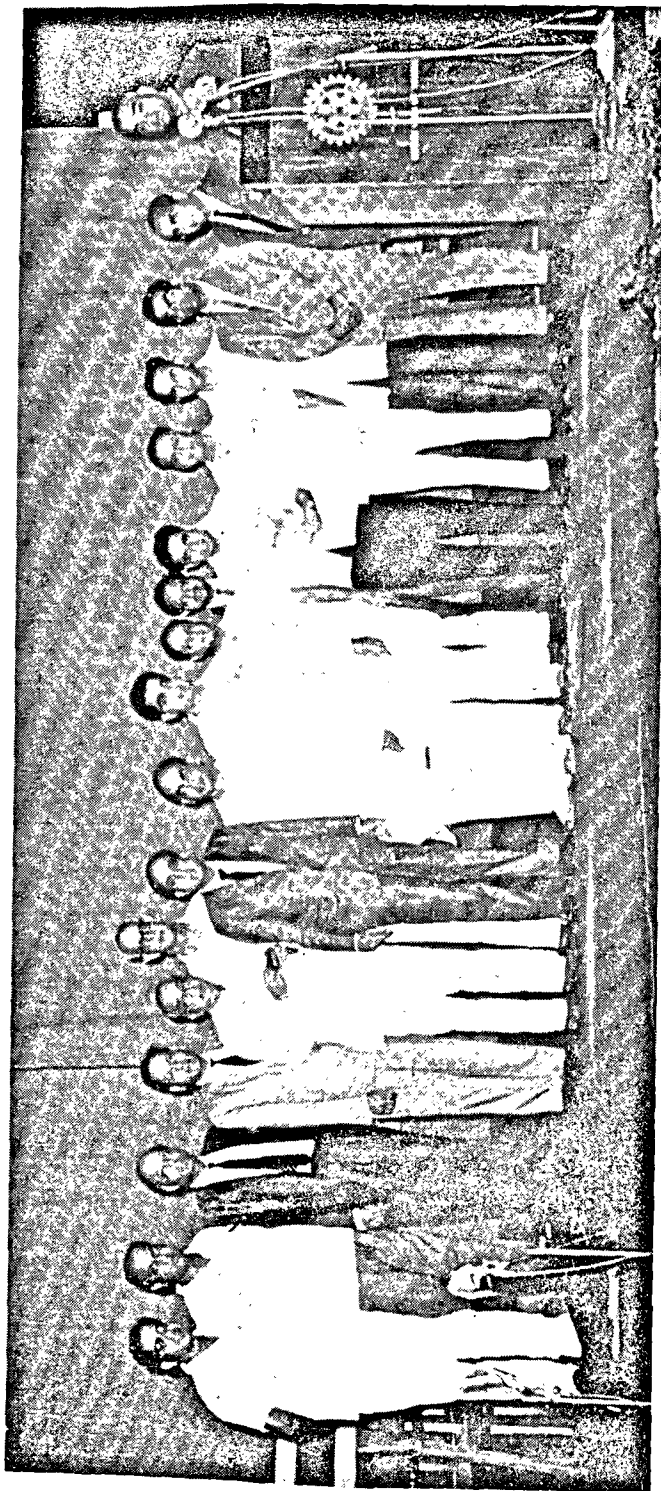


Sri C. A. RAMAKRISHNAN, I. C. S., Chief Secretary to Government, delivers the concluding address



Sri K. ESWARAN, presented his report on Small Scale Industries

SEMINAR ON CHALLENGE OF SELF-RELIANCE IN INDUSTRY
CONFERENCE CHAIRMAN AND DIRECTOR OF INDUSTRIES AND COMMERCE WITH THE SECRETARY AND OTHER
OFFICIALS OF THE SEMINAR



(Left to Right) Sri E. N. Narayanaswamy (Secretary of the Seminar), Sri G. R. Damodaran (P. S. G., Coimbatore), Sri K. Srinivasan (SITRA, Coimbatore), Sri K. V. Srinivasan (Standard Motors), Sri H. Starama Reddy (Former Minister), Sri K. Eswaran (Madras), Sri T. N. Lakshminarayanan, I. A. S., (Conference Chairman), Sri N. Mahalingam, M. L. A. (Pollachi), Dr. H. A. B. Parpia (CSIR), Sri T. A. S. Balakrishnan I.A.S., (Director of Industries and Commerce, Madras), Sri M. K. Raju, Dr. M. S. Iyengar, Sri T. S. Santhanam (T. V. S.), Sri R. V. Ramani (Mettur Chemicals), Sri S. Ramaswamy (Chemicals and Plastics), Sri K. S. Narayanan, (India Cements), Sri R. K. Swamy (Conference Secretary).

Excellent Response

Over 300 delegates drawn from Government, business and industry, and from the Council of Scientific and Industrial Research, attended the Seminar and over 250 were present at the closing session. Their avid interest and constructive attitude throughout the duration of the Seminar has emphasized in no uncertain manner the timeliness of a Seminar of this type at the present critical juncture of our country's development.

Role of Science and Technology

Making his keynote address on "Service Through Science", Dr. Hussain Zaheer, Director-General, Council of Scientific and Industrial Research, New Delhi, pointed out that foreign participation in management had mostly resulted in tying up the industry to foreign practices and against any contact with indigenous research.

Dr. Zaheer said that if we must be self-reliant, we must set up large-scale design and engineering services, and patronize Indian firms of consultants and engineers who should co-operate with the research institutes to design, engineer and productionise processes developed by the research institutes.

Technical personnel in industrial firms and in national laboratories were the kingpins of industrial growth. There must be close contact between the two. Only then, Mr. Zaheer declared, could industries based on foreign technology, plant and equipment, break their umbilical cord and take root for further development.

Concluding his address, Dr. Zaheer pleaded for the formation of Technical Information Centres in the various states. They should have ready information on imports, exports, raw materials, processes, know-how, sources of equipment and engineering services. They could advise on the setting up of new industries, also procedures for obtaining materials, licences and other

sanctions under Government rule. They could also carry out techno-economic surveys for rational, scientific development. He suggested that Madras with its progressive and enlightened approach to industrial development, should take the lead and set up one such centre in association with CSIR.

Recommendations on Science and Technology

The following recommendations emerged from the discussions under this head:

1. Scientists and the Government of Madras should sit together and evolve a Technological Clinic or Research Institute. It will be supported by a panel of technologists devoted to solving the problems.
2. In order to improve the liaison between industry and research, paid consultants should be appointed within the laboratory, and a co-operative research organisation formed.
3. A greater amount of money should be devoted to research both by industry and Government.
4. The idea of laboratories producing goods on semi-commercial basis should be explored.

In his concluding address Mr. C. A. Ramakrishnan, Chief Secretary to the Government of Madras and a Rotarian, touched upon the subject of Governmental delays. This was a problem, he declared, that was engaging the increasing attention of the Government, both State and Central.

Mr. Ramakrishnan was of the opinion that the Seminar was a great eye-opener to all concerned, and hoped that the discussions will lead to concrete benefits to the industry and to our country.

Concluding the Seminar, Mr. T. N. Lakshminarayanan, Chairman, summarised the discussions of the last two days.

Rotarian R. K. Swamy, Secretary to the Seminar, proposed a vote of thanks.

GROUP CHAIRMEN

Group I Food Industry

Dr. H. A. B. Parpia
Director,
Central Food Technological
Research Institute,
Mysore.

Group II Textiles

Sri K. Sreenivasan
Director,
The South India Textile
Research Association,
Coimbatore.

Group III Chemicals—Inorganic

Sri R. V. Ramani
Director,
The Mettur Chemical &
Industrial Corporation Ltd.,
Mettur Dam.

Group IV Chemicals—Organic

Sri S. Ramaswamy
General Manager,
Chemicals & Plastics India Ltd.,
Madras.

Group V Transport Industry

Sri T. S. Santhanam
Managing Director,
Sundaram Motors Private Ltd.,
Madras.

Group VI Mineral Industries

Sri K. S. Narayanan
Director,
India Cements Ltd., Madras.

Group VII Heavy Mechanical Industries

Sri N. Mahalingam, M. L. A.
Partner,
Sakthi Pipes Ltd., Madras.

Group VIII Light Engineering Industries

Sri K. Eswaran
Director,
Easun Engineering Co. Ltd.,
Madras.

Group IX Electrical & Electronic Industries

Sri G. R. Damodaran
Director,
P. S. G. College of Technology,
Coimbatore.

AREAWISE GROUP CHAIRMEN

Area I Import Substitution

Dr. M. S. Iyengar
Director,
Regional Research Laboratory,
Jorhat (Assam).

Area II Effective Utilisation

Sri N. Mahalingam, M. L. A.
Sakthi Pipes Ltd., Madras-2.

Area III Exports

Sri H. Sitarama Reddy
Kothari & Sons,
Madras.

Area IV The Role of Science and Technology

Sri K. Sreenivasan
Director,
South India Textile Research
Association,
Coimbatore.

Tel: 'Srikrishna'

Phone: 2202

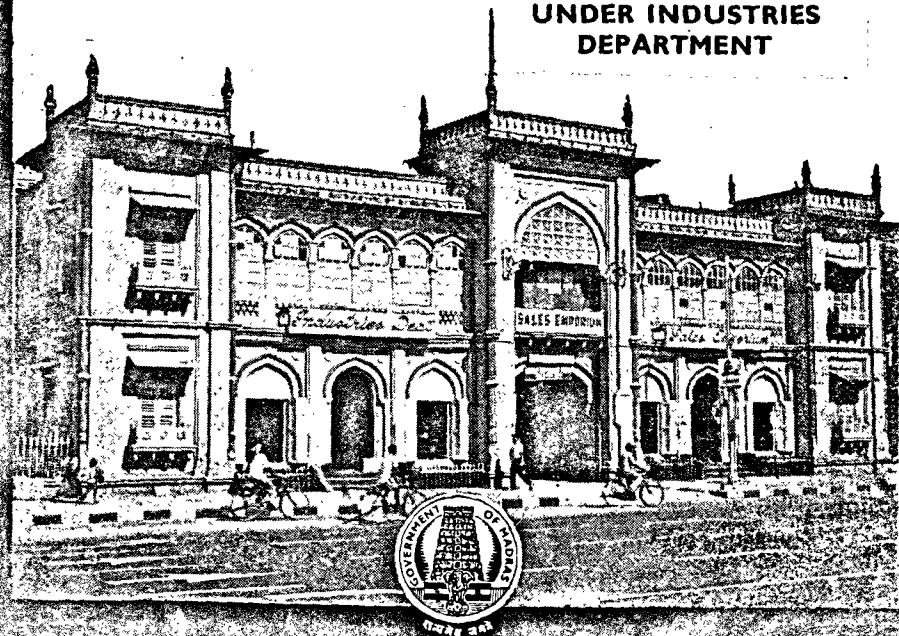
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